Career information literacy and the decision-making behaviours of young people

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Declaration

I hereby declare that the work presented in this thesis has not been submitted for any other degree or professional qualification, and that it is the result of my own independent work.

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Abstract

The research reported in this thesis is concerned with young people's career information literacy and information seeking for the purposes of career decision-making. The findings extend knowledge of the means by which young people in Scotland (aged 13-18) obtain career information relevant to their post-secondary career transitions.

A mixed multi methods, sequential explanatory design was employed in the research. This comprised three phases of empirical data collection: a preliminary phase, a quantitative phase, and a qualitative phase. These phases entailed the use of a questionnaire, interviews, and digital diaries. The empirical work was prefaced by the analysis of secondary data held by Skills Development Scotland in which collaborative dimensions of career information seeking were established.

As the first detailed account of young people's information behaviour and use in the specific context of career decision-making, this doctoral work makes three contributions to research and theory:

1. It articulates career information seeking as a two-stage process. Within this, the practice of socially-mediated information seeking with trusted, accessible contacts – including those who 'prompt' information seeking – plays an important role.
2. It identifies two distinct career decision-making styles: (1) fulfilment-based; (2) pragmatic.
3. It uncovers resilience as an information literacy skill.

There is one further contribution of the doctoral research:

4. It presents a set of five recommendations for the development of policy and practice to support the provision of career services in Scotland.

The everyday life focus of the work, in which young people's processes of information seeking and decision making are considered as sense-making, yields both conceptual value for library and information science research, and practical value for career guidance practice. The key contribution of the thesis is thus insight into two themes that have been overlooked in the extant body of work on information behaviour and career decision-making: career information seeking and career information literacy. Through the deployment of an interdisciplinary conceptual framework and the triangulation of its findings, the work functionally integrates facets of the information seeking process with the relevant tenets of the decision-making process to produce an understanding of young people's sense-making in everyday life.

Publications associated with this research

Milosheva, M., Hall, H., Robertson, P., & Cruickshank, P. (in press). The collaborative use of career information by young people and career advisers: A thematic content analysis of career counselling records. The Australian Journal of Career Development. https://journals.sagepub.com/home/acd

Milosheva, M., Hall, H., Robertson, P., & Cruickshank, P. (2023). Information literacy competencies for career transitions in the digital age. In G. Widen, & J. Teixeira (Eds.), Information Literacy and the Digitalisation of the Workplace (71-101). London: Facet Publishing. https://www.facetpublishing.co.uk/page/detail/information-literacy-and-the-digitalisation-of-the-workplace/?k=9781783305810

Milosheva, M., Hall, H., Robertson, P., & Cruickshank, P. (2022). Capturing career information use in everyday life: introducing the CIEL conceptual framework. Information Research, 27, https://doi.org/10.47989/irisic2217

Milosheva, M., Hall, H., Robertson, P., & Cruickshank, P. (2022). A sequential explanatory methodology for the study of young people's career information literacy and career information behaviours. In iConference 2022 Posters. https://hdl.handle.net/2142/113760

Milosheva, M., Hall, H., Robertson, P., & Cruickshank, P. (2022). New information literacy horizons: Making the case for career information literacy. In Information literacy in a post-truth era: 7th European Conference, ECIL 2021 (online), September 20–23, 2021, revised selected papers (239-252). https://doi.org/10.1007/978-3-030-99885-1_21

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Abbreviations

CASVE	**Communication, Analysis, Synthesis, Valuing, Execution**
CIAG	**Career Information Advice and Guidance**
CIP	**Career Information Processing**
CMS	**Career Management Skills**
DOTS	**Decision learning, Opportunity awareness, Transition learning, and Self-awareness**
LIS	**Library and Information Science**
SCONUL	**Society of College, National and University Libraries**
SDS	**Skills Development Scotland**

Chapter 1   Introduction

1.1   Background and key contributions of the research

The choice of career is one of the most important and impactful decisions that people make in their lives (Gati & Asher, 2005). These decisions have implications for psychological, social, and economic well-being (Bimrose & Brown, 2015, p. 249). In a broader sense, careers are also associated with identity development and meaning-making (Blustein, 2019; Meijers & Lengelle, 2012). For example, work is described by Blustein not just as a mechanism of production in consumer societies, but also as one of the primary sources from which personal meaning, purpose, and fulfilment is derived (Blustein, 2013).

Career decision-making, however, is a complex task that is often hindered by difficulties and indecision, and that may result in suboptimal career choices – or a lack of career choice – if challenges are unaddressed (Kulcsár et al., 2020, pp. 2–3). This is identified as a particularly critical issue in young people's development since early decisions regarding education and careers are consequential to the progression of career pathways and in turn to life satisfaction and well-being outcomes (Parola & Marcionetti, 2022, pp. 831–832). To help address career decision-making difficulties, significant attention is devoted to career guidance, career education, and career intervention at the policy, practice, and research level (e.g. Brown & Lent, 2013).

One specific aspect of career decision-making that has begun to draw research attention is the role of information and digital technology in career development. This concerns the provision of information through digital career services and the development of digital career literacy skills in young people (Hooley, 2017; Staunton, 2018). In respect of this development in the academic literature, initial evidence suggests that young people's career decision-making difficulties are rooted in their access to, and use of, career information. For instance, young people have reported that the career information landscape is fragmented and that they find it difficult to obtain sufficient and relevant information from multiple institutions and databases (Herndon, 2012, p. 66). In addition, young people experience cognitive overload when comparing multiple competing options (Hutchinson & Dickinson, 2014, p. 261; The Careers and Enterprise Company, 2016, pp. 4–10). Thus, two salient elements of the career information landscape merit closer investigation: (1) the quality and accessibility of the information provided to young people; and (2) young people's own abilities in accessing and interpreting the career information. While much has been written on the topic of career information, advice, and guidance in respect of the delivery of high-quality guidance services,

young people's career information seeking and career information literacy has been largely overlooked in the literature (e.g. Agbenyo & Collett, 2014; Bimrose et al., 2006; Fuller et al., 2014; Haynes et al., 2013). These are the specific topics addressed in this research.

The purpose of the research reported in this thesis is to develop new knowledge of information seeking and information literacy for the purposes of young people's career decision-making. In particular, the aims of the study are to (1) explore the current levels of career agency amongst Scottish young people who are preparing for their transition from secondary school into work and higher education, and (2) to provide insight into the meanings, opportunities, challenges, and skills associated with their experiences of career information seeking. An additional objective of this research is to elucidate means for the conceptualisation and facilitation of young people's career information literacy.

In view of the aims of the research, this interdisciplinary doctoral work draws from the domains of library and information studies (LIS) and career studies to establish a theoretical, conceptual, and methodological basis for the research enquiry. The research has been conducted in partnership with the Scottish Government's devolved skills and career development body, Skills Development Scotland (SDS), to ensure that the findings are applicable to the establishment of skills development policy and initiatives in Scotland.

1.2   Key concepts and working definitions

Three key concepts underpin this research: information seeking; information literacy; and career decision-making. These concepts are introduced below, and the working definitions of the two concepts central to this work – career information seeking and career information literacy – are presented.

1.2.1   Information seeking

Information behaviour is an "umbrella concept" in information studies that encompasses a broad range of information-related phenomena, and that characterises the ways that people "deal with information" (Savolainen, 2007, pp. 109–112). One of the key activities inherent in information behaviour is information seeking (Wilson, 1999, pp. 249–251). Information seeking is generally understood as a purposive search that results in the consultation of information sources and information systems, and later in the satisfaction or non-satisfaction of information needs (Wilson, 1999).

The primary focus of this research is the purposive information seeking of young people in the context of their everyday life. Therefore, Savolainen's representation of information seeking as the "active seeking of practically effective information" to solve specific problems informs it (Savolainen, 1995a, p. 272). Flexibility is employed in the interpretation of this definition, taking into account that young people's everyday life information behaviour may not always be associated with information needs or purposive information seeking.

It should be noted that there exists an area of research parallel to information behaviour known as "information practices". The nuances and discerning features of both dimensions are discussed more fully in respect of this study in Section 2.5.1 (p.25).

1.2.2 Information literacy

It is important to note that common understandings of information literacy vary, as this is associated with both pedagogical and socio-cultural bodies of research (as seen, for example, in emergent work on the topic of information literacy practices). The official definition of information literacy provided by the Chartered Institute for Library and Information Professionals (CILIP) is employed in this research:

> "Information literacy is the ability to think critically and make balanced judgements about any information we find and use. It empowers us as citizens to develop informed views and to engage fully with society." (Secker, 2018, p. 156)

This definition has been adopted here because it reflects the latest developments in the field. Earlier definitions, in which information literacy was defined as the ability to locate, evaluate, and use information, are less specific about the potential of information literacy to contribute towards active citizenship and the empowerment of people through information (e.g. ACRL, 2016).

The two main paradigms in the domain of information literacy are discussed further in Section 2.5.3 (p.35).

1.2.3 Career decision-making

'Career decision-making' is a term that describes the processes through which choices regarding training, work, and education are reached (Arulmani et al., 2014, p. 59). While individuals may engage in various exploratory and career development activities, career decision-making refers specifically to the identification of future courses of action and to the processes leading up to the

point of the career decision (Penn & Lent, 2019). These understandings are congruent with the position taken in this research.

It should be noted that there exists some ambiguity in the literature with regards to the treatment of the three related terms of "work", "employability", and "career". These terms are often used interchangeably, despite the existence of differences in their etymological meanings and research applications. For the purposes of this research, "work" refers to the act of working, "employability" is a set of competencies required to secure employment, and "career" is the lifelong pursuit of career goals. While much of the LIS literature on information literacy in the workplace has centred on matters related to work and employability, this research is grounded in careers terminology by virtue of its engagement with the careers literature.

A more detailed analysis of the career decision-making concept and its underlying principles is presented in Section 2.4.2 (p. 17).

1.2.4   Career information seeking and career information literacy

In line with the definitions of information seeking, information literacy, and career decision-making articulated above, hybrid definitions of the two focal concepts of this research have been devised. These working definitions are employed for the purposes of embedding careers terminology into the interdisciplinary research programme, and of aligning the work with the discourse on careers (as opposed to the narratives surrounding work and employability).

These working definitions are:

- "Career information seeking is the search for information that is useful to people's career decision-making".

- "Career information literacy denominates the skills needed for effective career information seeking and career decision-making".

1.3   Contributions of the research

In this doctoral work, the first detailed account of young people's information behaviour and use in the specific context of career decision-making is presented. The research reported in this thesis makes four contributions to research and theory:

1. It articulates career information seeking as a digitally and socially mediated process that progresses through two stages: (1) exploratory search; (2) directed search. These are captured in a hybrid conceptual framework that surfaces the roles of information in the career decision-making process.

2. It identifies two distinct career decision-making styles: (1) fulfilment-based; (2) pragmatic.

3. It uncovers resilience as an information literacy skill.

There is one further contribution of the doctoral research:

4. It presents a set of five recommendations for the development of policy and practice to support the provision of career services in Scotland.

1.4   Thesis structure

This thesis comprises seven chapters (including the present chapter). It is structured as follows:

- **Chapter 2, Literature review:** This chapter presents an overview of the research published to date on the broad themes of career information seeking and career information literacy across LIS and Carees Studies.

- **Chapter 3, Theoretical framework:** In this chapter, the theory that underpins the work is introduced, and a dedicated conceptual framework is presented.

- **Chapter 4, Methodology:** This chapter contains a description of the mixed multi methods approach utilised in this doctoral investigation, including reference to the restrictions imposed on data collection activity due to the COVID-19 lockdowns in 2020-2022.

- **Chapter 5, Findings:** In this chapter, the findings of the preliminary, quantitative, and qualitative phases of the research are presented.

- **Chapter 6, Discussion:** In this chapter, the significance and implications of the findings are discussed with reference to the extant literature and the conceptual framework presented in Chapters 2 and 3.

- **Chapter 7, Conclusion**: This chapter contains a summary of the main findings and contributions of this work. Recommendations for future research are also made.

Chapter 2   Literature review

2.1   Introduction to Chapter 2

This chapter contains an evaluation of the extant literature relevant to a detailed exploration of young people's career information seeking and career information literacy. The literature review presents an analysis of publications across three main themes, approached in the context of young people's development. The first of these themes is the role of information in career development, articulated in relation to career decision-making and career development learning. The second theme is everyday life information seeking, with reference to life transitions and career decision-making. The third theme pertains to young people's career information literacy skills.

The purpose of this chapter is to present an analysis of each of these three themes through an evaluation of the extant literature. The chapter begins by setting the context for the study, with an examination of the current policy and research landscapes of career development with a focus on Scotland. Then follows a critical synthesis of the information behaviour literature as relevant to the themes of this thesis. This section begins with an overview of the domain in general, and with an analysis of the literature exploring young people's career information behaviour, in particular. A discussion of the central research themes in the information literacy field is presented next, and the literature concerned with young people's career information literacy is reviewed.

It is concluded that there is a paucity of research relevant to young people's information seeking for the purposes of career decision-making, both in career studies and in LIS. Indeed, while the research on university students' information behaviour and information literacy skills is abundant, publications on these themes have been concentrated in the domain of education. This means that young people's career information seeking and career information literacy – as explored through an everyday life lens – have been overlooked. There is a need for further enquiry in these areas.

2.2   Approach to the literature search and review for the study

The main aim of the research presented in this thesis is to explore the extent to which prior research has been concerned with the notions of 'career information seeking' and 'career information literacy'. In addition, it aims to establish points for interdisciplinary enquiry across library and information science (LIS) and career studies. To meet these objectives, it was necessary to locate relevant outputs relating to information behaviour, information literacy, and career development.

The literature search methodology thus focussed both on the treatment of *career* in LIS and on the treatment of *information* in career studies.

To capture all relevant outputs, a targeted literature search was performed through Edinburgh Napier University's library search facilities (using the *ExLibris Primo library discovery service,* which provides single sign-on access to all of the major academic databases and collections). A wide variety of databases such as *Web of Science, ProQuest, Taylor & Francis, ABI/INFORM*, and *Emerald* were consulted as part of a preliminary search. This was intended to lead to the selection of the most relevant databases for the literature review. The preliminary search resulted in the identification of three primary databases to be accessed as part of the main literature search: *LISA* and *LISTA* (for LIS outputs) and the *ProQuest Social Science* database (for career studies outputs). A number of search techniques, such as the use of Boolean search operators and truncation of the searched terms, were utilised.

To define the scope of the literature review, two inclusion criteria and one exclusion criterion were specified at the onset of the literature search. The inclusion criteria for results were: peer-reviewed and policy literature; literature that combines at least two keywords from the three keyword list categories (Table 1).

Keyword type	Keywords used
Career keywords	*career, occupation, profession, employment, employability, work, workplace, job, decision making, development learning, exploration, knowledge, skills*
Information keywords	*information, information need, information use, information seeking, information literacy, information behaviour, information practice. library, education, everyday life, community*
Young people keywords	*young people, young adults, youth, students, pupils, children, adolescents, teenagers*

Table 1. Keyword list

The exclusion criterion was that only results from the year 2000 onwards would be reviewed, with the exception of frequently cited highly influential seminal works. The decision to focus on literature published in the last two decades was determined on the basis that new research paradigms (both conceptual and methodological) gained prominence after the year 2000. Of note, the literatures on everyday life information seeking and information practices, which are highly relevant to the work reported in this thesis, are most abundant after this chosen cut-off date. As an illustration, much of Savolainen's work on everyday life information seeking was published after 1995 (e.g. Savolainen, 1995; Savolainen, 2007; Savolainen, 2009; Savolainen, 2022), and Lloyd established the domain of information literacy practices through a series of contributions published since the year 2005 (e.g.

Lloyd, 2005; Lloyd, 2019; Lloyd et al., 2013). In contrast, as Savolainen notes, research conducted in the LIS domain before the turn of the millennium suffered from a lack of theoretical growth and diversity (Savolainen, 2021, p. 773).

The literature search yielded a large number of results. These were filtered for relevance, and thematically classified on the basis of their origin (LIS or career studies) and main themes (information behaviour; information literacy; career decision-making). As a result, 367 outputs are cited in this literature review. Within this body of work, core texts pertaining to the two main foci of the doctoral work – 'career information seeking' and 'career information literacy' – were identified. It was found that these concepts have received limited coverage in the literature. To date, only three works on career information seeking have been published (Hultgren, 2009; Julien, 1999; Stonebraker et al., 2019). Similarly, reference to career information literacy has been made in only seven publications (Arur & Sharma, 2022; Hamlett, 2021; Hollister, 2005; Lin-Stephens et al., 2018; Lin-Stephens et al, 2019; Valentine & Kosloski, 2021; Zalaquett & Osborn, 2007). These studies represent the core texts for this doctoral work and inform the conceptual and methodological approaches taken in it.

Although the research reported in this thesis is more closely aligned with the information behaviour research tradition than the corpus of research pertaining to information practices, an awareness of the principles expressed in both approaches needs to be maintained. This awareness guides the interpretation of the research reported in the literature review, which includes contributions from both of these dimensions.

2.3   Published policy on career development in Scotland

To set the context for the academic study of young people's career information behaviour and career information literacy in Scotland, it is important to consider the current labour market trends and the specificities of the Scottish policy landscape. This background information aids in the interpretation of the research publications that deal with career development, and underpins the policy recommendations stemming from the study. Below follows an overview of the changing careers landscape, and a summary of the policy principles developed in response to the emergent challenges within it.

In the current labour market, young people – and those who support their career decision-making – are faced with several challenges. The careers landscape is complex and fragmented, shaped by the globalisation and post-industrialisation of work (e.g. Butler-Rees & Robinson, 2020). Multiple factors hinder the career development of young people. They need to prepare to undergo frequent career

transitions instead of choosing one 'career for life', as has been the case in the past (Bezanson et al., 2016, p.219). There has been a widespread shift from stable, life-long career pathways to more uncertain and precarious career pathways (e.g. Meijers et al., 2013, p.157; Rodrigues & Guest, 2010, pp.1157-1160), characterised by an increased incidence of part-time work, temporary work, casual working arrangements, and self-employment (Lyons et al., 2015, pp.8-9; Todolí-Signes, 2017, pp.193-199). Career precarity has been further exacerbated by the COVID-19 pandemic, which, it is claimed, has reduced the availability of career opportunities (e.g. Akkermans et al., 2020; Maree, 2021). It is unsurprising, then, that careers advisers report an increased demand for their services, driven by the quick pace of change on the labour market, and the high number of career transitions undertaken by their clients (e.g. Magruk & Rollnik-Sadowska, 2021, p.1264).

In light of these important developments, policymakers in Scotland have endeavoured to establish comprehensive employment and lifelong learning policies. The strategic aims and expected outcomes of their policy work are presented in *Scotland's careers strategy: Moving forward* (Scottish Government, 2020). These relate to the development of high-quality, personalised, and appropriate support to citizens regardless of their age, setting or circumstances (Scottish Government, 2020, pp. 1–8). The establishment of this careers policy has been driven by two main priorities, deemed to be instrumental to achieving sustainable economic growth: (1) to provide more, and better, employment opportunities, and (2) to support young people in their learning and career development (Scottish Government, 2020, p. 1). Of primary importance in the Scottish skills and education system is the placement of young people into 'positive destinations' such as higher education, further education, employment, training, personal skills development, and voluntary work (Scottish Government, 2023a). Summary statistics of school leaver attainment and destinations figures are recorded every year to monitor school leaver destinations three months after the end of the school year (Scottish Government, 2023c, pp. 12–13).[1] In recent years, Scotland's youth employment strategy, published in *Developing the young workforce: Scotland's youth employment strategy* aimed to reduce youth unemployment levels by 40% by 2021 (Scottish Government, 2021). This target was met in 2017 (Scottish Government, 2023a, p. 3).

Scotland's career policy has two key features: an emphasis on human capital development, and a recognition of the important role of digital technology in the provision of universal career services. With reference to the first of these key features, in 2010 the authors of *Skills for Scotland:*

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[1] The use of the term 'positive destinations' in Scotland differs from that employed in other countries, where the term 'not in education, employment, or training (NEET)' is more commonly encountered (Lőrinc et al., 2020).

Accelerating the recovery and increasing sustainable economic growth stated that young people should be supported to develop skills in their time in education and beyond, and that skills development should respond to local skills demands (Scottish Government, 2010). Scotland's 'Curriculum for Excellence' is also focussed on skill-building, with specific attention given to early education (Education Scotland, 2021, p. 14). The Scottish Government's skills agenda is currently enacted by Scotland's national careers and skills agency, Skills Development Scotland (SDS)[2]. SDS has placed a particular emphasis on the development of lifelong career management skills in young people (Education Scotland, 2015, p. 5; Skills Development Scotland, 2012, p. 7). This is evidenced by the competencies outlined in its Career Management Skills (CMS) framework (Table 2). The competencies of self, strengths, horizons, and networks delineate the knowledge, skills, and behaviours needed for career development. They are first acquired at school, prior to the commencement of employment, and later reinforced whilst individuals are working or undergoing career transitions (e.g. Skills Development Scotland, 2012).

In addition to skills development, the Scottish Government also considers citizens' ability to access, use, and evaluate information as crucial to their economic prosperity and well-being. Policy in this area is in line with the views of information professionals on this topic, who draw attention to the opportunities and risks of living in the Information Society (e.g. Webster, 2014). This policy also echoes the acknowledgement of the important role of information within careers and lifelong learning policies in the EU[3]. The development of digital skills in citizens has been a particularly important objective in Scotland, where the Scottish Information Literacy Project ran from 2004 to 2010. Those involved in its implementation worked with the Scottish Government to develop the basis for cross-sectoral information literacy activity in Scotland (Crawford & Irving, 2008, pp. 29–31). The Scottish Information Literacy Project's work continues in its lobbying for information literacy as a fundamental right of Scottish citizens and the improvement of citizens' lifelong learning and personal outcomes within work, education, and leisure settings (Crawford, 2016, pp. 47–50). The Scottish

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[2] Skills Development Scotland (SDS) provides careers services to pupils, parents, and teachers in schools, and to members of the public in careers centres. SDS was created in 2008, as the result of a merger of several organisations which delivered skills-related services across Scotland. Its predecessor, Careers Scotland, established in 1999, had been described as "probably the largest publicly-funded organisational structure in the world that is dedicated to career planning support" (Watts, 2005, p. 5).

[3] At the turn of the millennium, UNESCO, OECD, and the EU issued policy recommendations in respect of the preparation of the workforce for frequent career changes and lifelong learning. In these policy documents, the key role of information access and effective knowledge management in career development was emphasised (UNESCO/ILO, 2003; OECD, 2000; EU, 2000).

Government also published its digital strategy in 2021, and outlined its commitment to thriving in a

digital world and safeguarding the safety and liberties of citizens online (Scottish Government, 2021).

Career Management Skills framework for Scotland	
Self: Knowing who you are and how you fit into society	**Strengths: Knowing what you are good at, and how to make the most of those strengths**
- I develop and maintain a positive self-image. - I maintain a balance that is right for me in my life, learning and work roles. - I adapt my behaviour appropriately to fit a variety of contexts. - I am aware of how I change and grow throughout life. - I make positive career decisions.	- I am aware of my skills, strengths and achievements. - I build on my strengths and achievements. - I am confident, resilient and able to learn when things do not go well or as expected. - I draw on my experiences and on formal and informal learning opportunities to inform and support my career choices.
Horizons: Knowing where you could go in life and how to get there	**Networks: Knowing how to build relationships, ask for help and make the most of your social and professional network**
- I understand that there is a wide variety of learning and work opportunities that I can explore and are open to me. - I know how to find and evaluate information and support to help my career development. - I am confident in responding to and managing change within my life and work roles. - I am creative and enterprising in the way I approach my career development. - I identify how my life, my work, my community and my society interact.	- I interact confidently and effectively with others to build relationships. - I use information and relationships to secure, create and maintain work. - I develop and maintain a range of relationships that are important for my career journey.

Table 2. The Career Management Skills (CMS) framework for Scotland. Matrix taken from Learning Resource 3: Introduction to Career Management Skills (Education Scotland, 2015, p.5).

Dedicated Career Information Advice and Guidance (CIAG) policies have also been developed to

support young people's career decision-making through the provision of relevant career information

and guidance. The development of these policies has been based on the observation that the mere

provision of work placements is insufficient to encourage the uptake of such opportunities. Rather,

young people should be given information, advice, and guidance about the work and education

opportunities available to them to encourage them to take advantage of these (Scottish

Government, 2010). The Scottish Government's CIAG policy, entitled *Career Information, Advice and

Guidance in Scotland: A framework for service redesign and improvement* (Scottish Government,

2011), forms an important part of Scotland's broader careers strategy, published in 2020 (Scottish

Government, 2020). This CIAG policy demonstrates the Scottish Government's commitment to positioning career information as a central feature of the Scottish skills system (Table 3). It posits that CIAG in Scotland needs to be independent, high quality, impartial, informed, supportive of equal opportunities, and confidential (Scottish Government, 2011, p. 6; Scottish Government, 2020, p. 5).

National Delivery Model underpinning the entitlement to CIAG in Scotland	
All individuals in Scotland, regardless of age or circumstance, will be entitled to free, impartial careers information and personalised advice and guidance	• Every individual in Scotland is entitled to have access to impartial career, information, advice and guidance. • Services are delivered at the point at which they are needed. • The service model includes both digital and face-to-face services.
Those with the greatest need can expect more intensive support	• Resources are targeted at those who need more intensive support, particularly at early stage of people's career journeys. • A targeted level of support is provided to people working in industries at high risk of automation.
All customers will be treated with dignity and respect	• People from all walks of life are treated with dignity and respect. • Everyone has access to up-to-date and trustworthy CIAG services to help them realise their potential.
Career information, advice and guidance will be recognisable and coherent	• Individuals are encouraged to engage with CIAG services in a way that suits their age, stage and context. • Blended CIAG, whereby individuals can make use of resources through multiple formats, offer individuals access to face-to-face, digital and telephone. Support.
Career management skills will be a consistent focus of provision	• A common language is used across services to support individuals. • This language includes the competencies embedded in the Career Management Skills (CMS) framework.
Continuous professional development will be consistently available to practitioners.	• Continuous professional development (CPD) is shared across the careers system. • Collaboration and peer learning is enabled by learning from good practices at all levels in education, training, employability and local community services.
Services will utilise available data around the labour market and skills gaps	• High-quality Labour Market Information (LMI) informs people about the labour market and helps them understand current opportunities. • People are also supported to understand the opportunities forecast to grow in the future and the skills, knowledge and abilities needed to adapt and thrive. • LMI also assists industries and sectors in addressing skills gaps and shortages.

Table 3. The key principles of Career Information Advice and Guidance (CIAG) policy in Scotland (adapted from Scottish Government, 2020, p.21).

From the principles expressed in Scottish careers policy, it is clear that there have been marked efforts to formulate strategic agendas that contribute towards economic prosperity and the advancement of school leavers' outcomes. The goal is that young people be equipped for success in the changing careers landscape through the provision of skills development and CIAG services. The development and delivery of these services is informed by the tenets of the *CMS Framework for Scotland* and the universal entitlement to CIAG in Scotland. However, the main focus of the CIAG and CMS delivery models is on the provision of information to service users by career practitioners and educators, and not on the service users' experiences. These models give little insight into young people's career information seeking nor their preferred means of receiving CIAG support. Therefore, although the importance of information to career development has been acknowledged at the policy level, it is necessary to consult the academic literature for further evidence of young people's engagement with career information. This is reviewed next in this chapter.

2.4 Findings from the review of the career development literature

Having established the policy landscape as related to career development in Scotland, here the research landscape of career studies is introduced. The field of career studies centres on the conceptualisation of careers and the factors that shape them. Its coverage also extends to the ideation and implementation of career development interventions and services, such as the CIAG and CMS services described above (Dey & Cruzvergara, 2014, pp. 5–13; Lee, Felps, & Baruch, 2014, pp. 339–341). Career studies is, therefore, a domain that is highly relevant to the principal subject of interest of this thesis: *career information*.

2.4.1 Career studies research

Career studies is a transdisciplinary field, drawn from a variety of disciplines, such as sociology, education, psychology, organisational studies, and management, with additional contributions from anthropology, economics, political science, and history (as noted by McCash, 2008). Its coverage is concentrated in the two geographical enclaves of North America and Europe, each of which operates in relative isolation from the another (i.e. researchers from each region have their own conferences, journals, editorial boards, contributors, and co-citation networks, influenced by local policy). North American careers research is more problem- and technique-driven, whereas the European scholarship on careers is more descriptive and theory-driven (Baum, 2011, p. 1663). Two of the distinctive features of the research published in Europe are attention to multilingualism and multiculturalism, and social, political, economic, cultural, theoretical, and methodological diversity

(Khapova et al., 2009, pp. 709–710). The literature review conducted for the purposes of this study centres on European publications to a greater extent than North American publications. This is because the research reported in this thesis pertains specifically to career information seeking and career information literacy in the Scottish context.

Published work on career theory, policy, research, and practice is available in a number of journals, such as the *Journal of Career Development,* the *Journal of Career Assessment,* the *Journal of the National Institute for Career Education and Counselling,* the *Journal of Vocational Behaviour,* the *International Journal for Educational and Vocational Guidance,* and *Career Development International.* Journals dedicated to the research conducted in specific regions also exist. Some examples are the *British Journal of Guidance & Counselling,* the *African Journal of Career Development,* the *Asia Pacific Career Development Journal,* the *Australian Journal of Career Development,* the *Canadian Journal of Career Development,* and the *Indian Journal of Career and Livelihood Planning.* There are numerous academic and practitioner-oriented regional conferences in North America and Europe; in the UK, practitioner-oriented conferences are particularly popular. Professional bodies such as the Career Development Institute (CDI), The International Centre for Guidance Studies (iCeGS), the Association of Graduate Careers Advisory Services (AGCAS) and the National Institute for Career Education and Counselling (NICEC) organise well-attended conferences such as the *National Research Conference* and the *National Career Leaders Conference*.

Broadly, career studies publications are clustered around two main areas of interest: (1) the management of employees in organisations, and (2) the career development of individuals. The former covers issues relating to employment legislation, remuneration, assessment, training, leadership, recruitment, knowledge management, and well-being at work (Bliese et al., 2017, p. 394). The career development literature, in contrast, is more concerned with career counselling, career decision-making, and the link between personality and career success (Mehlhouse et al., 2023, p. 539). Careers are conceptualised in sociological or cognitive terms. For example, vocational psychologists view careers as the process of choosing occupations, while sociologists see careers as fundamental to the way societies reproduce themselves (Gunz & Peiperl, 2007, p. xiii). The central topics in the career development literature are elaborated in more detail in landmark books such as the *Handbook of Career Theory* (Arthur et al., 1989), the *Handbook of Career studies* (Thomas & Inkson, 2007) and *The Routledge Companion to Career Studies* (Gunz et al., 2019). These works present analyses of the development of the careers field, tracing its first origins in the 1960s to its legitimisation in the 1970s, and its growth and diversification thereafter.

The two most influential works in the history of the domain articulated in these books are Holland's matching approach and Super's developmental theory of career decision-making (Holland, 1959; Super, 1953). For decades, these theories informed careers advisers' applied practice and scholars' thinking about careers. The two theories align with the cognitive tradition in career development, centred on individual career decision-making. Super's (1953) theory focussed specifically on the process of career decision-making. According to his conceptualisation, individuals progress through five stages of growth, exploration, establishment, maintenance, and disengagement. Holland's theory provides a different perspective on career choice. This centres on the personality types of career decision-makers. In his seminal work, Holland (1959) posited that there are six vocational personality types: Realistic (R) Investigative (I) Artistic (A) Social (S) Enterprising (E) Conventional (C). Knowledge of these personality types is deemed useful in supporting people who require assistance with their career decision-making.

Although these theories have inspired much of the research in career studies for quite some time, their applicability to modern careers thinking is limited. Super himself acknowledged this in an interview, where he reflected that in the 1960s, career decision-making entailed matching people to one career for life (Freeman, 1993, p. 255). This process is now more complicated, owing to the decline of stable careers based within a single sector or undertaken with a single employer (e.g. Bezanson et al., 2016; Culpin et al., 2015). Due to this, modern career theory differs from Super's and Holland's theory. It is more integrative and dynamic (Sullivan & Baruch, 2009, pp. 1542–1543). Hall first wrote about this issue in his book *The Career is dead — long live the career,* with reference to the 'protean career' (Hall, 1996, pp. 21–23). Hall used the metaphor of the Greek god Proteus to illustrate how the protean careerist should be able to rapidly learn new knowledge and skills to adapt to the changing work environment. The main message conveyed by his contribution was the need for decision-makers to become more adept at learning, and more responsive to shifting demands, both in their jobs and on the labour market. This message was echoed in later work, which emphasises the importance of meaning-making, self-management, and career development learning (Blustein, 2019; Blustein et al., 2016; De Vos et al., 2019, p. 129).

In keeping with these narratives, there has been a general shift in opinion amongst scholars on the matter of matching individuals to careers. Although this approach still bears relevance to career decision-making (see, for example, the recent work on matching individuals to careers using artificial intelligence by Lee et al., 2018), it is thought that career success is dependent on leveraging career information for career development learning. Indeed, it is believed that individuals' knowledge of their career aptitudes and the world of work informs career decision-making (Bengtsson, 2014, p. 370; McIlveen et al., 2011, pp. 149–165), and career development learning contributes to the

development of this knowledge (Cinamon & Yeshayahu, 2021; Ginevra et al., 2018; Hirschi, 2011; Pesch et al., 2018; Rohlfing et al., 2012). Hence career development learning is proposed as instrumental to career decision-making and career success (Bridgstock, 2009, pp. 34–38; Moote & Archer, 2018, pp. 188–189). In addition, researchers have argued that career information is an essential part of career counselling and career education, and that the provision of information is critical for career learning (Bakke et al., 2018, pp. 48–50; Osborn et al., 2014, pp. 3–4; Prvulovic, 2020, p. 53).

Although these assertions have not been verified empirically, a basic conceptual linkage is apparent between them: information underpins career development learning, and career development learning underpins career decision-making in turn (Figure 1). From the outset, one of the objectives of this doctoral work was to explore this conceptual linkage, and to provide greater insight into the components that possibly underpin both learning and decision-making: information. For that reason, the next section of this chapter incorporates discussions of the career decision-making literature, accompanied by evaluations of the literature on career development learning. It concludes with an analysis of the role of information in the career studies literature.

Figure 1. The conceptual linkage of information, learning, and decision-making in career studies

Factors that facilitate career success in the 21st century
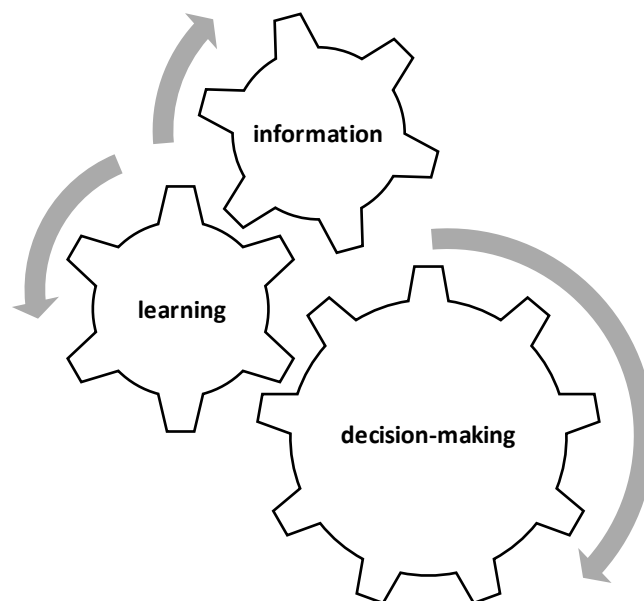
2.4.2 Career decision-making and career development learning

Career decision-making is a focal feature of career studies research, identified as one of the primary subjects of study in the domain (as shown by the bibliometric studies of Lee et al, 2014; Martincin & Stead, 2015). The concept of career decision-making holds great significance in the literature, as many other research topics in career studies are defined in relation to it. Career development, for example, is the process of evolving one's occupational status, in part through decision-making (Matthews, 2017, p. 321). Career guidance entails the provision of career interventions and career counselling services, and this is also concerned with supporting people's decision-making (Bimrose & Barnes, 2007, pp. v–vi). In this sense, much of the literature that explores individuals' career development makes some reference to their decision-making.

Career decision-making has been conceived in the career studies literature as a process that leads to the choice of a career (e.g. Arulmani et al., 2014). This process typically involves the consideration of several career alternatives that results in one being chosen (Kulcsár et al., 2020, p. 2). In accordance with this, it is generally thought that the most accurate description of career decision-making is that of a *process of choosing* that occurs over long periods of time (e.g. Walsh & Osipow, 2014). Many of the theoretical and empirical models of career decision-making depict this process as occurring along a growth trajectory that begins with stages of orientation and broad exploration, and that later continues with in-depth exploration and making a decision (Germeijs & Verschueren, 2006, p. 189). This is true of both the seminal theoretical conceptualisations detailed earlier (Section 2.4.1, p.13), and newer contributions. For example, one of the newer contributions in this area – Gati and Asher's Pre-screening, In-depth exploration, and Choice (PIC) model – suggests that decision-making begins with a broad exploration of the self and the environment, followed by an in-depth exploration of several options (Gati & Asher, 2005). This sequential process of choosing leads to a career choice.

There have been some key differences in the approaches taken by career theorists and researchers, however, in the ways in which the career decision-making process is conceptualised, and its success measured. One of these key differences is evident in the two main theoretical treatments of career decision-making: (1) the prescriptive approach; and (2) the descriptive approach. In much of the early literature on career decision-making, there has been an emphasis on the development of prescriptive models that outline that people should make career decisions on the basis of rational assessments of their suitability to certain careers (Krieshok, 1998, pp. 210–220). The most prominent example of prescriptive models is Parsons' Trait and factor theory. This suggested that individuals' skills, values, and personality can be easily matched to jobs' skill requirements (Parsons,

1909). A significant limitation of Parsons' (1909) theory, however, is that people do not always seek to maximise their personal gain, or act as methodical, systematic, and objective agents (Phillips, 1997, pp. 276–278). Therefore, prescriptive models do not encompass the full range of decision-making attitudes exhibited by individuals. As a result, descriptive conceptualisations have also emerged. These aim to depict the actual process of decision-making, as influenced by intuition, emotion, subjectivity, and serendipity (Hartung & Blustein, 2002, p. 43). For instance, in his Elimination by aspects theory, Tversky posited that decision-makers utilise a hierarchy of decision criteria through which career alternatives are filtered, starting with the most important criteria and then proceeding through to those deemed less important (Tversky, 1972). This represents a descriptive illustration of decision-making. Other theorists have also presented descriptive conceptualisations of this process. Those whose work is inspired by sociology, for instance, are interested in the complex intersection of decision-makers' internal characteristics and influences stemming from their external environments. Hodkinson's Careership theory (Hodkinson, 2009), which is based on Bourdieu's Habitus theory (Bourdieu, 1983), is one example of this school of thought. According to Hodkinson & Sparkes (1997), individuals' decision-making is enabled and bounded by their horizon for action. Their decision-making is based on their interactions with people in the field, and located within unpredictable patterns of turning points and routines. Decision-making is also pragmatically rational because individuals' perceptions of what is relevant, available, possible, or suitable derive from their existing knowledge and experience of the surrounding world (Hodkinson, 2009, p. 8).

Another key difference in the approaches taken by career theorists and researchers is evident in the research paradigms they adopt, and in the research methods they favour. There are two main paradigms in the literature: (1) one that portrays decision-making as a rational and structured process; and (2) one that suggests that decision-making is a complex and multifaceted endeavour shaped by many different factors.

The former of these paradigms was dominant in the field for much of the 20th century, and commonly aligned with the objectivist, psychological research tradition, in which experimental designs were typically utilised. Such designs focus on the difficulties experienced by decision-makers, and their deviation from rational decision-making (Li et al., 2017; Slaten & Baskin, 2014; Vertsberger & Gati, 2016; Xu, 2021). In the literature on rational decision-making, it is suggested that assessments should be administered to determine the extent of career decision-making difficulties (e.g. Di Fabio & Saklofske, 2021; Dik et al., 2008; Gati et al., 2012), and that interventions should be

deployed to enhance the career decision-making capability of young people (e.g. Hechtlinger & Gati, 2019; Hummel et al., 2018). Specific attention is also drawn to the cognitive resources of individuals and their personal differences. Some of the variables incorporated in analyses are self-efficacy, i.e. the belief in one's own capacity to attain desired outcomes (Betz & Hackett, 2006, pp. 3–5; Lent et al., 2017, p. 111), the role of specific personality traits in predicting engagement with the career-decision making process (Penn & Lent, 2019, pp. 458–460), and the impact of coping styles and strategies on career outcomes (Janeiro et al., 2014, p. 116; Perez & Gati, 2017, pp. 289–290).

The latter of these paradigms is a constructivist paradigm focussed on the subjective construction of career identities and the lived experiences and relationships of decision-makers (Kang et al., 2017, pp. 72–75). Scholars who subscribe to this school of thought propose that career-decision making is challenging not only due to personal factors, but also due to external factors, and the negotiation of the former factors with the latter (Khapova & Arthur, 2011, pp. 6–8; Perez & Gati, 2017, p. 286). The constructivist research paradigm has emerged as a result of the dissatisfaction with the limitations of the objectivist paradigm, which has been criticised for its narrow focus on empiricism, and its de-contextualisation and abstraction of complex phenomena into experimental variables, as noted by Watson and McMahon (2007). Elsewhere, scholars have also argued that a narrow focus on rationality and personality differences can be reductionistic and deterministic (e.g. Teo, 2018, pp. 103–111). Thus much of the modern thinking on career decision-making emphasises the importance of context and social interactions and calls for the consideration of the external factors that influence career decision-making. Some of the external factors cited in the literature are family expectations and needs, life circumstances, and spiritual and religious factors (Duffy & Dik, 2009, pp. 32–35).

Amongst the most frequently cited external influences in career decision-making are social contacts (Akosah-Twumasi et al., 2018, pp. 6–10). Indeed, it has been observed that parents, peers, friends, and role models are key sources of support and influence, and 'knowing who' is an essential part of building one's career capital (Dickmann et al., 2018, p. 9). However, different studies have revealed different (and sometimes conflicting) degrees of the influence of social actors on career decisions. While Chin et al (2019) found that families are more influential than career services, and career services are more influential than impressions gathered through work experience, Zondag and Brink (2017) identified that college professors and courses are rated as the most useful sources of information, followed by career fairs, jobs, internships, and family members. Elsewhere, it has been observed that the influence of social actors changes according to the developmental stage of the

decision-maker. For example, Griffin et al (2011) observed that students in upper grades rated their school counsellors and college resources as most useful, while students in lower grades felt that parents, guardians, and relatives were most useful. This finding explains the discrepancies across the extant studies. It suggests that there may be a shift towards the use of more formal resources, and a reorientation towards the formation of more realistic representations of the world of work, as young people approach crucial transition points. This fits with the contention that the development of realistic notions and expectations of careers is considered crucial to career success by many career counsellors (Metz et al., 2009, p. 157).

Some studies also show that members of young people's social networks provide important career messages to them (e.g. Aley & Levine, 2020). For example, Levine and Aley (2022) and Powers and Myers (2017) found that young people receive encouraging and discouraging career messages from others, and Jahn and Myers (2014) identified two types of careers messages: personal fulfilment and career detail. While personal fulfilment messages prompt the prioritisation of one's well-being, career detail messages provide information about the day-to-day realities of working in different occupations (Jahn & Myers, 2014, p. 94). These findings suggest that social contacts help young people develop an understanding of careers, and in this way inform their career development learning.

