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Citation: Yates, J. (2025). Graduates' career choices: an empirically derived process model. *International Journal for Educational and Vocational Guidance*, doi: 10.1007/s10775-024-09720-4

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Graduates' career choices: an empirically derived process model

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Received: 2 August 2024 / Accepted: 17 December 2024
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Abstract

Career decision-making models, devised to help career decision-makers to make better choices, are not well-used in practice in higher education (HE), perhaps because they are too far removed from natural decision-making approaches. This study examines the career decision-making processes of 30 employed recent UK graduates. Data were collected through semi-structured interviews and analyzed with a reflexive thematic analysis. The findings identified three processes: generating an idea, exploring in-depth, and choosing. The discussion identifies differences between this model and existing prescriptive models: ideas are identified and analyzed singly, self-exploration takes place after idea generation, and chance plays a significant part throughout.

Keywords Career decision-making · Graduates · Thematic analysis

Résumé

Les modèles de prise de décision de carrière, conçus pour aider les décideurs de carrière à faire de meilleurs choix, ne sont pas bien utilisés en pratique dans l'Enseignement Supérieur (ES) peut-être parce qu'ils sont trop éloignés des approches naturelles de prise de décision. Cette étude examine les processus de prise de décision de carrière de 30 diplômés récents employés au Royaume-Uni. Les données ont été recueillies par des entretiens semi-structurés et analysées avec une analyse thématique réflexive. Les résultats ont identifié trois processus : la génération d'une idée, l'exploration en profondeur et le choix. La discussion identifie les différences entre ce modèle et les modèles prescriptifs existants : les idées sont identifiées et analysées individuellement, l'auto-exploration a lieu après la génération d'idées, et le hasard joue un rôle significatif tout au long.

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Zusammenfassung

Modelle zur Entscheidungsfindung in der Berufswahl, die dazu dienen sollen, Berufsentscheidern zu besseren Entscheidungen zu verhelfen, werden in der Praxis im Hochschulbereich (HE) möglicherweise nicht gut genutzt, weil sie zu weit von natürlichen Entscheidungsansätzen entfernt sind. Diese Studie untersucht die Prozesse der Berufsentscheidung von 30 kürzlich beschäftigten britischen Absolventen. Die Daten wurden durch halbstrukturierte Interviews gesammelt und mit einer reflexiven thematischen Analyse ausgewertet. Die Ergebnisse identifizierten drei Prozesse: Ideengenerierung, vertiefte Erkundung und Auswahl. Die Diskussion identifiziert Unterschiede zwischen diesem Modell und bestehenden präskriptiven Modellen: Ideen werden einzeln identifiziert und analysiert, die Selbstexploration findet nach der Ideengenerierung statt und der Zufall spielt während des gesamten Prozesses eine bedeutende Rolle.

Resumen

Los modelos de toma de decisiones de carrera, diseñados para ayudar a los tomadores de decisiones de carrera a hacer mejores elecciones, no se utilizan bien en la práctica en la educación superior (ES), quizás porque están demasiado alejados de los enfoques naturales de toma de decisiones. Este estudio examina los procesos de toma de decisiones de carrera de 30 graduados recientes empleados en el Reino Unido. Los datos se recopilaban a través de entrevistas semi-estructuradas y se analizaron con un análisis temático reflexivo. Los hallazgos identificaron tres procesos: generación de una idea, exploración en profundidad, y elección. La discusión identifica diferencias entre este modelo y los modelos prescriptivos existentes: las ideas se identifican y analizan individualmente, la autoexploración tiene lugar después de la generación de ideas, y el azar juega un papel significativo a lo largo de todo el proceso.

Introduction

Every year around 450,000 graduates leave university in the UK to embark on their next career step (HESA, 2021), faced with a vast number of occupations to choose from. The process is not without its challenges, yet employment data for this population are positive, with only 6% of graduates in 2020 unemployed 6 months after graduation (HESA, 2022). The graduates are clearly doing something right.