The published research on career development learning, in turn, has shown that young people develop an understanding of themselves and the world of work as they progress along their decision-making trajectories (Sampson et al., 2000, p. 156). Conceptualisations of career development learning differ, however, in their identification with pedagogical and constructivist notions. Pedagogical notions of the concept relate to formal career instruction and education, typically in classroom-based settings, or embedded in the curriculum (Draaisma et al., 2018; Kuijpers & Meijers, 2012). Here, career development learning is viewed as addressing an aspect of employability, or as a set of related meta-skills (Watts, 2006, p. 3). Constructivist work in this area is concerned, in contrast, with experiential and relational modes of learning (Clark et al., 2010, p. 52). In some constructivist approaches, map metaphors have been used to characterise the navigation of the world of work as a journey or as a path through various topographies and terrains (Thomas & Inkson, 2007, pp. 127–150). The employment of experiential and relational approaches – influenced by postmodernist sociological ideas relating to the construction of selves within social discourses – has challenged the view that careers are individualised and decontextualised pursuits, and suggests that careers are shaped by socio-cultural discourses and interactions (Stead & Bakker, 2010, pp. 47–48). Such processes involve intentional and unintentional learning, embedded both in formal education, and in everyday life (Watson & McMahon, 2007, pp. 29–45).

From the analysis of the career decision-making literature presented here, it can be seen that career decision-making is a complex process that involves the evaluation of different career alternatives and the negotiation of internal and external factors, in part, through learning from the career environment and the social actors within it. Although some authors have proposed that information is an essential part of career development (Bridgstock, 2009, pp. 34–38; Moote & Archer, 2018, pp. 188–189), no explicit evidence to this effect has been presented in the career decision-making and career development learning literature. In the next section, the treatment of information in the broader career studies literature is explored, to elucidate mentions of the explicit role of information in career development.

2.4.3   The role of information in the career development literature

Even though it is widely believed that young people receive formal information (i.e. print-based, web-based or obtained from educational institutions) and informal information (acquired from other people) about careers (Greenbank, 2014; Jenkins & Jeske, 2017), information seeking has received little attention in the career development literature (Pesch et al., 2018, pp. 583–584). To date, the literature that includes mention of information has been concerned mainly with the provision of information to young people, and with the design of information systems and career services. These patterns are seen both in research published decades ago, driven by the then newfound widespread availability of internet-based career systems (Brown, 2003; Maguire & Killeen, 2003; Sampson Jr et al., 2003), and more recent research, which reflects a renewed interest in the technological applications of career information (Attwell & Hughes, 2019, pp. 86–87). The development of more efficient and more personalised information delivery systems and the integration of the latest web-based technologies into career guidance practice are the main topics that modern research coalesces around (e.g. Bimrose et al., 2015; Borbély-Pecze, 2020). One of the career information systems that has garnered the most research attention thus far is O*NET – an occupational information network used to match individuals to occupations worldwide (Hanna et al., 2019, pp. 581–582). O*NET is a comprehensive directory of over 1,000 occupations (originally derived from data on jobs in the US) that has been widely used in career guidance practice ever since its conception in the early 2000s (Peterson et al., 2001, pp. 458–459).

The narrow focus on information delivery systems and services such as O*NET, however, has overlooked the importance of studying users' information-seeking. It also embodies a flawed assumption: that young people are passive recipients of information (Alexander, 2023, p. 6;

Milosheva et al, 2021, p. 12)[4]. This assumption has not been systematically studied nor empirically verified, but instead taken as fact in the extant literature. In addition, in the few published studies on the topic of young people's career information seeking, it has been suggested that young people suffer from a lack of career information. These studies posit that a lack of information is experienced in relation to the self, the world of work, the process of decision-making, and the means by which additional information can be acquired (Brown & Rector, 2008; Kelly & Pulver, 2003; Kulcsar et al., 2019). It has been further noted that a lack of information leads to undesirable outcomes for decision-makers, such as career indecision and negative career thoughts (e.g. Kelly & Shin, 2009; Masdonati et al., 2014). In some work, positive outcomes from information provision have been reported (Lugulu & Kipkoech, 2011). Elsewhere, mixed results have been reported, leading to the conclusion that there is a need for more (or better) careers guidance (Moote & Archer, 2018, p. 187).

A circular logic is apparent in these narratives. If it assumed that young people lack career information, then more information should be provided to them. Furthermore, if the results from information provision do not appear particularly promising, then this is because insufficient information has been provided. In none of these discussions of a lack of information is the notion of information overload mentioned, even though this can be reasonably expected to be observed in an information-rich career environment (e.g. Inskip, 2015; MacDonald et al., 2011; Shachaf et al., 2016). The existence of information overload in the career setting has merely been alluded to in a few disparate threads of the literature. These have shown that career information landscapes consist of multiple disconnected information sources and systems that can cause cognitive overload and decision paralysis (Herndon, 2012, pp. 65–67; Hutchinson & Dickinson, 2014, pp. 258–259; The Careers and Enterprise Company, 2016, pp. 4–10). Outwith the career studies domain, however, researchers believe that decision-makers may be more likely to be faced with information overload than a lack of information (Roetzel, 2019, pp. 481–483). This is an important phenomenon to examine in more depth, as increases in information load are thought (in the business domain, for example) to lead to a proportionate decrease in decision-making performance (Figure 2).

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[4] Young people's assumed passivity in career guidance is revealed, for example, in expectations that their career pathways should follow specific transition patterns (Evans, 2007, p.4). Career services are also commonly developed not through co-design with users, but through passive reports of satisfaction with these services (Hooley & Rice, 2019, p. 472)

Figure 2. The relationship between information load and decision-making performance (Roetzel, 2019, p. 483)

D* = Decision-making performance
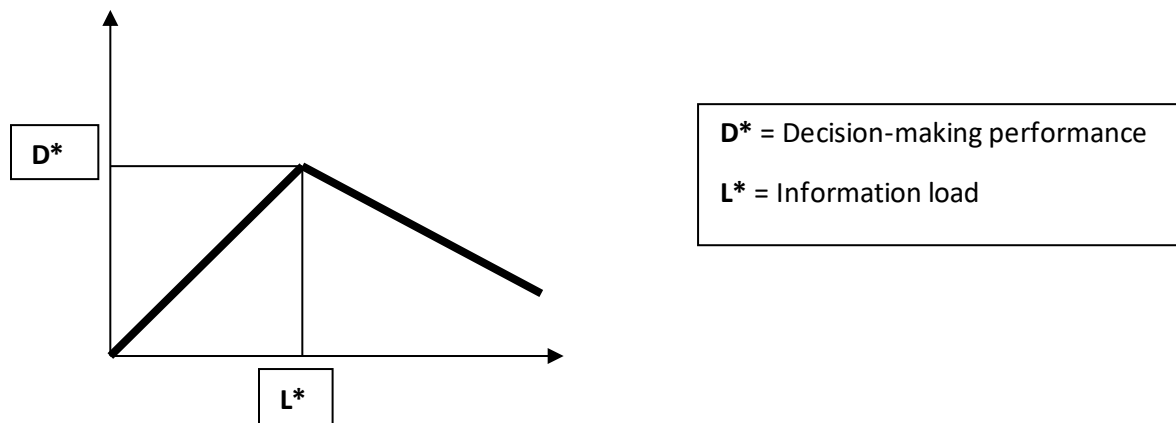
L* = Information load

In addition to the findings on information overload, almost thirty years ago, Gati et al (1996) proposed that there may be internal conflicts (within the individual) or external conflicts (with significant others) that may underpin individuals' perceptions of a lack of information (Gati et al., 1996, p. 512). Gati et al's (1996) work was significant on two accounts: it nested two clusters – lack of career information and inconsistent information – within a taxonomy of career decision-making difficulties that has been psychometrically verified by Levin et al (2020). It was also the first to differentiate, albeit indirectly, an *actual* lack of information and a *perceived* lack of information. The latter of its contributions is significant because it sets the stage for an analysis of the internal and external factors that may combine to produce perceptions of a lack of information (when in fact there might be sufficient information or a presence of information overload). To date, however, no detailed analyses of these factors exist. Further enquiry is therefore needed into the notions of lack of information and information overload in a career context. Investigations of these notions could consider some of the widely known issues with the access and use of information, such as digital exclusion, digital inequalities, and issues with the quality of the information disseminated to young people, both online and in person (Acquah et al., 2016, p. 197; Houghton et al., 2021, pp. 47–51; Moote & Archer, 2018, p. 185; Puckett & Hargittai, 2012, p. 86).

Another subject in the career studies literature that pertains specifically to information is information skills. As early as 2003, the ability to handle career information was listed as one of the ten career and employability skills standards in the US (Zinser, 2003). Specifically, career planning was defined in relation to information skills in the following terms:

"understand and organise career information and labour market trends from a variety of sources; explain the advantages and disadvantages of working for self and working for others, and being an employee of a large or of a small organization; analyse information and preferences resulting from work-based opportunities" (Zinser, 2003, p. 405)

More recently, and in a similar way, careers researchers have proposed that specialised digital skills are needed to make use of digital career services and to interpret and filter online career information (Bimrose et al., 2015; Longridge et al., 2013; Longridge & Hooley, 2012; Staunton, 2022). Hooley, for example, calls attention to the need to incorporate information literacy and digital literacy skills in articulations of young people's career management skills (Hooley, 2012, pp. 6–7), and Sultana suggests that career management skills are "competences which provide structured ways for individuals and groups to gather, analyse, synthesise and organise self, educational and occupational information" (Sultana, 2012, p. 229).

Nevertheless, the positioning of information and digital literacy skills within career management skills matrices – as suggested by Hooley (2012) – has not yet been realised. As a result, little is known about the specific skills required for the management of one's career in the digital age. The role of information is also currently underexplored in the career studies literature, more generally, since a significant proportion of the publications that reference career information do so from a standpoint that centres on information provision. Due to the history of career studies, which is rooted in matching individuals to careers, the coverage of the domain extends primarily to decision-making, and to the development of assessments, systems, and guidance services to alleviate decision-making difficulties. Only occasionally is it noted that information is an important component of career development learning and career decision-making. The role of information in career development therefore represents a gap in knowledge that can be addressed through interdisciplinary enquiry with the information-centric domain of LIS. Thus this chapter continues with a synthesis of the evidence relating to career information seeking and career information literacy in LIS.

2.5   Findings from the review of the library and information science literature

This section presents the findings from the review of the LIS literature relevant to young people's career information seeking and information literacy in everyday life. It contains a synthesis of the main themes and contributions to the domains of information behaviour and information literacy, accompanied by analyses of research publications centred on young people's employability and careers.

2.5.1   Information behaviour research

Research in the domain of information behaviour is primarily occupied with the development of knowledge of the means by which people seek and use information (Bawden & Robinson, 2015, pp. 1–13). In their important review of the field, Case, Given and Willson explain that many of the initial investigations of information behaviour focused on structured and linear information seeking, formal information sources (such as textbooks or encyclopaedias), and high-stakes and high-status occupations that have a significant impact in society (Given et al., 2023, pp. 10–13). Most of this early research therefore pertained to the examination of venues or artefacts of information seeking, and was conducted in the form of user studies, in which the use of information sources and services in institutional settings was the focus of study (e.g. Dervin, 1976).

This led to the emergence of a vast literature concerned with the use of books in libraries and with facets of information seeking in other institutions, such as schools and workplaces (e.g. Julien et al; 2011; Choo et al., 1998; Wilson, 1981). Indeed, the research traditions of the field, which date back to the early 20th century, are rooted in librarianship (Bates, 2010, pp. 2075–2078). Hence much of information behaviour and practices research is published in library-focussed academic journals such as *Library and Information Science Research, Journal of Librarianship and Information Science, Library Quarterly* and *Library Review.* There are also dedicated professional bodies for library and information professionals such as the American Library Association (ALA) in the US and the Chartered Institute of Library and Information Professionals (CILIP) in the UK.

Although there are several theories and models of information behaviour that attempt to describe people's patterns of information behaviour, there is no single general theory or model that is widely regarded as encompassing all the different types of information behaviour exhibited in different settings. Wilson, a leading scholar in LIS, has proposed that information behaviour consists of a sequence of activities undertaken by users, who are driven by the objective of satisfying their information needs (Wilson, 1999, pp. 250–251). According to Wilson (1999), users access information sources, and if they are successful in finding relevant information, the information seeking process is complete. If users fail to find relevant information, or if their information need is only partially satisfied by the retrieved information, they then repeat the information seeking process. This process perspective proposed by Wilson (1999) is reflected in many of the other models of information behaviour. For instance, Kuhlthau's six-stage model of the human information search process depicts information behaviour as a process comprising six stages: (1) task initiation, (2) topic selection, (3) exploration, (4) focus formulation, (5) information collection, and (6) search closure (Kuhlthau et al., 2008). Ellis (1989) similarly uses a process analogy but rejects notions of

linearity and stage-specific behaviours, instead using features such as 'starting', 'browsing', 'differentiating', 'monitoring', 'extracting', 'verifying', and 'ending' to model the non-linear process.

While most models of information behaviour centre specifically on the process of information seeking, Wilson sees the domain of information behaviour as encompassing "the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking, and information use" (Wilson, 2000, p. 49). Hence information needs and information use are also important components of information behaviour. In their recent evaluation of the domain, Case and colleagues defined each of the main concepts relevant to information behaviour as follows: an information need is a recognition of the inadequacy of one's knowledge in relation to a goal; information seeking is a conscious effort to obtain information in response to the information need; information use is what one does with the information after acquiring it (Given et al, 2023, pp. 6–7). However, as theorists have primarily focussed on the activities undertaken by people when they approach a system (such as a library search facility or a database) for information (Godbold, 2006, p. 2), the notions of 'information needs' and 'information use' are not well-understood (Savolainen, 2017; Urquhart, 2011; Vakkari, 2008). Borlund and Pharo recently proposed that there is still a "need for information on information needs" and called for more research on this topic to be conducted, and for a more precise definition to be established (Borlund & Pharo, 2019, p. 1).

In this doctoral work, information needs are considered alongside information seeking and Taylor's (1968) seminal framing of information needs is employed. According to Taylor (1968), four levels of information needs exist: visceral – the actual, unexpressed need for information; conscious – the recognised need (at a cognitive level); formalised – the formal (e.g. communicable) statement of the need; compromised – the statement of the need that has been transformed into an information query (e.g. a keyword presented to an information system). This established classification has been verified by others, who have also observed that information needs progress from more subconscious articulations to more formal and articulable statements of information needs (Brashers & Hogan, 2013; Ruthven, 2019; Savolainen, 2017).

For decades, there have been efforts to diversify the scholarship on information behaviours, most notably led by Savolainen, McKenzie, and Lloyd. Savolainen (1995) and McKenzie (2003) questioned the ability of information seeking models to describe everyday life information behaviour, pointing to their tendency to focus on purposive information seeking, and to neglect less-directed information practices. Lloyd later developed a body of work dedicated to information practices. She defined information practices as:

"an array of information related activities and skills, constituted, justified and organized through the arrangements of a social site, and mediated socially and materially with the aim of producing shared understanding and mutual agreement about ways of knowing, and recognizing how performance is enacted, enabled and constrained in collective situated action". (Lloyd, 2011, p. 285)

Characteristic of information practices research is the attention to information 'beings' and 'doings' through a socio-cultural lens, and the use of qualitative methods (Lloyd, 2021, p. 2; Willson, 2019, pp. 9–14). In recognition of these developments and the growing scope of information behaviour research, some scholars now use the combined term 'information behaviour and practices research' to refer to the breadth of approaches that conceptualise human activity in LIS (Huvila et al, 2022, p. 1043). Still, some fundamental philosophical, theoretical, and methodological differences between information behaviour and information practices research exist (Table 4).

An overview of the key principles of information behaviour and information practices research		
Feature	Principle in mainstream information behaviour research	Principle in information practices research
Focus	In the foreground are the internal states of the user and the activities undertaken by them (Robson & Robinson, 2013).	Non-linear, collective, and embodied engagements with information; greater attention given to context (Caidi et al., 2010; González-Teruel & Pérez-Pulido, 2020; Knorr Cetina et al, 2005).
Origins	Emerged from cognitive perspectives of information behaviour, which are individualised and grounded in the use of information systems (Tomic, 2010).	Draws upon social constructionism which holds that societal meanings are jointly constructed through social activity and mutual agreement (Savolainen, 2007).
Theory	Widespread use of sequential process models such as Wilson's model of information behaviour (1999).	Use of grounded theory and Schatzki's practice theory; employment of 'people-in-practice' perspectives (Lloyd, 2012; Schatzki, 2010).
Methods	Quantitative, qualitative, and mixed methods (Pickard, 2013).	Almost exclusively qualitative and ethnographic (Lloyd, 2021).

Table 4. Comparison of the distinctive features of information behaviour and information practices research

The field of enquiry into information behaviour is geographically dispersed across North America, Europe, and East Asia, as shown in evaluative reviews of the domain (Given et al, 2023; Deng & Xia, 2020; Greifeneder, 2014; He & Wang, 2006; Jabeen et al., 2015). Much of this has concentrated on the study of two dominant topics: information seeking in the educational setting and information seeking in the workplace setting (Given et al, 2023, pp. 277–345). As the number of publications on these topics is particularly abundant, an overview of the common themes present in them is provided below (Table 5).

In research on the broad theme of information seeking in education, the subjects of study are typically university students looking for information for the purpose of completing academic assignments (Bauer, 2018, pp. 2–8). In research of workplace information behaviour, the populations of interest are typically employees working in different roles (e.g. Bello et al., 2016; Kwon, 2017; Normore, 2011; Russell-Rose et al., 2018; Wellings & Casselden, 2019). The scope of work-related information research has expanded over the years to include investigations of different information uses and processes at the micro level of analysis (of information users) and the macro level of analysis (of information sources, systems, and environments) (as noted by Widén, Steinerová & Voisey, 2014).

Main domains of study in the information behaviour literature			
Setting	User group	Common themes	Examples
Education (including academic libraries)	Students	Preferences for specific information sources	Groce, 2008; Lopatovska & Sessions, 2016; S. Thomas et al., 2017; Vaaler et al., 2021
		Individual differences in information seeking	Halder et al., 2010; Heinström, 2003; Stokes et al., 2021
		Means of information seeking in the library	Meyers et al., 2007; Nicholas et al., 2009; Sloan & McPhee, 2013
	Teachers and faculty members (in higher education)	The information seeking behaviours of faculty members	Engel et al., 2011; Kadli & Kumbar, 2011; Rupp-Serrano & Robbins, 2013
		Improving the delivery of services to students and faculty	Borgman et al., 2005; Brown & Simpson, 2012; Chow & Croxton, 2012
Workplace	People working in different occupations	The information seeking of health practitioners	Davies, 2007; Ebenezer, 2015
		The information seeking of professional services employees (e.g. lawyers, marketing professionals)	Makri et al., 2008; Solomon & Bronstein, 2022
		The information seeking of academic researchers	Ebrahimzadeh et al., 2020; Sheeja, 2010

Table 5. Main domains of study in the information behaviour literature

In neither the educational literature, nor the workplace information behaviour literature, however, has the importance of young people's everyday life information seeking been fully elucidated. Despite the abundance of research that samples the information seeking of populations of young people in educational settings (e.g. Li, 2021; Shenton & Hay-Gibson, 2011; Williamson et al., 2012; Willoughby & Myrick, 2016), there is a gap in understandings of their information seeking for everyday life purposes. This is an important gap in knowledge in the literature to take heed of, for several reasons as elaborated below.

Firstly, everyday life information seeking is conceptually broader than that traditionally explored in LIS. It includes serendipitous information behaviours such as information encountering, information avoidance or information sharing, where a person is not necessarily looking for information (Agarwal, 2015; Narayan et al., 2011; Wilson, 2010). The 'everyday' encompasses different kinds of activities, for different kinds of purposes, performed across different settings at different points in time. In essence, it extends to the totality of people's lived experiences across all aspects of life (Ocepek, 2018, pp. 399–401). As a lens on information behaviour, it also brings to light overlooked topics, such as leisure (e.g. Bronstein & Lidor, 2020) and the experiences of isolated or marginalised communities (e.g. Mansour, 2018; Pohjanen & Kortelainen, 2016).

Secondly, the everyday life information seeking literature is concerned to a greater extent than the traditional information behaviour literature with the notion of transition (Hicks, 2019, p. 1190). This topic is of central importance to the empirical study presented in this thesis, as career decision-making is directly related to major life transitions. For example, many different types of career transitions have been identified in the career studies literature, e.g. from school to work; from one job to another; from one industry or sector to another; from full-time work to retirement; from full-time to part time work; from employment to self-employment (Chudzikowski, 2012; Haynie & Shepherd, 2011; Murphy et al., 2010; Pettican & Prior, 2011).

In LIS, Ruthven and Hicks have begun to develop a research agenda for the exploration of the informational components of transitions. Ruthven proposes that transitions are challenging because these may force people into new information grounds, which they are unfamiliar with, and they may therefore lack basic understandings of the information available or actors to approach for information (Ruthven, 2022, p. 1). In his theory of Information sculpting, Ruthven suggests that transitions are associated with three key processes: understanding a life event, negotiating change in response to the event, and resolving how we will live in the future (Ruthven, 2022, p. 172). These processes help individuals move from the 'life before' the transition, which is associated with established roles, information behaviours, and literacies, to the 'life after' the transition, which constitutes reimagined engagements with the information landscape. Hicks has also considered the role of information practices during transitions. She sees this role as a form of risk mitigation shaped by three phases: an unfolding phase, an intensification phase, and a stable phase (Hicks, 2019, pp. 7–15). As in Ruthven's work, Hicks frames the transition process as a temporary disruption to established routines that leads to the development of new routines. Apart from Ruthven and Hicks, however, few researchers in LIS have directly addressed the matter of transitions. Here health-related transitions are covered in greater detail than self-initiated transitions, such as those associated with personal growth and career development (McCaughan & McKenna, 2007; Yeoman,

2010). A significant gap also remains in the literature on everyday life information seeking in respect of work-related transitions. Exceptions include Willson (2019) and Willson and Given (2020). This particular gap is the one that this study addresses.

The third important gap in knowledge in the literature to consider is that youth is associated with unique developmental milestones and patterns of information use (Murphy et al., 2010, p. 175). It has been shown that during their transition from childhood to adulthood, young people craft their identity and gain knowledge of the world around them, whilst simultaneously expanding their cognitive abilities and capacity to engage with information (Byrnes & Bernacki, 2013; Spink & Heinstrom, 2011). Their experiences with information are far removed from the myth of the 'digital native', which holds that those born after the turn of the millennium are particularly skilled in using digital technologies. Instead, their engagements with information and technology are varied, and in many ways, comparable with those of the generations that precede them (Selwyn, 2009, pp. 10–13). This suggests that young people may face challenges in navigating their information environment, and may require help and input from others in doing so (Shenton, 2010, pp. 277–278). This is thought to be particularly true of life transitions and career decision-making, both of which are everyday life pursuits (e.g. Savolainen, 2005; Thomas et al., 2020; Willson, 2019).

An additional consideration in respect of young people's everyday life information seeking is their potential reliance on others for meeting their information needs. It is known that parents often seek information on behalf of their children (especially health-related information and information to facilitate post-secondary transitions) and that young people's dependence on adults can be considerable, since they are still learning how to conduct research (Crowley & High, 2018; El Sherif et al, 2022; Zhang & Liu, 2023; Shenton & Hay-Gibson, 2011). However, little is known about these facets of young people's information seeking. The few extant studies on this topic do not detail the ways in which young people collaborate with others to meet their information needs, nor which of their social contacts are most likely to be approached for assistance.

Some researchers have highlighted that information seeking is not always a solitary activity, and that individuals occasionally engage in collaborative information seeking and information seeking "by proxy" (e.g. Cruickshank & Hall, 2020, p. 5; McKenzie, 2003, p. 23; Shah, 2014, p.215). In these modes of information behaviour, intermediaries look for information on behalf of people, and groups of people look for information together (e.g. Hertzum, 2008; McKenzie, 2003). In an early review of the extant literature on collaborative information seeking, Hertzum (2008) found that the research base has incorporated six levels of analysis: the purposes for which information seeking is done; the types of information sought; the roles assigned to people (e.g. information gatekeeper; information

sharer); the activities performed by people in their roles; the subject of the research enquiry (e.g. search sessions; projects; conversations); the interconnectedness of different actors' activities (e.g. loose coupling in people who work together rarely or tight coupling in people who interact frequently). In a more recent review, Sapa (2022) found that collaborative information seeking is usually depicted as a process consisting of three stages: formulating information needs through shared representations; seeking and sharing information; putting the information to use. There exists, therefore, some insight that can be applied to the study of young people's collaborative and proxy information seeking.

For the three reasons outlined above, namely, (1) the conceptual breadth of the everyday life information seeking literature, (2) its concern with the notion of transitions, and (3) the specificity of youth information seeking, there is an opportunity to conduct further research into young people's information seeking in everyday life with specific reference to career transitions. For this reason, the literature on young people's everyday life information seeking and work-related transitions is reviewed in the section that follows. The few studies that deal explicitly with career information seeking are also discussed.

2.5.2   Career information behaviour research

In general, the nature of young people's everyday life information seeking and information needs is poorly understood (Karim & Widén, 2023, p. 2). In prior studies of young people's information behaviours in everyday life settings, it has been shown that young people's information seeking is reliant on combining online and social sources of information (Karim & Widén, 2023; Meyers et al., 2009). While in earlier studies it had been reported that traditional print media plays a role in the their information seeking (Williamson et al., 2012), in newer studies, the prominence of digital spaces and social media has been demonstrated (Garwood-Cross, 2023). Of note, young people's everyday life information seeking entails the use of online platforms (such as search engines and social media) and the use of mobile phones (Agosto & Hughes-Hassell, 2005; Andersson, 2022). Researchers in LIS have also noted that young people rely on interpersonal interactions and on their social networks for their information seeking (Barriage, 2016; Eynon, 2011), as is the case in career studies (p.17). Typically, friends, peers, family members, and experts, such as teachers, are consulted. As convenience is highly valued, easily reachable people are preferred information sources (Connaway et al., 2011; Shenton & Dixon, 2004).

It is not fully clear, however, how young people look for information. This is because many of the studies of their information seeking in everyday life contexts have focussed primarily on the

information sources that are accessed, and not on information activities per se. Only a few of the contributions to knowledge on this topic, such as those of Karim and Widén's (2023) and Meyers et al (2009), reveal that online and social information sources are negotiated through a process of triangulation. Young people typically gather information from a small number of sources (between one and three) and verify the information they have acquired from online sources by consulting others at a later stage in their research. Thus, even though their information seeking is 'online first', the input of others is also sought and valued (Karim & Widén, 2023; Meyers et al., 2009). While there is established knowledge of young people's everyday life information seeking, there is less insight into young people's information needs (Meyers et al., 2009, pp. 302–303; Shenton & Dixon, 2004, pp. 25–26). According to the research that has been published to date, young people's information needs are broadly focussed on their short-term interests, imminent challenges, and personal development. These needs relate to their relationships (with peers and with their family), school activities (inclusive of subject, college and careers topics), leisure activities and interests, knowledge of themselves (e.g. their personal values and cultural identity), and knowledge of the wider world (e.g. of popular culture) (Howard, 2011; Meyers et al., 2009; Shenton & Dixon, 2004).

Much like the research of young people's everyday life information seeking, the work-related information seeking literature has also shown that information seeking success is dependent on acquiring information from other people (Mowbray et al., 2018, p. 240). For instance, prior research of young people's job information seeking has shown that family members, acquaintances, and employers provide important input to the job search process, and that access to industry contacts is achieved through social media platforms (Mowbray et al., 2018; Mowbray & Hall, 2020). Although the literature on work-related information seeking is limited, and not much is known about phenomena other than socially mediated information seeking, it is generally known that the nature of organisational interactions (e.g. newcomer-leader relationships and the socialisation environment of the organisation) is an important factor in newcomers' adaptation to new workplace environments (Vu et al, 2023; Woo et al., 2023).

A few other salient factors in work-related transitions have also been identified, such as newcomers' characteristics (e.g. self-efficacy) and newcomers' existing degree of information seeking expertise and familiarity with the information sources used in the workplace (Jeffryes & Lafferty, 2012; Vu et al, 2023). For instance, in their investigation of undergraduate engineering students' information needs during work placements, Jeffryes and Lafferty (2012) observed that students found some information sources easier to access and use than others because of their familiarity with them. Students were comfortable with finding information in books, as they had experience in accessing them from their college days. They had no prior experience in searching for industry standards

information, however, and thought that this was difficult to find. This would suggest that work transitions are easier when the information environment in the workplace and in higher education is similar. The cognitive and emotional processes of individuals also have an impact on the process of transition, as evidenced by recent studies in this area (Willson, 2019; Willson & Given, 2020; Wolf, 2019). For example, in her research of early career academics' career transitions, Willson (2019) found that those undergoing transition have complex and changing information needs, and that their information behaviour is associated with affective experiences that range from stress and frustration to stability and belonging. With regards to work-related transitions, Wolf (2019) noted that information use is linked to the development of one's professional identity and the process of 'becoming'. Individuals who undergo work transitions thus gather information about their environment and integrate this into their understanding of themselves as professionals.

Taking into account Willson's (2019) findings on the role of affective experiences in transitions, it should also be noted that there is much ambiguity in the LIS literature, in general, even though there is some published work on the topic of emotion (e.g. Christie, 2009; Finn, 2017; Given, 2007; Matteson, 2014; Meyer & Schlesier, 2022; Postareff et al., 2017). Fourie and Julien (2014, p.1) explain that researchers have been "dancing around affect and emotion"[5]. It is generally thought that affective factors can motivate people to access and use information (Kuhlthau et al., 2008; Wilson, 1981). For instance, positive affect occurs when information seeking is progressing in a satisfactory manner, and negative affect occurs when there are impeding factors on the information search (e.g. software failure) (Lopatovska & Arapakis, 2011). Emotions may also shape people's intentions to start, expand, limit, terminate, or avoid information seeking. In a review of the extant literature on this topic, Savolainen concluded that information seeking may be started or expanded as a result of both positive and negative emotions, and that information seeking is most likely to be limited, terminated or avoided due to the impact of negative emotions such as anxiety and frustration (Savolainen, 2014, pp. 63–65). Given the apparent importance of emotion to the research theme of transitions, there is a need to incorporate this dimension into future investigations in this area.

An additional limitation of the literature on work-related information seeking in general (i.e. not exclusive to young people) pertains to its omission of the concept of *career*. To date, only three authors have made specific reference to 'career' in the context of information behaviours (Hultgren, 2009; Julien, 1999; Stonebraker et al., 2019). Of these authors, only Julien (1999) has associated career information behaviour with career decision-making. Hultgren's (2009) work centred, instead,

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[5] This is not an issue specific to LIS: in Western scientific movements, emotion has tended to be viewed with suspicion, as its influence has been seen to distort scientific enquiry (Hewitt, 2023, p. 121). Careers researchers have also long been aware of the need for elucidating the role of emotion in career development (Kidd, 2004).

on the career narratives associated with information seeking, and Stonebraker and colleagues (2019) explored university students' experiences at only one point in time: during a university career fair.

Julien's (1999) study was the first one to be published on the topic of career information seeking. This study has been cited by many careers researchers for its innovative approach. It incorporated the notion of career decision-making styles and linked these to information seeking (Creed et al., 2009; Rogers et al., 2018; Vertsberger & Gati, 2016). In her study of Canadian students, Julien (1999) employed survey and interview methods and drew upon Dervin's (1983) sense-making theory of communication and Harren's (1979) decision-making styles classification (of rational, intuitive, and dependent decision-makers). She found that young people face institutional, psychological, physical, and intellectual barriers to applying information to their career decision-making, and that some young people employ a rational decision-making style, while others adopt intuitive and dependent styles. However, although Julien's study represents an important contribution to the field, it cannot be considered a study of everyday life information seeking. Its questionnaire design and critical-incident interview technique focussed specifically on the concerns and barriers to information seeking, and not on the means of information seeking per se.

Hultgren's (2009) study and Stonebraker et al's (2019) phenomenographic studies yield more comprehensive accounts of young people's information seeking in everyday life. There are key differences between these studies. Although both used interview methods, the former centres on the career narratives employed by young people as they negotiate school-to-work transitions, and the latter narrows down the focus of enquiry to a particular spatio-temporal context (the career fair). While Hultgren's (2009) work was inspired by theoretical approaches that built on the ideas of the life-world and the habitus, Stonebraker et al (2019) fail to mention the use of any theory. Hultgren found that Swedish school leavers employ one of four approaches to information seeking: active information seeking aimed at negotiating risk; active information seeking about pathways; seeking information for extended transitions; deferring or avoiding information seeking (Hultgren, 2009). Thus her study produced knowledge of the types of information seeking in a career context and the purposes for which this was undertaken. Stonebraker et al (2019) chose to focus, instead, on the roles experienced by young people in respect of their information seeking. The authors found that there are three roles in the career fair context: 'aligners' seek to determine company fit and assessed whether companies were a match for them; 'performers' view their participation as a performance and wanted to represent themselves in the best possible light; and 'navigators' prepare for the career fair by researching companies and positions.

From these three studies, it is evident that young people's career information seeking is multifaceted and characterised by the presence of different information seeking strategies, barriers, and decision-making styles. However, these studies also have certain limitations. Although Julien (1999) was interested in career decision-making, she did not generate knowledge of young people's means of information seeking in everyday life. Furthermore, although Hultgren (2009) and Stonebraker et al (2019) shed light on young people's information seeking, they did not incorporate career decision-making as a key theme in their research. This means that there is an opportunity to contribute to the study of career information seeking further, with specific reference to career decision-making, which has remained largely unexplored since Julien's invitation for further research in this area (Julien, 1999, p.48). In addition to this gap in knowledge, there is also a gap in current understandings of young people's career information literacy skills. This subject is explored in the next section.

2.5.3   Information literacy research

The scholarship of information literacy is closely associated with that of information behaviour, as the central subject of study in both domains is the information user (Figuerola et al., 2017, p. 1518; Limberg & Sundin, 2006, pp. 2–5). However, while information behaviour deals mainly with the applied practice of information seeking, information literacy has traditionally related to the development of information-related *skills* in citizens (as noted, for example, by Ibenne et al., 2017 and Steinerová, 2016). The central focus of the information literacy domain therefore falls on the practices and competencies of the information literate person (Johnston & Webber, 2005, p. 110).

There is an international research community of information literacy spread mainly across Europe and the US. Numerous journals, associations, and conferences are dedicated to information literacy (Webber & Johnston, 2017, p.16). Information literacy outputs have been collated in journals with academic and practitioner readerships, such as *Library and Information Science Research*, *Journal of Documentation*, *Journal of Librarianship and Information Science*, *Library Quarterly*, *Library Review*, and *The Journal of Information Literacy*. There are also many established professional groups and associations that support the improvement of library programmes, resources, and services. These include the American Library Association (ALA), the International Federation of Library Associations and Institutions (IFLA), and the Chartered Institute of Library and Information Professionals (CILIP).

Information literacy is a soft applied discipline[6] that is primarily occupied with the enhancement of citizens' personal and social lives. As such, its focus is on interpretation through qualitative research methods rather than on generalisation and discovery (Johnston & Webber, 2005, p. 115). Due to its 'soft applied' focus, the discipline is under-theorised, and researchers often borrow theory from other fields such as information behaviour and education (e.g. Budd & Lloyd, 2015; see also, Lloyd, 2021, pp.39-49, and Tewell, 2015, for an overview of some of the theory borrowed from other fields). A common criticism is that the use of specific theory is not made explicit in information literacy research (Limberg et al., 2012, p.93). If theories are indeed used, their influence on research is not clearly stated[7]. Information literacy practitioners' research and practice is thus guided not by theory, but by the principles put forth in information literacy standards, models, and frameworks. Some prominent examples of these 'tools of the trade' are the Society of College, National and University Libraries (SCONUL) Seven Pillars model of information literacy (SCONUL, 2011), the New Curriculum for information literacy (ANCIL) (Secker & Coonan, 2011), and the Association of College and Research Libraries (ACRL) guidelines (ACRL, 2016). These models and frameworks were developed as tools to inform pedagogy, and illustrate the contribution and value of information literacy to universities (Lloyd, 2021, pp. 49–51). For instance, the tenets of the SCONUL Seven Pillars model of information literacy are presented as seven activities undertaken by information literate users (Figure 2). The ACRL guidelines introduced six core concepts of information literacy, meant to improve understandings of research and practice in the discipline (Figure 3).

These tools are useful to those who support the research process of students in higher education and provide information literacy instruction. There are two paradigms in information literacy research: (1) a skills-based paradigm; and (2) a socio-cultural paradigm of information literacy (Lupton & Bruce, 2010, pp. 3–27). The pedagogical models and frameworks mentioned here are most applicable to the former of these paradigms[8]. Crucially, Lupton and Bruce (2010) note that the skills-based ('generic') paradigm is rooted in a deficit model of learning, and associated with assessment and objectivity, whereas the socio-cultural ('situated') paradigm holds that information

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[6] Information literacy is not always recognised as such. There are on-going efforts to raise its profile as a discipline and to demonstrate its value to policymakers. These efforts have been spearheaded by Johnston and Webber, and recently continued by the members of the Media and Information Literacy Alliance (MILA).

[7] The work of Lloyd and Hicks is an exception to this rule: both researchers make apparent their use of grounded theory (e.g. Hicks, 2018; Lloyd, 2006). Yet vocal critics of grounded theory do not consider grounded theory to constitute theory in any meaningful sense (e.g. Thomas & James, 2006).

[8] Many issues with the skills-based, educational paradigm have been highlighted elsewhere. Its narrow emphasis on the articulation and assessment of generic skills can cause students and educators to treat information literacy as an outcome instead of a process (e.g. Bauder & Rod, 2016).

literacy phenomena are socially constructed, contextualised, and linked with meaning-making and personal development (Lupton and Bruce, 2010). For these reasons, it has been proposed that the usefulness and validity of formal assessment tools and indicators for information literacy are limited, as they are only applicable to education (e.g. Battista et al., 2015; Rioux, 2017; Saunders, 2017).

Figure 2. The SCONUL Seven Pillars model of information literacy (SCONUL, 2011, p. 4)
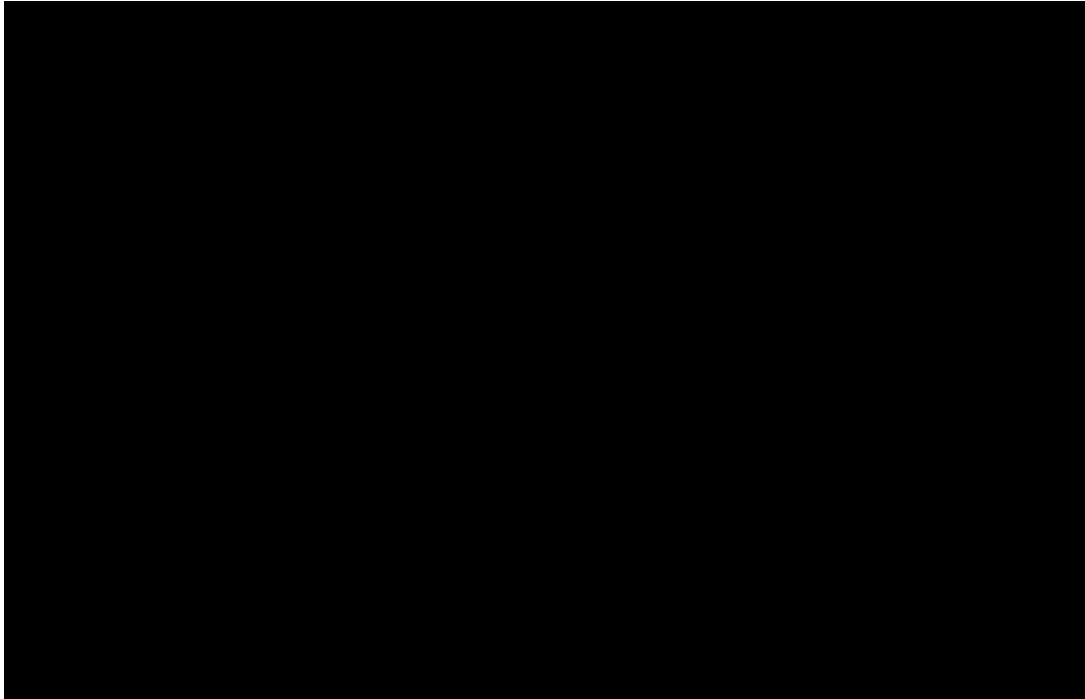
Figure 3. The ACRL guidelines (illustration adapted from the University of Arkansas Libraries, 2022)
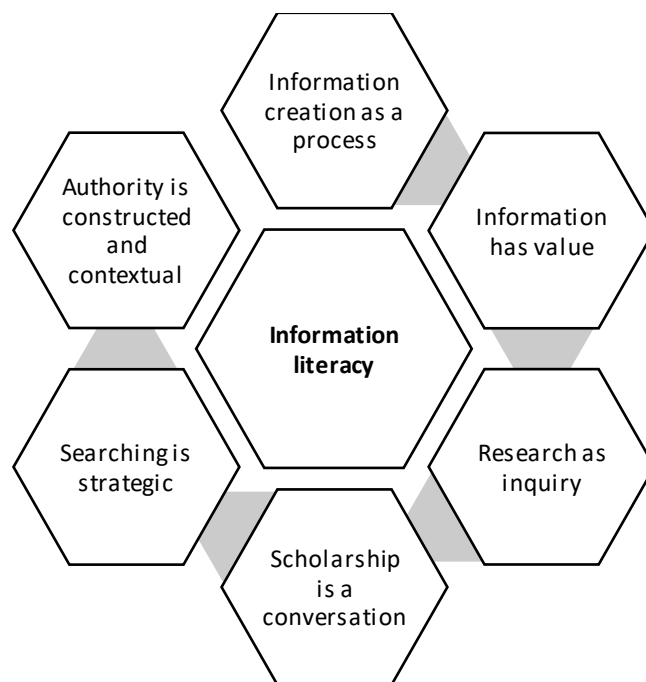
In line with Lupton and Bruce's (2010) distinction, there are two main types of research in the domain of information literacy. One is concerned with information literacy instruction in higher education and the library, and the other pertains to information literacy practices. In the former domain, the scenarios for the deployment of information literacy skills have most commonly been the completion of university assignments and the research activities that precede such academic work, with particular attention to the development and administration of information literacy training (Walsh, 2009, pp. 19–20). The topics that have received the most coverage in this kind of research are the design, implementation, and evaluation of information literacy instruction in primary schools, colleges, universities, and public libraries (e.g. Batool & Webber, 2019; Crawford & Irving, 2007; Farrell & Badke, 2015; McKeever, 2013; Salisbury & Karasmanis, 2011). The latter domain centres on the enactment of information literacy practices in community settings. This domain has arisen as a form on antithesis to the research corpus on information literacy in education and library settings, which overlooks the important role of information literacy in the context of the everyday (Hoyer, 2011, pp. 10–11; Martzoukou & Sayyad Abdi, 2017, p. 3).

A discerning feature of the research on information literacy practices is the employment of socio-cultural information literacy perspectives. These depict information literacy not only as a set of skills, but also as 'information practices' that are inextricably linked with the context of information seeking (Whitworth, 2020, p. 4). Lloyd has published widely on this topic and has documented the means by which people construct an embodied understanding of where, when, and how they can find information (Lloyd, 2005, 2006, 2009, 2010; Lloyd et al., 2013). To date, most of the research into everyday life information literacy and information practices has been conducted in health settings (e.g. Buchanan & Nicol, 2018; Hirvonen et al., 2020; Huvila et al., 2019; Niemelä et al., 2012), and to a lesser extent in workplace settings (Forster, 2017; Gilbert, 2017; Weiner, 2017).

In neither the literature on workplace information literacy, nor the literature on everyday life information literacy, however, are there many significant research contributions in respect of young people's career information literacy skills. There exists a body of research on young people's health information literacy, yet much of this research is published in medical journals for a health practitioner audience (see e.g. Sansom-Daly et al., 2016 for a review of research into young adults' health literacy published in medical journals). In addition, this research is centred on the assessment of young people's health information literacy levels (e.g. Guo et al., 2018), and not on their everyday life experiences. As such, it has limited applicability to the topics of young people's careers, decision-

making, and transitions[9]. Furthermore, although there exists a body of research on information literacy in the workplace, this pertains only to the skills and experiences of adults who are in employment. Research efforts are directed towards the development of information literate workers through tailored instruction and towards mapping the lived experiences of people belonging to various occupational groups (e.g. Ali & Richardson, 2018; Chaudhry & Al-Mahmud, 2015; Hicks, 2014; Lawal et al., 2014; Sayyad Abdi et al., 2013; Toledano O'Farrill, 2010). Only in the educational literature has there been any consideration of young people's career decision-making and major life transitions (e.g. from one educational stage to another; from higher education to the workplace). In this literature, however, the central concern of investigation has been on graduate employability and transitions as viewed from an educational perspective, and not career decision-making and career transitions as viewed from an everyday life perspective (e.g. Dann et al., 2022; Saunders et al., 2017; Smith et al., 2013; Varlejs & Stec, 2014).

In the educational literature, it has been shown that young people's information literacy skills are often inadequate upon their entry into university, and that their skills might also be inadequate upon their transition into the world of work. For instance, it has been concluded that high school students are skilled in choosing keywords and using Boolean operators for information seeking, but not proficient in the use of scholarly databases and referencing (Salisbury & Karasmanis, 2011; Waters et al., 2012). It has thus been proposed that colleges should address the needs of incoming student populations (Nelson, 2017, p. 283). Researchers have also identified that workplace tasks differ significantly from educational tasks (Abram, 2013). While employees need to access a wide range of information sources and seek continued input from their co-workers, educational tasks have been designed to be completed through the deployment of more linear and individualised information literacy practices (Bruce, 1999; Crawford & Irving, 2009; Head et al., 2013; Hepworth & Smith, 2008; Kirton & Barham, 2005; Phillips et al., 2019; Saliba, 2018; Toledano O'Farrill, 2010; Travis, 2017). At the same time, employers expect that graduates should be able to demonstrate analytical skills, decision-making skills, problem-solving skills, communication and teamwork skills, and information literacy skills upon their entry into the workplace (e.g. Gilbert, 2017; Head et al., 2013; Jewell et al., 2020). The findings presented in these studies explain, to some extent, the lack of insight of young people's career information literacy in the work-related literature. They embody the belief that much of the responsibility for producing work-ready, employable graduates falls on librarians and educators, and not on employers. In accordance with this, there exists a research corpus that

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[9] Health is one of the topics identified as central to transitions in relation to information seeking and information literacy (Hicks, 2022, p.211; Ruthven, 2022, p. 115). It is surprising that there is still a dearth of research in the area of young people's health transitions through an everyday life lens.

specifically details of the design and implementation of graduate employability initiatives in higher education (e.g. Bušelić & Banek Zorica, 2018; Herring, 2011; Towlson & Rush, 2013). In this research, the collaboration of academic libraries with career services is described, and skills transference issues from education to the workplace are noted (Bird et al., 2012; Conley & Gil, 2011; Goldstein, 2016; Katz et al., 2010; Lloyd, 2011; Mawson & Haworth, 2018; Monge & Frisicaro-Pawlowski, 2014; S. Smith & Edwards, 2012).

Yet graduate employability is in itself a contested concept in higher education, and it is important to scrutinise some of the assumptions that underpin the scholarship on graduate employability in the information literacy domain. The concept of graduate employability is based on an idealised vision of workers, which is driven by the adoption of a neoliberal ideology, and focussed on economic prosperity (Allatt & Tett, 2019; Peters & Besley, 2013). The uncritical adoption of this concept may result in reductionism, where complex structures and entities are reduced to a simple 'supply and demand' transaction between higher education institutions and the labour market, and there is little consideration of workers' individual circumstances and the wider societal context (Stoten, 2018, p. 15). In some of the critical interpretations of this issue, employability is seen to hegemonically support capitalist ideologies, and to suppress the creative expression of individuals' potential (Rees, 2021, pp.663-665). In light of these critiques, framing information literacy in relation to graduate employability could be seen as problematic as this would perpetuate simplistic understandings of youth employment (or lack thereof). It has been argued, in contrast, that the notion of youth transitions is more multifaceted than that of graduate employability, and therefore holds more potential for addressing youth unemployment (Crisp & Powell, 2017, p. 1786).

The theme of transitions, however, has been underexplored in information literacy research, even though it has been noted that this is an important theme within people's information literacy practices (e.g. Hicks, 2022; Lloyd et al., 2013). Furthermore, in the few studies that have explored information literacy through the lens of transitions, rarely has the main focus of enquiry been on the everyday life experiences or career decision-making of young people. Instead, it has been on educational transitions (typically from high school to college) conceptualised from the perspective of information literacy educators (Anderson & Bull, 2014; Emerson et al., 2021; Mounce, 2010; Warren, 2006). In only a small number of studies have students' own perceptions of their transitions been explored (e.g. Kirker & Stonebraker, 2019; Lokmic-Tomkins et al., 2022). In one such study, it was found that students who are transitioning from high school to college have changing information literacy skill levels, and varying perceptions of their skills (Kirker and Stonebraker, 2019). This study revealed four information literacy journeys in learners: 'architects' are learning about information literacy and research from scratch, 'renovators' have a strong foundational knowledge of information

literacy, and recognise growth in their research skills; 'builders' refine their understanding of research from high school; and 'fragmenters' have varying levels of information literacy skills, and experience conflicting definitions of research between what they learned in high school and during their first year of college education. These studies of young people's educational transitions are valuable as they make apparent how young people navigate their changing information landscapes, and how they utilise and build on their existing information literacy skills. They do not, however, uncover the means by which young people manage their career transitions and make career decisions. To evoke the role of career in the information literacy literature, the work of researchers who have employed the term 'career information literacy' is reviewed below.

2.5.4   Career information literacy research

Although information literacy skills have been taught alongside career preparation courses in higher education for some time (Jones & Seybold, 2016; Reader et al, 2020; Stonebraker & Fundator, 2016), few researchers from the career studies and LIS domains have incorporated the use of the term 'career information literacy' in their work. Within the set of publications shortlisted for analysis in this literature review, two were early studies that originated from career studies (Holister, 2005; Zalaquett & Osborn, 2007) and two were more recent studies from LIS (Hamlett, 2021; Arur & Sharma, 2022). Three contributions from education were also included, as their research designs involved the use of larger participant cohorts and datasets than those found in career studies and LIS (Lin-Stephens et al, 2018; Lin-Stephens et al, 2019; Valentine & Kosloski, 2021). An analysis of the contributions and limitations of these studies was conducted for the purpose of informing the design of the doctoral research (Table 6).

A common thread is apparent across these studies. The majority are descriptive, localised studies with an applied practice focus that describes the design and implementation of career services. For instance, in career studies, Hollister (2005) reported on a collaboration between a university library and careers service which led to the integration of information literacy into a career planning course, and Zalaquett and Osborn (2007) described the development of a careers website and course assignments for students enrolled on a Masters programme in counselling. In the LIS and education domains, Hamlett (2021) reports on a collaborative effort between teaching staff and a librarian at a public university in which information literacy instruction was integrated into a mandatory careers course, and Lin-Stephens et al (2019) present a case study of a collaborative approach to embedding career information literacy into a university course. Only Valentine and

Analysis of publications on the broad theme of career information literacy				
Study	**Method/setting**	**Theory**	**Contributions**	**Limitations**
Hollister (2005)	• No method – review of the literature. • US university.	None reported.	One of the first studies to use the term 'career information literacy'.	• Career information literacy is not defined. • Dated study.
Zalaquett & Osborn (2007)	• No method – report of evaluation activities. • US university.	The Big6TM skills model informed the work (Eisenberg, 2004).	Detailed descriptions of how The Career Resource Web Page and career assignments were used.	• Career information literacy is not defined. • Limited evidence of the effectiveness of the programme. • Emphasis on developing skills in future career counsellors, and not in their future clients. • Dated study.
Hamlett (2021)	• No method – description of a collaboration. • US university.	None reported.	Sufficient detail to replicate the collaboration elsewhere.	• Career information literacy is not defined. • No student assessment of the effectiveness of the instruction.
Arur & Sharma (2022)	• Interviews, observations, and student videos. • Indian secondary school.	Conceptual framework for career guidance in India (Arulmani, 2011).	A socio-cultural approach to exploring young people's information literacy is employed.	• Career information literacy is not defined. • Research of boys only. • Small participant sample (N=10).
Lin-Stephens et al (2018; 2019)	• Questionnaire methods. • Australian university.	None reported, though the work was informed by Watts' (2006) DOTS model.	Indicated that STEM cohorts do not differ in their focus on career information literacy, and that students agree that the measured items are important.	• Career information literacy is not defined. • Watts' (2006) career development learning facets are presented as 'career information literacy'.
Valentine & Kosloski (2021)	• Delphi study. • US university.	Social Cognitive Career Theory (Lent et al, 2017).	Showed that there are fifty skills related to career information literacy.	• Delphi items chosen by subject experts, and not young people. • No ages or school levels were indicated for any of the skills.

Table 6. Analysis of publications on the broad theme of career information literacy

Kosloski (2021) present an analysis of the meanings associated with the concept of career information literacy in an attempt to articulate a specific skillset. Their four-round Delphi study was conducted with experts on the broad subject matter of careers. In it, fifty skills were considered and then classified into functional, interactive, and critical competencies. The skills were ranked by importance. The most important skill chosen by the panellists was the ability to decipher information presented in different forms (orally, written, visually, etc) (Valentine & Kosloski, 2021, p.13). Another study that engages more critically with the notion of career information literacy is that of Arur and Sharma (2022). These authors are interested in the power dynamics that shape information literacy practices, and how certain information sources and ways of collecting information are more widely accepted than others. They found that (male) Indian high school students relied on the Internet and on other people for career information. Although students use Google and Youtube often, they assign more cognitive authority to people who have expertise and experience in a particular career than they do to online information. Unlike the other studies reviewed here, Arur and Sharma's (2022) research generates insight into the everyday life experiences of young people as relevant to their career development.

It is nevertheless important to emphasise that the majority of studies on the broad theme of career information literacy do not contain any reflections on its conceptualisation, nor do they implement any systematic analyses of the skills to be embedded in the curriculum (Table 6). In this regard, they are studies of career information literacy *instruction* not underpinned by a clear understanding of what the concept itself constitutes. These studies have many other limitations, such as their restricted use of theory and their lack of generalisability. The settings in which they were conducted were mostly university settings in the US, with only a few contributions from other countries (e.g. Australia and India). Thus these studies do not present any evidence relating to career information literacy in secondary schools, nor to post-secondary career transitions, that could be applicable to the European context. In addition, these studies do not relate information literacy to career development learning and career decision-making, and the degree of effectiveness of the interventions described in them is unclear on the basis of the presented evidence. It is not possible to ascertain, for example, whether the attributes examined in Lin-Stephens et al's studies lead to improved outcomes in students, such as a higher degree of career decidedness (Lin-Stephens et al, 2018; Lin-Stephens et al, 2019). Lin-Stephens and colleagues also appropriated Watts' (2006) career development learning terminology, which originates from career studies, and rebranded this as 'career information literacy'. As a result, their work produces little useful knowledge of the relationship between information literacy and career decision-making.

The limitations of the extant literature on career information literacy can be addressed by the development of research programmes that develop a conceptual understanding of career information literacy, and that generate knowledge of the skills and attributes that are invoked with regards to career decision-making. Since much of the extant research on this topic has been conducted in university settings, such programmes of research should consider the experiences of young people studying at institutions other than universities. A programme of research building on these principles was devised for the purposes of this research, and will be presented in Chapter 4.

2.6   Conclusion to Chapter 2

On the basis of the literature reviewed in this chapter, it can be concluded that there is a need for more research on the themes of young people's career information seeking and career information literacy skills. As demonstrated by this review, the provision of career information to young people is an important aspect of Scottish careers policy and practice, as is the development of career management skills in the future workforce. Despite this, the means by which young people engage with career information are not well-understood in the academic literature.

To date, career decision-making research has focussed on the difficulties experienced by decision-makers (Li, Hazler & Trusty, 2017; Di Fabio et al, 2012; Bullock-Yowell et al, 2014), as well as on the provision of information to young people through dedicated information systems and career services (e.g. Brown, 2003; Maguire & Killeen, 2003; Sampson, Reardon, Peterson & Lenz, 2004). In the literature on information behaviours and information literacy, there is also limited insight into young people's use and evaluation of career information. Since much of this literature is based in the realm of library and education, young people's information behaviours and information literacy in everyday life are under-researched (e.g. Hargittai et al., 2010; Karim & Widén, 2023), particularly in the context of career decision-making and career transitions. The extant research has focussed on some topics that bear relevance to work, employability, and transitions. These include organisational newcomers' information behaviours, students' education-to-education transitions, and employability-focussed information literacy initiatives (Vu et al, 2023; Jeffryes and Lafferty, 2012; Dann et al., 2022; Saunders et al., 2017; Buselic & Zorica, 2018; Towlson & Rush, 2013). However, these themes have not been conceptualised in respect of young people's career development, nor explored through an everyday life lens. In only a few of the publications accessed for this literature review is specific reference made to young people's information seeking and information literacy with regards to career development (e.g. Julien, 1999; Hultgren, 2009; Stonebraker et al, 2019; Hollister, 2005; Zalaquett & Osborn, 2007; Hamlett, 2021).

To address the gaps in knowledge identified in this literature review, it is necessary for the empirical research reported in this thesis to incorporate the following dimensions:

1. **The development of an understanding of how career information landscapes are navigated by *young people*, from their own perspective**. In both the careers and the LIS literature, the views of others who support their development (e.g. providers of career services and information literacy training) are disproportionately represented.

2. **The investigation of the *intersection* of information seeking, information literacy skills, career-decision making, and career transitions**. These themes have not previously been linked in the literature. This is because they have emerged from disparate fields (career studies and LIS) and different research specialisations (e.g. workplace information behaviour; graduate employability in higher education).

3. **The exploration of young people's engagements with career information through an *everyday life lens***. Even though some research on young people's experiences outwith education exists, this research has rarely pertained to the themes articulated above.

In line with these themes, the empirical study was designed to investigate young people's career information seeking and career information literacy, with particular reference to career decision-making in everyday life. To address the key elements of this research statement, two research questions were developed for the doctoral research:

> **RQ1.** How do young people utilise career information for the purpose of making career decisions about the varied training, education, and work experience opportunities available to them?

> **RQ2.** Which career information literacy competencies can be developed in young people to best support their career development learning and career decision-making?

The theoretical framework devised to support the empirical study is discussed in detail in the next chapter.

Chapter 3   Theoretical framework

3.1   Introduction to Chapter 3

In the previous chapter, it was argued that there is a need for more research of information seeking and information literacy in the context of career decision-making. Not only have these themes been the focus of only a few studies published to date, but they are also poorly understood at the conceptual level. In the research base on career information literacy, for example, researchers have failed to provide clear parameters of their operationalisation of the term. It is therefore necessary to consider which of the conceptual contributions in the literature are useful to the investigation of the themes central to this study, taking heed of the differences in explanatory utility afforded by different theories, models, and framework. The working definitions of each of these conceptual tools are as follows:

- **"Theories are stories"** that explain and predict phenomena using narrative structures. As such, they make claims regarding causality, and can be used to test assumptions and to inform the interpretation of research findings (Collins & Stockton, 2018, p. 3; Goodson, 2010, p. 5).

- **Models** describe phenomena, but do not explain them. They often describe specific processes or aspects of the phenomena presented in theories (Nilsen, 2015, p. 2).

- **Frameworks**, much like models, have limited explanatory power, and make no particular claims regarding causality. However, their scope may be broader than that of models. In frameworks, categories of dimensions can be depicted as forming parts of larger structures or as a conceptual framework (e.g. Nilsen, 2015).

As the interdisciplinary study reported in this thesis relates to both LIS and career studies, it was considered important to review the theory and concepts used in each domain, with attention to the establishment of a suitable theoretical grounding for the research. As discussed in more detail below, two theories (one from each domain) were chosen for the research. A widely cited model of information literacy further contributed to the interpretation of the shortlisted theory. In addition to this, a dedicated conceptual framework was developed. The articulation of the conceptual framework is a key contribution of this research. It functionally integrates the previously unlinked dimensions of information seeking, information literacy, and career decision-making.

3.2   Theoretical framework

In this section, theory from the two domains of LIS and career studies is assessed for its relevance to the empirical study reported in this thesis. It begins with a consideration of information seeking theory in LIS, complemented by an overview of the most widely used models in the sub-domain of information literacy. Then follows a comparative analysis of two conceptual contributions from career studies that incorporate references to information in relation to career development learning and career decision-making. The tenets of the shortlisted theories and widely cited model are explored in more detail below.

3.2.1   LIS theory

Theories are of central importance in social science research (Locke, 2007, p. 867). Yet the formulation, discussion, and use of theory is often seen as lacking in LIS (Johan Lor, 2014; Pinfield et al., 2020). As discussed in Chapter 2.5 of this thesis (p.24), there are limitations in the approaches taken in both the information behaviour literature and the information literacy literature. While process theories and models of information behaviour such as Wilson's (1999) model of information behaviour and Kulthau's (1988) information search process are well-regarded and widely used in the LIS domain, they overlook certain aspects of everyday life information seeking, such as the role of context and non-purposive engagements with information (Agarwal, 2015; Narayan et al., 2011; Wilson, 2010). Attention in the literature review reported in Chapter 2 was also drawn to the field of information literacy (p.35), where the use of theory is typically not made explicit, and theory is borrowed from other fields (Limberg et al., 2012; Wang et al., 2011; Zhang et al., 2023).

Given that this research is concerned with the conceptualisation of everyday information seeking phenomena, it was necessary to scrutinise the extent to which the main principle expressed in information behaviour theory – that information behaviour is a decontextualised, individualised, and linear process – meets its epistemological requirements. Since the 'everyday' concerns the totality of people's lived experiences across different activities and points in time (Ocepek, 2018, pp. 399–401), this is a lens on information behaviour that is conceptually broader than the dominant (decontexualised) view of information seeking. For example, user studies typically focus on one instance of research in one setting, and not on the on-going search for information across different settings (e.g. Dervin, 1976). In contrast, constructivist theory conceptualises information seeking in non-prescriptive terms. Such theory generally contends that the information problem and the steps taken to resolve it are defined in ways that are meaningful to individuals and unique to their

circumstances (Savolainen, 1995a, p. 272). Constructivist theory is thus most applicable to the study of everyday life phenomena.

Two well-known examples of constructivist theory are Savolainen's Everyday Life Information Seeking (ELIS) framework and Chatman's Small Worlds theory (Chatman, 1991; Savolainen, 1995a). Both theories were considered for inclusion in the theoretical framework on the basis of their contributions, alongside others (Table 7). Savolainen's (1995) framework was considered for use in the research because this utilises two useful everyday life concepts: 'way of life' (i.e. habitual activities and how time is spent) and 'mastery of life' (i.e. how one's life is managed, either passively when all is as expected, or focussed on problem-solving when the way of life is disrupted). The tenets of Chatman's (1991) theory were also reviewed in light of the aims of the empirical work, as Chatman's work illustrates the socially situated experiences of information seekers and explicitly addresses issues related to people's socio-economic status and information poverty.

Theory/model	Significance	Potential reason(s) for rejection
Process theories/models		
Wilson's (1999) model of information seeking behaviour Kulthau's (1988) information search process Ellis' (1989) model of information seeking behaviour	• Identification of distinct stages in information seeking. • Articulation of logical sequences of events. • Widely used and supported by evidence.	• Mainly used in user studies, and not in studies of everyday life information seeking. • Emphasis on purposive information seeking that overlooks other ways of experiencing information (e.g. information sharing, passive receipt of information).
Everyday life and non-linear theories/models		
Savolainen's (1995) Everyday Life Information Seeking (ELIS) framework Chatman's (1991) Small Worlds theory Foster's (2004) non-linear model of information seeking Dervin's (1983) sense-making theory	• Recognition of the importance of context. • Utilisation of novel concepts: e.g. 'way of life'. • Non-linear perspectives on information seeking.	• Developed on the basis of limited evidence, and used in a small number of studies • Strong emphasis on socially mediated information seeking, which risks overlooking the role of information systems and digitally mediated information seeking

Table 7. Theory selection rationale for the study

Through a thorough analysis of the established theories and models of information seeking in LIS, it was determined that one specific theory of everyday life information seeking – Dervin's (1983) sense-making theory – is the most applicable to this study's aims. This theory was deemed to be most relevant because it implements the notions of problem-solving, decision-making, and transition within its central metaphors. The rationale for the inclusion and exclusion of theory in this research is outlined below.

The central tenets of Dervin's sense-making theory are its metaphors of the information user and the information environment (Dervin, 2011; Dervin, 2008). Information users are depicted as being both ordered and disordered. They are complex figures who do not conform to polarised views of human rationality that presume that humans are either rational or irrational agents. Instead, their information behaviour, information needs, and engagements with information systems are variable and cannot be easily predicted (e.g. Dervin, 2008). This flexibility in interpretation of the users' intentions is useful to this research of young people's everyday life information seeking, which is pragmatist in nature. Furthermore, the information user is situated within a complex information landscape that comprises three central components: the situation, the gap or bridge in which sense-making occurs, and the outcome of the situation (Figure 4).

The 'situation' refers to the specific circumstances of information seeking and the properties of the information seeker, and the 'bridge' leads the information seeker to a positive or negative 'outcome' (Dervin, 2008, p. 7). The theory's main focus is on cognition and communication (with people and the information environment), and on subjective experiences in everyday life. Hence gaps are framed as questions, riddles, or confusions, and the solutions to these gaps are framed in non-concrete terms (e.g. as ideas, attitudes, feelings, memories, or strategies). In the most general terms, sense-making is defined as the communicative behaviour that allows individuals to construct their movement through time and space (Dervin, 1983). The use of information and access to information sources is implicit in sense-making. Thus Dervin's sense-making theory is a valuable framework through which young people's everyday life information seeking can be interpreted. The central metaphors of the situation, bridge, and outcome, combined with the notion of sense-making, can be usefully applied to the process of information seeking for the purposes of decision-making, since the broad aim of career choice is to progress decision-makers from a situation (such as career indecision) to an outcome (such as occupational choice). The gap that bridges the situation and outcome is the primary unit of analysis in this study that is applied to the identification of pertinent career information seeking behaviours.

However, although Dervin incorporates references to habits and skills in her theory, she does not incorporate any information literacy dimensions in it per se. For that reason, several of the most prominent information literacy models in LIS were also considered for use in the study, and their assumptions and tenets were compared (Table 8).

Figure 4. An adapted illustration of Dervin's (2008) 'situation-gap/bridge-outcome' metaphor of the information user and information environment

Model	Significance	Potential reason(s) for rejection
Models and frameworks that inform pedagogy		
Big 6 Skills (Eisenberg, 2003)	• Relevant to structured information seeking tasks • Applicable to the design of information literacy intervention	• Mainly used in higher education • Some are designed to support curriculum development, not research enquiry • Do not address employability and career directly
PLUS model (Herring, 1996)		
The New Curriculum for information literacy (ANCIL) (Secker & Coonan, 2011)		
Association of College and Research Libraries (ACRL) guidelines (ACRL, 2016)		
Alternative approaches		
7 Faces of information literacy (Bruce, 1997)	• Suitable to the study of everyday information literacy • Relational, non-sequential approaches describe how people experience information	• Place an emphasis on experiences and thus overlook skills • Do not address employability and career directly
Grounded theory approaches inspired by Schatzki (2010)		
SCONUL 7 Pillars (2011)		

Table 8. Information literacy models and frameworks

While there exists a skills-based paradigm and a socio-cultural paradigm of information literacy (Lupton & Bruce, 2010, pp. 3–27), it can be seen in Table 8 that most of the models used in the field are pedagogical models that align with the former of these paradigms. These models have some inherent limitations. Since their proponents advance representations of generic skills, thought to be relevant to a range of applications and contexts in education, the models do not describe how information is experienced by learners. Indeed, both the Big 6 Skills and the PLUS model have been used exclusively for information literacy instruction (Baji et al, 2018; Eisenberg et al., 2010; Herring,

2011). In contrast, relational and situated models depart from notions of information literacy as a set of generic skills (e.g. Lupton & Bruce, 2010). For instance, Bruce (1997) proposed that information literacy experiences relate to information technology, information sources, information processes, information control, knowledge construction, knowledge extension, and wisdom. Her model has been used to document people's perceptions of information literacy (e.g. Cunningham & Williams, 2018). Yet Bruce's (1997) model is more focussed on experiences and embodied knowledge than on skills.

Since skills development is one of the key features of Scottish CIAG policy and is thus also one of the core issues explored in this research, an alternative model was employed in it: the SCONUL Seven Pillars model (2011). Although the SCONUL Seven Pillars can be conceived of as a pedagogical model, this differs from most other such models in its non-linear depiction of how people become information literate. As seen in Section 2.5.3 (p. 35), the 'seven pillars' of information literacy are presented in circular form, and these are non-sequential. This means that people can use and develop all or only some of the pillars at different points in time. The SCONUL Seven Pillars model has also been designed to be flexible and adaptable to different applications and settings. Whilst the core model describes a set of generic skills and understandings (SCONUL, 2011, p. 4), it is intended to enable the development of lenses for use with different communities. For instance, there is an employability lens of the model, which maps the relationships between employability attributes and information literacy (Goldstein, 2015). Since this lens centres on employability, and not on career (Table 9), the core SCONUL model was used in this study to understand the skills needed for career decision-making.
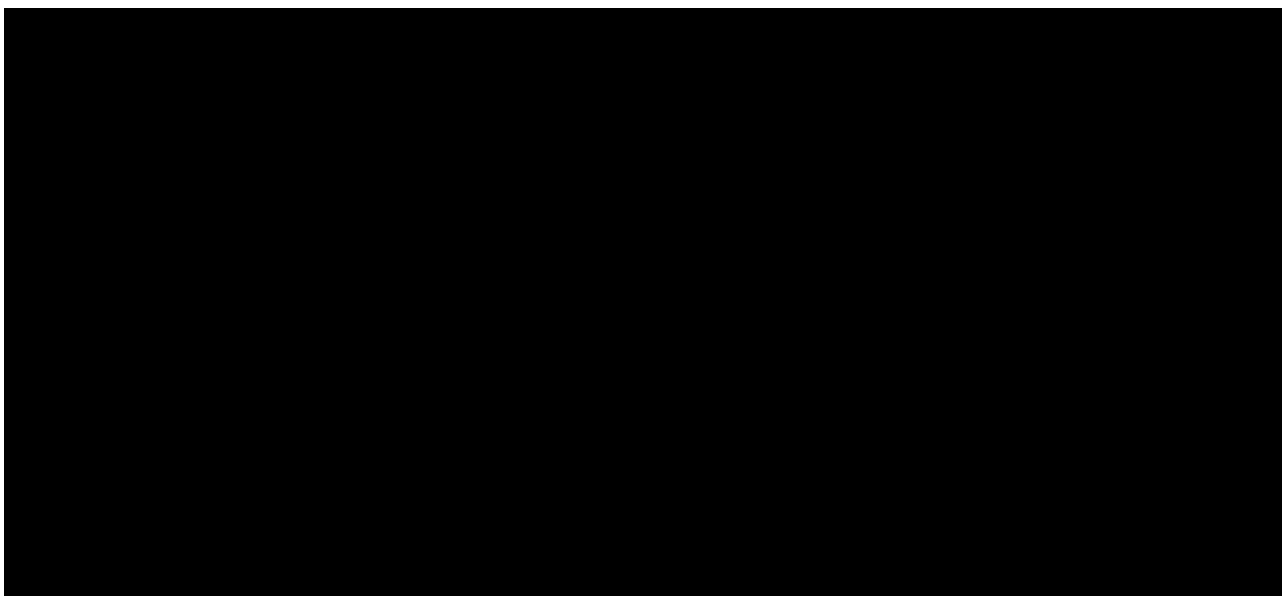
Table 9. Examples of the knowledge and skills articulated in the graduate employability lens of the SCONUL Seven Pillars model (Goldstein, 2015, pp.25-30)

To incorporate decision-making into the theoretical and conceptual frameworks of this research, LIS theory is complemented by the inclusion of career theory in the work. Relevant career theory is considered in the section that follows.

3.2.2 Career studies theory

Theory occupies an important position in career studies. It has been identified as central to research and practice, and used both by career practitioners and researchers to explain and contextualise the career decision-making process (Arthur et al., 1989; Sampson et al., 2014, p. 295). As discussed in Section 2.4.1 (p. 13), careers research is conducted from diverse perspectives, and there are many influential theories of decision-making. These include the seminal theories of Parsons, Super, and Holland, as well as more recent contributions from Gati and Asher (Gati & Asher, 2005; Holland, 1959; Parsons, 1909; Super, 1953). A multitude of other career theories have also been influential in the domain. Yates, for instance, included 40 theories in her thematic analysis of the concepts in the field (Baruch et al., 2015; Yates, 2020, p. 4).

In light of this abundance of theory, a comprehensive analysis of the vast body of theoretical knowledge in career studies is outside of the scope of this study. Furthermore, the majority of theory does not incorporate any dimensions that relate to information or information seeking. The analysis of theory herein is therefore focussed only on the evaluation of two conceptual works that are of direct relevance to the focal themes of this study: (1) Law's New Decision learning, Opportunity awareness, Transition learning, and Self-awareness (DOTS) model; and (2) Sampson's Cognitive Information Processing (CIP) theory (Law, 1999; Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020). Both make some reference to information, and in this capacity, are suitable candidates for interdisciplinary enquiry with LIS.

The first tool considered for use in this research was Law's New DOTS[10]. This is a model of career development learning that centres on the ways in which young people link opportunities to their skills and interests in a changing world and, essentially, their strategies for learning how to learn (Law, 1999). The New DOTS model sets out for stages of learning: sensing, sifting, focusing, and understanding (Law, 1999, p. 37). These stages are mapped against four dimensions of opportunity, self, decision, and transition in the DOTS matrix (Figure 5). In the presentation of his matrix, Law argues that new information in the 'sensing' stage is experienced as fluid, disconnected, and

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[10] The New DOTS model is based on the earlier ('classic') version of the DOTS model (Law & Watts, 1977), which presented the same facets of learning as the new model, albeit with regards to matching individuals to careers using fixed categories and lists. The New DOTS model is more widely used. This is recognised as more flexible, contextual, and suited to the changing world of work.

confusing, and is later sifted into a useable order through the creation of categories and frameworks in the 'sifting' stage. In the 'focusing' stage, mental maps are created of the relationships between people, groups, and events. In the 'understanding' stage, a critical awareness of the ramifications of career moves is gained.

Figure 5. The DOTS model

New DOTS model		*Awareness of opportunities*	*Awareness of the self*	*Skills needed to make decisions*	*Making successful transitions*
		Opportunity	**Self**	**Decision**	**Transition**
Getting a picture of the way things appear	**Sensing**				
Organising a version of the way things are	**Sifting**				
Becoming alert to the way things feel	**Focusing**				
Developing an account of the way things work	**Understanding**				

The second conceptual work considered for this study was Sampson's Cognitive Information Processing (CIP) theory (Sampson et al., 2020). CIP is a cognitive theory of career decision-making that is used to inform career interventions. In it, Sampson and colleagues make the following theoretical assumptions (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020, p. 8):

1. Cognitions (emotions, thoughts, and actions) are inherent elements of career decision-making.
2. Career decision-making involves both the development of knowledge and higher-order processes of thinking about the knowledge gained.
3. Two types of knowledge need to be gained for effective decision-making: knowledge of ourselves and knowledge of the world of work.
4. Career decision-making is a skill – similar to any other skill, this can be learnt, practiced, and improved.

The CIP theory is typically presented in the form of a pyramid that contains lower- and higher-order components. The lower-order tier of the pyramid (the Knowledge domain) shows the knowledge needed to make career choices, and the higher-order tiers (the Decision-making and Executive

processing domains) indicate the actions required to make career choices (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020, pp. 12–13).
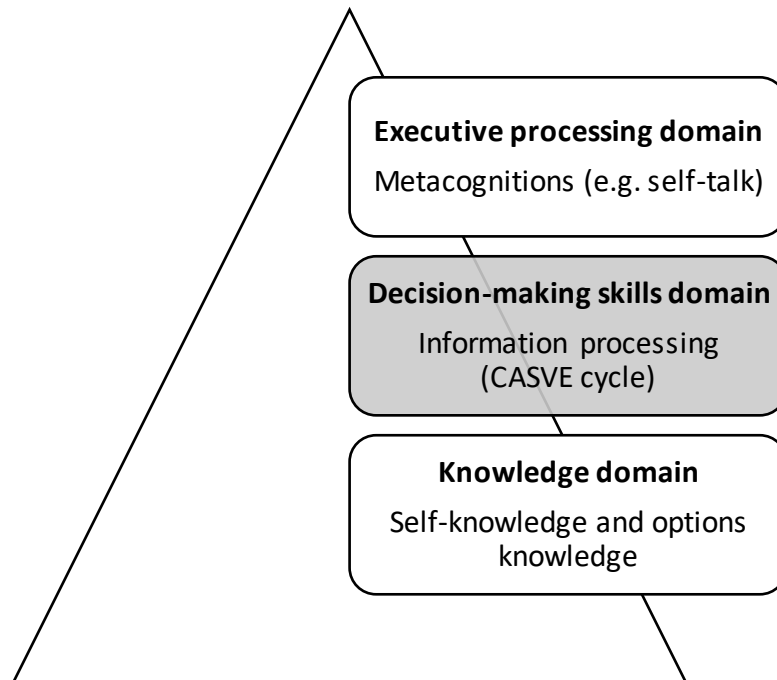
Figure 6. The CIP pyramid

When comparing the suitability of the tenets of Law's New DOTS model and Sampson's CIP theory for application in this research, the main considerations were the (1) explanatory and predictive utilities of these conceptualisations, (2) the research traditions and practical applications that they are associated with, and (3) their relevance to the specific aims of the research enquiry. With regards to all three points of comparison, Sampson's theory was found to be more readily applicable to the work:

(1) The New DOTS model is a conceptualisation built upon Law's innovative thinking in the area of career development learning and career management skills. In contrast, Sampson's CIP approach is a well-developed theory that details the use information to solve career problems and make career decisions. The latter of these theoretical works affords a greater degree of explanatory utility than the former (Law, 2010; Sampson et al., 2020).

(2) Watts' work on the original and new versions of the DOTS model has been focussed on the articulation of a learning taxonomy of the knowledge gained through career guidance (McCash, 2006). However, while the original and updated versions of the DOTS model have had a strong and lasting impact on the career guidance field, their applications have been limited to the work undertaken by careers advisers and policymakers, and their dimensions have not been empirically verified (Plant, 2014, pp. 44–45). By comparison, Sampson's CIP

approach has been applied both in practitioner and research settings, as seen for example in research on the subject of cognitive career interventions and dysfunctional career thoughts (e.g. Andrews et al., 2014; Björnsdóttir et al., 2008). Sampson's work is therefore well-suited to this research programme, as it centres on cognitions and metacognitions.

(3) Since Law's (1999) New DOTS is a model of career development learning, and Sampson's CIP theory (2020) is a theory of career decision-making, Sampson's theoretical work was considered more appropriate for use in this research. Career development learning is indeed one of the facets of career management that is of interest to this research, yet the work reported in this thesis employs a broader, integrative focus on information seeking, information literacy, and decision-making that career development learning partly contributes to. Of note, Sampson's decision-making skills domain (known as the 'CASVE cycle') is of particular relevance to this doctoral work, as this is concerned with information processing. The CASVE cycle comprises five phases: (1) Communication – knowing that one needs to make a choice, (2) Analysis – understanding one's self and their options, (3) Synthesis – expanding and narrowing one's list of options, (4) Valuing – choosing an occupation, and (5) Execution – implementing the choice (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020, p. 10). These dimensions were included in the conceptual framework to provide insight into the ways in which career information is accessed and used as part of the career decision-making process, as discussed below.

3.3   Conceptual framework

The development of the interdisciplinary conceptual framework for this study was based on the selection of suitable theories and models, and set the agenda for later analysis. Following Smyth (2004), the conceptual framework fulfils two important functions: (1) to integrate the concepts found in the literature; and (2) to inform the research design of this study. The role of theory in it is to describe, predict, and explain phenomena (e.g. Collins & Stockton, 2018; Given, 2008). Meanwhile, the role of the model included alongside the theory is to reveal additional facets of the studied phenomena (e.g. Nilsen, 2015). The eventual articulation of the framework draws from three conceptual contributions: (1) Dervin's (1983) sense-making theory; (2) Sampson's (2020) CIP theory; and (3) the SCONUL Seven Pillars (SCONUL, 2011).

To position decision-making in the context of sense-making, the first four stages of the CASVE cycle of the CIP theory were superimposed upon the gap/bridge metaphor of Dervin's theory (Figure 7). The decision to integrate CIP into the sense-making theory stemmed from the identification of

similarities between the conceptualisation of Dervin's gap/bridge metaphor and the tenets of Sampson's CIP theory. According to Dervin (1983), the bridge that connects the situation and the outcome pertains to cognitions, thoughts, and emotions. An almost identical wording is presented in the first theoretical assumption of Sampson's theory, which holds that cognitions are fundamental elements that underpin career decision-making (Sampson et al., 2020, p. 8). The fifth stage of the CASVE cycle was omitted, since this concerns the implementation of career choices (e.g. submitting university applications), and not information processing per se. The seven pillars of information literacy were also added to the conceptual framework, to embed information literacy skills within the sense-making process.

Figure 7. A diagrammatic representation of the conceptual framework utilised in the study
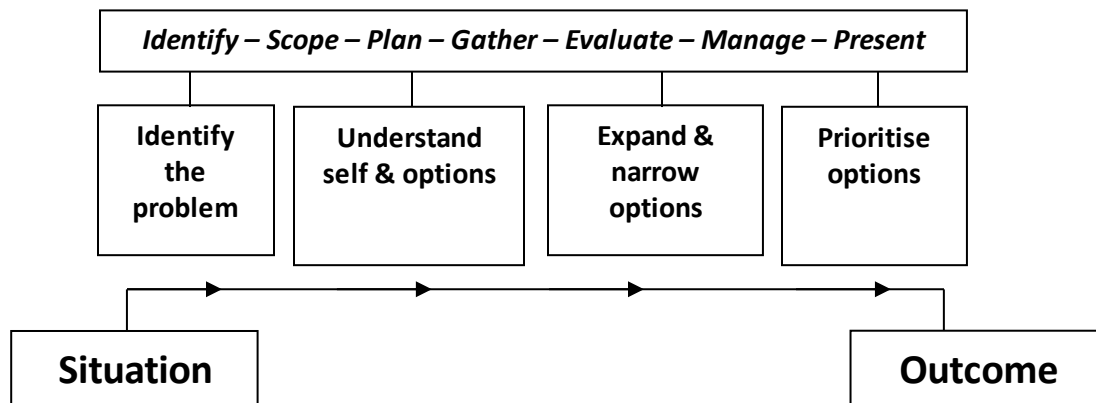
The conceptual framework articulated above advances three main propositions that stem from the interrelation of its components. These propositions guide the design and interpretation of this doctoral work. First, Dervin's (1983) central metaphors were applied to the subject of study at hand: career decision-making. Although it was anticipated that the subjective circumstances and personal appraisals of participants' own situations would vary, it was assumed that all of them would be faced with the prospect of managing their imminent career transitions. It was further expected that Dervin's metaphors would be beneficial in addressing one of the limitations of CIP. Since CIP is an intervention-based theory that presents an idealised, rational vision of decision making (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020, p. 7), the outcome is always assumed to be the formulation of a career decision. Dervin's information users are both irrational and rational agents (e.g. Dervin, 2011), hence the sense-making theory is not normative.

Second, it was assumed that young people's sense-making in the particular situation being analysed would take the shape of decision-making schema (since reaching a career decision is the desirable outcome of the management of career transitions). Although some evidence of the Knowledge

domain and Executive processing domain of Sampson's CIP theory was expected to be collected, the main focus of the study was on the Decision-making skills domain, which is the domain designated for information processing in Sampson's work. The components of the CASVE cycle were related to the findings of the study to identify the manifestation of information sources, information needs, information behaviours, and information literacy skills in the context of decision-making.

Third, although the information processing skills in Sampson's CASVE cycle and the skills listed in the SCONUL model informed the design of this study, the analysis of its findings was not driven solely by the literal interpretation of these skills frameworks. Much like the CIP theory, SCONUL is a normative model, conceived as a 'building' model that outlines the skills and attitudes of the information literate person (SCONUL, 2011, p. 4; Sampson et al., 2020, p. 7). This means that individuals may not demonstrate proficiency in all of the seven pillars of information literacy at different points in time. Furthermore, the explanatory utility of CASVE with regards to information literacy is limited, and SCONUL's generic representation of information literacy skills is unrelated to career decision-making. Taking heed of these limitations, the CASVE cycle and the SCONUL model were used to extend understandings of the information processing skills that young people currently possess, and the skills that could be developed to support their decision-making.

3.4   Conclusion to Chapter 3

In this chapter, the significance of three theoretical works from LIS and career studies to the present study was discussed. Additionally, the key concepts of these works were integrated into an interdisciplinary conceptual framework, which is valuable to the exploration of young people's information seeking and information literacy in the context of career decision-making. A key advantage of the conceptual framework is that it is not prescriptive about the means of sense-making employed by young people, nor of the skills and outcomes associated with their information seeking. It is therefore useful in stimulating thinking on career information seeking and career information literacy, whilst also affording conceptual flexibility for the generation of new knowledge.

In the next chapter, the research design inspired by the tenets of the conceptual framework will be discussed. In line with these tenets, the research programme was designed to investigate the behavioural and cognitive patterns associated with young people's information seeking and information literacy, and the means by which these patterns contribute to their sense-making during career transitions.

Chapter 4   Methodology

4.1   Introduction to Chapter 4

In this chapter, the research paradigm of the doctoral study and the methodology adopted to address its research questions are discussed. The chapter begins with a deliberation on the philosophical approaches and their suitability to the aims of the work. This is followed by a description and justification of the mixed multi method research design employed in the study. The chapter concludes with an evaluative synthesis of the implications of the choice of research design. The synthesis is focussed on matters of validity, reliability, ethics, and the degree of confidence and generalisability afforded by the research design.

4.2   Research philosophy and approach

The research paradigms used in research projects have important implications for the development of research programmes, and the interpretation of their findings (Khaldi, 2017, p. 16; Wolgemuth et al., 2015). In accordance with this, it is necessary to elucidate the philosophical lens through which the research is approached, and to present the rationale that underpins the linkage of this research's philosophy and methodological approach. Within the two disciplines that this research is borne of (LIS and career studies), three main paradigms are commonly encountered: positivism, post-positivism, and pragmatism. These three research paradigms are given due consideration for use in the doctoral research, and outlined below. As the paradigm ultimately chosen, pragmatism is detailed, and its relevance to the present work is highlighted.