Career decision-making is not easy. The number of options, the cognitive demands of career research, and the uncertainty of the outcomes render the process challenging (Amir & Gati, 2006; Levin & Gati, 2015) and anxiety-provoking (Saka et al., 2008). One widely experienced career decision-making difficulty is that students do not understand the process involved in making a choice (Gati et al., 1996; Saka et al., 2008; Yates & Hirsh, 2024). A number of theoretically informed and widely cited models of career decision-making have been published that purport to help students and career practitioners navigate these difficult decisions and allay some of their anxiety. Yet despite their promise, the models have not been widely embraced by practitioners (Gati et al., 2019; Yates & Hirsh, 2022). A question

arises as to why, given the much-needed help they appear to offer, they are not more widely used.

Bell et al. (1988) define three kinds of decision models: descriptive, normative, and prescriptive. Descriptive models describe the decision-making processes that people naturally use. Natural decision-making can be flawed and may not always yield the best outcome (Gati et al., 2019). Normative models presuppose that decisions are made deliberately, rationally, and analytically, and on that basis, suggest the best way to make a decision. Normative models, however, do not try to capture or accommodate the reality of the context in which the decision is being made—they are not “descriptively accurate” (Beck & Jahn, 2021, p. 129) and as a result of this, they very often fail to influence behavior. Pragmatic models draw from both normative and descriptive models—they take some of the good principles from normative models but marry them with some understanding of the reality of the context in which the decision is taken. Evidence indicates that these models that are “approximately true” (p. 134) are more successful in influencing behavior.

It is argued that descriptive models are of less value to career practitioners, whose role it is to help clients to make better decisions (Gati et al., 2019). However, descriptive models are crucial in the development of prescriptive models (Dillon, 1998).

While several normative career decision-making models have been published, scant scholarly attention has been paid to descriptive models (Gati & Tal, 2008). The poor take-up of the normative career decision-making models in career practice could be the result of too great a disparity between the normative models and the natural decision-making approaches of students (Baron, 1994; Simon, 1955). A prescriptive career decision-making model that draws on some of the normative principles that underpin decision theory but aligns more closely with the natural approaches that students take might be something the students can relate to and therefore could offer more value. However, without a descriptive model of natural approaches to career decision-making, it is difficult to know how to refine the existing models to make them more useful.

This study makes an explicit contribution toward addressing this issue, offering an empirically derived descriptive model of the career decision-making of recent graduates. The study is exploratory, aiming to examine the phenomenon rather than test existing theory and therefore uses a qualitative research design to capture the participants’ experiences broadly.

The career decision-making process

Career decision-making is typically defined as choosing between different career options by weighing up the alternatives to find the most appropriate (Gati et al., 2019). It is likely to occur numerous times throughout a typical career lifespan in different forms, but for most, the first major career decision will be which occupation to opt for after education. Career decision-making is a central aspect of the whole field of career development (Germeijs & Verschueren, 2006) but has received limited scholarly attention (Gati & Asher, 2005). Nevertheless, several career

normative decision-making models in the literature offer advice on how to make career choices.

Normative approaches to decision-making assume that human beings are rational, and can consider and weigh up the relative merits of all possibilities. Normative decision analysis proposes that complex judgements can best be made by breaking a problem down into component parts, making a judgment about each aspect and then aggregating the componential information to point to the optimal outcome (Edwards, 1971). A normative career decision-making approach could involve making decisions about which career aspects are important (for example, working outdoors, using numbers), and then identifying which jobs would best meet these needs (Gati, 1998; Pryor, 1981). They require extensive information gathering and difficult computations, and are generally considered impractical for complex decisions such as career choice, which have many aspects and alternative options (Gati & Tal, 2008).