4.2.1   Common research paradigms

Research paradigms can be characterised by two main dimensions: ontology, which is concerned with the nature of reality, and epistemology, which pertains to the nature of knowledge (Goertz & Mahoney, 2012, pp. 207–213). The treatment of these dimensions in research is fundamental to the choice of research methodology, as it determines the concrete techniques and principles that allow analyses to be carried out, and knowledge of phenomena to be achieved (Berryman, 2019; Hansen, 2015). There exist three schools of thought in respect of these claims to knowledge, and the means

of scientific enquiry through which they can become known: positivism, post-positivism, and pragmatism. Each of these is outlined in turn below.

Positivist research is underpinned by an objectivist ontology, which views objects and entities as existing independently of conscious experience, and a positivist epistemology which suggests that external structures are stable, quantifiable, and have causal effects that can be experimentally replicated (Hamati-Ataya, 2014, pp. 154–155). In other words, reality is 'out there' and exists irrespective of whether individuals are there to perceive it. Embodied in this position is the notion that reality may be perceived differently by different individuals or imbued with different meanings, yet this reality is constructed from objective entities and observable natural artefacts that precede and supersede human ways of knowing (Vattimo, 2016). The positivist view is also otherwise known as 'scientific realism', and has been referred to as such by scholars of the philosophy of science (Psillos, 2005). It is rooted in the early origins of the scientific method and the belief that anything that exists can come to be observed and measured. As such, the positivist paradigm is most commonly found in the natural sciences, which subscribe more readily to the objectivist stance than the social sciences (Lyall & Meagher, 2012, pp. 609–611)

Post-positivism emerged as a critical antithesis to positivism, rejecting both its ontological and epistemological assumptions, and the notion that scientific realism is the only way valid claim to knowledge (Fox, 2008, pp. 659–660). Post-positivist researchers generally view the social world as ontologically different from the natural world, and posit that the social world needs to be studied using methodological tools that are different from positivist tools (Kroeze, 2012, p. 47). Following this logic, researchers further subscribe to three kinds of paradigms: (1) critical realism; (2) social constructionism; and (3) interpretivism. Critical realism holds that there is a real world which is separate from the observable world, and that both natural objects and social structures are real, persistent over time, and have causal power (e.g. Bhaskar & Hartwig, 2016). In contrast, social constructionism[11] suggests that all knowledge and meaningful reality is socially constructed and contingent upon social actors interacting with each other (Galbin, 2014). Interpretivism advances the position that reality is subjective, and shaped by individual experiences and context; in this sense,

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[11] Social constructionism and constructivism both incorporate subjectivist views and are commonly used interchangeably. However, it is important to note that there are some differences between them. Constructivism is a form of cognitive constructivism which emphasises individuals' own perspectives as manifested through biological and cognitive processes, and social constructionism instead emphasises the construction of knowledge through social exchanges (Hansen, 2010, p. 210). The two subjectivist approaches are commonly collapsed under the same designation – 'constructivism' – which may focus on either the experience of the individual as a whole or on the knowledge constructed through social exchanges.

social phenomena cannot be explored in the same ways as physical phenomena, and require more attention to beliefs, norms, values, and meanings (Alharahsheh & Pius, 2020, pp. 41–43).

A third paradigm – pragmatism – can also be distinguished in the literature. Pragmatism asserts that "things perceived as real are real in their consequences". This implies that what matters most is what people take to be true (Bowker & Star, 1999, p. 13). As an anti-reductionist philosophical approach, pragmatism emphasises the epistemological properties of a world-in-process where action and communication are the primary subjects of research (Morgan, 2014). From an ontological standpoint, its proponents accept the possibility that there may be multiple realities that are open to scientific enquiry, and thus embrace a pluralistic ontological view (Creswell & Clark, 2011). As with constructivism and interpretivism, pragmatism views language and meaning as important (Biesta, 2010, pp. 710–711). However, the four key originators of pragmatism – Charles Sanders Peirce, William James, John Dewey, and George Herbert Mead – were also concerned with the effectiveness of thinking and doing, which they saw as the primary mechanisms of human existence (Simpson, 2018, p. 2). These scholars have been critical of the preoccupation of much of philosophy with the mind and the self (Biesta, 2010, p. 711). Dewey, in a similar vein, considered matters of individual action and identity as important to his work, yet argued that cognition is largely constructed through human association and communication (Dewey, 1986). Thinking and doing can therefore be construed as the two main interrelated tenets that underpin the pragmatist worldview.

4.2.2   The philosophical position of this research

When choosing an appropriate philosophical approach for interdisciplinary research projects, three factors can be considered: (1) the dominant approaches in each of the disciplines that underpin the research; (2) the approaches that have been used to address research questions similar to those of the research project; and (3) the approaches that offer the greatest methodological utility with regards to the specific aims and questions of the research, regardless of discipline (e.g. Andersen & Wagenknecht, 2013; Frodeman, 2013).

It is evident from the detail reported in the literature review in Chapter 2 that considerable philosophical and methodological flexibility and variability has been recorded across LIS and career studies. The two fields of academic enquiry all share a similar pattern of moving from more objectivist to more subjectivist and holistic philosophical approaches over time as a result of sociological influences. Two notable examples of this are information practices and career construction. Information practices research, as discussed in Chapter 2 (p.25), reflects the growing

scepticism on the extent to which generalisations about information sources and groups of people can be made. Equally, scholars such as Savickas, McMahon, and Patton in career studies advocate for research to focus more on identity construction and meaning-making, and to depart from its reliance on psychometric assessment alone (Patton & McMahon, 2016; Savickas, 2013). While there have been different predominant paradigms over the life course of these disciplines, at present, research approaches inspired by both positivist and post-positivist paradigms are deployed.

Taking into account these research trends and the aims of the empirical research completed for the study reported in this thesis, it was evident that there is scope for a pragmatist approach to be employed. The first goal of this research was to generate knowledge on the means by which young people use information for the purpose of making career decisions, and its second goal was to develop knowledge of young people's career information literacy. This research thus makes claims to knowledge in respect of cognition (in the form of information processing) and communication and action (in the form of information seeking from digital and social information sources). In its emphasis on communication and action (e.g. Morgan, 2014), pragmatism was deemed a suitable paradigm to utilise in this research. The pluralistic ontology of pragmatism affords the interpretation of individual action shaped by context and collective meanings without limiting one's worldview only to behaviours shaped by stable external structures, or only to phenomena produced within the social world.

On the grounds of it pluralistic worldview, the pragmatist research paradigm allows for mixed multi methods research approaches to be applied. 'Mixed methods' is a type of research that is closely associated with pragmatism, and that combines quantitative and qualitative research techniques (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2003). Quantitative research is associated with principles such as generalisability, standardisation, and replicability, and qualitative research is instead associated with the interpretation of subjective meanings and socially constructed truths (Creswell, 2013; Kaushik & Walsh, 2019, pp. 1–2). The mixing of both kinds of methods is beneficial, especially when results from these methods can be triangulated (Youngs & Piggot, 2014).

Triangulation can be achieved through the use of sequential research designs, and for this reason, a mixed multi methods, sequential explanatory design was employed in this doctoral work. In sequential explanatory research designs, findings from the quantitative phase inform the approach taken in the qualitative phase, and findings from the qualitative phase corroborate results from the quantitative phase (Edmonds & Kennedy, 2017). Qualitative data provides support, context, and explanatory utility for the previously obtained quantitative results (Ivankova et al., 2006, p. 4). The sequential explanatory design chosen for this research was thus expected to generate rich and multi-

layered understandings about the subject of study. The development of novel and internally consistent knowledge was considered important in the present doctoral work, since scholarly work on the topics of career information behaviours and career information literacy is scant, and there is limited insight upon which to base the development of research tools.

4.2.3   Reflexivity and axiology

In qualitative research, it is important for researchers to reflect on the means by which their characteristics, values, and beliefs may impact on their research, and to communicate their subjective position to other researchers, to allow for their research to be reproduced (Lumsden, 2012). Reflexivity and axiology are both pertinent to discuss in this context, and stimulate thought regarding the influence of researchers' own positionality on the research process (Barrett et al., 2020, p. 9; Biedenbach & Jacobsson, 2016, pp. 139–140). Attention to these matters is useful in ensuring that researchers do not act as privileged figures that have more expertise and agency than research participants, and that the validity and reliability of their research is not compromised by their biases (Denzin & Lincoln, 2008; Kirschner, 2011).

Scholars who engage in reflexivity and axiology broadly fall into two categories: those who attempt to neutralise their influence on the research, and those who subscribe to the view that the neutralisation of researcher influence is problematic or impossible (Olmos-Vega et al., 2023). In each case, an awareness of one's characteristics and values is necessary since this facilitates the articulation of any potential influences on the research process.

In respect of reflexivity and axiology in the case of this study, a researcher cannot be a neutral observer of the research environment. Even when utilising research methods that rely on observation, a researcher's background and values will influence the approach and the interpretation of the results. In the interest of upholding the transparency of the research, the following declarations state the researcher's positionality in this study:

1. The researcher subscribes to a pragmatist axiology associated with the adoption of both objective and subjective points of view. This means that flexibility is valued in determining points of view that satisfy the purposes of the research investigation. The research process can 'zoom in' or 'zoom out' of certain issues, and weave these together into a multifaceted representation of a phenomenon, explored from different sides. This is manifest in the employment of a mixed multi methods approach, rather than one that centres only on cognition and the de-contextualised interaction with information sources and information

systems, or only on information practices. Cognition, action, and communication were considered different aspects of the same subject of study.

2. The researcher has a background in qualitative research methods. This has resulted in the inclusion of more qualitative research methods than quantitative research methods in the research. To minimise the effects of researcher bias on the qualitative data collection, the research design literature was consulted (e.g. Bechhofer & Paterson, 2000; Funder, 2005), and the research was designed in a manner that promotes methodological validity. To achieve this, standardised cues were used with participants, and the researcher remained impartial outside of the purview of their working theories. Where personal views were presented, this was done after data gathering had concluded.

4.3   Research design

The programme of data collection for this doctoral work consisted of three phases: (1) a preliminary phase; (2) a quantitative phase; and (3) a qualitative phase. These were completed between October 2021 and December 2022 (Table 10). The first phase was a scoping study of young people and careers advisers' collaborative information seeking. The use of secondary data in this research was anticipated to be particularly fruitful, as there is abundant practice-based knowledge about career information use within career services (Gysbers et al., 2003; Vartanian, 2010, pp. 18–22). The analysis of such secondary data provided insight into career information use that has not previously been presented in the academic literature.

In the quantitative phase of the research, a questionnaire was developed and deployed. This follows earlier practice in the field: data on young people's career information-seeking was previously gathered through questionnaires (e.g. Julien, 1999). The data collected in the quantitative phase informed the approach taken in the qualitative phase. Here data collection by interviews and diaries provided in-depth accounts of individual experiences and the meanings ascribed to everyday life events (Spowart & Nairn, 2014, p. 329). Semi-structured interviews were chosen in this case because they allow for enquiry that is aligned with the tenets of conceptual frameworks whilst also affording researcher and participant flexibility in discussions (Galletta, 2013).

	Action/ method	Steps taken
Preliminary phase	**Ethical review**	1. Review of ethical guidance on conducting research with young people 2. Development of data management plan 3. Ethical approval application
	Participant recruitment	1. Negotiations with existing gatekeeper contacts 2. Identification of new gatekeeper contacts 3. Proxy recruitment of young people
	Scoping study	1. Internal audit of relevant SDS databases 2. Evaluation and selection of appropriate secondary data sources following internal SDS audit: 200 engagement notes
Quantitative phase	**Questionnaire**	1. Development and administration of pilot questionnaire 2. Refinement of questions and administration of final questionnaire 3. First round of data analysis (to inform second research phase): 587 questionnaire responses
Qualitative phase	**Interviews and diaries**	1. Selection of interview participants from questionnaire sample and pilot interviews 2. Selection of diary participants from interview sample 3. Second round of data analysis (to review and triangulate data collected in both phases): 33 interviews and 12 diaries

Table 10. Mixed multi methods approach: sequential explanatory design

4.3.1   Preliminary phase: scoping study

The empirical work for the scoping study focused on secondary data analysis. It comprised two components. The first was an audit of internal secondary data sources at SDS. Then followed an analysis of a subset of this secondary data.

The audit was performed to identify digital traces of information work by career advisers and young people who engage with careers services. It was conducted in association with service executives, user experience experts, and data protection officials at SDS. These individuals have access to, and knowledge of, internal notes, documents and communications, service reporting systems, as well as SDS's public-facing careers advice and information website 'My World of Work' (My World of Work).

Secondary data analysis was undertaken for two reasons. Firstly, it prefaced a series of data collection phases and, as a preliminary study, helped refine other methodological components for

the full study. This is in line with the view that it is appropriate to deploy secondary data analysis in the early stages of doctoral work (Johnston, 2017; Ullah & Ameen, 2018). The second reason was practical. Direct access to research participants during the COVID-19 pandemic lockdowns in 2020-2022 was limited, while secondary data analysis was feasible under such circumstances.

The data set chosen for analysis comprised a random sample of 200 engagement notes of one-on-one career counselling conversations held online or over the telephone. These notes were written by, and for, career advisers as part of regular service reporting. They represent summaries of discussion themes, actions taken, and outcomes of career conversations. During data extraction, all names were anonymised, duplicate entries removed, and brief or incomplete engagement entries (i.e. containing fewer than 500 characters in the text field) excluded. The data extraction parameters were set to capture longer entries since these included more usable data than shorter entries. For example, short entries could merely take the form of one-sentence progress updates such as "Met with X today, he has not yet spoken to Y about Z". The more detailed accounts of discussions and actions in the longer entries were found to be more relevant to the aims of the study.

The data were analysed through thematic content analysis in NVivo 12. The properties of the data set shaped the choice of data analysis methods. Since the data did not contain transcripts of naturally occurring conversational exchanges, but simply descriptions of such exchanges, manifest content and semantics were more apparent than latent content (such as intentional or unconscious meanings). Thus the objective of the content analysis was to determine linguistic patterns such as word usage and the relationships between concepts. This type of content analysis is language-focussed. It stems from the contention that metaphors used in speech and written texts are indicative of cognition and communication (Stemler, 2015, p. 6). Had the data set comprised conversational exchanges, it would have been appropriate to use another technique such as discourse or narrative analysis, following practice in prior studies (Franzosi, 2008; Johnston, 2017; Nasheeda et al., 2019).

The content analysis was performed in three cycles. First, a frequency analysis of words and sentences related to "information" was performed to familiarise the researcher with the role of information in the engagement notes. Next, all statements in the data were assigned a code so that the resulting output resembled a categorised inventory of data set contents. The coding strategy here was an 'open' one, i.e. the use of broad, descriptive codes was adopted. In the third cycle, patterns across first-cycle codes were explored. These coding methods were adapted from the procedure presented by Skjott Linneberg and Korsgaard (2019, p.265).

The findings of the scoping study were later applied in the development of questions for the questionnaire in the quantitative phase. They were useful here because they gave insight into the language used by young people to refer to career information seeking. As well as being informed by the findings of the literature review work for this study and the conceptual framework, the wording and content of the questions were also informed by the outcomes of the scoping study.

4.3.2   Quantitative phase: questionnaire

In the quantitative phase of the research, primary data that pertained to young people's career information seeking, career information literacy, and career decision-making were gathered. The aims of the questionnaire were to explore the statistical relationships between these three concepts, and to develop insight into young people's current levels of career agency. On the basis of the findings of the scoping study, a quantitative questionnaire was developed (Appendix 1).

This questionnaire contained quantitative questions to ascertain the prevalence of the three assessed dimensions in the population: career decision-making, career information seeking, and career information literacy. It was further anticipated that qualitative data would be gathered through follow-up interviews in the subsequent qualitative phase. Hence it was not deemed necessary to devise a qualitative questionnaire. Doing so would have duplicated the approach taken in the subsequent research phase.

To collect a high volume of data in a short period of time, the questionnaire utilised a combination of five-point Likert scale items, single-choice questions, and multiple-choice questions. The questionnaire also utilised self-report measures. Through these measures, participants' subjective perceptions of their career information seeking habits and abilities could be reflected in the data.

4.3.2.1   Development of the questionnaire

The development of the questionnaire was informed by the gaps in knowledge identified in the literature review, the themes of the conceptual framework, and the findings that emerged from the scoping study. Four types of questions were asked: career decision-making questions to identify respondents' levels of career certainty and their career intentions; career information seeking questions to determine behavioural patterns and the usage rates of different information sources; career information literacy questions to indicate young people's self-appraisal of their skills; demographics-related questions.

The questionnaire began with questions relating to career decision-making and career information seeking. The purpose of including these questions in the questionnaire was to measure the levels of

career certainty in the sample, and to generate quantitative data of young people's careers research patterns. On the basis of the extant literature, it was expected that some young people would experience career decision-making difficulties, and hence exhibit low levels of career certainty, while others would not (e.g. Li et al., 2017). The data were anticipated to be positively skewed as a function of participants' self-selection bias (Bethlehem, 2010). It was expected that those who had had positive experiences of career decision-making and career information seeking or who were more adept at careers research might be more likely to complete the questionnaire.

Career information seeking questions were included in the questionnaire because the scope of young people's careers research was unknown. Only Julien (1999, p.38) had previously considered young people's "information seeking for career decision-making", and had done so in a Canadian context. It was important to ascertain the extent to which young people in Scotland perform careers research on their own, and if so, how thorough this research is, not least because this information could not be inferred from the literature.

The participants were also asked to rate their confidence in their career information literacy skills. Such measurement was performed in this research to highlight specific skills that are in need of development, and to reveal linkages between career information literacy skills, career information seeking, and career decision-making. The competencies associated with each of the seven pillars of the SCONUL model – identify, scope, plan, gather, evaluate, manage, present – underpinned the development of ten 5-point Likert questions.

To capture age- and gender-related effects, and to enable comparisons across groups, demographic questions were also included in the questionnaire. Background information pertaining to participant location, nationality, and spoken language was collected alongside information about their access to digital devices. Potentially sensitive questions were avoided. For instance, instead of being asked about their socio-economic class, participants were asked to indicate whether or not their parents or guardians were in employment.

4.3.2.2   Sample choice

The primary target population for the research was young people aged 13-18, who were resident in Scotland, and studying at a Scottish state secondary school at the time that the research was undertaken. The sampling strategy centred on young people aged 13-18 because secondary school populations are under-represented in the literature, whereas university student samples have received the most research attention (e.g. Towlson & Rush, 2013).

The lower limit of the sampling age bracket was specified at 13. Under the current GDPR and children's rights legislation, children who are over 13 years of age have a different legal status from those who are under 13 years of age. While both population groups are regarded as 'children' and treated as vulnerable groups for the purposes of research, those older than 13 are regarded as better able to provide informed consent. The lower limit age cut-off is also appropriate for the selection of a homogenous sample of students who are all studying in secondary schools.

The upper bracket was specified at 18 because the doctoral research aimed to explore transitions from secondary school into training and education. According to the Scottish Government's 2020/21 school leaver statistics (Scottish Government, 2020), the majority of secondary school students (63.2%) left school in S6, when they were 16-18 years old. 68.4% of these students moved on to higher or further education, and 22.6% proceeded into part-time or full-time employment.

The choice of a sample for the study was driven by several deciding factors:

1) At the time of data collection, there were 300 000 secondary school students in Scotland (Scottish Government, 2020). To achieve statistical power at confidence level 95% for this population, it was estimated that the sample size of the questionnaire should be at least 384 (Kraemer & Blasey, 2015).

2) The sample reflected the diversity of the population, so that the research findings could inform policy development. While the study does not claim to be representative of the population, groups from all geographical regions, genders and age groups were represented in the sample. Convenience sampling (e.g. sampling limited to Edinburgh schools) was not adopted because this would not have resulted in the recruitment of a sufficiently representative sample of the Scottish population.

3) To ensure that the scope of the work would be manageable, data were collected only from state secondary schools, and not from private or independent secondary schools, colleges, universities, or apprenticeship providers. Secondary schools were given precedence over other educational institutions because these work closely with SDS to deliver the CIAG service offer. The recommendations that arise from the findings of this research can therefore be embedded in the existing SDS service provision to secondary schools.

With these considerations in mind, non-probability sampling involving self-selection and snowball sampling was employed in the research. Non-probability sampling is a cost- and time-effective technique in which researchers specify their sampling criteria, and use their subjective judgement and knowledge of the field to select populations for study (Everitt & Skrondal, 2010). This sampling

method stands in contrast to probability sampling (also known as random sampling), in which participants are randomly selected. In probability sampling, all members of the population are given an opportunity to be part of a sample, and sampling bias is reduced as samples are randomly selected (Lohr, 2010). Probability sampling also requires large sample sizes and a significant time investment. Thus non-probability sampling is a more accessible method that has grown in popularity in recent years. This is suitable to use in exploratory research and mixed methods research (Onwuegbuzie & Collins, 2007). It affords researchers the possibility to continue surveying until they have reached their desired sample size.

The questionnaire's sampling criteria were communicated to the gatekeepers and the participants before and during recruitment. These stated that participants should be:

(1) 13-18 years old, and studying at level S1-S6;
(2) ordinarily resident in Scotland, and enrolled in a Scottish secondary school.

All participants who satisfied these criteria were invited by the researcher to complete the questionnaire, and to share the questionnaire with others whom they think would be interested in participating in the research. The decision to use third parties for inviting participation was made to reduce selection bias (with the exception of self-selection bias).

4.3.2.3   Pilot study

In February 2022, the "Scottish career information survey" was created in Microsoft Forms. This was piloted with 10 participants recruited through personal and professional networks. The pilot participants matched the study's target demographic profile: all were Scottish secondary school students aged between 13 and 18 years old. The pilot participants were asked to complete a feedback sheet, and to comment on the following aspects of the questionnaire:

(1) The clarity of the questionnaire instructions and the informed consent form;
(2) The comprehensibility of the language and the terminology used in the questionnaire;
(3) The ease of completing the questionnaire, and the amount of time required to do this;
(4) The accessibility features of the questionnaire (for instance, a participant with a learning disability was consulted on the accessibility features of the questionnaire, such as the read-aloud function).

The pilot participants reported that the questionnaire did not require any major amendments. A few additional answer options were suggested for the career information sources question (Q6). These were added to the questionnaire.

4.3.2.4   Data gathering and participant recruitment

Participants were recruited through a combination of four recruitment channels: (1) secondary schools; (2) the YoungScot website; (3) the SDS parents database; (4) social media and blogging. In the first instance, the Register of Maintained Secondary Schools in Scotland was obtained from SDS in March 2022. The Register contained background information (such as maximum roll and primary/secondary education provision) and contact details for each school. This information was used to create a list of head teacher and administrative contacts within each school. These recruitment contacts (N=361) were then contacted with an email request to disseminate the questionnaire to their students.

With help from the YoungScot Development team, the questionnaire was also uploaded to the 'Get involved' section of YoungScot website. YoungScot is a national youth information and citizenship charity for 11- to 25-year olds living in Scotland. The 'Get involved' section of the YoungScot website helps young people to discover volunteering opportunities and to become involved in causes that are important to them. In return, they receive reward points. These reward points can then be exchanged for digital vouchers (e.g. gym subscriptions) or experiences (such as days out at the zoo or work shadowing). Participants who completed the questionnaire were offered 150 YoungScot reward points. As it was acknowledged that some respondents may not have a YoungScot account, additional remuneration was arranged as a way to compensate participants for their time, and a prize draw for three love2shop vouchers worth £50 each was independently organised. The questionnaire was also publicised through social media (on Twitter) and through the dissemination of the YoungScot questionnaire link, the questionnaire's QR code, and digital recruitment flyers to secondary schools.

During the recruitment period, it was found that significantly more females than males were completing the questionnaire. Targeted recruitment was then undertaken to achieve a better gender balance in the sample, and youth work charities and SDS were contacted for recruitment assistance. SDS provided a list of parents' contact details that could aid the recruitment efforts. These parents had previously taken part in the SDS Parents survey, and had indicated that they would like to be contacted about taking part in future research. This targeted recruitment strategy yielded an

increase in the number of male participants. The resulting gender ratio of the questionnaire was 52% female/42% male/6% other.

4.3.2.5 Data analysis

Upon closure of the questionnaire, 667 unique participant responses were recorded. To maintain consistency in the data analysis, the responses of 80 participants were excluded from analysis following four pre-set criteria: (1) pilot participants; (2) participants who were not studying at a Scottish secondary school (this included college and university respondents); (3) participants who indicated that they were under 13 years of age or over 18 years of age; (4) invalid responses (defined as incomplete or purposefully repetitive responses). The data analysis was performed on the final data set (N=587).

The main objective of the data analysis was to develop insight into young people's career information seeking patterns and career information literacy skills. The research was exploratory and was more concerned with establishing statistical associations between variables than making inferences regarding causality. It was expected that there would be parallel increases in the values recorded for careers research variables and career information literacy variables. It was considered that it was beyond the scope of this research to ascertain whether young people who have more advanced career information literacy skills are more likely to look for career information, or whether, inversely, young people who look for career information develop advanced career information literacy skills as a result.

A further objective of the data analysis was to establish links between young people's career certainty levels and the variables associated with career information use. This would indicate whether career decision-making difficulties might be alleviated through career information seeking and career information literacy skills development. It would also provide evidence to support and extend career decision-making theories and models. Indeed, theories and models such as Law's New DOTS model (Law, 2000) and Sampson's CIP model (Sampson et al, 2020) make reference to career development learning, occupational knowledge, and information processing skills, but do not implement information literacy dimensions.

Data gathered through the questionnaire were analysed using the IBM SPSS statistical software (v26). Prior to analysis, data were exported from Microsoft Forms. A Microsoft Excel spreadsheet that contained useable variables for analysis was created. The data contained in this spreadsheet were coded into the SPSS software, and a statistical codebook was developed. The codebook was an

accurate record of the numerical values that were assigned to variables. Next, the data were analysed using descriptive statistics and correlation analyses.

Frequency and cross-tabulation analyses were performed to determine the demographic properties of the sample and the associations between the variables. These analyses provided background information regarding the sample, and facilitated an understanding of young people's career information seeking and career information literacy skills. They indicated the general prevalence of behaviours and attitudes in the sample with respect to young people's career certainty, the scope and extent of young people's career information seeking, and young people's confidence in their ability to research careers (as indicated by their career information literacy skills).

Non-parametric inferential statistics were used to explore the associations, differences, and relationships between variables. This was necessary because the data did not display a normal distribution, and tended to be positively skewed. Comparisons between groups were made by determining whether the distributions of groups' responses differed significantly. This was useful, for example, in identifying gender differences across groups. The statistical associations between variables were measured through Spearman's rho rank correlations.

4.3.3   Qualitative phase: interviews and diaries

In the qualitative phase of the research, interview and diary data were generated. The purpose of the qualitative data gathering was to explore the same themes that had been investigated in the earlier data collection rounds, albeit in greater detail. It was anticipated that a greater understanding of young people's career information seeking, career information literacy skills, and career decision-making would be developed by 1) triangulating the findings from the two qualitative data collection methods and 2) triangulating the combined qualitative findings with those obtained from the quantitative phase of the research. In the interview component of the research, participants were asked to reflect on their past experiences of accessing, using, evaluating, and sharing careers information. In the diary component of the research, young people were prompted to complete information seeking tasks, and to keep a written record of their cognitive strategies for information retrieval.

The implementation of the study's sequential explanatory methodology resulted in the inclusion of two qualitative research methods in the research design, and in the consequent development of an interview guide and a diary brief. The development of these research instruments was facilitated by the analysis of the study's conceptual framework, the interpretation of the questionnaire results, and the consideration of the wider literature.

The interview guide contained questions pertaining to career information seeking and career information literacy (Appendix 2). In line with Dervin's (1983) sense-making theory, the questions were designed to explore everyday life information seeking. This was expected to be context-specific, and to occur across a range of localities (e.g. at school or in the library) and modalities (e.g. digital, social). The interview questions were open-ended and used wording to prompt interviewees to reflect on the particulars of the information seeking process and on their own subjective experiences and impressions of this process. The participants were invited to recount specific instances of searching for career information, and to situate their information seeking in context by elaborating on when, where, how, why and with whom they had undertaken their careers research. To generate knowledge of the antecedents (e.g. information needs) and processes associated with information seeking (e.g. career development learning), respondents were also asked to reflect on their motivations for information seeking and on the knowledge they had developed as a result of their information seeking.

In accordance with the questionnaire results, which indicated that young people's information seeking is often limited in scope and duration, provisions were made for interviewees who may not have engaged in any careers research. It was envisaged that participants who would not be able to recall specific careers research instances could instead be asked "In general, how do you tend to approach the careers research process?". As an additional provision, interviewees were asked about the means by which they would help a peer with their career information seeking. This interview technique is reminiscent of an approach known as "interview to the double", where participants are asked to imagine that they are teaching their 'double' all that they would need to know in order to be them (Lloyd, 2014, p. 102).

The interview guide also incorporated questions related to young people's career information literacy skills and career information literacy education preferences. These questions were included in the interview guide for the purposes of surveying the current levels of young people's career information literacy skills and discovering opportunities for the enhancement of these skills in the

future. A key goal that underpinned the development of the interview guide was the identification of skills that are an inextricable part of career information seeking in everyday life. Through the identification of these skills, a career information literacy competency profile could be built. This competency profile would advance the conceptualisation of career information literacy skills and the extension of conceptual understandings related to Sampson and colleagues' CIP theory (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Reardon, et al., 2020).

The research themes of career information seeking and career information literacy were also incorporated into the follow-up diary research (Appendix 3). To explore young people's cognitive strategies for career information seeking, their information seeking was grounded in practice, and they were presented with hypothetical careers research scenarios. As a result, a diary brief was devised. The hypothetical scenarios were designed to bear similarity to the accounts of career information seeking that had been provided during the interview. 'Chef' and 'paramedic' (Diary 1) were two of the professions that participants had mentioned researching, and 'forensic psychology' (Diary 2) was one of the main areas that they had found difficult to research. Thus the first diary brief was designed to incorporate comparisons between options on the basis of career information, and to prompt career decision-making. The second diary brief presented participants with an information seeking challenge. The ideation of these diary briefs was inspired by Zalaquett and Osborn (2007)'s study of career counselling students. In their paper, the authors reported on an educational programme that consisted of four components – self-assessment, career searches, career information, and job preparation. The authors presented career counselling students with sample client scenarios (vignettes). The students were asked to use the internet to find relevant career information, and to produce answers to the questions posed in the vignettes:

> "Students are presented with a case or vignette of a person who needs to find information about current salaries for chemical engineers. A sample vignette is about "Joelle" who has specific questions related to her case: "Joelle is interested in being a chemical engineer in Florida, but she wants to know that she will start off making at least $57,000. Is this possible? List the online sources you use to determine your answer." (Zalaquett and Osborn, 2007, p.7)

The third diary brief was a creative writing exercise. During earlier consultations with the methodological literature, it was established that innovative techniques and creative research methods are appropriate to use with children and young adults (Fargas-Malet et al., 2010). Such methods include drawing, arts-based methods, and photo-elicitation (Clark-Ibáñez, 2007; Lodge, 2007). Therefore, in addition to completing the structured information seeking tasks in the first and

second diary rounds, participants were also invited to express their thoughts in a more creative way. The platform upon which diaries were hosted (Microsoft Forms) supported text entry, but not file uploads. To maintain consistency and simplicity, and to protect participants' data, a decision was made to use Microsoft Forms for all three diary briefs, and to gather data for the third diary in a text format.

4.3.3.2   Pilot studies

In April 2022, five pilot interviews were conducted with young people recruited from secondary schools. These interviews were semi-structured, and were held and recorded on the online videoconferencing platform Microsoft Teams. The purpose of the pilot interviews was to determine whether the questions chosen for inclusion in the interview guide were easily understood and relevant to young people's experiences. A further consideration was whether these questions would generate data that corresponded to the study's aims, and whether any important themes had been omitted from the interview guide. The pilot interviews revealed that all conditions for proceeding with the interview research had been met. All respondents were able to recall specific instances of career information seeking, and commented on their career information literacy skills. The interviews took, on average, 40 minutes to complete (including the initial briefing and debrief at the end). This was in line with expectations, and confirmed that the number of questions was appropriate.

One adaptation to the interview guide was made after the first three pilot interviews. It was found that young people struggled to provide detailed accounts of their activities through the "interview to the double" technique. This was adapted by creating a persona and a scenario that very closely resembled that of the young people being interviewed. For instance, the gender of the persona was varied during the interview to match that of the interviewee. This adapted technique yielded detailed and useful responses. Since the interview guide used in the pilot interviews did not differ considerably from that used in the core programme of research, the pilot interview data were retained and analysed together with the data from the subsequent interviews.

In June 2022, the diary research was piloted, and one pilot diary entry for Diary 1 was completed online (through Microsoft Forms). This was intended to assess both the validity of the research method and the technical feasibility of the study. The pilot participant stated that there were no issues with conducting careers research to meet the task specifications, and with recording diary entries online. Only one issue with the diary brief was highlighted: one of the questions appeared as

optional in the Microsoft Forms interface. This was remedied, and other young people were then also invited to populate their diary entries.

4.3.3.3   Data gathering and participant recruitment

Between April and July 2022, participant recruitment for the interview and diary components of the study was undertaken. The participant recruitment strategy utilised a follow-up approach involving self-selection. This meant that interview participants originated from a subset of the questionnaire participants, and diary participants originated from a subset of the interview participants.

In April 2022, all questionnaire respondents who had indicated that they would be interested in participating in follow-up research were contacted by email. Out of a total of 587 questionnaire participants, 81 had provided a valid contact email address. Upon being contacted, 24 young people indicated that they would be available for a follow-up interview. According to methodological guidance texts, data saturation can be reached with an interview sample size between 5 and 60 participants, with 30 being the average (Francis et al., 2010; Guest et al., 2006). Thus the target interview sample size for the interview corpus was 30. To build redundancy into the participant sample and account for no-shows, 15 additional interviewees were recruited through the SDS parents database and through social media and blogging. Interviews were then conducted online, through Microsoft Teams, over a period of two months. They lasted, on average, 35 minutes. The interview sample size was 33 (please see Appendix 4 for a full list of the interviewees).

At the end of each interview, the participants were notified of the subsequent diary research, which would involve completing three online diary entries over three weeks (on Microsoft Forms). All interviewees were invited to participate. While participation in the interviews was not reimbursed, the time commitment associated with participation in the diary research necessitated reimbursement. Following the successful completion of the three diaries, each participant was awarded £40 in love2shop vouchers.

Twelve participants agreed to take part in the diary research. Over the course of their diary-keeping, the participants were contacted by email once a week. The purpose of these communications was to remind the participants about the next diary entry, and to offer guidance with completing the diaries if needed. Some participant attrition occurred every week: there were 12 diary entries for Diary 1, 11 for Diary 2 and 10 for Diary 3. This degree of attrition was expected, and considered acceptable.

4.3.3.4   Data analysis

After data from the interview and diary phases of the research was collected, the data were prepared for analysis. The interview data did not require manual transcription because transcripts for each interview were auto-generated by the Microsoft Teams application. However, at the time of analysis, it was already known that the auto-generation tool offers limited transcription capabilities. Upon comparison of the audio outputs with the text outputs, it was confirmed that the auto-generated transcription files contained numerous mistakes and omissions. The transcripts thus needed to be thoroughly checked, and errors corrected where necessary. The transcript data files were anonymised, and formatted to ensure consistency for coding purposes. Randomised pseudonyms were then given to all participants. These pseudonyms were derived from an English and Scottish name generator.

The diary data did not require transcription because it was recorded in a digital format and stored as text in the Microsoft Forms application. The data were exported in a Microsoft Excel format and anonymised upon export, using the pseudonyms that had already been assigned to the participants at the interview stage. Whilst the diary data was being collected, manual checks were performed on an on-going basis (twice every week) to ensure that there were no empty fields, and that the diary entries were of an adequate length. A further manual check of the diary data was performed at the end of the data collection period to ensure that this could be imported into NVivo 11.

The data gathered from the interview and diary research were then imported into NVivo 11, and were subject to a thematic analysis. To allow for triangulation of the findings, data from each of these research methods were analysed separately. The thematic codes arising from the interviews and diaries were later reviewed in conjunction with one another. Multi-step thematic analyses involving open coding were undertaken. Analyses progressed through four stages (Figure 8). In the early stages of the analysis (steps 1 and 2), an initial reading of the interview transcripts and diary outputs led to a familiarisation with the data and the generation of preliminary codes, which represented exploratory approximations of the themes likely to arise from the analysis. A closer reading of the interview transcripts and diary outputs was undertaken in the later stages of the analysis (steps 3 and 4). This resulted in the development of a hierarchical coding structure that more accurately reflected the themes and patterns found in the data.

Figure 8. Data analysis procedure

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┌─────────────────────┐        ┌──────────────────────────────────┐
│   1. Data           │───────▶│ 2. Generation of preliminary codes │
│   familiarisation   │        │                                    │
└─────────────────────┘        └──────────────────────────────────┘
                                              │
        ┌─────────────────────────────────────┘
        ▼
┌──────────────────────────────────┐        ┌──────────────────────────┐
│ 3. Review of codes with a        │───────▶│ 4. Reorganisation,       │
│ consideration of the aims of     │        │ consolidation and        │
│ the research                     │        │ renaming of codes        │
└──────────────────────────────────┘        └──────────────────────────┘
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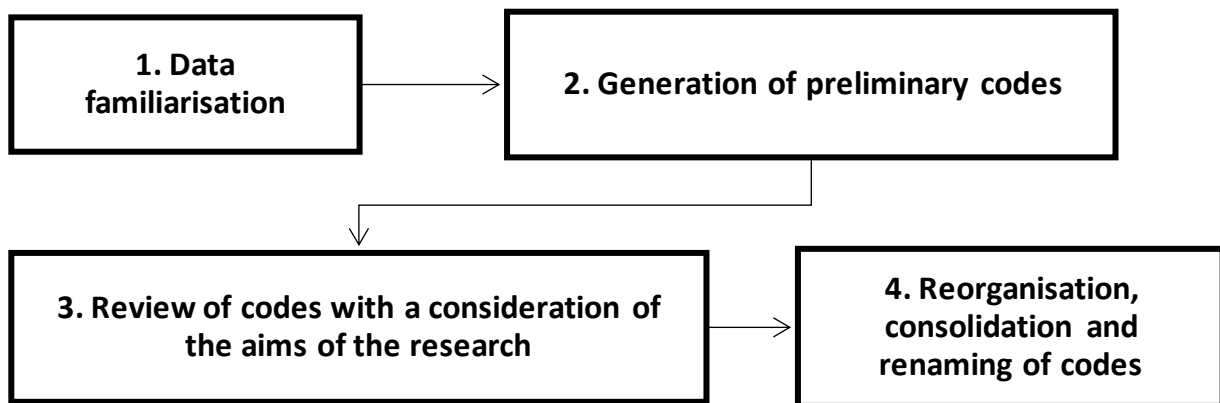
4.4 Validity and reliability

The development and implementation of the mixed multi methods research design was guided by the need to produce data of sufficient breadth and depth, so that new knowledge in a previously under-researched area could be generated. Validity and reliability are fundamental concepts used to evaluate the authenticity, credibility, and quality of research (Bush, 2012). Thus the research was designed with validity and reliability considerations in mind. Research validity is concerned with the *accuracy* of research, expressed as the degree to which a study's research instruments are able to measure what they claim to measure (Field, 2013, p. 11). Research reliability pertains to the *consistency* of research. This is determined by the extent to which research results can be reproduced in subsequent studies that repeat the research under the same conditions (Drost, 2011). As a general rule, a valid measurement is generally reliable: if a research instrument produces accurate results, then the study in which this instrument is employed is credible, and its results should be generally reproducible. A reliable measurement is not always valid: the results of a study might be reproducible, but the measurement utilised within it may not measure what it is supposed to measure. Consequently, research should be both valid and reliable.

Mixed multi methods research designs lend validity to research (Bryman, 2016, p. 637), and data triangulation is commonly associated with the enhancement of the validity of research findings (Youngs & Piggot, 2014). This is because findings can be externally and internally validated, with reference to both the treatment of the research's subject matter in the wider literature (including theoretical work), and the cross-verification of measures of the same concept within the same study. In this study, data triangulation was achieved through the implementation of a sequential explanatory research approach. Preliminary analyses of each stage of the three-stage exploratory

design informed the approach taken in subsequent stages of the research, and findings from all research methods were corroborated at the end of the data gathering period.

For example, in line with Drost (2011, p.118), a scoping study was conducted for the purposes of enhancing the content validity of the questionnaire. Particular attention was paid to the language used to refer to career information seeking, so that the terminology utilised in the questionnaire would refer to the constructs of interest, and not other, lateral constructs. The questionnaire later indicated that young people spend limited time on their careers research. Further elaboration on this finding was sought in the semi-structured interviews to confirm or amend this claim in line with the contextual nuances communicated by the interviewees. After reviewing the questionnaire findings, questions were added to the interview guide to better capture interviewees' experiences of *not* engaging with career information. Such questions included hypothetical scenarios of careers research, which captured young people's tacit knowledge of the careers research process, and questions that made reference to the reasons behind young people's tendency to perform limited careers research (e.g. barriers to information seeking).

The reliability of the research was facilitated by the justification of the research choices and the thorough description of the implementation of the research procedure. The sampling, recruitment, instrument development, piloting, data gathering, and data analysis decisions made in the research are described in such a manner here that would allow for the research to be reproduced. In the quantitative questionnaire, precise assessments of skills and behaviours were incorporated into the wording of the questions where possible, so that the responses given at test and retest instances would be comparable to one another. The integration of Likert items in the research instrument contributed to the standardisation of responses, as did the inclusion of questions that denoted specific periods of time (e.g. how much careers research is undertaken per month). In addition, the reflexivity statement in Section 4.2.3 (p. 62) acknowledges the subjective position of the researcher and the ways in which individual bias could have influenced the research. This statement serves to assist other researchers in their endeavours to study young people's career information literacy and career information seeking behaviours.

4.5   Methodological limitations

This research has a number of methodological limitations. These influenced the degree of confidence that can be attributed to the interpretations of its results. The first such limitation relates to the use of secondary data to reach the conclusions of the preliminary study. Secondary data can be a

valuable source of insight in the early stages of research. However, secondary data analysis is known to have some inherent limitations. For this reason, the use of primary data is preferred where possible. For example, secondary data might have been gathered for purposes and objectives that are different to those of the research, or it might not have been gathered for research purposes at all (Johnston, 2014). In addition, while there is a well-established tradition of performing secondary analysis of quantitative datasets in social science, the analysis of secondary qualitative data is more uncommon, and not as well-understood (Long-Sutehall et al., 2011). In this research, the secondary data was recorded by careers advisers, and not by young people, even though the data referenced young people's careers attitudes and behaviours. During analysis, it was important to disentangle the voices of careers advisers and young people in the text. It was necessary to avoid overstating or misinterpreting the observed effects, and to attribute claims to the correct speaker. It was also necessary to be clear whether an action was performed, or a belief was held, by a careers adviser, a young person, or both.

The second limitation of the research pertains to the generalisability and statistical strength of the study's quantitative findings, and arises from its sampling strategy and its use of non-parametric statistics. The use of a non-probability sampling technique is considered to be a more convenient and attainable mode of sampling than probability sampling, yet this type of sampling cannot be claimed to produce data that is representative of the whole population (Bavdaz, 2023). Non-probability sampling is prone to researcher bias or participant bias. In this case it might have affected the participant composition of this study through self-selection bias. There could have been an overrepresentation of those members of the population who are most eager to participate in research or most interested in the subject of career information use, and therefore most adept at career information seeking. The use of non-parametric statistics in the data analysis also has implications for the interpretation of the study's findings. Non-parametric tests possess less statistical strength than parametric tests because larger differences are needed before null hypotheses can be rejected (Ewens & Brumberg, 2023). This means that a significant effect is less likely to be detected through non-parametric tests (where one truly exists) than through parametric tests.

Another methodological limitation of this research stems from the need to rely exclusively on the use of remote data collection and digital research methods in the research design. This was necessitated by the restrictions of the COVID-19 pandemic lockdowns. The COVID-19 pandemic presented significant disruptions to research projects, and methodological research guidance at the onset of the pandemic relevant to the situation was scant (Townsend et al., 2020). Scholars adapted or delayed their research depending on the nature and the stage of their research projects. In this case

an evaluation regarding this research was made, and it was determined that it would be feasible to proceed with a digital data gathering strategy. Still, it should be noted that although videoconferencing interviews alleviate geographical constraints, they may also present technological and rapport-building challenges (Bampton et al, 2013; Deakin & Wakefield, 2013; Sedgwick & Spiers, 2009). Digital diaries can also be more time-consuming to complete than traditional diaries, and may result in decreased participant engagement in certain circumstances (Mendoza et al, 2021). Digital data collection methods might be less accessible to participants who suffer from digital poverty or who prefer to share their experiences face-to-face[12]. In the case of this empirical study, no significant difficulties (e.g. recruitment challenges, technical difficulties, or participant drop-out) were encountered as a result of the digital data collection strategy. However, it is important to take heed of the possibility that the study may have reached fewer eligible participants than it otherwise would have, had the research progressed unimpeded by the social distancing rules.

4.6   Ethical considerations

In October 2021, ethical approval for the doctoral research was sought from the School of Computing, Engineering and the Built Environment's Ethics Committee at Edinburgh Napier University. Prior to this, preparations for undergoing ethical review were made. Clearance was obtained to undertake regulated work with young people and vulnerable groups through Disclosure Scotland's Protecting Vulnerable Groups (PVG) membership scheme (MyGov, 2023). Training on the appropriate conduct of research collection with children and young people was undertaken, and the accordant data protection and privacy laws were reviewed (Information Commissioner's Office, 2021). Edinburgh Napier University's guidance documents on research integrity and research ethics were consulted. The principles of non-maleficence and beneficence were followed, in line with Edinburgh Napier University's Code of Practice on Research Integrity (Edinburgh Napier University, 2022). Contact with the Research Data Management (RDM) team was established, and a research data management plan was drafted.

To fulfil the purposes of the scoping study, which involved the transfer of secondary data from Skills Development Scotland to the Edinburgh Napier server, a data sharing agreement was drafted and signed. Ethical approval for all components of the research was granted in October 2021. These practices are all in line with good ethical conduct in research.

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[12] As of 2021, 96% of Scottish households have internet access. This figure is lower for households in deprived areas, at 93% (Scottish Government, 2023d).

4.6.1   Informed consent

All staff and students who conduct research at Edinburgh Napier University are committed to maintaining the highest standards of integrity and research ethics. Research ethics is a core element in the regulation and quality assurance of scientific practice (Ferreira & Serpa, 2018). Informed consent is a vital part of research ethics, which ensures that individuals are fully informed about all aspects of the research that might influence their decision to participate in it. The participants in this study were given opportunities to provide informed consent for each of the data gathering stages. The same informed consent procedures were used with the participants who had previously taken part in another research component, and with those who had not.

Several measures were taken to ensure that all participants were fully informed about the objectives and conduct of the research, and that they were voluntarily taking part. First, all participants were self-selecting, and had received information about the study before completing an informed consent form. In the recruitment strategy, the provision of clear information to potential participants through social media, secondary school contacts, parents, and careers advisers was emphasised. Second, online informed consent forms were used for all of the research components (please see Appendices 1, 5, and 6). These preceded the questionnaire and the diary brief, and were provided separately prior to the interviews. All informed consent forms were hosted on Microsoft Forms as this was considered to be a more secure channel than email. Third, verbal confirmation of informed consent was sought for the interview component of the research at the start of every interview. The interviewees were advised that informed consent is not assumed on the basis of prior consent, and that they can choose to withdraw their consent at any time without giving a reason.

A key consideration in the development of the research and the informed choice procedure was the use of appropriate means of obtaining informed consent from underage participants (defined as 13- to 18-year old under GDPR laws). The provision of informed consent in such circumstances necessitates the application of specialised techniques and the involvement of parents, guardians, and gatekeepers (Heath et al., 2007). With this in mind, Edinburgh Napier's standard 'informed consent form for working with children and young people' was adapted for use in the research, and informed consent was sought from both young people and their parents or guardians. The Ethics Committee suggested that the research summary within informed consent forms might be challenging for less confident readers. Hence straightforward language was used in the informed consent form. As an additional measure, the informed consent form was shortened. This was because research has shown that shorter forms are more comprehensible than longer forms (Perrault & Nazione, 2016). Care was taken to give participants sufficient time to study the research

summary, and to ask questions. They were given a copy of the informed consent form, and asked to retain this for future reference.

4.6.2   Anonymity and confidentiality

Researchers' ethical obligations apply not only to the procurement of informed consent from their participants, but also to the employment of appropriate data handling procedures that are enacted once participants' data has been gathered. It is important to preserve the anonymity of participants and to protect the confidentiality of their data, so that they cannot be personally identified from their responses. To ensure the anonymity of the participants, all references to their identity were replaced with pseudonyms, and all references to their place of residence (or to other information that could be used to identify them, such as to specific careers advisers) were removed. The participants' data was safely stored on a password-protected, university-managed laptop, and uploaded to the university's secure data storage directory. University-managed data storage is resilient, with multiple copies stored in more than one physical location, and protected against corruption. A backup of the data was also kept on an encrypted hard drive, which was stored in a safe location.

4.7   Conclusion to Chapter 4

The research paradigm and research methodology discussed in this chapter provide an account of the philosophical and methodological principles that underpin this research. As described in this chapter, a mixed multi methods approach was devised for the purposes of the research, comprising three phases: a preliminary phase, a quantitative phase, and a qualitative phase. Furthermore, the sequential deployment of a total of four research methods was determined to be appropriate as part of the sequential explanatory design: secondary data analysis; a questionnaire; interviews; diaries. The programme of research consisted of multiple phases and comprised a total of four research methods because it was designed to be robust, internally consistent, and rigorous. Furthermore, it relied on the triangulation of quantitative and qualitative data for the purposes of developing knowledge of under-researched phenomena.

The next chapter details the findings that arise from the application of the research methodology described in this chapter.

Chapter 5   Findings

5.1   Introduction to Chapter 5

The results of the four data collection phases of this doctoral research – the scoping study, questionnaire, interviews, and diaries – are presented in this chapter. The secondary data analysed in the scoping study comprised 200 engagement notes, while the questionnaire sample comprised 587 participants, and the interview sample consisted of 33 participants. From the interview sample, 12 volunteer participants for the follow-up diaries were identified.

The purpose of the data analysis was to develop an understanding of career information seeking and career information literacy from the perspective of 13-18 year old Scots who are preparing for their post-secondary transitions. The data from all research phases were cross-verified and triangulated, in line with the application of the sequential explanatory, mixed multi methods research design.

This chapter is structured according to the order in which the data were collected and analysed. It begins with a review of the findings of the scoping study. These reveal the means by which career information seeking is performed within career counselling settings. Next, the results of the questionnaire, in which the self-reported degrees of young people's information seeking and information literacy (relative to their decision-making) are documented, is presented. Then follow two sections that detail the main themes of the qualitative data analysis with regards to career information seeking and career information literacy: the interview results section and the diary results section. Cross-references are provided to highlight instances in which supporting data for certain themes were identified through more than one research method, and thus triangulated. In addition, in the interest of enhancing the clarity of analysis in the chapter, participants in each of the data collection stages are given a different collective moniker. Participants whose counselling engagement notes are cited in the scoping study are termed 'clients'; those who completed the questionnaire are called 'respondents'; those who took part in the interviews are termed 'interviewees'; and those who provided diary entries are labelled 'diarists'.

The findings contribute to knowledge on several of the elements pertinent to the exploration of young people's sense-making in the context of career transitions, such as collaborative and proxy information seeking, information needs, the cognitive and behavioural patterns of career information seeking, and the application of career information literacy skills as part of the careers research process.

5.2 Scoping study results

5.2.1 Language associated with career information seeking

Findings from the frequency analysis of the secondary data suggest that career information seeking is conducted collaboratively by clients and careers practitioners. This is commonly referred to as "looking at/looking into" and "researching" career options. The word "information" (Figure 9) appeared only 36 times in counselling notes, whereas "looking at/looking into" and "researching" appeared 179 times and 87 times, respectively. These colloquial framings of information use may be used to inquire about clients' career information seeking in the research fieldwork.

Similar contextual associations were recorded for the phrase "looking at/looking into" (Figure 10) and the word "researching" (Figure 11), confirming their interchangeability in narratives. Both terms evoked descriptions of specific pieces of information that had been accessed, or that were due to be accessed. Stemmed words relating to "research" were used within sentences to detail whether or not clients had undertaken careers research on their own. Such sentences were important indicators of the type and degree of information seeking assistance required. In the vast majority of statements, it was reported that clients had not undertaken any careers research on their own prior to meeting their careers advisers. As a result, they were prompted to do so by careers advisers.

Figure 9. "Information" word tree
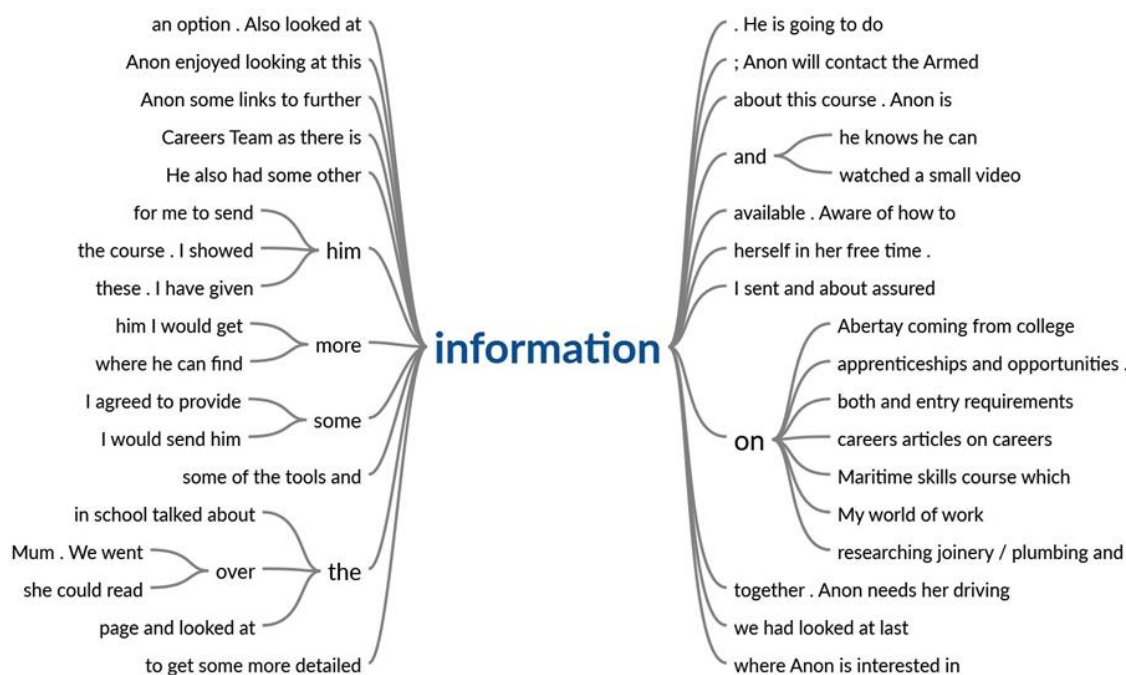
Figure 10. Fragment of "looked at" word tree
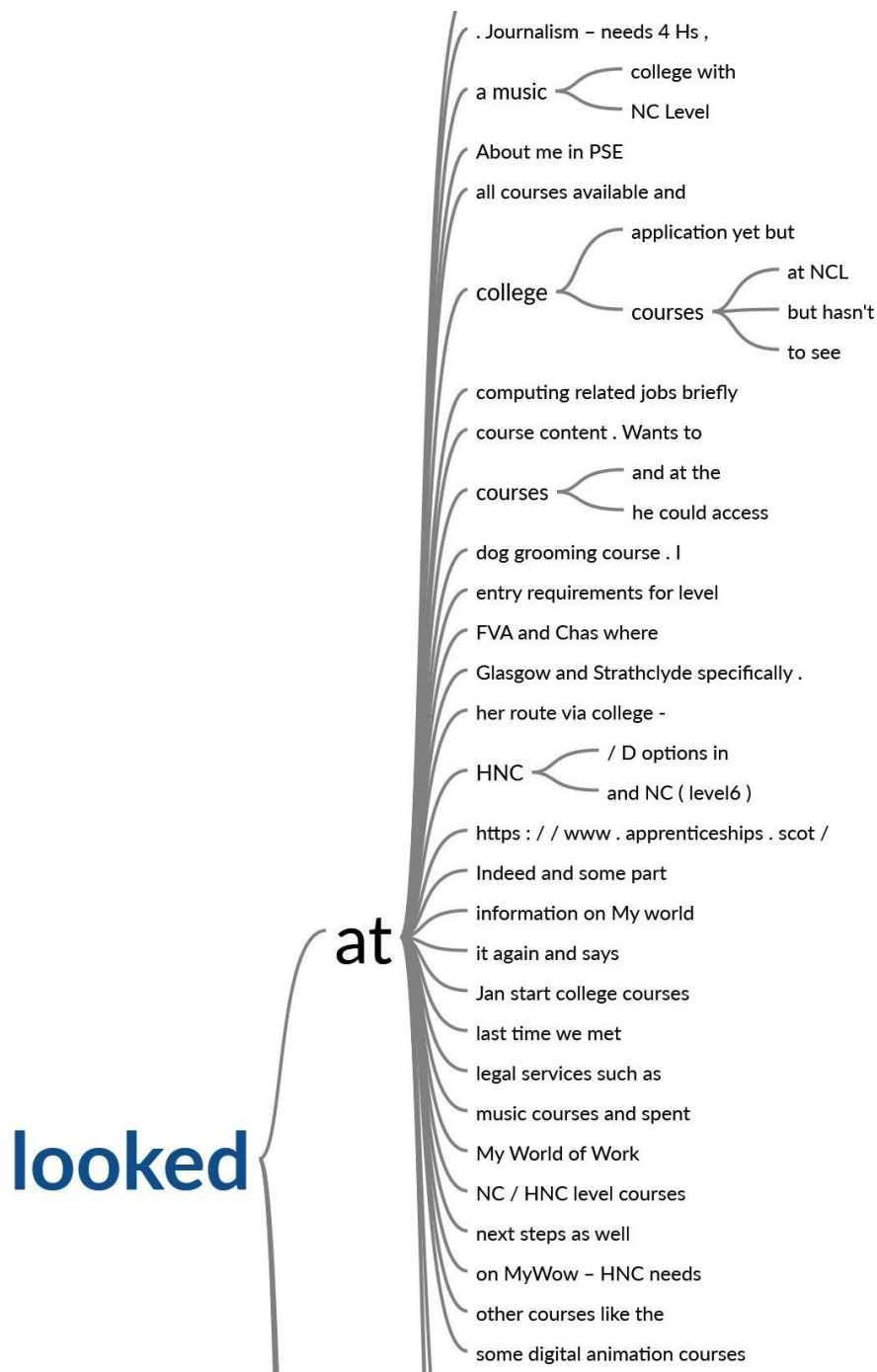
Figure 11. Fragment of "research" word tree
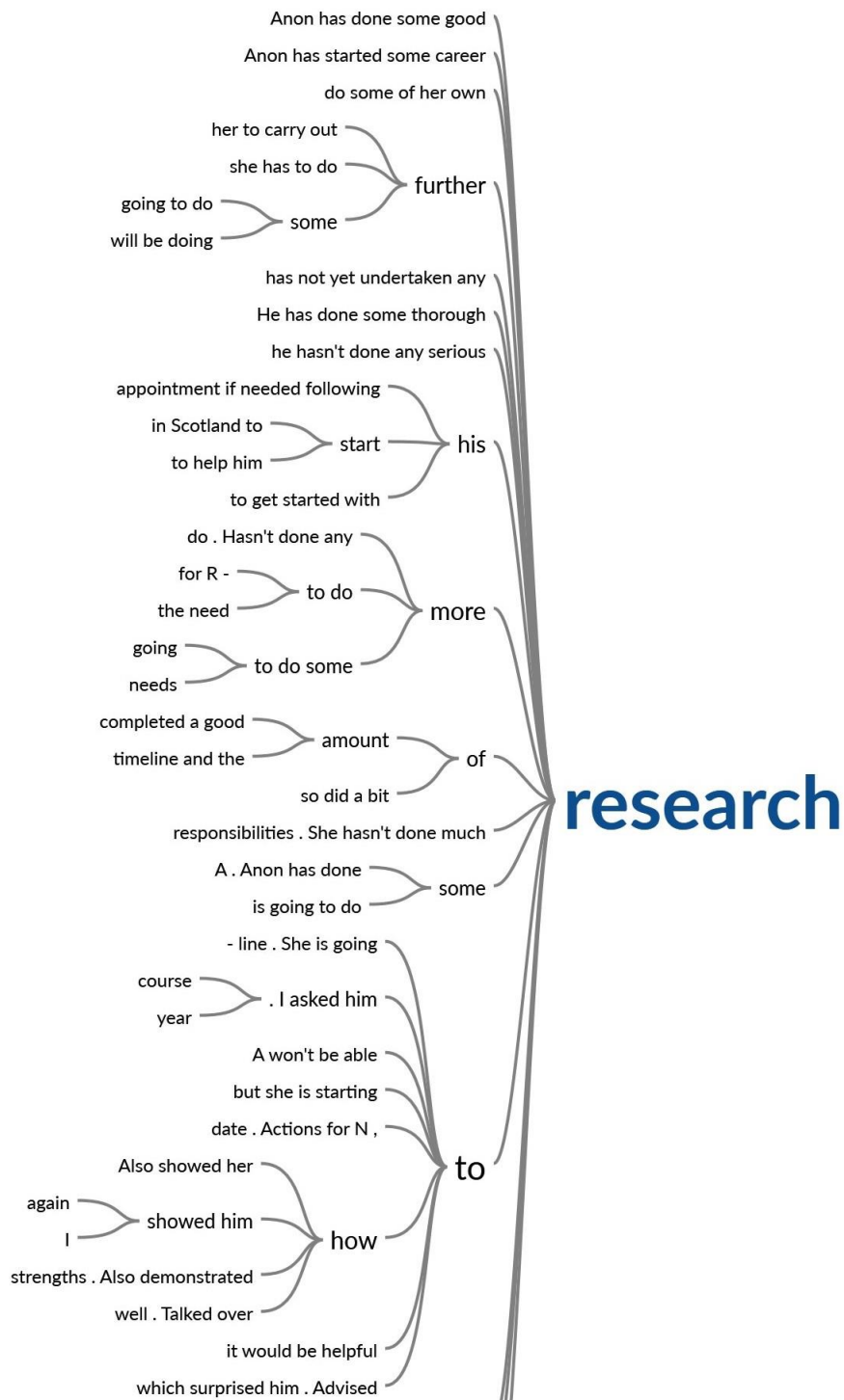
5.2.2   Career information seeking during counselling sessions

5.2.2.1   Young people's career information needs

In the earlier stages of their career planning, clients approach careers advisers with requests for assistance, e.g. one client (C-191) "requested an appointment to discuss back-up plans". Once they meet with careers advisers, clients ask them for specific information to support their decision-making.

They are interested in finding out the qualifications needed to progress to university or an apprenticeship, and seek to "discuss apprenticeship and degree ways". They also enquire about career pathways and jobs as they are "keen to explore jobs in kitchens on My World of Work" and to "look at careers in archaeology and clergy roles". Help with interview preparation and CV and personal statement drafting is commonly requested. Clarification on subject choices and entry requirements is sought, e.g. clients are "keen to know what else they could do with their subjects".

Clients' information seeking is focused on their primary career interests and on obtaining information regarding their most immediate priorities. One client (C-86) reported that she needed some help with applying to college as she was looking to "go to college and then university" in the coming summer. Her careers adviser emailed her some information on this. The adviser discussed alternative pathways with her as a university degree was not necessary for the career options under consideration. Another client (C-14) was planning to apply to university, but did not know "what extracurricular things she should be doing to look good on a personal statement". Her careers adviser provided her with guidance regarding this, whilst highlighting the vocational opportunities available to her, such as the Higher National Certificate (HNC) at college.

5.2.2.2   Prompted information seeking

After sharing details of their career plans with careers advisers, clients are prompted by them to complete research tasks to support their decision-making. For instance, they may be asked to "do more research, look closely at entry requirements and make a decision about whether to apply for Uni now or next year". The importance of information seeking is highlighted to them, e.g. "we had a discussion about the need to do more research". They are encouraged to obtain career information from others, e.g. "I encouraged her to call or email the university again".

Specific guidance is provided regarding keywords to be searched, information sources to be accessed and career planning activities to be completed, e.g. "I asked him to research construction crafts "; "I asked him to complete the 'What do I want' worksheet"; "advised to research course content well and consider what other colleges could offer".

Prompted information seeking yields favourable results, such as the development of specific career pathway strategies, confirmation of interest in a job or career, and increased awareness of available opportunities. One client (C-23), after "looking at courses again", "identified a music business course that appealed to him". Another client (C-31), who was interested in mental health careers, and who had completed "a good amount of research into this", had comprehensive plans regarding his S5 and S6 options.

Prompted information seeking also helps clients identify career opportunities that would not be suitable for them, e.g. one careers adviser noted that after "going away and researching into different courses and careers", their client (C-8) changed their mind about chemical engineering, and instead decided to pursue pharmacology, chemistry, or mathematics. Similarly, another client (C-55) who had "done some good research since we last spoke" … "decided that fashion and textiles is something she would like to do over psychology".

One client (C-30) who was considering different college course options (hairdressing and criminology) was advised to research the options she is considering before her next career counselling appointment. Her careers adviser asked her to research police recruitment requirements, modern apprenticeships, and hairdressing college courses. Another client (C-7) was interested in becoming a police officer but said that he would like to consider alternatives "if he does not get in first time". In conversation with his careers adviser, he mentioned a training course to prepare for entry to the police. As he had not yet fully researched entry to the police, he was unsure if such courses existed. His careers adviser encouraged him to spend time on the Police Scotland website and to check their social media accounts for details of upcoming recruitment events. During his career counselling appointment, this client (C-7) and his careers adviser also began discussed entry routes into the army and construction apprenticeships. They did not have time to discuss these in detail, hence the careers adviser suggested that his client should spend some time researching these options himself by "seeking advice from his local Armed Forces Careers Office (AFCO) and browsing the apprenticeships.scot website".

5.2.2.3   Information seeking challenges

The information seeking challenges experienced by clients in career counselling settings tend to manifest as a disengagement from the careers research process or as a failure to complete agreed upon actions. These can be attributed to access issues or time constraints issues. For instance, one client "hadn't had time to look into anything discussed last time", while another "hasn't been able to access what she needs for her course in Childcare due to issues with getting emails/course info". One client (C-190) had not researched entry into her preferred career path – nursing – as she was overwhelmed by her part-time job, schoolwork, and homework.

The occurrence of these information seeking challenges appears to be linked, in part, to decision-making uncertainty, negative affective states, learning disabilities or mental health conditions. One client "spoke about his anxiety about going into a job and not knowing what to do" while another said he hadn't done "any serious research" into his favourite subject, computing, and that he found it hard "to focus and concentrate" due to his ADHD diagnosis.

Making decisions on the basis of the information obtained or articulating one's findings can also prove challenging: "although he says he has been using My World of Work he is still very unsure of career plans"; "has looked into it (a bit) but he's finding it hard to describe why he wants to do this". After completing a My World of Work quiz, a client "couldn't remember any of the jobs suggested".

5.2.2.4   Information seeking on young people's behalf

In their work with young clients, careers advisers engage in information sharing and information seeking on their behalf. They share relevant career information with them and, in doing so, signpost future employment prospects associated with different career options, e.g. "I explained that this is an intro course but could lead her onto social sciences or childcare or social care"; "I explained people doing these jobs normally have good high level quals or massive experience helping others through volunteering".

Occasionally, the information provided has a steering function. This may be used to challenge unrealistic career expectations, e.g. "challenged her on the emotional and physical rigours of this work and we had a discussion as to why this seemed to matter to her"; "told him not all psychology is about counseling people".

Information seeking on clients' behalf is also completed as a means to supplement the careers research carried out by clients, and to facilitate decision-making, e.g. "told him I would get more information about this course".

If there is insufficient time to provide relevant career information in person, or the careers adviser needs to perform additional information seeking before providing such information, then this is sent to their client after the career counselling engagement: "he agreed that it would be helpful for me to send him information on careers articles on careers associated with computing"; "I'll email some info about working with animals".

5.2.2.5 Collaborative information seeking

Information seeking during career counselling sessions is performed collaboratively by clients and careers advisers. This comprises information seeking instruction through demonstration – "showed her how to research career sectors and job profiles" – as well as "looking at information" together. Information seeking instruction and collaborative information seeking are interconnected activities: "I showed him how to research careers on My World of Work and we looked at computing related jobs briefly together"; "showed her how to research career sectors and job profiles"; "demonstrated how to research career areas and degrees". These activities have a 'scaffolding' function, developing career information seeking competence in clients, and preparing them for continuing their career research in their own time, e.g. "I bookmarked the role of a plasterer to help him start his research".

During one career counselling session, a client (C-200) elaborated on his tentative career plans, stating that he is interested in a career in engineering, particularly mechanical engineering. However, he had not had time to research this career pathway, and could not determine "what it was about mechanical engineering that appealed to him". He "was aware there are lots of different types of engineering" but felt he only wanted to focus on mechanical engineering. This client (C-200) then spent time "looking at the description of the job and watching the videos of people who do the job" together with his careers adviser. They briefly spoke about college options and agreed they would revisit this matter next time they meet as the client "won't be able to research this at home". Collaborative information seeking alleviates some of the information seeking challenges experienced by clients. With regards to time constraints interfering with careers research activities, one careers adviser reported that their client "hadn't had time to look into anything we discussed last time so I did a bit of research alongside her".

5.3　Questionnaire results

5.3.1　Demographic properties of the sample

587 participants (M=242, F=306, other=39) completed the "Scottish career information survey" questionnaire in 2022. Participants' ages ranged from 13 to 18 years (M= 14.9, SD=1.4). Both urban and rural locations were represented in the geographical spread of the participant sample. Most participants resided in Glasgow and Strathclyde (34.1%) and Edinburgh and the Lothians (26.2%). From these patterns in the data, it can be seen that the majority of respondents represented in the sample are in the earlier years of their secondary education, and that they live in urban areas within the Central Belt of Scotland[13].

Demographic properties of the sample		
Gender	**n**	**%**
Female	306	52.10%
Male	242	41.20%
Prefer not to answer	28	4.80%
Other	11	1.90%
Age		
13	121	20.6%
14	129	22%
15	125	21.3%
16	117	19.9%
17	75	12.8%
18	20	3.4%
Location		
Glasgow and Strathclyde	200	34.10%
Edinburgh and Lothians	154	26.20%
Highland and Islands	82	14.00%
Aberdeen and North East	63	10.70%
Tayside, Central and Fife	48	8.20%
Scotland South and Scottish Borders	40	6.80%

Table 11. Demographic properties of the sample

Data on participants' access to digital equipment, parental employment status, country of birth and English language proficiency were also collected. A high number of participants had access to a mobile phone (97.3%) and a laptop (78.4%) at home or at school. 70.4% of participants had no particular restrictions on their use of digital equipment. The majority of respondents surveyed had

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[13] The Central Belt of Scotland is the area of highest population density within Scotland, hence it was anticipated that a large proportion of participants would hail from the Central Belt.

one parent or guardian who was in work (84.2%); fewer respondents had two parents or guardians who were in work (65.2%). Almost all participants were born in the UK (91.3%) and were native English speakers (91.5%).

Digital equipment access of the sample	Proportion of participants who answer 'Yes'	
Equipment accessed at home or school	**n**	**%**
Mobile phone	571	97.30%
Laptop	460	78.40%
Tablet	286	48.70%
Desktop computer	221	37.60%
Equipment restrictions		
No particular restrictions	413	70.40%
Sharing equipment with others	97	16.50%
Time online limited by parent or guardian	61	10.40%
Internet use limited by data plan	47	8%
Equipment difficult to use	35	6%
Parental status and nationality of the sample	**Proportion of participants who answer 'Yes'**	
First parent or guardian in work	**n**	**%**
In work	494	84.2%
Not in work	62	10.6%
No answer	31	5.3%
Second parent or guardian in work		
In work	383	65.2%
Not in work	110	18.7%
No answer	94	16%
Born in the UK		
Yes	536	91.3%
No	51	8.7%
English as a native language		
Yes	537	91.5%
No	50	8.5%

Table 12. Digital equipment, parental status, and nationality of the sample

5.3.2   Career information seeking

5.3.2.1   Career certainty, careers research and future career intentions

To explore the key characteristics of respondents' career information seeking, they were asked to rate the extent to which they were certain of their post-secondary destinations, and to indicate the degree to which they had been researching their future career options. Additional contextual information was collected regarding the nature of respondents' future plans. A high degree of career certainty was evident in the sample: 68.9% of respondents in the sample *agreed* or s*trongly agreed* that they knew what they wanted to do after leaving school. 69.1% of respondents also *agreed* or *strongly agreed* that they had been conducting careers research recently. With regards to

respondents' immediate career intentions, 67.4% of all participants were interested in going to university, 41% were looking to remain in school for the foreseeable future, and 40.8% were planning on obtaining some work experience. Amongst the less preferable future intention categories were those associated with vocational pathways, such as college education (25.8%) and apprenticeships (10.2%). Only 3.7% of the participants reported having no future career plans.

Career certainty and career plans of the sample		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I know what I want to do after I leave school	n	26	61	96	244	160
	%	4.4%	10.4%	16.4%	41.6%	27.3%
In the last month I have been researching my future options	n	21	57	103	255	151
	%	3.6%	9.7%	17.5%	43.4%	25.7%
Future plans		Proportion of participants who answer 'Yes'				
		n			%	
Go to university		396			67.40%	
Stay in school		241			41%	
Get some work experience		239			40.80%	
Go to college		151			25.80%	
Get a full-time job		151			25.70%	
Get an apprenticeship		60			10.20%	
Take a gap year		56			9.50%	
No plans		22			3.70%	

Table 13. Respondents' career intentions

5.3.2.2   *Scope and extent of career information seeking*

The respondents were asked to report the extent of their career information seeking by indicating the number and types of information sources they had accessed in the past. They were also asked to estimate how much time they have spent looking for career information and talking to others about careers (per month). Respondents' career information seeking was found to be limited in scope and duration. They were most likely to access between one and three information sources (Mean = 3.11, SD=2.101; Mode = 1) and information types (Mean = 2.46; SD=1.479; Mode = 1).

The time spent looking for career information and talking to others about career options (per month) is variable, but also limited. The majority of participants spend under an hour per month on each activity: 78.5% spend under an hour per month looking for career information, and 82.1% spend under an hour per month talking to others about careers. According to the self-report data, only 21.5% of participants spend over an hour per month researching careers, and 17.9% speak to others about their career options for over an hour per month.

Figure 12. Number of information sources accessed in the past
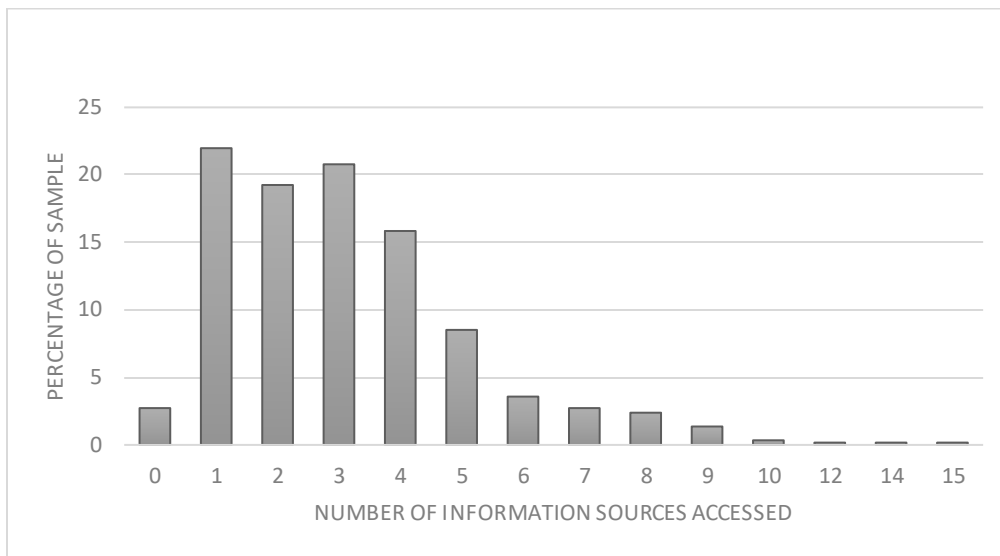
Figure 13. Number of information types accessed in the past
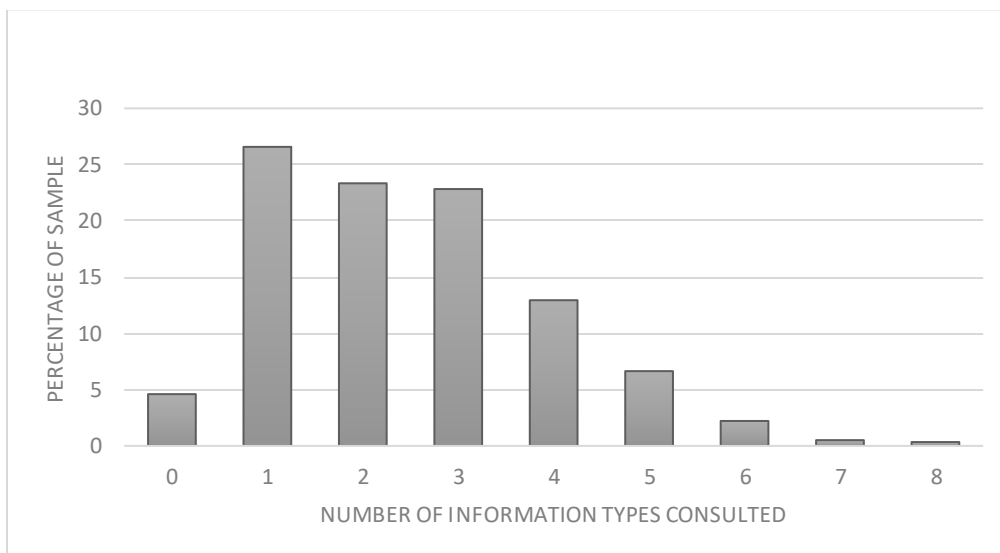
Time spent on career information seeking	Minutes spent (per month) on looking for career information		Minutes spent (per month) on talking to others about careers	
Minutes	n	%	n	%
0	87	14.8%	41	7%
1-10	74	12.6%	93	15.8%
10-20	97	16.5%	121	20.6%
20-30	103	17.5%	120	20.4%
30-60	100	17%	107	18.2%
60+	126	21.5%	105	17.9%

Table 14. Minutes spent (per month) on looking for career information and talking to others about careers

The most commonly accessed career information source is the MyWorld of Work (My World of Work) website. This is accessed by 47.8% of respondents. This website is promoted nationally through Skills Development Scotland's network, hence the high reported usage figure for My World of Work is underpinned by the dissemination efforts of careers advisers in secondary schools. The other most commonly accessed career information sources are social media (43.4%), university websites (41.7%) and other people (41.2%) – see Table 15 below.

Usage of university websites is high at 41.7%, whereas the usage of apprenticeships and college websites is low at 2.2% and 18.9%, respectively. This finding might be explained by the career intentions of the questionnaire respondents, 67.4% of whom expressed a preference for going to university. Fewer respondents were hoping to obtain an apprenticeship (10.2%) or to go to college (25.8%). Career information seeking was demonstrated to have a social aspect as 41.2% of respondents speak to other people about careers. Thus socially mediated information seeking and digitally mediated information seeking are comparable in frequency.

Supplementary online sources of career information are also used. Such sources are the UCAS website (20.8%), job search websites (15.3%), employer websites (10.7%), Plan It Plus (8.7%), forums and student advice websites (6.1%) and the LinkedIn website (2%).

Overall, respondents exhibit a preference for online information sources and social information sources over more traditional information sources such as radio, popular media and TV (7.2%), brochures (5.6%), and newspapers and magazines (2.7%).

Respondents are most likely to look for information on jobs (66.7%) and study options (66.6%). They have a moderate interest in completing career quizzes and personality tests (33.2%) and researching work experience opportunities (29.8%). Information about CV writing and interview preparation (17.9%), apprenticeships (16.1%), finance and funding (10.7%), and building networks to help with getting a job (5.1%) is also obtained.

Information sources and information types accessed before	Proportion of participants who answer 'Yes'	
Information sources	**n**	**%**
My World of Work website	281	47.80%
Social media	255	43.40%
University website	245	41.70%
Other people (parents, teachers, friends)	242	41.20%
Google/other search engine	214	36.40%
UCAS website	122	20.80%
College website	111	18.90%
Job search website	90	15.30%
Employer website	63	10.70%
Plan It Plus	51	8.70%
TV, radio, popular media	42	7.20%
Forum/student advice website	36	6.10%
Brochure (from school, college, university, employer)	33	5.60%
Newspaper or magazine	16	2.70%
Apprenticeships website	13	2.20%
LinkedIn website	12	2%
Information types	**n**	**%**
Information about jobs	392	66.70%
Information about study options (course choices, entry requirements)	391	66.60%
Career quiz/personality test	195	33.20%
Information about work experience (including volunteering)	175	29.80%
Information on CV writing/interview preparation	105	17.90%
Information about apprenticeships	95	16.10%
Finance/funding information	63	10.70%
Information about building networks to help with getting a job	30	5.10%

Table 15. Information sources and information types accessed by respondents

5.3.3 Career information literacy skills

In general, respondents have a moderate level of confidence in their career information literacy skills. They feel most confident in their skills in consulting multiple information sources and recognising when they might need more information: 77.5% of them *agreed* or *strongly agreed* that they checked in more than one place when looking for job and study information, and 74.3% *agreed* or *strongly agreed* that it is easy for them to recognise when they need more information about their job and study options.

64.1% of respondents *agreed* or *strongly agreed* that they know how to talk about their career options with others after performing careers research, and 63.4% *agreed* or *strongly agreed* that they know how to find relevant information when researching their future options. Respondents are less certain in their ability to recognise when they have collected enough information (51.5% *agreed*

or *strongly agreed* with this statement). They are also less certain in their knowledge of appropriate information sources (51.1% *agreed* or *strongly agreed* that they knew where to look for information on their job and study options).

A smaller proportion of the sample indicated moderate or strong agreement with statements relating to knowing what to search for (37%), comparing different pieces of information (34%) and storing information after this had been obtained (33.2%). They believed that they are least proficient in knowing how to check if the career information they see is genuine (28.4%).

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
It is easy for me to recognise when I need more information about my job and study options	1%	3.2%	21.5%	56.9%	17.4%
When I look for job and study information, I check in more than one place.	1%	4.8%	16.7%	51.4%	26.1%
I know how to find relevant information when researching my future options.	1.9%	7.8%	26.9%	46.2%	17.2%
I can recognise when I have collected enough information about my future options.	2.9%	15.8%	29.8%	41.4%	10.1%
After doing research about my job and study options, I know how to talk about this with others.	2.6%	11.9%	21.5%	47.7%	16.4%
When I do research about my job and study options, I know what to search for.	8%	26.9%	28.1%	30.5%	6.5%
I know how to check if the career information I see is genuine.	10.2%	27.6%	33.7%	22.3%	6.1%
I know how to compare different pieces of information on job and study options.	7%	27.4%	31.5%	28.4%	5.6%
When I obtain new information about careers, I know where to keep it.	6.5%	30.8%	29.5%	27.1%	6.1%
I know where to look for information about my job and study options.	6.8%	16.7%	25.4%	38.2%	12.9%

Table 16. Respondents' career information literacy skills

5.3.4 Statistical analysis

5.3.4.1 Age and gender

A Kruskal-Wallis H test showed that there is a statistically significant difference in career certainty across the sampled age groups (13-18 years of age), H(2) = 17.2, p = 0.004, with a mean rank certainty score of 250.81 for 13 year-olds, 308.05 for 14-year olds, 293.31 for 15-year olds, 290.28 for 16-year olds, 345.01 for 17 year-olds, and 299.40 for 18-year olds. Career certainty levels do not increase in a linear manner with age. 13 year-olds are least certain of what they want to do after leaving school, and 17-year olds are most certain.

Several age-related effects were documented for careers research. There is a statistically significant difference in the degree to which respondents had been researching their career options, H(2) = 23.6, p < . 001, with a mean rank careers research score of 245.58 for 13 year-olds, 277.55 for 14-year olds, 298.54 for 15-year olds, 319.98 for 16-year olds, 344.33 for 17 year-olds, and 323.95 for 18-year olds. From this result, it can be concluded that the degree of careers research conducted by respondents increases with age in all groups except the 18-year old group. The deviation of the 18-year old group from the general trend in the findings can be explained by the specificity of the Scottish educational system. Although the school leaving age is 16, the typical age at which respondents enrol at university is 18.

Statistically significant age-related effects were also documented for three other careers research variables: time spent looking for career information (H(2) = 24.7, p < . 001); time spent talking to others about careers (H(2) = 27.7, p < . 001); and number of information sources accessed (H(2) = 36.9, p < . 001). Mean ranks (Table 17) indicated that each of these variables increase incrementally with age. In the case of information sources, there is a reduction in the number of information sources accessed in 18 year-olds compared with 17 year-olds.

Age	13	14	15	16	17	18
Time spent looking for career information	254.52	259.71	299.14	336.25	329.75	340.70
Time spent talking to others about careers	252.42	259.78	299.12	323.24	347.33	363.23
Number of information sources accessed	227.48	275.79	302.86	335.85	350.06	303.50

Table 17. Mean ranks of age-related effects

The self-reported proficiency in nine out of the ten career information literacy skills surveyed remained static with age. The test p value computed for one of the ten career information literacy statements – "When I do research about my job and study options, I know what to search for" – is significant at $H(2)=18.0$, $p= 0.003$. Mean ranks are variable across ages: 13=318.62; 14=296.02; 15=260.85; 16=270.20; 17=346.09; 18=283.08. While there are statistically significant differences across groups, a linear increase in this career information literacy skill with age was not documented. 13-year olds and 17-year olds are most confident in knowing what to search for.