One of the most widely cited career decision-making models is Gati and Asher's pre-screening, in-depth exploration, and choice (PIC) model (2005). This theoretically derived normative model has three stages: pre-screening, in-depth exploration, and choice. During pre-screening, the individual is advised to scan the possible alternatives to find occupational ideas that seem to be compatible with their strengths and interests. The individual researches these promising alternatives in depth and compares them to identify the most suitable. Other career models identify broadly comparable stages of decision-making, including Germeijs and Verschueren's study of Belgian high school students' choice of university major (2006) and Van Esbroeck, Tibos, and Zaman's dynamic model of career choice (2005). Hirschi and Läge developed a "unifying" career decision-making model (2007), which sought to identify the commonalities within the existing models and incorporate the key elements. Their model consists of six stages: (1) becoming concerned, (2) generating possible alternatives, (3) reducing the alternatives, (4) deciding among a few options, (5) establishing a commitment to one option, and (6) being decided and firmly committed. Research with Swiss secondary school pupils offers some support for its validity (Hirschi & Läge, 2007).

There are fewer widely accepted descriptive models of decision-making or career decision-making, which Gati et al. (2019) suggest is a consequence of the enormous variety of kinds of decisions and approaches to decision-making.

The value of descriptive models

Gati et al. (2019) suggest that descriptive models are not embraced by career practitioners because they do not represent good quality decision-making and are therefore "unable to serve as a reference point for justifiable decisions" (p. 166). However, one descriptive career development theory that does seem to have been widely adopted by career practitioners in HE in the UK (Yates, 2022) is planned happenstance (Mitchell et al., 1999), which acknowledges the role of chance in career choice, and advocates an open-minded response to unexpected events. Yates found that this theory seems to validate and normalize students' experiences, which boosts

their confidence. Perhaps, therefore, some of its popularity is because it is a descriptive theory, and as such one that practitioners and students can relate to.

Descriptive theories have been given limited weight in the career decision-making literature; prescriptive models are deemed more useful to career practice because they suggest ways to improve career decision-making (Gati & Kulcsar, 2021; Gati et al., 2019). However, the limited evidence that there is indicates that descriptive models may add more value than has traditionally been assumed (Baron et al., 2004). A clear understanding of the approaches that people actually take to career decision-making is important to inform prescriptive models (Baron et al., 2004). Descriptive models may also be useful in their own right to boost the confidence of those making decisions (Yates, 2022).

Yet despite the contribution they could make, there are no published descriptive theories that focus on the career decision-making process of higher education students; it is this gap that the present study addresses. Responding to calls in the literature for further exploration of the process of career decision-making (Bian, 2021; Gati et al., 2019), for more context-specific research into career decision-making (Germeijs & Verschuere, 2006; Harren, 1979), and more qualitative exploration of career decision-making (Richardson et al., 2021), this qualitative study asks: what are the career decision-making processes that lead to a first post-educational career choice for HE students in the UK?

Method

This qualitative study draws on a critical realist framework, which focuses on explicit meanings in the data. The data in this study were analyzed inductively, without trying to fit the data into preexisting theoretical categories.

Participants

Participants were 30 recent UK graduates (20 women and 10 men), who graduated no more than 3 years before the data collection, and who were, at the time of the interview, in full-time employment. The graduates were all British students, domiciled in the UK, and to conceptualize the concept broadly, were currently working in different fields and had studied a range of different subjects. Table 1 gives details of pseudonyms, current occupations, and year of graduation.

Procedure

Once ethical approval was granted from The psychology department at City, University of London (ethical approval no. **ETH2122-1159**), messages were posted on various social media platforms and graduates were invited to contact the researcher if they were interested in taking part. In total, 30 graduates who fit the criteria agreed to take part and all provided informed consent.

Table 1 Participant pseudonyms, year of graduation, and current occupations

Pseudonym and year of graduation	Occupation
Alex 2021	Marketing designer
Alison 2020	FE teacher
Arek 2020	Construction project manager
Ava 2019	HR Graduate trainee
Ben 2019	HR administrator
Carly 2021	Energy consultant
Charlie 2020	Finance graduate trainee
Dan 2019	Product marketing
Emily 2019	Assistant psychologist
Fiona 2020	Musician
Hannah 2021	Teacher
Hanisha 2019	Organizational psychologist
Jason 2020	Investment manager
Jessica 2019	EDI manager
Julia 2021	Mental health worker
Kristin 2020	Software developer
Lauren 2021	Leadership consultant
Mark 2021	Music publicist
Nicky 2020	Journalist researcher
Rachel 2019	Charity worker
Rebecca 2019	Sales consultant
Sam 2021	Pharmacologist
Sarah 2019	Lawyer
Shelagh 2021	Organizational psychologist

Table 1 (continued)

Pseudonym and year of graduation	Occupation
Sofia 2019	Business developer
Stacey 2021	University administrator
Summaya 2021	Recruitment consultant
Suzanne 2019	Organizational psychologist
Toby 2021	Chef
Xavier 2021	Market research transcriber

Data collection

Data were generated through semi-structured interviews, deemed suitable as they ensured that the key topics were covered and that participants gave full accounts of their career decision-making process, but allowed the researcher the flexibility to follow the participants' narratives in detail and uncover insights that a structured interview may not have allowed. The graduates were asked open questions to identify the detailed process they followed when making their choices. The participants were asked to give their job title and industry, and were asked to state how long they had worked there. They were then invited to think back and were asked "When did you first start thinking about this as a possible path for you?", "Where did you get the idea from?", and "What was appealing about the idea at that time?" They were then asked to describe the steps involved in their career decision-making: "What happened next?", "When do you think you finally decided to go for this?", and "What was the basis of that decision?" Prompts such as "Tell me more about that" and "What happened next?" were used to elicit detailed data. Interviews took place on Zoom from January to April 2022 and were audio-recorded and transcribed verbatim. The participants' career decision-making journeys varied in complexity, leading to a wide range of interview duration, from 14 to 75 min with a mean of 41 min.

Data analysis

The data were analyzed with a reflexive thematic analysis (RTA) (Clarke & Braun, 2021). This approach aims to identify patterns of data across a dataset, identifying common themes that answer the research question. RTA is a method of data analysis that can suit a range of epistemological positions, here being used within a critical realist framework. I followed Braun et al.'s specific steps for data analysis (2006, 2020). I became familiar with the data, reading the transcripts through, and then coded the entire dataset, working through line by line and giving participants' comments descriptive codes that reflected my understanding of their meaning. In vivo

code labels were used where possible to try and represent the participants' meanings faithfully. While consensus between coders can be used as a measure of quality in qualitative data analysis, Braun and Clarke (2022) are explicit that "coding quality is *not* dependent on multiple coders" (p. 9). Rather, RTA acknowledges researcher subjectivity as a resource and thus is recommended for single-coder research. The process of analysis is iterative and slow, and the time and space required allows the research to develop a deeper and more nuanced analysis (Braun & Clarke, 2019). Once the whole dataset was coded, the analysis process became more abstract, as I looked for patterns in the data, identifying similar codes across the whole dataset and thinking about the differences, similarities, and relationships between the groups of codes. This eventually led to the development of a small number of themes that seem to offer an answer to the research question and were grounded in the data. Throughout the process I aimed to stay as close to the data as possible, identifying quotes from the participants' narratives that could illustrate the themes, and I kept coming back to the research question to ensure that the final model of themes offered the best and most faithful answer.

With a RTA, researchers are encouraged to use their subjectivity as a resource and a tool to help them to deepen their analysis and support knowledge production (Clarke & Braun, 2021). To this end, I kept a detailed reflective journal throughout, noting down and questioning my own pre-understanding of the issues, and the responses, feelings, and ideas generated across the whole process allowed me to offer a deeper level of analysis (Sundler et al., 2019).