A series of Mann-Whitney U tests showed that the distributions of male and female responses differ significantly, and that females are more actively engaged in career information seeking than males ($U=31170$, $p=.001$). More specifically, there are gender differences in the number of information sources ($U=30130$, $p=.000$) and information types ($U=30770$, $p=.001$) consulted during the careers research process, as well as the time spent looking for career information ($U=32111$, $p=.007$) and talking to others about careers ($U=33443$, $p=.048$). On all of these parameters, females' mean rank scores exceed those of males. Males' estimations of their career information literacy skills are higher on two out of the ten skills listed in the questionnaire: knowing where to find relevant information ($U=32119$, $p=.004$) and knowing how to check if the information encountered is genuine ($U=33359$, $p=.039$).

Gender differences	Mean ranks	
	Male	**Female**
In the last month I have been researching my future options	250.30	293.64
Information sources accessed	246.01	297.03
Information types consulted	248.65	294.94
Time spent looking for career information	254.19	290.56
Time spent talking to others about careers	259.70	286.21
Knowing where to find relevant information	294.78	258.46
Knowing how to check if the information encountered is genuine	289.65	262.65

Table 18. Gender differences

5.3.4.2 Location, equipment access and parental occupation

There are differences in participants' propensity to agree with the statement "In the last month I have been researching my future options" based on their location.

Those located in Scotland South and the Scottish Borders (342.88), Glasgow and Strathclyde (311.05) and Aberdeen and the North East (298.40) are more likely to report having conducted careers research than those in the Highland and islands (293.73), Tayside, Central and Fife (267.29), and

Edinburgh and the Lothians (265.84), (H(2) = 12.0, p = 0.033). Regional differences in respondents' agreement with the statement **"When I look for job and study information, I check in more than one place"** were also found. Respondents based in Highland and islands (325.54), Glasgow and Strathclyde (310.46), Scotland South and the Scottish Borders (302.23) are more likely to check multiple information sources compared to those based in Aberdeen and the North East (294.27), Edinburgh and the Lothians (265.80) and Tayside, Central and Fife (254.81), (H(2) = 13.8, p = 0.017).

While variations in careers research scores and career information literacy skills associated with checking multiple information sources were found across these Scottish regions, this pattern of findings does not suggest that there are clear differences in careers research indicators between rural and central location groups.

The highest propensity to conduct careers research was recorded in Scotland South and the Scottish Borders, and the highest likelihood to conduct comprehensive careers searches (as indicated by checking in more than one place) was recorded in Highland and the islands. It is possible that the higher degree and comprehensiveness of careers research in these regions is reflective of a paucity of career opportunities in rural areas, and an increased careers research effort associated with participants' relocation intentions. Respondents living in remote areas might need to consider a broader range of career opportunities than those living in more central areas.

With regards to equipment restrictions, respondents who report having no particular restrictions on accessing and using equipment have higher career information literacy skill levels on the "knowing where to look for career information" variable (mean rank = 304.23) than those who report having some restrictions on their equipment use (mean rank = 269.72), U=31705, p=.019. Those whose first parent or guardian was in employment are more likely to respond in agreement with the "I know what I want to do after I leave school" statement (285.17) than those whose first parent or guardian is not in employment (225.32), U=12017, p=.004.

5.3.4.3   Correlations

Significant bivariate correlations (Spearman's rho rank correlations) were found between career certainty levels, careers research variables (careers research, time spent researching, time spent talking to others, number of information sources accessed, and types of information sources accessed) and the total score of participants' career information literacy skills (Table 19).

Career certainty is strongly associated with careers research (r=.353, p=.000), and careers research is, in turn, positively correlated with the total score computed for one's career information literacy

skills (r=.412, p=.000). This suggests that career information seeking and career information literacy are key components of career decision-making, and merit further study and development. While these associations make no causal claims regarding the directionality of these effects, causality can be inferred from the wider literature in which it is argued that access to relevant career information underpins career decision-making. These findings indicate that improvements in respondents' career information literacy skills are likely to be associated with a rise in the comprehensiveness of their career information seeking and their career certainty levels.

Respondents' access to digital equipment (expressed as the total number of electronic devices available to access) was found to be strongly correlated with careers research variables (time spent researching, time spent talking to others, number of information sources accessed, and types of information sources accessed) and moderately correlated with career information literacy scores (r=.099, p=.016). Restrictions on using digital equipment (expressed as number of restrictions on access; where a higher score signifies limited access) are negatively correlated with respondents' total career information literacy scores (r=-.102, p=.013). On the basis of these findings, it is evident that career information seeking and career information literacy are digitally mediated, and enhanced or hampered by one's access to digital devices.

	Career certainty	Careers research	Time spent researching	Time spent talking to others	Number of information sources	Types of information	Equipment accessed	Equipment restrictions	IL total score
Career certainty	-	.353** .000	.078 .059	.137** .001	.109** .008	.121** .003	-.018 .659	-.038 .357	.412** .000
Careers research	.353** .000	-	.543** .000	.372** .000	.389** .000	.404** .000	.060 .146	-.060 .148	.327** .000
Time spent researching	.078 .059	.543** .000	-	.533** .000	.525** .000	.500** .000	.164** .000	-.052 .210	.259** .000
Time spent talking to others	.137** .001	.372** .000	.533** .000	-	.349** .000	.299** .000	.168** .000	-.034 .411	.221** .000
Number of information sources	.109** .008	.389** .000	.525** .000	.349** .000	-	.605** .000	.159** .000	.011 .793	.198** .000
Types of information sources	.121** .003	.404** .000	.500** .000	.299** .000	.605** .000	-	.114** .006	.020 .621	.224** .000
Equipment accessed	-.018 .659	.060 .146	.164** .000	.168** .000	.159** .000	.114** .006	-	-.079 .054	.099* .016
Equipment restrictions	-.038 .357	-.060 .148	-.052 .210	-.034 .411	.011 .793	.020 .621	-.079 .054	-	-.102* .013
IL total score	.412** .000	.327** .000	.259** .000	.221** .000	.198** .000	.224** .000	.099* .016	-.102* .013	-

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 19. Correlation analyses

5.4 Interview results

5.4.1 Career information seeking

5.4.1.1 Information needs

The interviewees spoke about their information seeking motivations and the subjects of their careers research. Their responses indicated that their information seeking may be prompted by an information need, and that their information needs are experienced in the form of curiosity or inquisitiveness coupled with a sense of having insufficient knowledge on a topic. For instance, Jessica said that she is "curious about stuff" she does not feel that she understands with regards to her motivations for information seeking. Similarly, Olivia explained that she tends to research areas that she is "wondering about", and Neil feels "intrigued to find out more information". Such perceptions led Jessica and Olivia to seek information pertaining to their information needs.

The interviewees articulated two main kinds of information needs in the context of career decision-making: university and college information and career pathways and career profiles information.

5.4.1.1.1 University and college information

The interviewees are most likely to seek information about universities and colleges, and commonly do so after they have identified a career area that they would be interested in pursuing:

> "Currently I just look up different universities and I go into a variety of different university websites and type up what they have to offer, and if they do have a variety in animal biology and animal science, I pretty much just click into it and read about what they will offer". (Fraser)

They may also access university and college websites before they have gained clarity on their career intentions:

> "I have done quite a lot of research looking at colleges and universities, seeing kind of like what courses they have, and like what that can relate to a career, and kind of what ones interest me the most." (Victoria)

The interviewees' main points of interest revolve around the reputation of educational institutions and the attainability of higher education. For instance, Emily "always knew" that she was going to be

a lawyer, but "had a tough time deciding" on the universities that she wanted to attend. This led her to research "the best universities for law in Scotland". She was also interested in finding out more about the graduation rates and dropout rates for these universities.

The interviewees seek information to support their decision-making on the kind of university or college qualifications attainable with their secondary school subjects, and the secondary school subjects required for their preferred qualification. Thus, they use the information presented on university and college websites to inform their decision-making, or to ascertain the steps needed to meet their preferred institution's entry requirements, in line with the career decisions that they have already made. For instance, Eryk explained that:

> "The last time I really looked in depth was definitely when I was having to make my final decision on my subject. … I went on to UCAS to see just where I could go if things went the way I wanted it to go, and if not, how could I change it up a little bit and still kind of get the desired goal?" (Eryk)

Meeting universities' and colleges' entry requirements is not only based on matching school subjects with degrees, and on achieving the best possible grades, but also on identifying relevant volunteering and work experience opportunities to maximise one's chances of success. For example, Catriona noted that:

> "The last time I was just trying to find contact information for signing up for this volunteering" … "it's talking to dementia patients. So that's what I'm trying to take part in." (Catriona)

5.4.1.1.2   Career pathways and career profiles information

In an effort to envision their future and develop a career plan, the interviewees seek career pathways and career profiles information. In doing so, they hope to transform their general interests into careers research queries. This extrapolation process is illustrated by Callum's testimony below. Callum explored career options associated with his general interest in history:

> "Well, when considering careers to do with history, I was less looking at a career and thinking ohh, I need history to do that, I was more so looking at history and thinking 'what careers can I get out of this'?" (Callum)

Career information seeking differs from traditional job search, where job adverts are reviewed, and one's skills and qualifications are matched with job requirements. Interviewees' career information needs are focussed, instead, on gaining an understanding of career pathways and career profiles.

This understanding is developed by accessing information about the responsibilities and lived experiences corresponding to career options, and the educational pathways leading to them. Such information is ordinarily sought on My World of Work and Google, and not within job adverts. For instance, Georgia, who wants to become a clinical psychologist, searched "how much clinical psychologists earn", "what's actually in the job", "how to become a clinical psychologist" and "what subjects to take" on Google. Jessica researched "a wee bit more about journalism and what the job involves" on My World of Work, and Olivia researched what lawyers do and "how they help children get into better homes" in her Modern Studies class.

Of particular interest to the interviewees in this sample is experiential information on careers, which helps them learn more about the lived experiences of people working in a given career. Career information uploaded to the social media platform TikTok is the primary means of satisfying this information need. Interviewees think that TikTok videos are both informative and unbiased. For example, Shen said:

> "TikTok is quite good to be honest. If you have a career, if you search it in, there's like tons of different people talking about what they do every day and how much they earn. " (Shen)

In this context, 'career' is not equated to a single job, as participants acknowledge that they may change jobs over time. Instead, a career is instead perceived to be more akin to a calling or a general area that one specialises in:

> "It's kind of like a call, something that you want to do in life. It's kind of like oh, I don't want to consider it just one job in particular, I think that's something that can change, right? Like different stages of life. I think it's just something that like adapts and grows with you if it makes sense." (Sophie)

5.4.1.2   Favoured information sources

5.4.1.2.1   Digitally mediated information seeking

A significant proportion of interviewees' information seeking is digitally mediated. The interviewees stated that they are especially fond of online information seeking, and that they regard this as an efficient way of gaining exposure to a broad scope of career information. Mairi summarised this position well whilst reflecting upon the careers research affordances enabled by the Internet:

"I think having that ability nowadays to have the Internet and be able to look anywhere at where you want to go, not necessarily that you're gonna apply for all these things, but having at least the freedom to roam is something that's obviously we are very lucky to have nowadays that people 20 years ago maybe didn't have or it was more difficult to access." (Mairi)

The three online career information sources most favoured by the interviewees are My World of Work, Google, and university and college websites. My World of Work featured in interview discussions most prominently as thirty of the thirty-three interviewees reported some degree of engagement with this website. Interviewees frequently use the My World of Work website as a starting point for their careers research:

"Usually I'll go on my Chromebook and I'll go into My World of Work. And then I'll look through like the different jobs because I don't know like what part I want to work in yet." (Shen)

Google is also a popular gateway to career information, which interviewees use for a wide range of information queries. This is used both for specific queries and exploratory searches. In the former type of search, specific job and subject choices information is sought:

"I usually Google it to see what subjects to take for the next year and Google which one will be the broadest range to filter down into the fields I want to go into." (Paige)

In the latter type of search, a keyword of interest (such as "architecture") is input into the search engine:

"And then for architecture in general, I went on Google and searched different jobs in architecture and chose the one I prefer." (Keith)

University and college websites are also commonly accessed by the interviewees for the purposes of shortlisting suitable degrees and educational institutions to enrol in:

"I mainly just looked up university websites to see what they have to offer." (Fraser)

5.4.1.2.2   Socially mediated information seeking

Twenty-seven interviewees recounted making use of social sources of career information as part of their career information seeking. The social sources of career information mentioned included careers advisers, teachers, family members, family acquaintances, friends, and peers. Interviewees

hold positive views of social sources of information, as evidenced when they spoke about the many benefits of utilising the knowledge and opinions of social contacts:

> "If I wanted to, I could spend hours on Google, trying to understand stuff watching videos and stuff, but there are like certain cases where like I'd like to speak to an architect and get like personal information." (Keith)

In any given situation, they are most likely to seek advice from contacts deemed to have the most experience and expertise:

> "People with experience, I think, are definitely one of the best resources you can use." (Michael)

The social sources of information identified by the interviewees complement their online career information seeking. For instance, according to the interviewees, talking to other people about careers can influence their intention to conduct careers research:

> "My mom's friend, she works as a hairdresser, so she said that she would, like, take me in for a few days and like, show me how everything works. So I think that would definitely like make me research it more." (Molly)

Inherent in socially mediated information seeking is also the opportunity to verbalise one's ideas and receive feedback on one's careers research:

> "And so then I can actually talk over with someone and show them what I've researched. I usually talk to my parents a lot about it. It's usually 'How far away is it' and 'Would that be right for you'? That's the kind of things that we were talking about." (James)

5.4.1.3   The career information seeking process

5.4.1.3.1   Context and timing

The interviewees discussed the circumstances in which they engage in career information seeking. They noted that they are most likely to research careers at home and at school. At home, they tend to do so of their own volition, whereas at school, they are encouraged to do so by their teachers or careers advisers:

"I'll maybe search up at home or it'll be like in school when I'm in the classes that are involved with the jobs." (Olivia).

The interviewees' career information seeking is brief in duration, ranging from 10 minutes to an hour per research session. For instance, Adila spent "10 minutes at different times", whereas Adam spent "30 to 40 minutes" on one particular occasion. The interviewees also recounted their career information seeking as an iterative process occurring over long periods of time, such as several months or years:

"I've been doing it for a couple of years, just kind of looking into different things." (Jessica)

They described this process as being 'sporadic' in nature, occurring at irregular intervals of time:

"It's sporadic, I would say in my private time, it's more sporadic … like every month I'll have one night where I'm like, oh look, this is everything I have to do" (Catriona)

The regularity of participants' career information seeking was also found to be dependent, in part, on external factors. Eleven interviewees felt that external commitments, such as jobs, impede on their ability to regularly research their career options:

"Recently, I've been doing more sporadic over time because I got a job and I can't really keep up with doing all that right now." (James)

Of the twenty-three interviewees who noted that their information seeking is brief and sporadic, ten indicated that they may still think about their career options, even when they are not actively seeking career information:

"I suppose it's in your mind every day, but as in actively searching for it, it's probably more every couple weeks … it takes time, you need to think about it" (Mairi)

5.4.1.3.2   Process of information seeking

When elaborating on their career information seeking processes, the interviewees described the strategies they use when approaching their careers research. Their descriptions revealed two types of processes: (1) an exploratory process which is not rooted in a formalised information need, and which may lead to the development of information needs; (2) a more focused search process which is driven by information needs.

The first type of career information seeking identified in this research is exploratory information seeking. At times, the interviewees engage in exploratory information seeking not associated with a specific information need. This information seeking is manifest as a generalised intention to gain exposure to career information, and involves consultation with a small number of information sources:

> "You look through a few pages and get like a rough idea, like different ideas and different information." (Adila)

Exploratory searching occurs in the earlier stages of the careers research timeline, and provides direction for further searches. For example, Jessica explained that:

> "When I kind of initially started kind of researching into different things and like I did like this, the quiz thing on it, and journalism was one of the things that came up … so I just kind of took that and then started doing a bit more research when it came to like different universities and what kind of courses that they had available." (Jessica)

The second type of information seeking process is well-illustrated by Isla and Neil's stories. Isla described her long journey to find "helpful" information. She continued to search for information on several platforms until she was satisfied with the quality and quantity of the information she had collected. She already knew that she wanted to become a pathologist, hence her objective was to find sufficient information relating to her career goal:

> "I started by researching 'how to become a pathologist UK' into Google, which led me down into a lot of student forum conversations, but I didn't really get the answer I wanted. So then I went on to kind of your postgraduate degrees or universities to look at what kind of degree you need to get into that, which wasn't very helpful either, so I looked at My World of Work looking at what they said. But they didn't have a lot of information. So then I ended up on the Pathology UK website, which had a lot more information … and I kinda found what I needed there, which was a lot more helpful." (Isla)

Neil applied his search efforts to finding information about his main career interest in politics. Neil was able to find information related to becoming an MP from university websites and the UK Government website. Despite consulting several resources, however, he was not able to conclude his search. This was because he could not find information on nominations for election:

> "The last time I researched, it was a politics one. I went to the UK Government website on how to become an MP and the information that I received is you become an MP by being elected by a local council or during a general election … well, I understand the process, but I

just don't know exactly how to become appointed to be in an election, I don't know how to become a person in an election" (Neil)

5.4.1.3.3 Cognitive representation of the information seeking process

To access their cognitive representations of career information seeking, the interviewees were given a sample scenario and asked to advise a peer on researching their career options. Additionally, to grasp the unfolding of the information seeking process over time, the interviewees were asked to trace information seeking from start to finish, and to provide step-by-step instructions. Their responses indicated two types of career information seeking processes, named here: exploratory search and directed search. They further revealed that these processes represent two consecutive stages of career information seeking.

In the first stage, the interviewees develop career preferences by completing personality quizzes and performing searches on Google and My World of Work.

> "I would say, make time for an hour or two and go on to Google and search up what you would want to do." (James)

They may also decide on their career goals by considering their favourite subjects at school:

> "I think it's mainly with the subject. So I think like anyone who doesn't know what they want to do in the future, I think a lot of people go, 'what's my favourite subject' and try and base it off that." (Stephanie)

The early exploratory stage of information seeking ideally results in the development of a career goal. In the second stage of information seeking, further research is performed on the basis of this career goal, and career intentions are grounded in the available opportunity structures:

> "And then take that information and do more research on it and figure out, use that and like further build on it." (Fraser)

5.4.1.3.4 Collaborative information seeking

Much of the interviewees' career information seeking entails active engagement with trusted actors around them, as indicated by sixteen participants. These actors assist the interviewees with aspects of careers research that they find challenging. The interviewees stated that they tend to approach careers advisers, family members, and friends with careers research queries:

"If it's something simple that I can figure out myself I do it myself, but then if it's something a bit more complicated, I'll go to family first and if not then career adviser." (Paul)

Collaborative information seeking typically involves one expert user and one novice user researching together. Expert users guide the direction of the search, taking full or partial ownership of information seeking:

"I use my mum for help because she does lots of, I think she's a big part of the careers thing in her school … she kind of like always researches for me, well she doesn't research for me, but she helps me" (Erin)

Friends researching together with friends and peers is an exception to this rule. Here users who possess similar levels of expertise help each other:

"I sometimes, like, kind of help other people in my year, generally just my friends." (Eryk)

The support provided by others is indispensable to interviewees who have a learning disability or a health condition that restricts their ability to use digital equipment:

"I think most of the time I search with my careers adviser, and it's normally on Google … she did most of the computer work, she was doing most of the googling and searching so I didn't have to use the computers." (Blair)

5.4.1.4   Processes related to career information seeking

The interview analysis uncovered four phenomena associated with career information seeking. These may occur in parallel with career information seeking, and/or as outputs or by-products of careers research sessions. These phenomena have important implications for the ways in which career information seeking is conceptualised and understood. Each of these is considered in turn below: affective states; information management; career development learning, and career decision-making.

5.4.1.4.1   Affective states

The interviewees' career information seeking for the purposes of decision-making is associated with negative affective states such as stress, fear, worry, and becoming overwhelmed. The experience of these emotions has two main causes: (1) information seeking difficulties rooted in information overload; (2) decision paralysis brought on by the consideration of too many career options.

The overabundance of information on different career options causes interviewees to experience information overload. However, fifteen interviewees report lacking coping strategies to manage this, and feel overwhelmed as a result. One interviewee, Fraser, stated that:

> "I felt quite overwhelmed. There was a lot of different choices and I didn't really know how to take it all in. And obviously I'm not really experienced and I've never really thought about what I'm gonna do when I leave school. So I did feel kind of overwhelmed reading about all this kind of information and taking it all in" (Fraser)

Seven interviewees explained that one might become overwhelmed not only by the overabundance of career information itself, but also by the prospect of having to make a career decision when faced with multiple potential options. For example, Victoria said:

> "I would say it does get quite overwhelming when you have to decide what you're doing for the rest of your life. So you're just thinking like, sometimes it can get a bit overwhelming, because you're thinking, I need to figure out what I'm gonna do… And then sometimes I sit there and I'm thinking, I don't really know what I'm doing at all, like am I supposed to know this already? Am I supposed to have all this in-depth knowledge of exactly what I wanna do, exactly how I want to spend my life like year by year?" (Victoria)

In addition to experiencing information overload and decision paralysis, the interviewees sometimes experience negative reactions to some of the information that they have acquired. Meeting the entry requirements for their chosen paths can be perceived to be daunting, and cause them to feel pressure to perform in line with expectations. For example, Kirstie said:

> "I remember one of the first times I looked for, like, jobs in psychology … I kept looking and I looked at all these like grades that you need and I was getting a bit worried that I wouldn't be able to get them." (Kirstie)

5.4.1.4.2   Information management

In addition to obtaining career information, some interviewees collect and store career information for the purposes of sense-making and comparison, often with the intention of revisiting or acting upon the information. Stored information facilitates career planning and further careers research:

> "We made a Word document of all our choices and all our options, and then sort of compared them to each other. And then we sort of Googled them further, seeing what kind

of jobs or like and everything and how long it would take and sort of grades as well. And we just compared them to each other." (Nicole)

A common approach to information management is note-taking (in a notebook or as digital notes), used by nine of the interviewees:

> "When I first started researching, I had like a notebook in my house, so I would sit on my Chromebook and then I'd write little notes, like I still have one of them, and that was all about the subjects that I would take, like, considering what I wanted to do. And it was all down on there just so I could, like, look back on it and make sure like, this is what I'm doing." (Ella)

Notes are not always stored on a personal device; for example, since Blair seeks information together with her careers adviser, her notes are kept on the careers adviser's computer:

> "It was written down on her computer, so when we came back, there was notes she had taken about our research, so just get back to it. It was just her personal notes and when we went back to it she could just type the email address again and we could get back onto World of Work." (Blair)

When taking notes, the interviewees may reproduce the information in its original form, or attempt to restructure, organise or visualise it in a mind map. A typical mind map may contain information clustered by category or similarity, or ordered in a way that clearly displays the advantages and disadvantages of certain options:

> "I'd normally do like a mind map because I find that they're like more visually helpful because I find that if something's nicely laid out I'll remember it more." (Julie)

Not all interviewees conduct note-taking for the purposes of managing the information they have collected or encountered. Some opt, instead, to remember the information, and only note down the most important points. This can be due to personal preference, or because the information is not deemed important or plentiful enough to merit note-taking:

> "If it was something that I really like the look of like a university course for like a university website, I would probably just copy paste the URL, but if it was just general information I just try and remember it." (Adam)

5.4.1.4.3   Career development learning

Through their careers research, the interviewees gain an improved understanding of the world of work and of their own strengths and preferences. Over the course of their careers research, the interviewees also develop an improved understanding of activities they enjoy doing and the careers to which they are suited. For instance, Fraser said that he "understands it a lot more than from the beginning" and Callum said:

> "Well, the main learning point I suppose was, to begin with, learning what I liked, what I liked doing and what I was good at." (Callum)

In the context of their career development learning, the interviewees commonly expressed sentiments of surprise. Eighteen interviewees realised that there are more options available to them than they previously believed. This changed some of their pre-conceived notions and led them to consider alternative career options. For example, Nicole noted that:

> "I learnt that there were a lot more jobs than I thought that there originally were, and there were a lot more options for me, which sort of widened it. And then I learnt that you don't always need straight A's for a job and that sort of helped with my worries, I suppose. And yeah, I think that was pretty good to learn and it's sort of helped me with my deciding." (Nicole)

The findings from this study also show that gathering information and developing careers knowledge is beneficial to the interviewees because it leads to a reduction in career decision-making anxiety. Six of the interviewees indicated that their negative emotions subsided once they had conducted some careers research. For example:

> "I feel like sometimes it can be quite difficult, but I do feel like the more I progressed and the more that I kind of push myself to look and get more information, then I do feel like it gets a bit better because then I'm kind of like, as I'm gaining more knowledge, I feel like I kind of have more options and it gets a little bit less overwhelming." (Victoria)

5.4.1.4.4   Career decision-making

The interviewees' career decision-making is characterised by two types of career decision-making styles. These styles are: (1) fulfilment-based; and (2) pragmatic. Both of these designations are novel to the literature, and created on the basis of the data analysis for this research.

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Most of the interviewees (N=22) exhibited the fulfilment-based style. In this decision-making style, the importance of identifying career opportunities that one would enjoy is emphasised. High predicted income is not considered to be essential. For example:

> "Obviously, having good pay, it does contribute to whether you like it or not, but I think if you overall just don't enjoy it, it's not gonna be the same." (Georgia)

In the pragmatic decision-making style, displayed by eight interviewees, career options that are perceived to be the most attainable are given priority. Interviewees are most interested in careers that are a good fit for them on account of their geographical proximity, and that have attainable standard grade requirements:

> "The main thing that I would first compare them on would be distance to me and also the required standard grades would be the first thing I look at." (Adam)

> "The reason that I then chose politics over music is because I saw that as more of a path of that I have a better chance of succeeding in. Rather than music, cause I saw music as like a hit or miss chance" (Neil)

Overall, few of the interviewees displayed the pragmatic decision-making style. Of those who had considered careers that they do not necessarily envision as enjoyable, five have been steered towards more realistic career pathways by school staff. This is indicated, for example, by Jessica. She was advised to focus on school subjects that have a high earning potential, and careers that are in high demand on the labour market:

> "I do feel like we are definitely more pushed towards doing the more science-y things than creative things, like I was going to take Art as a Nat 5, but I was kind of persuaded in a way to take something else, so I ended up taking RMPS instead which I ended up really enjoying, so it worked out well but I did feel like there's not as many resources for people like my sister who wanted to take photography … I do feel like the Maths and science tend to be like, and English and stuff, seem to be a wee bit more kind of prioritised." (Jessica)

5.4.2   Career information literacy skills

The interviewees spoke about their existing skills and skills to be improved for career information literacy. Three skill clusters emerged as key: research and technical skills, social skills, and resilience. Within these groupings, the three main skills that interviewees find themselves lacking are focus and persistence, verifying the authenticity of information, and language and terminology.

5.4.2.1 Research and technical skills

According to the interviewees, the most basic career information literacy skills that all young people need to possess are research skills and technology skills. They expressed these research skills often as 'information handling skills' and 'analytical skills'. They argued that these skills enable information seekers to find information, critically assess the quality and relevance of the information, and understand its meaning and relationship to a topic. These understandings allow for the creation of a mental models (i.e. cognitive representations) of the available information. The ability to select relevant information and filter out irrelevant information, coupled with the ability to organise information outputs, is crucial to understanding and recall:

> "You do need skills in information handling of course. To me, information handling is understanding layouts of certain, information regarding a topic and understanding what it means and what it's detailing." (Neil)

Since most of the interviewees' career information seeking is digitally mediated, technology skills are believed to be fundamental to careers research success:

> "You need a good knowledge of the Internet and being able to research." (Eryk)

Career information seeking is also predicated on knowledge of the location of information and the search target. The parameters of the search must be clear before the search can begin. For instance, Emily said:

> "I think you need to have like a sort of, you really need to have an idea of what you're looking for. A very specific idea, and you need to know where to start, where to look" (Emily)

5.4.2.2 Social skills

Socially mediated information seeking necessitates the application of social skills. The interviewees referred to such skills as 'communication skills', and emphasised the importance of having the confidence to approach people:

> "If you're asking people about it, you obviously need like the confidence to go and ask someone" (Mairi)

Interviewees use social skills in a variety of situations, for example, when interacting with careers advisers, teachers, peers, family acquaintances and potential employers. In each situation, they adapt their communication style to articulate an information query in a way that is likely to elicit a

helpful response. For instance, Ella proactively approached the teacher who was teaching a class she enjoyed to enquire "what more she could do with it". Olivia also described instances of asking other people for information, and recalled the questions asked at the time:

> ████████████████████████████████ and it just kind of interested me, like I obviously want to do something helping children. … I just kind of asked her like, what she like did on a daily basis and she's quite high up in that now because she's been working on it for years and like, uh, so how long she'd be spending in the university for that? And she just told me like what she'd do on a daily basis and that, helping the children, like giving them their medicine and, like, kind of just, like, making their day". (Olivia)

5.4.2.3   Resilience

All thirty-three interviewees believe that resilience is needed when conducting careers research because the process of looking for information can be time-consuming and demanding. Patience, persistence, and a commitment to finding career information are also crucial to information seeking success. For instance, Adam and Mairi said that:

> "And I think you also need to be quite patient because there is a lot of, particularly if you're not using any site, there's a lot of like different websites you gotta go to and stuff. Takes a while with reading." (Adam)

> "I think you're gonna need a lot of determination because it's not all necessarily just there waiting for you. You have to search a lot for it. So, and sometimes there's things that you want to know that maybe aren't on there. So you're going to have to go down different avenues, so you need to have a drive to find that." (Mairi)

The interviewees also find that some career pathways are easier and more straightforward to research than others. Therefore, those who embark on creative or non-traditional career pathways expect to invest more time and effort into their career information seeking, as noted by Isla:

> "Sometimes it is easy, you can search in and first result is everything you need, and in other careers you have to do a lot of digging to work out what you need … if you're looking at careers such as psychologists or pathologists, everything's all over the place, and it's very difficult to find information." (Isla)

5.4.2.4   Career information literacy skills in need of improvement

5.4.2.4.1   Focus and persistence

Half of the interviewees (N=16) feel that they lack patience and attention to detail in their careers research. They often find themselves becoming distracted or bored whilst looking for career information. At times, their capacity to engage with information are limited. Should they need to review more than a few websites or spend more than an hour on their careers research, they occasionally abandon their search altogether. The interviewees also find it difficult to focus on the information that is pertinent:

> "I do get quite distracted and bored, so I'll start reading it and if there's like more than 4 pages I just stop immediately" (Chloe)

> "I have these other thoughts of 'I can be doing this right now' or 'I could be doing this right now'. So it's just trying to get into the mindset of, I have to do this, and I need to research for my future so it can be easier." (James)

One interviewee stated that young people, in general, can be "quite lazy in getting information", while another attributed his impatience to his personality type:

> "I'm not really the type of person to want to sit around for too long. You know, I just want to find out as soon as possible to get it out of the way." (Paul)

5.4.2.4.2   Verifying the authenticity of information

The interviewees experience some difficulties with verifying the authenticity of online career information. Some stated that they do not employ any particular strategy to check its veracity and instead hope that it is genuine:

> "I usually just have to hope that it that it is genuine. If it's from an official university website, I would probably just assume it is. But you know from somewhere like Reddit, I just have to really hope that it is." (Adam)

The interviewees' responses indicated that they have some knowledge of fact-checking strategies for career information. However, only four participants said that they habitually check the veracity of careers information. When doing so, they tend to look for trusted websites. Should there be any inconsistencies or doubts about the information on a website, comparisons are made with information derived from another source. For example, Emily said:

"Well, I just sort of cross-checked it with many different websites and the information was the same everywhere. So I just sort of went along with it because, you know, I checked about 10 different websites and they all seem to be giving the same information." (Emily)

5.4.2.4.3   Language and terminology

The interviewees suggested that a good level of familiarity with careers terminology and command of the English language are prerequisites to career information seeking. They admitted that they cannot always comprehend the text of college and university websites:

"Sometimes when you go to look at what they're asking for in the application, it's like a really complicated way of saying it. So it takes a while to figure it out. … You need a good understanding of the language that's used and also be able to like use other ways of figuring out what it means." (Holly)

Terms concerned with university courses, degree classifications, and acronyms were noted by the interviewees as difficult to understand. For instance, Sophie explained:

"I generally know what I'm looking for and what I'm doing, but sometimes I'm gonna be stuck like with some terminology like how like they have like different degrees like for different courses. And I'm gonna be like, I don't know what that acronym is for. So I'll have to be looking for that because I don't know what it stands for." (Sophie)

The interviewees also noted that they need to be aware of regional differences in careers terminology, so that they can determine whether it is applicable to them personally. In particular, they referenced differences in American, English, and Scottish career information. For example, Isla said:

"You need to be able to kind of interpret some stuff. Be able to determine if it's true or not. If it's for your country or not, just different things. Especially with American ones, these would be really confusing. … Yeah. And then there's English ones as well, which don't really relate to Scotland and we need to kinda weigh up what that would be in Scottish terms." (Isla)

5.4.3 Career information literacy development preferences

5.4.3.1 Current provision of support

The interviewees indicated that at present, careers research support in Scottish secondary schools is provided during free periods and timetabled classes such as MES, PSE, and ICT classes. However, the degree of provision varies across schools. In some schools, the importance of engaging with careers information is recognised, and careers-specific research instruction is embedded in the curriculum. Careers research guidance is typically provided in the form of My World of Work training, where students are taught how to use the website:

> "… this Wednesday in school, we were part of a study class. We were told to go on My World of Work. And I did a little quiz when it was asking about your personality. And then I was also looking at university openings for medieval history. And I was looking as well at the openings and the availability of stuff, so, uh, how many people are accepting and stuff like stuff like that?" (Adam)

In other schools, students receive only generic research training that is not applied to careers information:

> "Yeah, we've been told how to do research for essays, for stuff like that, but it was more of a, they told us the website for the essays and things we were learning about, but it was never something that, like for the careers or anything, you know, it was just for schoolwork." (Emily)

In certain schools, interviewees had received careers research support from their guidance teacher during their Personal and Social Education (PSE) and Modern Studies (MES) classes:

> "We have a PSE in my school and in PSE classes we do a lot of kind of research stuff" … "It's mostly just been in PSE classes and a wee bit on my own at home, but mostly just in PSE classes." (Jessica)

> "We did a little bit about researching careers in MES a few years ago, but it's not really something that you do a lot. It's more something that you would do for English when you're trying to write an essay." (Holly)

One interviewee, Catriona, also received guidance as part of her FutureLearn class:

"We have one hour that we actually get to, it's called FutureLearn. We get to research our career and I think that's good cause that's giving me time in class like during the week specifically, to try and organise things." (Catriona)

In her words, this is a supervised free period "in a classroom with computers" where "you're kind of supposed to find out and educate yourself on the careers that you could do". She used the time in this class "to try and find out about volunteering".

In addition to the MES, PSE, and ICT classes, two interviewees were aware of work inspiration and experience days arranged by their school. However, neither have taken advantage of these opportunities. For example, Olivia said:

"for S4, we can do college classes where like, they take us up to like college on, like, on a Tuesday or a Thursday. I didn't take any, but there was like people I know that did take them, like apprenticeships in engineering and hair and beauty and like stuff that they do help us with like to achieve." (Olivia)

5.4.3.2   Need for additional support

Most interviewees (N=29) stated that they would like to receive additional careers research support. They also indicated that they would welcome opportunities to further develop their career information literacy skills. Many felt that there is some room for improvement of the current support offer in secondary schools. They explained that they do not receive much careers research guidance apart from My World of Work training. In some cases, this has proven insufficient in meeting their support needs. As a consequence, they feel unprepared to conduct careers research on their own:

"I've never really been taught how to research." … "Well, sometimes they just say, you know, go on My World of Work or UCAS, but they never really explain what you should do when you get there, really, they just say go and do it." (Adam)

Eighteen of the interviewees were critical at interview of the current degree of careers research support. They shared stories about their experiences where they reached out to friends and family as a way to address gaps in the guidance they had received. Fraser, for example, found himself having to "go out and ask people, all of people about further understanding their experiences and learn from like their mistakes and their experiences" as he did not have a good understanding of "going to university and getting into courses and learning about, like, information behind the courses". He had received some My World of Work training but thought that this "wasn't really

enough to go on" as "that doesn't really tell us how to pursue that career like how to get into uni and learn about that career and things like that."

The interviewees also spoke of their experiences of receiving careers guidance from careers advisers, teachers, and careers ambassadors, highlighting gaps in this guidance:

> "I had a lady, she took us like out individually and it was sort of like, she really asked you about your grades, what subject you chose and what you're planning to do in the future. But like people that didn't really know what they were doing, she like just told them, like, oh, you know, let me know when you pick something, but that's about it, you know, like she didn't tell them where to look, how to think about it. She just went well, let me know when you think of something." (Julie)

5.4.3.3   Support preferences

5.4.3.3.1   Increase the frequency of interventions

Due to struggling to maintain a regular careers research schedule in their own time, the interviewees expressed a preference for receiving more regular and comprehensive careers research support at school:

> "I think we should have more career interviews. Yeah, because we don't get many. I've had like one in S3 and that's it. I think we need more of those. Talking actually does help. But I know there's like a lot of people in our year, so it's not very like manageable." (Shen)

In addition, the interviewees suggested that support should be introduced early, and that existing classes could be transformed into careers research classes. For example, Sophie said:

> "I feel the earlier you introduce like interviewees to it and the more you encourage them to use it, the more they're gonna be familiar with it. So I think just getting familiar with it on like a more regular basis for like a longer period of time would be good instead of just being like, OK, now we're going to figure it out." (Sophie)

5.4.3.3.2   Websites and website features

The interviewees proposed that existing careers information, advice and guidance websites could be improved, or that a new CIAG website could be developed. While some of the website features they requested already exist on My World of Work and PlanItPlus, other features do not. Such features

include Frequently Asked Questions (FAQ) pages and pages that offer step-by-step careers research instructions:

> "I think a website would be better. Yeah, I think it should be like just telling you how to research on like a few pages and then like, there could be like a page about like different careers." (Molly)

The interviewees further stated that assistive and interactive features should be implemented within careers information websites, so that careers research novices and novice website users can gain access to assistance, should they encounter any difficulties:

> "There should always be help available. There should be a frequently asked questions page, that's always useful, things like that. Maybe a comment section where you can leave comments asking for help with quick responses. And lots of wee things here and there to help you along if you need help…" (Callum)

In addition, the interviewees noted that website designers should take users' lack of familiarity with careers terminology into consideration as well, since the layout of careers information websites can be 'awkward' and confusing, and cause difficulties with website navigation:

> "Pages and pages of like writing and there's like nothing else there and it's like not sectioned off very well. Like I like things to kind of be easy to find on different websites and stuff. Yeah. So like if it's not like that, I just kind of end up scrolling through and like, not really taking in anything. But if things are kind of like, I don't know straight to the point and like easy to see and it makes sense and you know kind of for a child's like, if you think like if a child was going to a website like that's kind of what I would need." (Jessica)

5.4.3.3.3 Social support and collaboration

The interviewees particularly value the social support and collaboration they receive from other people. They stated that they would welcome socially mediated interventions that offer opportunities for demonstration and explanation. For example, Chloe and Jessica said:

> "Maybe just like doing it with you because most people are just unmotivated to do it themselves. So you're just kind of going for it with them. So we don't feel as overwhelmed or anything." (Chloe)

"I'd probably like it to be quite well explained, so like rather than it just being like told to us, that whoever's teaching us kind of shows us how to do whatever we're supposed to be doing." (Jessica)

5.5 Diary results

5.5.1 Career information seeking

5.5.1.1 Process over time

In this component of the study, the diarists provided accounts of the activities undertaken within a single information seeking session, and of the activities performed over longer periods of time. In the first diary task, the diarists researched and compared two careers before making a career decision. Their information seeking followed a typical trajectory that began with a careers profile search on My World of Work or Google where 'paramedic'- or 'chef'-related keywords were entered into the search bar. The diarists who performed their searches on Google browsed through the search results in search of basic information about the career and common qualifications needed for entry into this. Those who used My World of Work reported the results of a single page per career. This contained similar information to that accessed by Google users. The diarists then read through the career profile information and took note of the qualifications needed for entry into each career.

From the diary entries, it was evident that career decisions are made on the basis of a fulfilment-based or pragmatic career decision-making style, as was the case in the interview results (Section 5.4.1.4.4, p.115). Diarists who utilised the former type of decision-making style were most likely to give considerations to career pathways that they thought Emma (the decision-maker in the sample prompt) might enjoy the most. To determine the career that Emma might enjoy the most, they compared options by checking her school subject choices. For example, Catriona said:

"Judging by her subject choices, I could see that she likely enjoyed science, cooking, baking, and exercising, and this was reflected in her consideration of becoming a paramedic or chef. I then researched careers that might include all 3 of these things and found that a nutritionist or dietitian fit in with her interests in school" (Catriona)

The diarists who exhibited the pragmatic decision-making style tended to give precedence to matching Emma's subjects to educational opportunities and practicalities such as achievable entry requirements and commuting distance. Here, the availability of local colleges and universities, and

the attainability of higher education qualifications, were the deciding factors behind career decisions:

> "I compared course and university options based on how far away they were as well as entry requirements, course options as well as the qualifications gained from those courses." (Sophie)

The preference for each decision-making style is also reflected in the motivations to conclude information seeking sessions. The diarists' statements indicate that they approached information seeking with different goals in mind. Catriona, for example, endeavoured to form a clear image of the everyday routines of careers:

> "I found that I stopped researching when I was content with the extent of my knowledge of the career and have a clear image of what that career would look like in an everyday setting and the roads to take to reach that." (Catriona)

In contrast, Victoria looked for a college course that was a good fit for Emma's subjects:

> "I stopped researching when I found a course with adequate benefits." (Victoria)

In another of the diary tasks, the diarists were asked to complete a creative writing exercise. This required them to produce an instructional text on the topic of career information seeking. Their accounts were indicative of their cognitive models of information seeking, and based on their current understandings of the process. The main pattern found in the diarists' outputs is the depiction of information seeking as a process that occurs in two stages, which take a long period of time. The two stages are exploratory information seeking and directed information seeking. These are congruent with the stages that emerged from the analysis of the interview data (Chapter 5.4, p.104).

The main objective of exploratory information seeking, according to the diarists, is to "find a career (or careers) that you are interested in" (Eryk) and to "think long and hard about what it is you want to do when you leave school" (Adam). This is achieved through a combination of self-reflection and research. Some diarists thought that a clear position on ambitions should be reached first:

> "First of all, have a think; what interests you? What subjects do you enjoy learning in school? Would you not love a job that makes use of that subject? … Once you have thought of your favourite subject take a piece of paper and create a mind-map (use the internet if you wish) and jot down all the jobs that you think you would like to choose as a career. Research all of them and create pros and cons for each occupation." (Michael)

Then individuals should develop a better understanding of their interests and settle on whether or not they would like to go to university:

> "For example, do you want to go to university? If so, what is it you want to study and what is your end goal after you leave university? Or do you want to go straight into employment and begin working as an apprentice or as a regular worker?" (Adam)

Other diarists emphasised the importance of self-reflection supplemented with ample research. This should begin as early as the first year of secondary school. For example, Callum noted that:

> "This process often starts early on in your school career with sites such as My World of Work being used, in my case, during the first year of secondary school." (Callum)

Once the exploratory stage of information seeking is complete, the data analysis from the diary entries suggests that young people are likely to be relatively confident in their career choice. They can then proceed to the directed information seeking stage. Here, they research specific aspects of their chosen career aspiration:

> "When you think you are set on a career, I would move on to the UCAS website where you can have a look at university courses which would get you a degree, allowing you to pursue your favoured career" (Mairi)

Thus in the first of the two information seeking stages, the diarists focus on choosing a career aspiration, and in the second stage, they research specific aspects of this. One interpretation of this sequential process is that it represents a systematic approach to career information seeking and career decision-making, and appears to maximise the efficiency of careers research. Instead of researching dozens of careers in-depth, and thus devoting significant time and energy to careers research, the diarists exhibit a behaviour that narrows the scope of the search by first deciding on a career intention. They generate specific search criteria relating to only one or a few career options, and perform an in-depth search on this career. This systematic approach to information seeking and decision-making is exemplified in Victoria's numbered list of steps:

> "1. write a list of all the subjects that you take in high school
>
> 2. choose one of them that you really enjoy
>
> 3. use the internet to see what careers involve that subject
>
> 4. choose one of them and find a website explaining what exactly that career is

5. find out as much information as you can about that career, such as the day-to-day tasks they might have to do.