Trustworthiness

Lincoln and Guba (1985) identify five key pillars of trustworthiness in qualitative research: credibility, transferability, dependability, transparency, and reflexivity. Credibility relates to the alignment between the participants' accounts and the researcher's interpretations of the data, which in this study, was established through a process of peer debriefing (Guba & Lincoln, 1989) in which the model was presented to a number of practicing higher education career consultants. The career consultants reported that the model accurately reflected their own understanding of the occupational choice process of many of the students they work with. Transferability is a measure of the generalizability of the findings to other contexts. With a relatively small sample size, and a sample that is not representative of the population of HE students (noted in the limitations section), this study cannot be thought to be widely generalizable, but thick, detailed descriptions of the findings are presented that can allow readers to judge the transferability to their own context (Tobin & Begley, 2004). Dependability has been demonstrated through the clear documentation of the procedure of participant selection, data collection, and data analysis. Transparency is shown through evidence that the conclusions are grounded in the data, illustrated through quotations from the participants and transparent descriptions of the logic behind the creation of the themes and the rationale behind the research decisions. Finally, reflexivity is key to managing the subjectivity and the bias that can result from qualitative data analysis. To this end, the researcher kept a detailed reflective journal throughout, noting down and questioning

their own pre-understanding of the issues, and the responses, feelings, and ideas generated across the whole process allowed them to maintain a more critical stance during analysis (Sundler et al., 2019).

Findings

The purpose of this study was to offer a model of the processes involved in the journey toward a first career decision for graduates. The narratives from 30 recent graduates revealed three key career decision-making processes: generating an idea, exploring, and choosing.

Generating an idea

The graduates were all asked to explain where their job or career ideas came from. For most, the ideas came by chance from a reaction to existing life activities, but others made a deliberate decision to seek out ideas proactively.

Chance exposure

Education was the source of many ideas, sparked off by teachers, the curriculum, or compulsory school work experience. Alison recalls her high school chemistry teacher “who was passionate about mixing chemicals and solving formulas” and Jessica decided “I wanted to specialize with children with disabilities, and that was because one of my tutors was just amazing.” Some were drawn to an aspect of their studies they had not been expecting to enjoy. Emily, who is now working as an assistant psychologist, had planned to study science but explained “when it came to A levels, there was no space in physics for me so they put me in psychology.” Compulsory career activities at school were also the source for some ideas. Ava explained “my main ideas at that stage were because of a short HR work placement I had done in sixth form” and for Sarah, “my school like organized a mentoring service that would help us with, you know, picking our career path.”

Personal experiences outside education sometimes sparked off ideas. Rachel was drawn to psychology because “I myself was in therapy and I wanted to explore it more, and through that I wanted to pursue a career in psychology.” Fiona explained “My parents were big on music—I grew up listening to a lot of music and playing a lot of music and I just kind of knew early on that I wanted a career in music.” Some graduates talked about television; Alison mentioned that her ideas “came from what I saw on TV” and Emily first thought about working with children when she “watched ‘The Secret Life of Four-Year Olds’ and found it really interesting.”

Deliberate exposure

Those who had not identified a promising option by chance felt the need to do something more active to generate ideas. They identified ideas through researching online, work experience, or formal career support.

Some identified ideas while researching online. Dan explained, “I first wanted to sort of see what was out there so I just began researching on the internet [...] I decided to do it when I saw the link on the internet,” Jason changed the direction of his job search mid-way, explaining “whilst I was in the process of doing those applications, I came across an advert for the job I’m in now and thought well I might as well apply for that too,” and Summaya “stumbled” across the field of recruitment when she “was sort of looking around at lots of different jobs.”

Some sought out work experience as a way to generate job ideas. Dan had an open mind about careers when he started his university course and said “I was just sort of looking for experience in as many different areas as possible so I could then choose from there”; Kristin choose an internship in a consultancy firm to make sure “I got exposed to different roles.”

Others made use of formal career support on offer, attending workshops and events. Suzanne said “I went to this career fair and they had a panel of people from each different sector,” and Charlie explained that at a careers talk in his department “they gave us a breakdown of where people go when they finished their law degree.” Emily also found the career events useful: “we had career workshops [...] where people would come in and talk about what they do with their psychology masters.”

Exploring

Once a promising occupation had been identified, the graduates had generally learnt more about their idea before making a decision. Sometimes this was through first-hand practical experiences, most often work experience, or through the application process, and sometimes through secondary sources such as research or conversations with those in the field.

First-hand experience

Work experience was a common route for finding out more. Ava’s experience was positive: “I did another HR placement and I learnt a lot more”; but for Jessica, it was useful in a different way: “I worked in a mental health hospital [...] but I realized that working with a hospital environment isn’t what I wanted for myself.”