6. find out important things you will have to know about that career such as:

- salary

- what qualifications are useful to have for that career in high school?

- does it need a university or college degree?

- if so where can you get that degree and how long will it take to get it?"

(Victoria)

5.5.1.2 Information seeking challenges

The diarists' responses indicate that they experience challenges whilst looking for career information. They encounter unhelpful or insufficient information, and find the process too time-consuming and testing.

After completing their set tasks, the diarists reflected on the degree of success of their information seeking. They reported that some of the information retrieved online was unclear, insufficient or unhelpful to their career decision-making. For example, entry requirements for academic courses were opaque:

> "there were several parts of it that were very unclear and it would have been helpful to have clearer information regarding Nat 5s and higher qualifications needed for university" (Victoria)

Other valuable types of information to help decision-making, such as career profiles information, were also found lacking. For example, Eryk was dissatisfied with the jobs information he found on websites such as Google Jobs. He thought that this "was unclear as they never specified what you would actually do and if it was clinical or forensic psychology".

Overall, career information seeking was associated with significant difficulties in half of the sample. The diarists found it difficult to obtain relevant information on entry requirements and salary projections:

> "I found it difficult to find out what subjects are helpful to becoming a forensic psychologist and the entry requirements for universities for this course as most of them were in England and were talking about GCSEs and A levels rather than Nat 5s, higher and advanced Highers." (Victoria)

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"I also used My World of Work after finding it difficult to find salary and entry requirements." (Isla)

As a result of encountering difficulties within their careers research, they were not fully satisfied with the information that they found:

"I wasn't completely satisfied with what I found, I felt like there wasn't a huge amount of common ground between a chef and paramedic so I wish I could find more info on that" (Stephanie)

In addition, the diarists found that the information seeking tasks took much longer to complete than expected, and became frustrated with the process. As an illustration, Sophie found that "it took a lot of time to research just one career" and that "My World of Work wasn't as useful in planning out possible routes as initially hoped", and Stephanie became annoyed because she was "finding multiple sites that didn't relate to the search that was made". Isla, similarly, found herself becoming "annoyed as not one place offered all information" and "confused as some information varied in different places."

Upon reflection on the challenges encountered, the diarists established that they would require help with their careers research, were they to conduct similar searches for their own purposes. For instance, Emily said that she envisions needing help with locating specific information:

"… all the sources gave different answers so it was difficult to come to an average. I think I would need help with finding out which requirements I need to get into the course as I'd need to find out what exactly each qualification includes e.g bachelors degree." (Emily)

Adam similarly stated that he may need support with researching universities' entry requirements, as he was unfamiliar with some of the terms encountered during his search, such as degree classifications (e.g. 'UK honours degree 2:1', and 'A levels').

5.5.1.3 Career development learning

After completing the three information seeking tasks, the diarists noted that their engagement with careers information had resulted in career development learning. They highlighted that they had increased their knowledge of careers, the careers research process, and the affordances of information products and tools.

In respect of the first of these elements, the diarists learnt about qualifications, entry requirements, salaries, responsibilities, career pathways, and the existence of specific jobs within a career field or

specific careers within an industry. For instance, Adam learnt about the "courses needed, unis which have them, and entry requirements" and Stephanie learnt about "the vast jobs in the medical field that require talking to patients". The diarists also learnt about the careers research process and the efficacy of careers research tools. Eryk, for instance, said:

> "I learnt that the government have tools to help find careers." (Eryk)

This career development learning achieved over the course of the set tasks was beneficial to career decision-making. This challenges preconceived notions of careers and broadens diarists' horizons. For example, Paige was surprised when she saw "the hours of a chef" and upon comparing the chef and paramedic occupations, Emily said:

> "I learnt that to become a paramedic you need a lot more qualifications that I assumed at first … it's much easier to become a chef than I thought it would be". (Emily)

The career development learning achieved in this exercise also encouraged some diarists to conduct further careers research into topics they find surprising and to consider new career pathways. For instance, after acquiring new knowledge on the two careers considered in the diary task, Emily said:

> "The process made me think I should look into different careers a bit more as they might have different (less difficult) requirements that I thought they would have." (Emily)

Victoria similarly indicated that she had "never really considered college" previously, and that it was "interesting finding out about them".

5.5.2   Career information literacy

5.5.2.1   Skills needed in general

According to the diarists, the two most important career information literacy skills are knowing what to search for, and knowing how to perform thorough searches. The first is dependent upon career intentions. The establishment of career intentions facilitates information seeking. For instance, Adam noted that "researching careers can be difficult, especially if you aren't sure what you would like to do after you leave the school", and Callum explained the following:

> **"**The information is very easy to find if you know what you are looking for, and finding this information is a skill that will be necessary whatever you decide to do. … The key phrase is 'if you know what you are looking for'. Essentially it is very important to find out what you want to do at the earliest possible time because you are then giving yourself far more breathing space to research your chosen path." (Callum)

Another essential career information literacy skill is the ability to "look at multiple sources to get a wide view of things" (Isla) (i.e. thorough searching). The diarists were critical of careers research activities that are brief or rely on only one information source. They advised consideration of several different careers, and checking multiple information sources to discover more about them. For instance, Victoria said:

> "Reading as much as you possibly can about a wide variety of different careers will be extremely beneficial as you can gain as much information as you can and you might be surprised by some of the things that interest you while reading. The more you research about careers, the less daunting it will become." (Victoria)

5.5.2.2   Skills applied in the tasks

Upon reflecting on the skills they had applied whilst completing the two information seeking tasks (Tasks 1 and 2), the diarists identified two types of skill groupings that facilitated their careers research. These were research and technical skills, and resilience skills. Eight diarists stated that these included competencies in navigating the web 'sensibly' and thinking critically about the information accessed. For example, Eryk said:

> "It is very important to have good researching skills whilst doing this research. Knowing what to search will really help your results and will maybe help you find websites others aren't as familiar with, like specific companies websites or other websites" (Eryk)

The diarists also claimed that basic literacy and numeracy underpin research skills. This is because they allow for the information to be processed in an efficient manner. Catriona, for example, alluded to computer skills and skim reading, and Isla to maths:

> "Computer skills, skim reading skills as there was a lot of information." (Catriona)

> "Math as nowhere told me average, just range. May need help finding places that offer courses as it was confusing and so many different degrees." (Isla)

The diarists also found that they needed to be patient and resilient when completing the tasks, persisting until they were satisfied with the information collected. For instance, Mairi said that she "had to be resilient" when she "found it challenging to find certain pieces of information" and Michael said:

> "I drew upon my resilience skills as when it became difficult to find answers I did not give up and tried my hardest." (Michael)

5.6 Conclusion to Chapter 5

The findings presented in this chapter have provided important insights into young people's career information seeking and career information literacy. Four sets of findings, obtained through four research methods and over three study phases, each contributed to the triangulation of the data and the identification of common behavioural and attitudinal patterns in the sample.

Firstly, the analysis of the scoping study indicates that the clients of careers services engage in collaborative information seeking with careers advisers. The concept of 'information' is not explicitly discussed. Instead, clients are assisted or prompted to 'look at/into' specific information sources and to 'research' specific educational or occupational options. Furthermore, young people exhibit information needs and experience information seeking challenges. Careers advisers appear to have a critical role in ensuring young people's timely engagement with relevant career information through a series of different behaviours: prompted information seeking; proxy information seeking; collaborative information seeking.

Secondly, the results of the descriptive and statistical analyses of the questionnaire have shown that young people's career information seeking is limited in scope and duration. Only a small number of information sources and types are accessed per month, and the time spent on careers research amounts to less than an hour in the same time period. The My World of Work website, social media platforms, and university websites are the primary sources consulted. Of note, the questionnaire results indicates the contribution of information seeking and information literacy to participants' decision-making. This was evidenced by the significant bivariate correlations recorded across most of the variables related to these three dimensions. Several of the respondents' career information literacy skills were observed to be in need of improvement, such as: knowing what to search for; comparing different pieces of information; storing information after this has been obtained; and verifying the veracity of information.

Thirdly, the themes established as a result of the analysis of the interview data suggest that the interviewees' career information seeking is characterised by the deployment of exploratory and directed search stages, and guided by two kinds of decision-making styles: fulfilment-based and pragmatic. The themes also provide support for several of the findings stemming from the earlier research phases. For instance, the analysis of interview data allowed for additional elaboration on young people's information needs, and shows that these are oriented towards acquiring two kinds of information: one pertaining to educational opportunities, and another to career pathways and profiles. The assertion that young people's information seeking is digitally and socially mediated was

confirmed, and knowledge of additional dimensions significant in the context of young people's career decision-making was developed. Such dimensions are affective states, information management, and career development learning. A more comprehensive understanding of the career information literacy skills profile has also been advanced. According to the interviewees, three skill groupings are key: research and technical skills, social skills, and resilience skills. On the basis of the interviewees' experiences and conceptions of current career support services, suggestions for the improvement of the CIAG provision in schools have emerged.

Finally, the analysis of the diary data reaffirmed the observation that the experience of challenges is an indelible part of career information seeking, and that career development learning is one of its outcomes. The need to foster research and technical skills, social skills, and resilience skills in decision-makers was reiterated. This was articulated both with reference to the skills believed to be required for general careers research purposes, and in respect of the skills applied in the set diary tasks.

The themes identified across these four research methods have generated knowledge of young people's information seeking for the purposes of career decision-making. These themes have also contributed to the conceptualisation of career information literacy skills and may be used to inform the design of information literacy instruction.

In the next chapter (Chapter 6), the significance of these findings is discussed with reference to the extant literature, and the implications of the doctoral study are considered with reference to research, policy, and practice.

Chapter 6   Discussion

6.1   Introduction to Chapter 6

The findings of Chapter 5 are discussed in this chapter in light of the extant knowledge summarised in the literature review (Chapter 2, p.6), and with reference to the theoretical framework presented in Chapter 3 (p.46). The value, significance, and implications for research, policy, and practice of this study are highlighted. The discussion demonstrates that this research addresses gaps in knowledge that pertain to career information seeking and career information literacy. The research also extends existing knowledge of the career agency of 13–18-year-olds in Scotland. The discussion thus illuminates the novelty of the findings of this thesis by highlighting the themes in the work that support, extend, or contradict extant knowledge in LIS and career studies.

The chapter is structured according to the research questions employed at the onset of the analysis, namely:

RQ1. How do young people utilise career information for the purpose of making career decisions about the varied training, education, and work experience opportunities available to them?

RQ2. Which career information literacy competencies can be developed in young people for optimal career development learning and career decision-making?

6.2   The use of career information by young people for career decision-making

6.2.1   Introduction: young people and information seeking for career decision-making

As noted in the literature review (Chapter 2, p.31), the notion of 'career' has received limited attention in relation to information seeking in LIS. Similarly, information seeking has been mentioned in few of the publications in career studies. It was argued that there is a need to develop knowledge of young people's career information seeking, conceptualised as an everyday life endeavour, and aimed at the management of career transitions. In this chapter, such knowledge is articulated on the basis of the synthesis of the evidence presented in the report of the empirical work in this thesis.

6.2.2 The extent and scope of career information seeking in everyday life

6.2.2.1 Purposive information seeking

In LIS, it is widely agreed that information seeking is a significant component of information behaviour (e.g. Savolainen, 1995; Wilson, 1999). While information avoidance occurs in some individuals and in some contexts (e.g. Agarwal, 2015; Narayan et al., 2011; Wilson, 2010), the main focus of published research and theory has been on purposive information seeking. The findings reported in this thesis demonstrate that purposive information seeking is a core component of young people's sense-making in respect of their career development. Here it is seen that young people actively seek out relevant information when approaching their teachers, peers, and careers advisers for advice, and when researching careers at school or at home (Sections 5.2.2 and 5.4.1.2.2). In addition, no instances of information avoidance were recorded in the sample. These insights challenge the assumption that young people are merely passive recipients of career information, as has been assumed in career studies (Section 2.4.3, p.21). The findings are also useful to the development of knowledge of information seeking, which has received little attention in the careers literature (Pesch et al., 2018, pp. 583–584).

Through the analysis of the interview and questionnaire data, it was found that young people's career information seeking is limited in scope and duration despite its purposive and goal-oriented nature (Sections 5.3.2.2 and 5.4.1.3.1). This is particularly evident in the questionnaire findings, which indicate that the majority of the participants spend under an hour per month on careers research activities. It was also found that young people consult a small number of information sources when searching. This amounts to between one and three information sources and types per month. The sporadic pattern of young people's information seeking is also evident in the interview findings. The pattern of limited information seeking documented in the research is consistent with those observed by Karim and Widén's (2023) and Meyers et al (2009). They also found that young people typically gather information from a small number of sources (between one and three). There are many plausible explanations for this finding. For example, information seeking challenges (Section 5.4.1.4.1, p.112) and inadequate career information literacy skills (Section 5.4.2.4, p.119) are possible causes. These are elaborated in greater detail below.

Young people experience periods of sporadic active searching (occurring at irregular intervals of time) is interspersed with periods of reflection. The more passive, reflective periods imply a degree of active attention to career decision-making in the absence of purposive information seeking or information avoidance. While many of the models and theories of information behaviour are limited

in their ability to describe 'less-directed practices', in the words of McKenzie, some of Wilson's early work included "passive attention" and "passive search" as dimensions of information behaviour (McKenzie, 2003, p. 19). The higher-order process (i.e. meta-awareness) of thinking about one's career decision-making has also previously been incorporated into Sampson's CIP model (2020, p.8), which forms part of the conceptual framework deployed in this research. Thus it is evident that less-directed information practices, such as passive attention, play a role in information seeking in the context of career decision-making.

6.2.2.2 Information needs

In the research reported in this thesis, young people were found to have two types of information needs. One relates to career profiles and pathways, and the other pertains to their post-secondary educational prospects. The two most commonly sought information types are information about jobs and information about study options, in congruence with the two types of information needs observed. The first type of information need is associated with the development of knowledge of the responsibilities and lived experiences of different occupations. The second type of information need is focussed on gathering information about college and university opportunities. The analysis of the scoping study data indicated that young people approach their careers advisers with specific questions about careers and qualifications. The analysis of the interview data confirmed that these are the main subjects of interest in the context of their career decision-making. This work therefore shows that the co-occurrence of information needs alongside purposive information seeking is consistent with the principles expressed in the LIS literature. For instance, Wilson relates information seeking to the satisfaction of information needs in his cyclical model of information behaviour (Wilson, 1999, p.251).

Young people's information needs are thus applicable to elements of Borlund and Pharo's (2019) information needs purposes: to learn something new (e.g. the kinds of careers relate to their interests); to find inspiration (e.g. to be inspired by accounts of the lived experiences associated with a specific career); to decide between alternatives (e.g. to decide between different college courses or universities); to make a decision changing one's life (e.g. to make a decision affecting their future career). These findings can also be related to Wolf (2019)'s research of work-related transitions. According to Wolf (2019), work-related information use is closely associated with the process of 'becoming'. A similar process evidently occurs in young people's information seeking, as their information needs are deliberations on the process of 'becoming'. They gather information about their environment in order to envision possible futures, both in the short term (with regards to education) and in the long term (with reference to their career plans). The findings from the analysis

of the questionnaire provide further support and context for this interpretation of the findings. Here, further education is seen as the immediate career intention of more than half of the sample (5.3.2.2).

The interview data analysis further indicates that the two types of information needs are interrelated, and often linked together in transitional narratives. For instance, young people seek information for the purposes of linking their school subjects with potential opportunities for tertiary education, and in turn, for linking tertiary education with potential careers. Young people's information needs are thus focussed on the process of becoming, both in terms of developing an identification with certain careers, and charting pathways as means of attaining these careers. In line with the broader careers literature, they seek to develop knowledge both of themselves and the world of work, and to locate their preferences and aptitudes within opportunity structures (Sampson et al., 2000, p. 156).

6.2.3   The digitally and socially mediated nature of career information seeking

In prior research on the broad theme of young people's information behaviours in everyday life settings, it has been found that young people access both digital and social sources of information as they map their information landscapes (Hultgren, 2009b; Karim & Widén, 2023; Meyers et al., 2009; Stonebraker et al., 2019). The nature of young people's everyday life information seeking and information needs is nevertheless poorly understood (Karim & Widén, 2023, p. 2). The study reported in this thesis has made a contribution to this gap in knowledge by demonstrating in detail young people's use of information obtained through digital and social means in the specific context of careers.

Digitally and socially mediated information seeking are equally important to young people's decision-making according to the findings of this study. The most commonly used information sources are the MyWorld of Work website, social media platforms such as TikTok, university websites, and personal contacts (such as careers advisers, parents, teachers, and friends). In line with the literature, traditional and print media formats have low usage rates at 5.6% for brochures and 2.7% for newspapers and magazines. These rates are consistent with those recorded in other studies that confirm a shift in information seeking from traditional media towards Internet sources in the last two decades (e.g. Andersson, 2022; Garwood-Cross, 2023). The results also underscore the prominence of social media-based career information that has already been observed elsewhere (Bimrose et al, 2015). However, social media websites such as TikTok are not official nor moderated platforms for

the dissemination of career information, and scholars have voiced concerns regarding the potential of social media to disseminate disinformation and to promote career information that is de-contextualised and out-of-date (Sampson et al., 2018). As this research confirms the growth in popularity of these platforms, young people need an awareness of the risks associated with social media-based career information.

The benefits of obtaining information from others are evident in this research. For example, the interviewees underscored the significance of speaking to knowledgeable contacts when they need help with their information seeking and decision-making (5.4.1.2.2), and 41.2% of the questionnaire respondents reported that they approach others with careers queries (5.3.2.2). This finding is in line with the careers literature that argues for the influence of social networks on young people's career decision-making (e.g. Akosah-Twumasi et al, 2018). The difference here, however, is that as well as showing that social sources of career information influence young people's career decision-making, they also inform it.

Indeed, it has also been found that information from social sources is highly trusted if it comes directly from a person. High levels of trust stem from young people's familiarity with their social contacts and the levels of expertise that they assign to them (Section 5.4.1.2.2, p.107). For example, the interviewees stated that they seek help from others when their career information seeking on the Internet is proving difficult. This indicates a level of trust in knowledgeable contacts while highlighting trust as a critical determinant of information seeking, as previously noted by Arur and Sharma (2022) and Meyers et al (2009). The findings of this study depart from the literature on one specific finding, however. In prior work, it has been argued that decision-makers have higher levels of affinity for some of their social contacts (e.g. Ginevra et al, 2015). In this case the young people did not exhibit an inherent preference for, nor reliance on any specific contacts over others. Instead, information is sought from varied social sources found in close proximity to young people. Their preference to access readily available individuals has parallels with Connaway et al's (2011) findings, which similarly indicated that easily reachable people are preferred information sources. Thus the results of the study imply that young people do not have a generalised preference for seeking information from specific contacts. Rather, their information seeking is guided to a greater extent by the principles of trust and proximity.

The scoping study for this doctoral work has also revealed that specific modes of socially mediated information seeking are invoked in career counselling settings with careers advisers. These are prompted seeking, proxy seeking, and collaborative search (Sections 5.2.2.2, 5.2.2.4, and 5.2.2.5). These three aspects of young people's socially mediated information seeking generate additional

insight into their reliance on adults for meeting their information needs, as previously documented in a number of studies (Crowley & High, 2018; El Sherif et al, 2022; Zhang & Liu, 2023; Shenton & Hay-Gibson, 2011). While proxy seeking and collaborative seeking have both received some coverage in the literature (Cruickshank & Hall, 2020, p. 5; McKenzie, 2003, p. 23; Shah, 2014, p.215), prompted information seeking represents a new dimension that merits further investigation. Of note, the research demonstrates that young people and careers advisers assume different roles and functions in the career information seeking process. The former are novices who approach the latter with information queries, and the latter are information seeking experts who scaffold competence in their clients and share relevant information with them. Career counselling settings are thus important to young people's information seeking and information literacy, and careers advisers have a significant impact on young people's research intentions. In future research, careers advisers' conceptions and experiences of providing proxy information seeking support could be explored, and their capabilities in career information literacy could be investigated.

6.2.4   The two-stage process of information seeking and career decision-making styles

6.2.4.1   The two stages of the information seeking process

This research identifies two career information seeking processes, namely, exploratory search and directed search. Together these processes underpin informed decision-making. These are two sequential information seeking stages linked to the progression of career decision-making over time (see Section 5.4.1.3.2, p.109). In the exploratory stage, young people consult digital platforms and key informants from their social network with the intention of gaining exposure to generalised career information (e.g. about educational or career pathways). In the directed search stage, young people seek information of direct relevance to their search queries.

Prior research on career information behaviour such as that by Julien (1999), Hultgren (2009), and Stonebraker et al (2019) has advanced theoretical insights on the process perspectives of information seeking in LIS. However, they have not distinguished the two phases evident here. The process models of career decision-making in career studies synthesised in the literature review chapter do not offer this insight either. This finding is important because it reveals the means through which sense-making is utilised to manage career transitions, and it can be deployed to add detail to the conceptual framework in this study.

The pattern of behaviours articulated in this research shows that at the onset of their careers research, young people care often unfamiliar with the wide range of educational and career opportunities available to them. The first stage of their sense-making strategy comprises

familiarisation with career information, without any particular goals in mind. This familiarisation with new information grounds is akin to the early stages of the management of transitions (Ruthven, 2022, p. 1). Once young people have developed an understanding of the information landscape, they engage in information seeking that is akin to that described in the linear information seeking models in LIS (e.g. Kuhlthau et al., 2008; Wilson, 1999). This directed search strategy is different from the earlier exploratory search phase, since the information accessed as part of the exploratory search is not associated with specific information needs and filtered through criteria for relevance. Taking into account the characteristics of these phases, sense-making in a career decision-making context can be understood as a logical set of events that take place over time. Far from relying on serendipity, young people construct strategies to guide their information seeking. The efforts directed at their search strategies are evidenced, for example, in their orientation towards understanding the layout of the information landscape and shortlisting potential options before engaging in directed searches regarding specific careers. This can be construed as a strategy intended to maximise the efficiency of the search. In developing familiarity with the information landscape, before commencing a directed search, young people adopt a process that lowers navigation challenges (as noted by Jeffryes & Lafferty, 2012).

The two-stage process articulated is partially consistent with the linear information seeking models found in the literature in LIS, in that the directed search bears similarity to the purposive information seeking driven by information needs (e.g. Wilson, 1999). As an explanation of everyday life information seeking, this process is more readily applicable to Dervin's sense-making (1983) theory. The two-stage process overlaps with the three metaphors expressed in the theory. The information search is experienced as a cognitive strategy grounded in individuals' current context (or 'situation' in Dervin's terms) and employed in an effort to reach certain 'outcomes' – in this case, 'helps' and 'facilitations' as specified in Section 3.2.1 (p. 47).

The broadening of young people's horizons in the first stage of their search, and the subsequent narrowing of the scope of their concern in the second stage, is consistent with the depiction of career decision-making as a process. This begins with a broad exploration of career options, and later continues with the in-depth exploration of a few shortlisted options (Germeijs & Verschueren, 2006, p. 189). The choice of one career option, and the implementation of the career plan, is the final stage of decision-making (e.g. Gati & Asher, 2005). The CASVE cycle of Sampson's CIP theory (Sampson, Osborn, Bullock-Yowell, Lenz, Peterson, Dozier, et al., 2020, p. 10), which was incorporated into the conceptual framework for this study, also depicts information seeking in the context of decision-making as a process of expanding and narrowing a list of options. The difference here, however, is the emphasis on information seeking as a key component of the exploration of career options. Thus

the findings of this research are valuable to the domain of career studies because they make explicit the role of information seeking in the career decision-making process.

6.2.4.2   Career decision-making styles

A further contribution to knowledge of this PhD research is the identification of two kinds of decision-making styles in the context of career information seeking: fulfilment-based and pragmatic (Section 5.4.1.4.4, p. 115). In the fulfilment-based style, priority of consideration is given to careers perceived to be the most enjoyable in the long term. In the pragmatic decision-making style, career options thought to be the most attainable in the context of individual circumstances are prioritised. These styles function primarily as decision-making schema, as well as determinants of young people's engagements with career information.

Although these decision-making styles bear some broad resemblance to Julien (1999) and Hultgren's (2009) findings, they are not identical to the classifications presented in each study. The pragmatic decision-making style is somewhat similar to one of Hultgren's (2009) dimensions of active information seeking aimed at negotiating risk. However, the fulfilment-based style does not have an equivalent dimension within Hultgren's findings. Furthermore, while Hultgren's participants placed their information seeking 'on hold' so that they could devote time to travel and personal discovery, and avoided information altogether in some cases (Hultgren, 2009b, pp. 148–186), these practices are not evident in the research reported in this thesis. One possible justification for this difference in the recorded effects is the cultural context of decision-making since Hultgren's research was conducted with Swedish students. The timing of the two studies may also be significant, given that a decade and a half has passed since the publication of Hultgren's work.

The findings of this study also diverge to an extent from the decision-making styles explored in Julien's (1999) study. Julien used Harren's classification. This suggests that accurate self-appraisals and career planning are emphasised in the rational style; fantasy and emotions steer action in the intuitive style; and passivity and denial of responsibility are typical of the dependent style (Harren, 1979, p. 125). While Harren's rational style resembles the pragmatic style introduced here in Chapter 5 (p.115), the fulfilment-based style has no overlaps with the intuitive style. Of note, young people do not engage in the kind of fantasy-based decision-making described by Harren, and instead rely on realistic self-appraisals of the educational and career pathways that they are most likely to enjoy (and persist with over the years).

Fulfilment is thus recognised here as an important new dimension to consider in the context of career information seeking for the purposes of decision-making. Further research could examine

whether this is an inherent tendency of the current generation of young people, or a message echoed throughout the educational and career development system that young people have assimilated into their careers thinking. A possible explanation for this phenomenon is that young people's attitudes might reflect the current realities of the labour market. Since there is a decline in the availability of structured and lifelong career pathways (e.g. Bezanson et al., 2016; Culpin et al., 2015), young people might be seeking to develop their career identities on the basis of enjoyment in broad terms (e.g. they enjoy helping people) rather than on the grounds of identifying with specific career pathways (e.g. specific roles in the healthcare sector aimed at helping people). This could be a form of sense-making that is experienced as personally significant to decision-makers whilst affording them flexibility to adapt to the volatility of the labour market. A further element here may simply be the nature of the sample engaged in this research of young people in Scotland.

6.2.5 Emotional challenges of career information seeking

This research highlights that affective states and challenges are salient in the information seeking process, in line with prior research (e.g. Given, 2007; Matteson, 2013). As documented both in the interview and diary data (Sections 5.4.1.4.1 and 5.5.1.2), states such as stress and frustration are experienced as information seeking challenges, for example, upon finding that information seeking is taking longer than expected or that information needs to be accessed from numerous sources. Information seeking can also lead to information overload and cause some young people to become overwhelmed. These challenges are similar to three of the categories discovered in Julien's (1999) research into Canadian students' career information behaviour: information seeking delays; encountering inaccurate or inappropriate information; and encountering scattered information. The research findings in respect of information overload are particularly significant because they challenge the assumption that career decision-making difficulties are associated with a lack of career information. Their analysis within this study suggests that the opposite effect of that articulated in the careers literature is instead salient, and that difficulties arise when there is too much career information, and when this information surpasses the capabilities of information seekers to cognitively process it. This effect is concordant with the inverse relationship between decision-making performance and information overload proposed by Roetzel (2019, p.483). This positions information overload as the primary culprit of decision-making challenges and negative affect. The research confirms the presence of information scatter as an inherent feature of the career information environment, as noted in earlier work (Herndon, 2012; The Careers and Enterprise Company, 2016, pp.4-10; Hutchinson & Dickinson, 2014).

The findings of this research presented here are broadly consistent with that published to date on this topic. As was the case in Lopatovska and Arapakis' (2011) review, for example, here negative emotions were found to impede information seeking. For example, the interviewees expressed concerns about grades and entry requirements, which resulted in stress, fear, and worry. Unlike the findings of Savolainen's (2014) study, there was no evidence that the experience of negative emotions leads to the limitation, termination, or avoidance of information seeking. On the contrary, the young people who were asked to complete real-world information seeking exercises persisted with their information seeking until they produced an answer to the questions posed in the diary exercise. In addition, the interviewees did not reduce the scope of their information seeking or halt this entirely. Only in the scoping study was there any indication of disengagement from the careers research process (5.2.2.3). This was due to a host of factors not necessarily associated with the quality and quantity of information, such as external time pressures.

It can be deduced from the findings of this study that information seeking challenges may result from engagement with abundant or scattered career information, and that the subjective experiences and management of these challenges may intersect with other contextual factors. It is also evident that challenging tasks concerned with information seeking also tend to be emotionally frustrating. If this research opens up the topic of information seeking and emotion, perhaps others in LIS and career studies may be encouraged to do more than "dance around emotion" (Fourie & Julien, 2014; Kidd, 2004, p. 441). Emotion may then emerge as a variable of information seeking.

6.2.6   Conclusion: young people and information seeking for career decision-making

Decision-making is an often-overlooked dimension in investigations of information seeking. The research reported in this thesis furnishes the research base with an improved understanding of the key parameters of career information seeking for career decision-making. Specifically, it indicates that career information seeking is purposive (yet limited), digitally and socially mediated, organised along a two-stage process timeline, driven by career decision-making styles, and associated with information seeking challenges and emotions. The novel insights uncovered in the analysis are the identification of the power of social contacts who not only influence, but also inform career decision-making (especially those found in trusted, local networks). In addition, this work introduces the concept of 'prompted' information seeking as an element of socially mediated practice.

6.3 Young people's career information literacy

6.3.1 Introduction: young people and career information literacy

The assessment and alleviation of young people's career decision-making difficulties is one of the core research themes in career studies, as introduced in Chapter 2 (Di Fabio & Saklofske, 2021; Dik et al., 2008; Gati et al., 2012; Janeiro et al., 2014; Lent et al., 2017; Penn & Lent, 2019). There is a growing interest in the digitisation of career services and in the development of digital literacy and career management skills in young people (e.g. Attwell & Hughes, 2019; Hooley, 2012). The domain of information literacy was invoked to preface this research, to offer opportunities for the development of information-focussed career interventions.

In the section that follows, young people's current experiences of, and skills in, career information literacy are discussed. Suggestions for the improvement of CIAG services are made on the basis of the findings of this research.

6.3.2 The current state of young people's career information literacy skills

6.3.2.1 The key elements of the career information literacy skills profile

Upon reflecting on the skills they had applied whilst completing the practical information seeking tasks as part of the diary data collection (Section 5.5.2, p.130), and the skills invoked in their everyday life careers research (Section 5.4.2, p. 116), young people suggested that career information literacy comprises three clusters of skills: research and technical skills, resilience skills, and social skills. Their narratives paint a picture of the career information literacy skills profile conceptualised from their own perspective (Table 20). This is an important addition to the extant literature on this topic, in which career information literacy has tended to be viewed through the lens of career experts and information literacy educators, and not investigated from the vantage point of young people's own experiences (e.g. Hollister, 2005; Zalaquett & Osborn, 2007).

There are some parallels between the competencies articulated by young people and the established understandings of career information literacy in the literature. In broad terms, the meanings ascribed to the research and technical skills cluster are well-aligned with the CILIP definition of information literacy. This posits that information literacy is the ability to think critically and make balanced judgements about the information that is found and used (Secker, 2018, p. 156). The research and technical skills cluster also has similarities with elements of the SCONUL Seven Pillars model of

information literacy (SCONUL, 2011), which informed the design of the empirical research reported here. These are apparent in the 'identify', 'plan', 'gather', and 'evaluate' pillars of the SCONUL model.

Skills clusters	Skills examples
Research and technical skills	Information handling and analytical skills; problem-solving and assessing the relevance of information; knowing how to use the Internet; using legitimate websites and critically appraising the information; basic literacy (e.g. skim reading and comprehension); knowing where/what/how to search
Resilience skills	Not giving up and persisting in the face of challenges; prolonged concentration and patience to browse for information; passion, commitment, and determination to find the information
Social skills	Communication skills; having the confidence to approach people with questions; collaborative and proxy information seeking.

Table 20. The career information literacy skills profile, as articulated by young people

However, the career information literacy skills described by young people lack the granularity of established models. There are plausible explanations for this finding. First, young people are framing career information literacy in the context of everyday life. Second, young people have only a partial understanding of the full range of information literacy skills applicable to their information seeking. This explanation makes sense given the current limited provision of information literacy training in Scottish schools (Section 5.4.3.1, p.121).

The young people in this study identified a new attitudinal dimension of career information literacy. This is resilience. Resilience is important for ensuring that information seeking proceeds in a satisfactory manner, and does not become interrupted or terminated before sufficient relevant information is collected. To date, resilience has not received much coverage in the information literacy literature as a core skill. Yet given the identification of information seeking challenges in this study that are relevant to resilience (Sections 5.2.2.3, 5.4.1.4.1, and 5.5.1.2) and in the wider literature (e.g. Julien, 1999), it might be argued that resilience should have a place in information literacy models and frameworks.

The young people who took part in this study also acknowledged that social skills are needed for career information seeking. This finding echoes the work of Valentine and Kosloski (2021), who observed that social skills such as teamwork, collaboration, and effective communication (both oral and written) are amongst the most important career information literacy skills cited by careers experts (Valentine & Kosloski, 2021, p. 13). The description of social skills in this research also resembles that of the 'networks' component of the Career Management Skills (CMS) framework for Scotland (Education Scotland, 2015, p.5). This finding is significant because it extends earlier

understandings of the communication implicit in information literacy models and frameworks. Here communication is only explicitly mentioned with regards to information sharing. For example, in the SCONUL model, the 'present' pillar relates to the presentation and synthesis of the results of individuals' research to others (SCONUL, 2011, p. 11). The findings of the empirical study reported here give much greater prominence to social skills, in particular communication.

6.3.2.2   Young people's proficiency in career information literacy skills

Young people indicated their proficiency at career information literacy skills when completing a questionnaire (Section 5.3.3, p.97) and in accounts of their everyday life experiences expressed in the interviews (Section 5.4.2, p.116). The questionnaire responses indicate that young people possess skills in some areas, but lack advanced skills in others. Young people are most confident in their ability to check multiple information sources, recognise when they need more information, discuss their career options with others, and find relevant information. They are less confident in their ability to recognise when they have collected enough information and in their knowledge of the appropriate information sources and information queries to use. Particular challenges are faced in comparing different pieces of information, storing information after it has been obtained, and determining the authenticity of career information. The information literacy skill that young people feel least confident in – verifying the authenticity of information – also emerged as one of the three main skills believed to be in need of improvement by the interviewees.

This general pattern of responses suggests that young people are more adept at initiating information seeking than they are at analysing or critically evaluating information and concluding their research. This is consistent with the findings reported in the educational literature. This shows that students are typically skilled in choosing keywords and using Boolean operators at the onset of their search, but lack skills in the synthesis of information from complex information sources such as academic databases (Salisbury & Karasmanis, 2011; Waters et al., 2012). In this regard, the young people in this research are akin to 'fragmenters' who have varying degrees of information literacy skills and 'builders' who are refining their existing understandings of information seeking by applying them to a new topic: career (Kirker & Stonebraker, 2019, p. 5). They navigate their post-secondary transitions by utilising the skills they already have, and encounter some challenges, in part, due to the skills that they do not yet have. While offering confirmation of earlier research results on information literacy skills, this finding is also useful in highlighting the verification of the authenticity of information as a training need amongst this population.

This research has also drawn attention to an overlooked issue in information literacy research, namely, reading and comprehension skills. Although young people are taught such skills in primary and secondary school, advanced texts and unfamiliar terms appear to pose particular challenges to the comprehension of career information (Section 5.4.3.4.3, p.120). The interviewees' responses pointed to the need to conduct two instances of research in parallel: one on unfamiliar terms and confusing phrases, and one on the main topics relevant to information needs. This means that young people need to be conscious of the limitations of their knowledge and address gaps in their understanding so that their career research can progress as intended. This is an aspect of their information seeking that relies on self-monitoring of knowledge and knowledge gaps that is similar to the meta-awareness described by Sampson et al. (2020) in the executive processing domain of their CIP model. The importance of reading and comprehension skills and meta-awareness to career information seeking is further highlighted in the research completed for this thesis. The reasons for these not featuring prominently in information literacy research would be worth exploring. For example, it may be the case that young people more readily admit to limitations in their knowledge, than might adults when speaking to researchers.

6.3.3   Preferences for the delivery of career information literacy training

6.3.3.1   Regular input from careers advisers and teachers

Despite the existence of some career information literacy support in schools and during career counselling sessions (Section 5.4.4.1, p.121), young people feel that they would benefit from more support (Section 5.4.4.2, p.122). This research identified that support varies from school to school, and that there are no particular provisions for formal or structured information literacy instruction in Scottish schools at present. Many young people are critical of the current support offer in place in schools. They cite issues with the continuity and the comprehensiveness of the support and express preferences and suggestions regarding its delivery.

The main suggestion is to increase the frequency of socially mediated interventions (Sections 5.4.4.3.1 and 5.4.4.3.3). This is consistent with the literature on everyday life information seeking and transitions. Here the high value placed upon social contacts' input is discussed (Barriage, 2016; Connaway et al., 2011; Eynon & Malmberg, 2012; Shenton & Dixon, 2003). The young people in this study proposed more one-to-one career guidance appointments and more lessons on careers research, introduced as early as possible.

6.3.3.2 Improvements to the existing websites and website features

The young people suggested that existing CIAG websites should be improved, or that a new website could be developed (Section 5.4.4.3.2, p.123). This suggestion is consistent with the literature that emphasises the prominence of online sources of information (Agosto & Hughes-Hassell, 2005; Karim & Widén, 2023; Meyers et al., 2009). Young people's suggestions centred on the website features that they would find useful, such as more plentiful and detailed descriptions of careers and university degrees, instructional content to improve their career information literacy, and links to other helpful websites and resources. They proposed that more attention should be given to the design of CIAG websites, to improve their usability and navigation.

Since young people's everyday information seeking is reliant on combining online and social sources of information (Karim & Widén, 2023; Meyers et al., 2009), and social media platforms affords easy access to social contacts (Mowbray et al., 2018; Mowbray & Hall, 2020), it was expected that the participants in this research would express an interest in social networking features. This was indeed the case. Young people stated that on-demand help should always be available, either through the FAQ page, comments section, or some form of teacher involvement in answering student questions.

6.3.4 Conclusion: young people and career information literacy

In addition to developing knowledge of young people's career information seeking, this research has contributed to the conceptualisation of career information literacy and the ideation of avenues for the development of young people's skills. The main contribution here is the identification of a future component that may deserve consideration in information literacy and frameworks: resilience. In addition, a number of suggestions have been proposed for the improvement of career information literacy amongst young people in Scotland.

6.4   Further contributions of the doctoral study

In addition to the findings discussed thus far in this chapter, three further findings are discussed below. These pertain to three dimensions: the investigation of the empirical relationships between information seeking, information literacy, and career decision-making; the re-evaluation of the conceptual framework; and the recommendations for practice and policy that arise from this work.

6.4.1 The identification of relationships between information seeking, information literacy, and career decision-making

Information, learning, and decision-making are linked at the conceptual level within the domain of career studies (Section 2.4.1, p.13). It has been noted, for example, that career information is considered critical to career development learning, and for this reason provided to young people through career counselling and career education (Bakke et al., 2018, pp. 48–50; Osborn et al., 2014, pp. 3–4; Prvulovic, 2020, p. 53). Several authors have also proposed that career development learning leads to the development of career knowledge, and thus, in turn, is believed to be factored into decision-making (Bengtsson, 2014; Bridgstock, 2009; Cinamon & Yeshayahu, 2021; McIlveen et al., 2011; Pesch et al., 2018). These assertions, however, are based on limited empirical evidence. Only Gati et al (1996) included information in empirical investigations of decision-making when they posited that a lack of information is expected to lead to career decision-making difficulties.

It has been possible in the study reported in this thesis to provide empirical support for the conceptual notion that career information seeking contributes to career decision-making. The important role of information in career decision-making is made explicit through the inclusion of information literacy variables in the analysis, as illustrated in Figure 14. Three concepts analysed in the questionnaire – career decision-making, career information seeking, and career information literacy – are bidirectionally associated with each other. Notably, the statistical analysis shows that the investment of greater time and effort into careers research is related to higher capabilities in career information literacy. Information seeking and information literacy are also interlinked, hence information literacy skills are developed as searching progresses. Both information seeking and information literacy correlate positively with career certainty. As more information is obtained, career decision-making agency increases.

It should also be noted that some age-related effects are evident for variables related to career decision-making and information seeking, but not for variables pertaining to information literacy (Section 5.3.4.1, p.99). This suggests a natural progression in information seeking and career certainty as young people approach the end of their compulsory secondary education. While information literacy skills do not increase with age, it was evident that information literacy is positively correlated with information seeking in the participant sample. From this finding, it can be concluded that the more information seeking young people perform, the more their proficiency in career information literacy increases. Since age is not a predictor of young people's career information literacy skills, it is possible, on the basis of this interpretation, to propose that information seeking may be a predictor of information literacy proficiency.

The establishment of this empirical basis for the role of information in career decision-making is an important finding of this thesis. Not only does this provide evidence to support the general principles conveyed in the literature, but it also positions career information as a key contributing factor to career decision-making.

Figure 14. The relationship between career certainty, information seeking, and information literacy
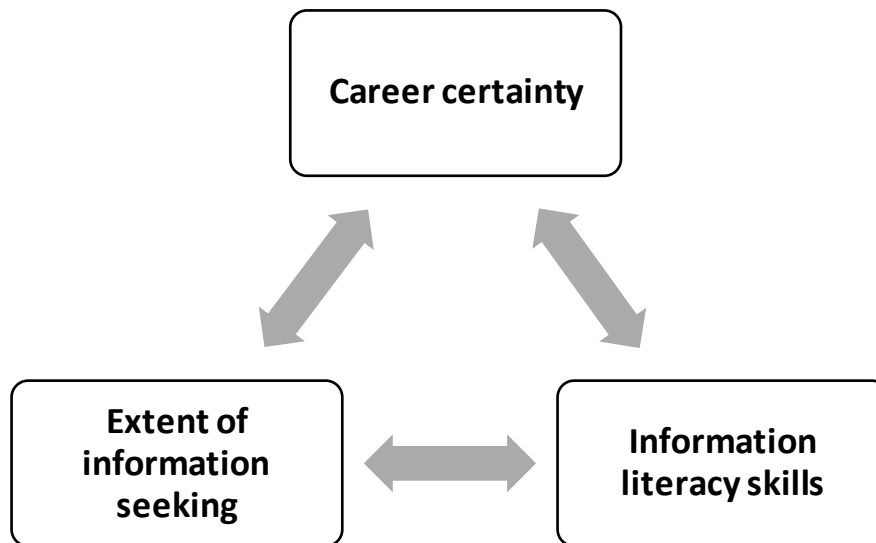
6.4.2 A conceptual framework of young people's information seeking in the context of career decision-making

The conceptual framework deployed in this study drew upon Dervin's (1983) sense-making theory, Sampson's (2020) CIP theory, and the SCONUL Seven Pillars (SCONUL, 2011), as noted in Chapter 3 (p.55). In this prior work, it is posited that cognition (here conceived as information processing) is a crucial determinant of decision-making and problem-solving in everyday life. Sense-making is a process that bridges the gap between a current state and a future desirable state, and transitions are managed through information seeking and the cognitions arising from individuals' interactions with the information environment (Dervin, 2008). The integration of information literacy into the conceptual framework for this study was done on the grounds that information literacy be a key component of young people's experiences. It was anticipated that young people would be shown to leverage their information literacy skills to search for information relevant to their decision-making.

The findings presented in this study show that information seeking is, indeed, an important element of decision-making, and that young people employ distinct cognitive strategies to manage their

career transitions. Young people who are faced with the prospect of making career decisions engage in digitally and socially mediated information seeking, and navigate their environments in a strategic way. They use a phased search approach that narrows their areas of interest over time. They also apply two kinds of decision-making styles (fulfilment-based or pragmatic), constructing personal narratives to guide their sense-making. These narratives are based on notions such as "you should find what you enjoy doing" or "you should pursue the career pathways that are available to you". Certain competencies are needed for the successful progression along the sense-making timeline. Information literacy, in this case, is experienced as a host of fundamental skills and attitudes.

These findings support the general principles expressed in the conceptual framework. They also extend current understandings of the particulars and nuances of information seeking and information literacy in the context of career decision-making. However, it is necessary to revise the conceptual framework presented in Chapter 3 on the basis of the findings reported in Chapter 5, and to reconsider their implications. In light of this, the modification of the conceptual framework is discussed below.

As illustrated in Figure 15, the findings of this research indicate that the 'situation' experienced by young people is that of having to make a decision in preparation for their imminent post-secondary transitions, and the 'outcome' is a career decision or career indecision. Although the majority of young people learn something about careers as they engage with information, not all are able to reach a decision easily as a result of their information seeking. That is because the career information landscape presents challenges in locating specific information, and these can be associated with negative affect. Furthermore, the skills and attitudes required to find answers to specific questions might not be possessed when they are needed.

The 'bridge' between the situation and the outcome is experienced as four stages. These resemble the CASVE cycle in their logical advancement, from the consideration of a higher number of options towards the start of the process to a lower number of options towards its end. However, the research reported in this thesis reveals elements to add to the phases of the CASVE cycle: exploratory search and directed search. These modes of information seeking are extra facets of the latter stages of the CASVE cycle. After the exploratory search stage, topics are selected for in-depth analysis, and information needs arise in the form of questions about specific career pathways. Career information literacy skills also factor into the information seeking process.

Figure 15. The revised conceptual framework
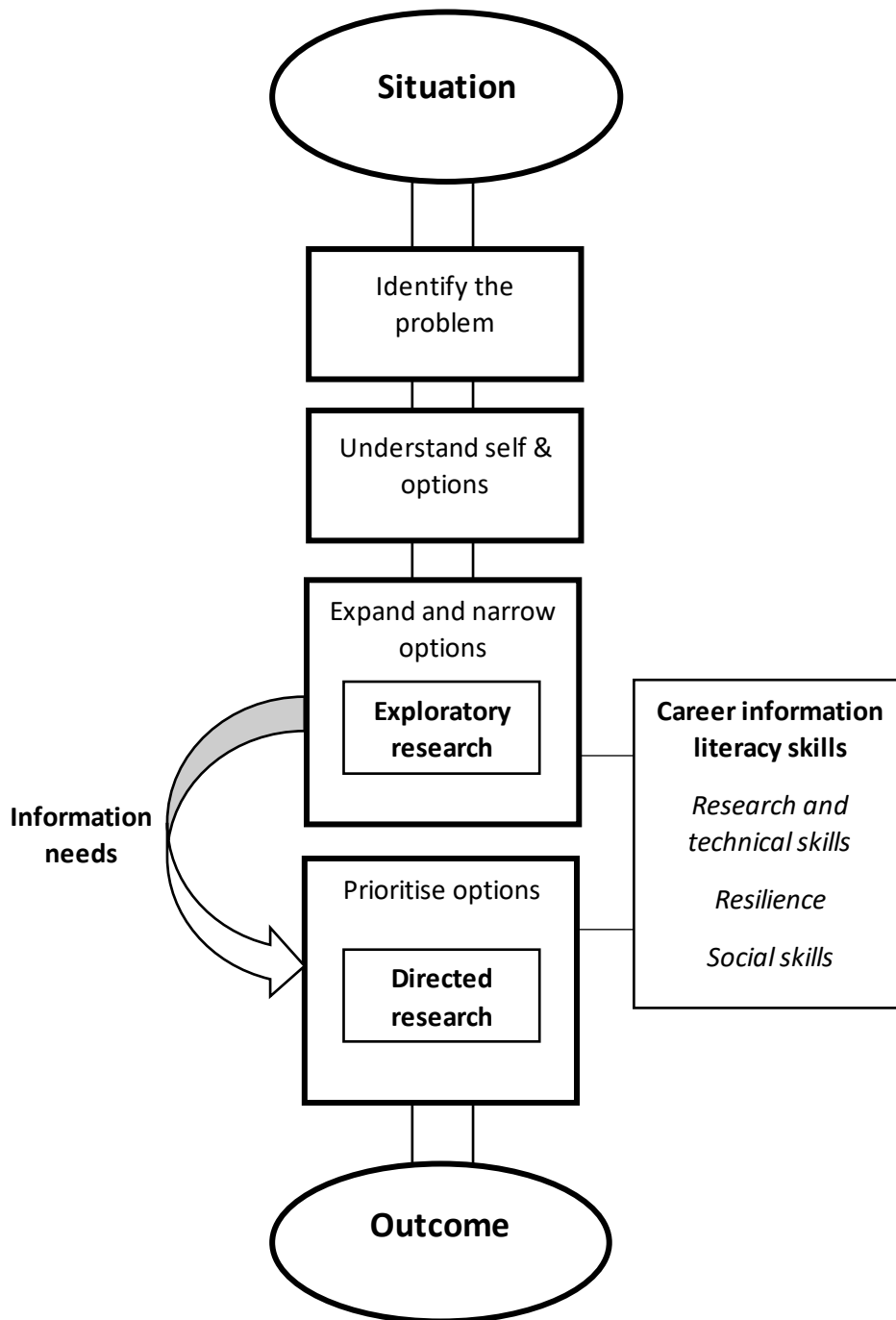
The organisation of the components of the revised conceptual framework depicts the current and actual career information seeking and career information literacy of young people, based on their own words and coloured by their own experiences as drawn from the interview and diary data. The revised conceptual framework depicts the progression of informed decision-making over time. Much like the normative theories and models that underpin this work (i.e. Sampson's CIP theory and the SCONUL Seven Pillars model), it also outlines the processes and competencies that should be developed in young people, and thus holds value in informing the design of information literacy interventions in respect of research and technical skills, social skills, and resilience.

6.4.3 Recommendations for policy and practice in career development services

On the basis of the findings of this doctoral research, it is clear that young people who are in the process of preparing for their lives beyond secondary school would appreciate enhanced careers support beyond the information, advice, and guidance about the work and education opportunities currently available to them (*Scottish Government, 2011*). Taking this into account, five recommendations for practice and policy are outlined below:

1. Young people's information seeking has been shown here to be limited in scope. Given that greater degrees of information seeking are associated with higher levels of career certainty, young people need encouragement to explore their career options further. Career information seeking should be designated as an essential element of career decision-making, and its importance should be emphasised at the policy and practice level.

2. On the basis that young people's career information-seeking is a two-stage process driven by two kinds of decision-making styles, a tailored approach to support may be adopted.
   - In the exploratory search stage, increased exposure to information is important. Thus the signposting of different information resources (both digital and social) will be beneficial. In the directed search stage, assistance with finding answers to specific questions is more appropriate.
   - The fulfilment-based and pragmatic decision-making styles should also determine the provision of support. For instance, young people who have display fulfilment-based styles can be supported to identify careers that they might enjoy pursuing. Those who favour the pragmatic style might benefit from help with finding information regarding pathways that are likely to be the most attainable, and that represent the best match for their grades and skills.

3. The research has revealed that young people rely on research and technical skills, resilience skills, and social skills in their careers research. Since they have been identified as fundamental competencies, they should be fostered in 13-18 year olds.

4. It would also be worth targeting instruction in the three career information literacy skills that attracted the lowest scores in the questionnaire: (1) comparing different pieces of information; (2) storing the information accessed; (3) determining the authenticity of career information.

5. Careers advisers are already supporting young people's careers research through prompted, proxy, and collaborative information seeking. The young people who participated in this study voiced a need for more regular input from their careers advisers. There are clear opportunities in expanding the service offer in this area.

6.5 Conclusion to Chapter 6

The discussion presented in this chapter has highlighted the main findings of the empirical work, with reference to the extant literature and the conceptual framework devised for the purposes of this study. From the discussion of the findings in this chapter, several contributions to knowledge of this research have been identified. The main contributions to knowledge are detailed below:

1. **Knowledge has been created on young people's career information seeking.** The discussion presented in this chapter underscores the significance of information seeking to young people's career decision-making, and shows that career information seeking is digitally and socially mediated. The work advances novel and original insights in several areas: it shows that career information seeking progresses through two stages (exploratory and directed); it evidences the power of trusted, accessible contacts in young people's social networks; it identifies 'prompted' information seeking as a new element of socially mediated information seeking.

2. **Knowledge of career decision-making styles has been developed**. This research shows that career information seeking is influenced by two kinds of decision-making styles (fulfilment-based and pragmatic). These particular decision-making styles have not been articulated in prior research, and thus hold value in advancing knowledge of the career information seeking process.

3. **Knowledge has been furnished on young people's career information literacy.** The work reported in this thesis reveals nuances regarding the skills needed for career information seeking. The most significant and valuable contribution to knowledge of this research in

respect of young people's career information literacy is the identification of resilience as a core skill. Since it has been documented that young people experience information seeking challenges, resilience should be added as a new dimension to information literacy models and frameworks.

4. **On the basis of the findings of this research, recommendations for policy and practice have been presented**. The findings of the thesis are valuable not only to the conceptualisation and further research of career information seeking and career information literacy, but also to the advancement of recommendations for policymakers and careers advisers. Five recommendations for practice and policy were presented. These relate to the need to raise the profile of career information seeking and career information literacy within career services, and the need to devise tailored approaches to instruction.

Chapter 7   Conclusion

7.1   Introduction to Chapter 7

The purpose of the research reported in this thesis was to investigate the role of information seeking and information literacy in young people's career decision-making. This was achieved with reference to the extant literature on these topics, (Chapter 2), the development of an interdisciplinary conceptual framework that elucidates the information processing and sense-making facets of career information seeking (as discussed in Chapter 3), and the deployment of a mixed multi methods research methodology (as discussed in Chapter 4).

In this chapter, the key research findings are first summarised, and the two research questions are revisited. Next, the contribution and significance of the work are discussed, and the implications of the research are considered. Following this, recommendations for future research concerned with young people's career information seeking and career information literacy are provided.

7.2   Summary of the research findings

To articulate the specific contributions to existing knowledge that originate from this research, it is useful to summarise the key findings in relation to the research questions they address. Here the evidence pertaining to each of the two research questions identified in Chapter 2.6 (p. 44) is summarised.

7.2.1   Young people's use of career information for career decision-making

This study has demonstrated that young people's career information seeking is a purposive endeavour undertaken over the time spent at secondary school, situated in the context of their everyday lives, and performed across multiple settings (such as career counselling appointments, at-home research sessions, and timetabled or free periods at school). The quest to find relevant and useful information is sporadic in frequency, yet also experienced as an omnipresent and recurrent theme of concern embedded in the 'everyday'. Career information seeking extends to the totality of young people's lived experiences across time and space.

This research has also shown that career information seeking is performed with reference to two modalities of information: the digital and the social. The number of accessed tools and platforms that young people access is low overall. The My World of Work website, social media, university

websites, and personal contacts are the primary sources used to inform career decision-making. Trusted, knowledgeable, and easily accessible social contacts are held in particularly high esteem, and approached for information and assistance. In addition, prompted seeking, proxy seeking, and collaborative search facilitate and influence the information seeking process in career advisory settings. Information seeking in this context can therefore be construed and understood not only in relation to information systems, but also in relation to other people, as a process shaped and co-constructed through social interactions and shared meanings.

Furthermore, information seeking is undertaken across two stages (exploratory and directed), and its performance is driven by two kinds of decision-making styles (fulfilment-based and pragmatic). The former follows the same sequence of events identified as inherent in the career decision-making process and noted in the career studies literature. The research has also demonstrated that greater degrees of information seeking are associated with higher levels of career certainty.

The findings of this study have formed the basis of the revision of an initial conceptual framework and laid the groundwork for the conceptual integration of key concepts from two different domains through the shared language of *processes*. The identification of two decision-making styles is significant in bringing to light fulfilment as a dimension of career information seeking. This is because they determine the kinds of information sought and have bearing on the ways in which it is filtered for value and relevance.

In addition, this work has brought to the fore the challenges and emotions associated with career information seeking. It shows that the experience of challenges is concomitant with the experience of negative affect. Certain features of the information environment, such as information overload, information scatter, and the associated cognitive overload afflict information seekers. However, persistence in the face of challenges, rather than disengagement from information seeking, was exhibited by the young people who took part in this study.

7.2.2 Career information literacy competencies to support young people's career decision-making and career development learning

This research identified three skills clusters as crucial components of young people's career information literacy: research and technical skills, social skills, and resilience skills. Since this skills profile is relevant to information seeking in everyday life, it is broader in scope than the skills profiles articulated in the generic models of information literacy applied only in education. The identification of resilience skills is a novel addition to the research corpus in this area. To date, these have not featured in models and frameworks of information literacy.

Young people's skills in verifying the authenticity of career information are in need of improvement. They face challenges in comparing different pieces of information, storing the information accessed, and navigating unfamiliar terms and challenging texts. On this basis, young people's critical and analytical competencies need to be developed further.

Two avenues for the improvement of the existing careers support have been identified in this research: the provision of more regular input from careers advisers and teachers into young people's career information seeking, and the re-design of CIAG websites. Five recommendations for policy and practice are made on the basis of these findings. These findings and recommendations are rooted in the Scottish context, and are thereby valuable to the development of evidence-based and information-focussed policy and practice in Scotland.

7.3 Contributions to existing knowledge

This research has made significant contributions to the existing knowledge on the themes of career information seeking and career information literacy. These contributions are detailed below, with reference to the gaps in knowledge identified in the information behaviour and information literacy literature.

7.3.1 Contributions to the information behaviour literature

A large body of research in LIS pertains to people's information behaviours. While much of the research on information seeking focuses on the phenomena encountered in educational and workplace settings, gaps in knowledge exist in relation to young people's everyday life information seeking and major life transitions (Section 2.5.1, p.25). Furthermore, there is limited insight into career information seeking, which is defined for the purposes of this research as the "search for information that is useful to people's career decision-making" (Section 2.5.2, p.31). The broad literature on work-related information seeking has centred on the experiences of adult employees who seek information in organisational contexts, with only occasional interest into organisational newcomers' transitional experiences. In addition, only a few previous studies have dealt with information seeking in the context of young people's career development as a subject of study separate from work-related information seeking. Of the few authors who have explored the means through which career information seeking is undertaken in everyday life, only Julien (1999) has associated career information behaviour with career decision-making.

This doctoral work has made a contribution to the gaps in knowledge of young people's everyday life information seeking and major life transitions by developing new knowledge of their career information seeking processes. It has shown that young people obtain information through digital and social means in the specific context of careers. In addition, it has generated knowledge of two new elements that characterise their socially mediated information seeking: (1) 'prompted' information seeking; and (2) the influential role of trusted and easily accessible contacts.

Two further key contributions are the development of knowledge of a two-stage career information seeking process and the identification of two career decision-making styles pertinent to information seeking. These key contributions are significant because they advance novel understandings of the role of information in career decision-making. These novel understandings are incorporated into the tenets of the hybrid conceptual framework, which is a valuable contribution to theory in its own right.

7.3.2   Contributions to the information literacy literature

A significant proportion of the research published in the domain of information literacy has centred on the development of students' generic information literacy skills. Although the themes of transition and employability have not been altogether absent from the educational literature, the primary focus of the research published to date has nevertheless been the development of students' graduate employability, and not on the facilitation of their career decision-making processes. A critical analysis of the differences between employability and career has already been provided in this thesis; see sections 1.2.3 (p. 3) and 2.5.3 (p. 35). In accordance with this, the graduate employability literature is considered to offer limited insight into young people's career decision-making in the context of everyday life. Additional critical analyses have also been presented in this thesis in relation to the research corpus dedicated to the study of career information literacy (Section 2.5.4, p.41). This corpus represents a foray into career information literacy instruction that is not underpinned by a clear framing of the concept under investigation, nor the skills needed for career decision-making.

The research reported in this thesis has made a contribution to these gaps in knowledge by generating new knowledge of both the competencies needed, and the support mediums required, for career information literacy. Unlike prior research on these topics, in which the views of careers advisers and educators have been over-represented, the research has provided insight into the specific circumstances and preferences of young people. It has made explicit the utility of resilience skills as core foci of the career information literacy skills profile. In addition, it has presented five

recommendations for policy and practice with regards to the development of career information literacy instruction.

7.4   Significance and implications of the research findings

This work presents original and novel contributions to knowledge within three areas: (1) research; (2) theory; and (3) policy and practice.

First, the research reported in this thesis contributes to knowledge in LIS and career studies by improving the current understandings of young people's career information seeking and career information literacy. Its value to the literature is that it is the first of its kind to consider both elements alongside each other within the same programme of research. The research provides a detailed account of young people's digitally and socially mediated information seeking for the purposes of career decision-making by showing that this is performed across two information seeking stages and guided by two types of career decision-making styles. Furthermore, the doctoral work demonstrates that trusted and easily accessible contacts are influential to young people's career information seeking, and that 'prompted' information seeking is a new facet deserving of further investigation. In addition to identifying two key components of the career information literacy skills profile, the study also brings to light a new competency – resilience – in need of development in the cohort.

Second, this research contributes to theory through the conceptualisation of a process structure for young people's career information seeking. The development of a conceptual framework to illustrate the sequential process is useful to the conceptualisation of career information seeking as an everyday life endeavour aimed at the management of career transitions.

Third, the doctoral work advances practical contributions for career guidance in Scotland in the form of five recommendations for policy and practice. These recommendations pertain to the need to encourage young people to explore their career options further, the need to adopt a tailored approach to careers support, and the need to develop specific career information literacy skills in young people.

7.5 Future work

Whilst this work has contributed to knowledge in several key areas, more remains to be learnt about career information seeking and career information literacy. Further work in LIS and career studies could extend the research base in a number of ways:

1. Since this research relied on the use of digital research methods and on data gathered during the COVID-19 pandemic, it would be useful to conduct future research face-to-face. An ethnographic or participatory approach to future research, for example, could uncover additional insights not captured by this research, and mitigate any potential issues that may have been caused by the digital data gathering strategy.

2. Additional research into young people's digitally and socially mediated information seeking could be conducted through the combination of user studies and fieldwork. Of particular interest would be the social interactions that qualify young people's career information seeking, and the novel dimensions of collaborative, proxy, and prompted information seeking that have been uncovered by this research.

3. Careers advisers are key influencers on young people's career information seeking, and their career information literacy skills merit further investigation. The experiences of young people benefitting from proxy support might necessitate the development of advanced career information literacy instruction targeted at the practitioner cohort in Scotland.

4. This research has modelled information seeking processes on the basis of young people's retrospective accounts of the activities they had already undertaken. A longitudinal research design can form a more comprehensive basis for the investigation of the progression of informed career decision-making over time.

5. Many different types of career transitions have been identified in the career studies literature. Each of these transitions may be associated with specific information seeking patterns and may place different demands on people's information literacy skills. Further investigations of people's career transitions are needed to yield insight into lifelong career management and the role that information literacy plays in this.

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Appendices

Appendix 1. Questionnaire consent form and questions

Scottish Career Information Survey

In this survey, you will be asked questions about your everyday use of career information.

Here "career information" means information about jobs, study options, and information that helps you decide what you want to do after leaving school. This can include information about occupations, subject choices, apprenticeships, college applications, CV writing, and many more.

This brief survey takes between 5-10 minutes to complete.

At the end of the survey, you will be able to enter your email into our prize draw for a chance to win a £50 love2shop voucher!

If you are a Young Scot Member, you will earn 150 Rewards points by participating in this survey! Your Young Scot points code will be generated at the end of this survey. Please login to your Young Scot account to redeem this.

Before you begin, please read through the information below.

What is this research about?

Young people encounter large volumes of career information every day. Yet not much is known about how young people access, use, and manage career information, or which skills they need in order to make sense of this information.

This survey will lead to an improved understanding of how young people look for career information. Findings will be applied towards the development of enhanced career support systems in secondary schools.

Who can take part in this research?

Anyone who is ordinarily resident in Scotland and aged 13-18 is invited to complete the survey.

Who is conducting this research?

This research is being conducted by Marina Milosheva, a PhD student at Edinburgh Napier University, in partnership with Skills Development Scotland (Scotland's leading skills and career development agency). If you have any questions about this research, please email Marina at

█████████████████████

Please note:

- Participation in this research is voluntary and participants can withdraw from this research at any time.
- Participation is confidential and all participant data will be anonymysed.
- Data will be digitally captured and encrypted before being stored on the Edinburgh Napier University computer system.
- This research project has been granted ethical approval by Edinburgh Napier University.

1. If you agree with the following statements, please click "I consent" at the bottom. This will take you to the survey on the next page.

- I have been given enough information about this project.
- I understand that I can leave at any time and do not have to answer all of the questions if I don't want to.
- I agree to take part in this research.

o   I consent.

Please think about your plans for the future and answer the following questions:

2. *

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I know what I want to do after I leave school.	○	○	○	○	○
In the last month, I have been researching my future options.	○	○	○	○	○

3. My plan for the future is to (please tick all that apply): *

☐ Stay in school

☐ Go to college

☐ Go to university

☐ Get some work experience (e.g. placement, part-time job)

☐ Get a full-time job

☐ Get an apprenticeship

☐ Take a gap year

☐ I have no plans

☐ Other

4. **In the last month**, how many minutes did you spend looking for career information online? *

○ 0

○ 1-10

○ 10-20

○ 20-30

○ 30-60

○ 60+

○ Other

5. **In the last month**, how many minutes did you spend talking to others (e.g. parents, teachers, friends) about your future career options? *

○ 0

○ 1-10

○ 10-20

○ 20-30

○ 30-60

○ 60+

○ Other

6. **In the last month**, which of the following sources of career information did you use (please tick all that apply)? *

☐ Social media (e.g. YouTube, Twitter, Facebook, Tiktok)

☐ My World of Work website

☐ Plan It Plus website

☐ Apprenticeships website

☐ College website

☐ University website

☐ UCAS website

☐ Employer website

☐ Job search website

☐ Google or any other search engine

☐ Forum or student advice website

☐ Linkedin website

☐ Newspaper or magazine

☐ Brochure (e.g. from school, college, university, employers)

☐ TV, radio, popular media

☐ Other people (e.g. parents, teachers, friends)

☐ Other

7. **In the last month**, which of the following types of career information did you access (please tick all that apply)? *

☐ Information about jobs

☐ Information about study options (e.g. course choices, entry requirements)

☐ Information about work experience (including volunteering)

☐ Information about apprenticeships

☐ Career quiz/personality test

☐ Information about building networks to help with getting a job

☐ Information on CV writing/interview preparation

☐ Finance/funding information

☐ Other

8. Please think about your attitudes to researching your future career options. On a scale from "strongly agree" to "strongly disagree", how confident do you feel about the statements below? *

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It is easy for me to recognise when I need more information about my job and study options.	○	○	○	○	○
When I do research about my job and study options, I don't know what to search for.	○	○	○	○	○
When I look for job and study information, I check in more than one place.	○	○	○	○	○
I don't know how to check if the career information I see is genuine.	○	○	○	○	○
I know how to find relevant information when researching my future options.	○	○	○	○	○

9. Please continue thinking about your attitudes to researching your future career options. On a scale from "strongly agree" to "strongly disagree", how confident do you feel about the statements below? *

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I don't know how to compare different pieces of information on job and study options.	○	○	○	○	○
I can recognise when I have collected enough information about my future options.	○	○	○	○	○
When I obtain new information about careers, I don't know where to keep it.	○	○	○	○	○
After doing research about my job and study options, I know how to talk about this with others.	○	○	○	○	○
I don't know where to look for information about my job and study options.	○	○	○	○	○

10. What equipment do you have access to at home or at school (tick all that apply)? *

☐ Mobile phone

☐ Tablet

☐ Laptop

☐ Desktop computer

☐ Other

11. What restrictions (if any) do you have on using equipment? *

☐ I am sharing equipment with others

☐ My time online is limited by my parent or guardian

☐ My internet use is limited by my data plan

☐ The equipment I have access to is difficult to use

☐ I have no particular restrictions

☐ Other

12. How old are you? *

    ○ 13

    ○ 14

    ○ 15

    ○ 16

    ○ 17

    ○ 18

    ○ Other

13. In which type of institution are you studying currently? *

    ○ Secondary school

    ○ College

    ○ University

    ○ None of the above

14. What gender do you identify as? *

○ Female

○ Male

○ Prefer not to answer

○ Other

15. Where in Scotland do you live? *

○ Aberdeen and North East

○ Highland and Islands

○ Tayside, Central and Fife

○ Edinburgh and Lothians

○ Glasgow and Strathclyde

○ Scotland South and Scottish Borders

○ I do not live in Scotland

16. Were you born in the UK? *

○ Yes

○ No

○ Prefer not to say

17. Is English your first language? *

○ Yes

○ No

○ Prefer not to say

18. What is your parent or guardian's employment situation (please tick all that apply)? *

☐ Working - full-time

☐ Working - part-time

☐ Studying

☐ Unemployed

☐ Retired

☐ Disabled

☐ Home maker

☐ Full-time carer

☐ This question does not apply to me

☐ Prefer not to answer

☐ Other

19. What is your **second** parent or guardian's employment situation (please tick all that apply)? *

☐ Working - full-time

☐ Working - part-time

☐ Studying

☐ Unemployed

☐ Retired

☐ Disabled

☐ Home maker

☐ Full-time carer

☐ Prefer not to answer

☐ This question does not apply to me

☐ Other

20. If you would like to be entered into our prize draw for a chance to win a **£50 love2shop voucher**, please enter your email below:

[   ]

21. If you would be interested in taking part in **a follow-up interview**, please enter your email below:

[   ]

Appendix 2. Interview guide

Question type	Questions	Purpose
Opening questions	- Please tell me a bit about yourself. - What are your hobbies, interests and career plans?	To brief the participant on the interview procedure, establish rapport, and gather background information
Information search	- Tell me about the last time you looked for career information – what were you looking for and how did you go about doing this? - When did you last need career information? Please describe the situation. - What prompted you to look for this career information? - What did you want to find out? - In this situation, how did you go about finding career information? - Where did you look? - Who did you speak to? - What was the outcome of your search? - What did you do with the information you found?	Through retrospective enquiry, develop insight into how careers research unfolds over the course of a typical information seeking session and over longer periods of time. Participants who cannot recall specific careers research instances are asked "In general, how do you tend to approach the careers research process"?
Information search (advising a peer)	- What advice would you give to a peer who is just beginning to research their career options? - What information could they search for? - Where could they search for this information? - Who could they speak to? - How would they know that they have found the right information?	To survey young people's knowledge of the careers research process (this is especially useful in cases where the young person has not yet conducted any careers research) To adapt the "interview to the double" interview technique for use with young people
Reflections on the information search process	- Please describe your impressions of the careers research process. - How easy was it to find the information you needed? - How happy were you with the information you found? - What, if any, barriers did you encounter? - What has stopped – or might stop – you from looking for career information?	To explore the internal (e.g. attitudes) and external (e.g. context) factors which enable or hinder career information seeking To appraise the success of career information seeking as determined by the collection of information, generation of relevant

Question type	Questions	Purpose
	• What did you learn from your search?	outputs, or the occurrence of career development learning
Career information literacy skills	• What sorts of skills do you think you need in order to look for career information? • How would you rate your own skills on a scale of 1-10 and why? • When you're doing career research, is there anything that you do not know how to do, but that you wish you knew how to do (or anything you wish you could be better at)? • When you research careers, how do you know that you have found the right (e.g. sufficient, high quality) information?	To generate knowledge of young people's current levels of career information literacy skills To develop a competency profile of the sample by identifying strengths and skills gaps
Career information literacy education preferences	• Have you ever been taught research skills at school (for example how to find references for an essay or look for something online)? • Have you ever been taught how to look for career information specifically? • If you were to be taught career research skills at school, what would be your preferred way of learning these skills? • What can your teachers and careers advisers do to help you look for career information?	To determine the current degree of skills development in secondary schools To identify specific areas where skills development could be extended
Closing remarks	• Is there anything else that you would like to add? • Would you like to share any other stories about your careers research?	To allow participants to describe their experiences in more detail or bring up new topics for discussion

Appendix 3. Diary briefs

Diary entry	Prompts
1. Research two career options – paramedic and chef – and choose one (for Emma)	• Describe the specifics of your career plan for Emma • Please explain, step-by-step or in as much detail as possible, where and how you looked for information about Emma's career options. • In 1-2 paragraphs, please report on what information you found during your search. • Please describe your thoughts and feelings while searching for careers for Emma (in as much detail as you can). • Do you have any other reflections regarding the careers research that you just did, or the research that you do for your own purposes, that you would like to share?
2. Find information on forensic psychology careers (for John)	• What does a forensic psychologist do and what is their average salary? • What forensic psychology jobs are available, and what are the entry requirements for them? • Where can John study or train to become a forensic psychologist? • What other steps (e.g. extracurricular activities) can he take if he wants to get into forensic psychology? • In 1-2 paragraphs, please describe where and how you looked for the information above. • In 1-2 paragraphs, please describe what you thought/how you felt while you were searching for the information above. • What sorts of skills did you draw upon in order to find the information? • Do you have any other reflections regarding the careers research that you just did, or the research that you do for your own purposes, that you would like to share?
3. Creative writing task: Write 300-500 words on one of the following topics	1. A column for your school's magazine explaining how one can research careers, what sorts of skills they need to do so, and tips, tricks, and advice drawing on your own experiences. Please assume your reader is completely ignorant on the subject and share your expertise with them! If you wish, give examples of tasks that an average student should be able to complete, and skills they should use when doing careers research. 2. A letter to your past self explaining how to research careers, what sorts of skills you have used whilst researching careers, and what lessons you have learnt regarding careers and career information. What insight/knowledge/information about careers would you like to share with your past self? 3. A piece of creative writing in any format that you would like that makes reference to careers research and career information (e.g. a to-do list/instruction booklet/manual; an imaginary event or conversation; a poem, story, or fairy tale. Choosing the format is up to you!)

Appendix 4. List of interviewees

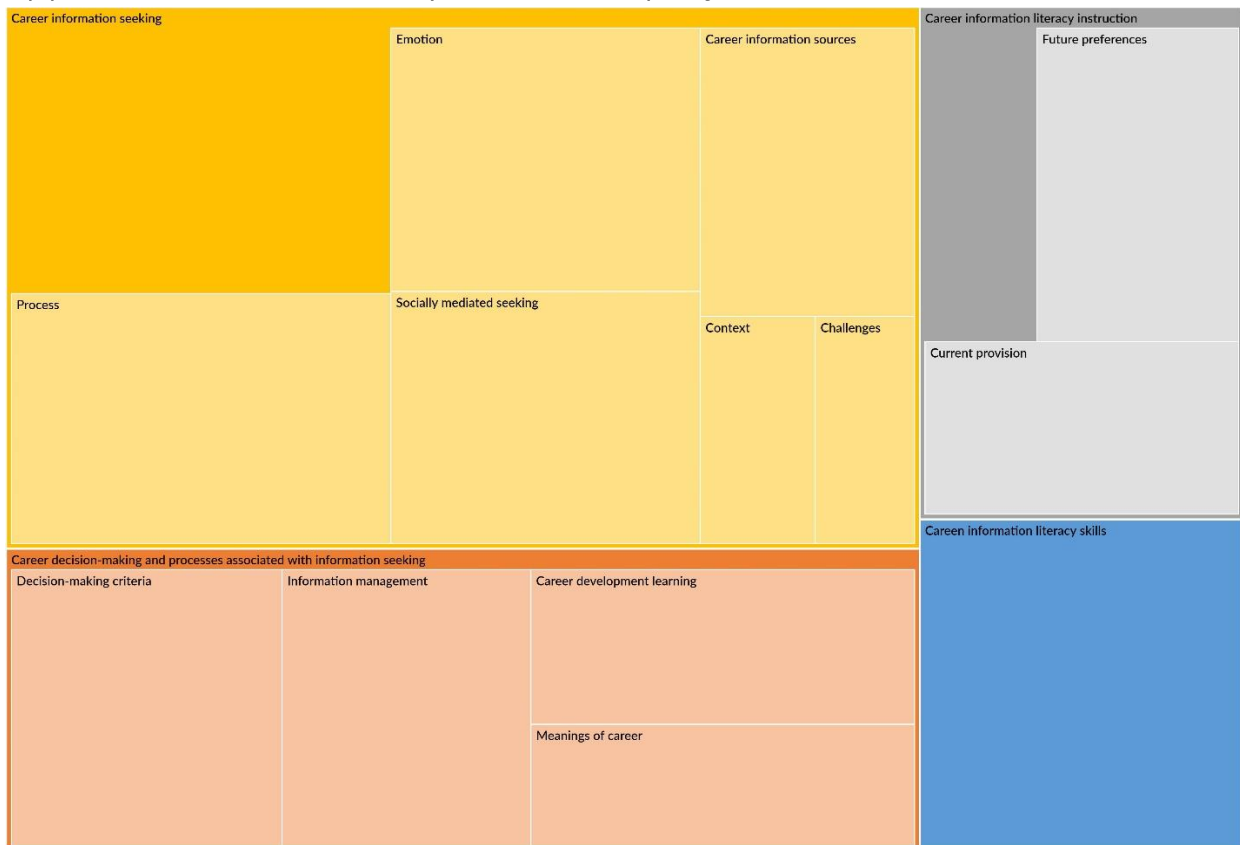| Interviewee	Age	Gender	Level of career decidedness	Career intentions	Self-estimation of career information literacy skill
Adila			High		Low
Adam			Moderate		High
Andrew			Low		Low
Blair			Moderate		Low
Callum			Moderate		Moderate
Catriona			Moderate		High
Chloe			Low		High
Ella			Moderate		Moderate
Emily			High		Moderate
Erin			Moderate		Moderate
Eryk			Moderate		High
Fraser			Low		High
Georgia			High		High
Molly			Moderate		High
Holly			Moderate		Moderate
Isla			Moderate		Moderate
James			Low		High
Jessica			High		High
Julie			Low		Low
Katie			Low		Moderate
Keith			Moderate		Moderate
Kirstie			Low		Moderate
Mairi			High		Moderate
Michael			High		High
Neil			Low		Moderate

Interviewee	Age	Gender	Level of career decidedness	Career intentions	Self-estimation of career information literacy skill
Nicole	██	██	Low	████████	Moderate
Olivia	██	██	Moderate	████████	High
Paige	██	██	High	████████	High
Paul	██	██	Low	████████	Moderate
Shen	██	██	Low	████████	Moderate
Sophie	██	██	Moderate	████████	High
Stephanie	██	██	High	████████	High
Victoria	██	██	Low	████████	High

Notes to table: Participants who took part in the follow-up diary research are shaded in grey. All participant names are pseudonyms.

Appendix 5. NVivo hierarchy chart example for the interviews and diaries

Career information seeking			
Career information seeking	Emotion	Career information sources	
Process	Socially mediated seeking	Context	Challenges

Career decision-making and processes associated with information seeking		
Decision-making criteria	Information management	Career development learning
		Meanings of career

Career information literacy instruction	
	Future preferences
Current provision	

Career information literacy skills

Appendix 6. Interview consent form

Career information literacy and the decision-making behaviours of young people

Participant Information Sheet

Informed Consent Part I

In this research project, the means by which young people use information to make career decisions are explored.

The goal of the work is to generate knowledge of how young people's career information handling skills – referred to in this research as 'career information literacy' – can be developed and improved.

This research is being conducted by Edinburgh Napier University in partnership with Skills Development Scotland (SDS). SDS is Scotland's national skills and career development body. It provides career information, advice, and guidance to young people.

As part of this research, you are invited to participate in a 60-minute online interview on Microsoft Teams. During the interview, you will be asked about your everyday experiences of using career information. The interview will be audio recorded. It will not be video recorded. Your responses will be fully anonymous, and you will not be able to be personally identified from them.

The findings of the research will directly inform the provision of timely and relevant career information literacy support in secondary schools.

Please note:

- Participation is voluntary and participants can withdraw at any time.
- All data will be anonymised, and participation is confidential.
- Data will be digitally captured and encrypted before being stored on the Edinburgh Napier University computer system.
- Edinburgh Napier University ethics has been completed for this project.

Informed Consent Form

Informed Consent Part II

- I have been given enough information about this project.

- It has been explained to me how the information I give will be used.

- I agree to take part in the research as described in the information sheet.

- I understand that I can leave at any time and do not have to answer all of the questions if I don't want to.

- I am happy for you to record what I say.

- I give permission for my words to be used in a report but I understand that my name will not be mentioned.

Parent's Signature   **Date**

_____   _____

Participant's Signature   **Date**

_____   _____

I have explained and defined in detail the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records.

Researcher's Signature   **Date**

_____   _____

Privacy Notice

Edinburgh Napier University is providing you with this information in order for us to comply with the General Data Protection Regulation (EU) 2016/679, which requires us to tell you what we do with your personal information.

Name of Research Project: Career information literacy and the decision-making behaviours of young people

Description of Project: In this research project, the means by which young people use information to make career decisions are explored.

Data Controller	Edinburgh Napier University as the "Data Controller"
Purposes for collection/processing	This research aims to investigate the lived experiences of young people who access career information and apply this to their decision-making processes.
Legal basis	Art 6(1)(e), performance of a task in the public interest/exercise of official duty vested in the Controller, is the basis for processing – the University's Statutory Instruments refer.
Whose information is being collected	From young people who are in the process of making a career decision and from members of their supports networks (career practitioners, parents, teachers).
What type/classes/fields of information are collected	Information about young people's experiences of obtaining information from online and social sources
Who is the information being collected from	From the data subjects (directly)
How is the information being collected	Videoconferencing interview using a secure channel
Is personal data shared externally	Participants' personal data will not be shared externally. Anonymised information obtained from the study will be shared externally (in presentations and published research outputs).
How secure is the information	Records of responses will be kept on the university's secure research drive. All information will be anonymised.
Who keeps the information updated	The information is not updated. It is a record of a specific moment in time.
How long is the information kept for	Consent form data will be kept for up to 6 years after the conclusion of the project. Digital and paper outputs containing personal data will be destroyed as early as possible (typically as soon as associated anonymised outputs have been created).
Will the data be used for any automated decision making	No
Is information transferred to a third country? Outside the EEA and not included in the adequate countries list.	No
Information on subject rights and data protection queries: https://staff.napier.ac.uk/services/governance-compliance/governance/DataProtection/Pages/default.aspx Where the student is the controller they must provide details of how data subjects can exercise their rights.	

Appendix 7. Diary consent form

Career information literacy and the decision-making behaviours of young people

Participant Information Sheet

Informed Consent Part I

Young people encounter large volumes of career information every day. These come from a range of online or social sources of information – career websites, search engines, social media, peers, teachers, and many more. While the information provided to young people is abundant, little is known about the means by which they access, use, and evaluate career information. In addition, there is little insight as to how this career information is utilised for the purpose of making career decisions.

The primary focus of this work is young people's career information use for the purposes of career decision-making. The goal of the work is to generate knowledge of how young people's career information handling skills – referred to in this research as 'career information literacy' – can be developed and improved. Career information literacy is a crucial competency for thriving in precarious and information-rich career environments. It equips citizens with the ability to think critically and make balanced judgements about any information that they find and use.

This research is being conducted in partnership with Skills Development Scotland (SDS). SDS is the Scottish Government's devolved skills and career development body. It provides career information, advice, and guidance to young people looking to make their next vocational, educational, or work transition. The findings of the research will be used to improve the SDS service offer and will directly inform the provision of timely and relevant career information literacy support within schools.

As part of this research, you are invited to complete three digital diary entries. Please consult the diary brief provided as part of this information pack for more information on the diary format and diary prompts.

Please note:

- Participation is voluntary and participants can withdraw at any time.
- All data will be anonymised, and participation is confidential.
- Data will be digitally captured and encrypted before being stored on the Edinburgh Napier University computer system.
- Edinburgh Napier University ethics has been completed for this project.

Informed Consent Form

Informed Consent Part II

- I have been given enough information about this project.

- It has been explained to me how the information I give will be used.

- I agree to take part in the research as described in the information sheet.

- I understand that I can leave at any time and do not have to answer all of the questions if I don't want to.

- I am happy for you to record what I say.

- I give permission for my words to be used in a report but I understand that my name will not be mentioned.

Parent's Signature   **Date**

_____   _____

Participant's Signature   **Date**

_____   _____

I have explained and defined in detail the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records.

Researcher's Signature   **Date**

_____   _____

Privacy Notice

Edinburgh Napier University is providing you with this information in order for us to comply with the General Data Protection Regulation (EU) 2016/679, which requires us to tell you what we do with your personal information.

Name of Research Project: Career information literacy and the decision-making behaviours of young people

Description of Project: In this research project, the means by which young people use information to make career decisions are explored.

Data Controller	Edinburgh Napier University as the "Data Controller"
Purposes for collection/processing	This research aims to investigate the lived experiences of young people who access career information and apply this to their decision-making processes.
Legal basis	Art 6(1)(e), performance of a task in the public interest/exercise of official duty vested in the Controller, is the basis for processing – the University's Statutory Instruments refer.
Whose information is being collected	From young people who are in the process of making a career decision and from members of their support networks (career practitioners, parents, teachers).
What type/classes/fields of information are collected	Information about young people's experiences of obtaining information from online and social sources
Who is the information being collected from	From the data subjects (directly)
How is the information being collected	Digital diary using a word processing application
Is personal data shared externally	Participants' personal data will not be shared externally. Anonymised information obtained from the study will be shared externally (in presentations and published research outputs).
How secure is the information	Records of responses will be kept on the university's secure research drive. All information will be anonymised.
Who keeps the information updated	The information is not updated. It is a record of a specific moment in time.
How long is the information kept for	Consent form data will be kept for up to 6 years after the conclusion of the project. Digital and paper outputs containing personal data will be destroyed as early as possible (typically as soon as associated anonymised outputs have been created).
Will the data be used for any automated decision making	No
Is information transferred to a third country? Outside the EEA and not included in the adequate countries list.	No
Information on subject rights and data protection queries: https://staff.napier.ac.uk/services/governance-compliance/governance/DataProtection/Pages/default.aspx Where the student is the controller they must provide details of how data subjects can exercise their rights.	