For some, the next stage of research was education, as they selected a course or a module that related directly to the field. Ava said “I chose business psychology as one of my modules which related a lot to careers like HR.” Amina had been considering clinical psychology “but I took up one of the modules in counseling and clinical psychology at university and that was horrible—I didn’t like it.”

Many of the graduates used the application process itself as a chance to learn more. Charlie spent some time applying for law jobs and “when I was applying for them, I realized I wasn’t interested in the work.” Rachel applied for teaching saying “even though I didn’t think I’d get in, I thought I’d just apply and see what happens” and Summaya spoke about the value of the application process “just kind of having lots of interviews [...] I got a sense of what I actually liked about this one company of what I didn’t.”

Secondary research

The graduates spoke about online research as a way to learn more. Lauren had been offered a job at a networking event, explaining that afterward “I found what they did by looking on their website and their LinkedIn.” Julia said: “I did research around the role and that made me realize that this is something that I’d be interested in,” and Ben explained “I started heavily researching HR looking at different aspects of HR and just basically weighing up how much I really want to go for it.”

For some, conversations with others seemed to be the most fruitful route to deeper knowledge. Ava explained that “conversations with my best friend who works in HR probably motivated me to take the next steps.” Charlie heard stories from some students in the year above him about their summer internships in consulting and said “I remember hearing that and thinking, yeuch, this is so not me, I am so not interested in that.” Emily explained the value of conversations: “It can be really overwhelming to sort just type into google ‘psychology jobs’ whereas if you speak to people it’s a lot more calming to know sort of how they did it, what work it required [...] to narrow down your search and your interests.”

A few participants used careers support to help further their knowledge. Amina said, “I had a one to one appointment [with a career consultant] and I think they were the ones to tell me what it involves, how much studying is involved and what are the experiences that are required.” Suzanne attended a careers fair: “then after going to that career fair, I kind of was just like, I need to just go for it because that lady who I was talking to she just seemed really happy with her job.” Rachel’s experience of listening to a career talk had a different impact: “it just kind of turned me off in terms of what the job actually entailed. Once I had moved past the very romantic understanding it became a lot clearer.”

Choosing

The third step was choosing, which was, for many, a process involving a series of incidents building up to a final commitment, which could often lead back to further exploration before a decision was finally reached. Three types of experience typically led to a choice: an analysis in which the graduates identified reasons for inclusion or exclusion of an idea, a confirmatory confidence boost, and a pivotal conversation.

Analysis

Most of the graduates described some process of analysis where they identified aspects of the job that seemed to meet their needs or that were congruent with aspects of themselves. Many of the graduates focused on intrinsic factors, often whether they found the job interesting. Emily found that the job description ticked the boxes for her: “what they wanted from me, what it would lead to—it just really sparked my interest and I think it was in that moment that I just really wanted to work within that field.” Some focused on the culture of the organization, or the lifestyle the job might allow. Charlie explained that his internship “was interesting but I didn’t like the way the company was run—it was very old school and disconnected and I thought, OK, I don’t want to do this,” and Summaya decided to go for recruitment, concluding “I think it was kind of a mixture of money, social, and I would have a really good work life balance.”

Others were more pragmatic. Amina decided against clinical psychology, saying, “I love studying but 3 years plus another year is a long time. It’s also very competitive and I wasn’t sure about how much I wanted to struggle in terms of my career.” Similarly, Suzanne concluded that business psychology would suit her because “unlike a lot of other psychology routes you don’t need a PhD so I really liked that part of it.” Some considered their own skills. Alison seemed clear that “I knew I didn’t have the brains to become a doctor but pharmacy was close enough,” and Julia decided “I didn’t think I had the skills for a teacher.”

Confirmatory confidence boost

Many of the graduates spoke about a confidence boost that seemed to cement their decision. For many of them, the confidence boost was simply being offered the job. Dan said “someone called me and said ‘you have the job’ and I wasn’t going to say no to it as, it was the first job I’d applied for,” and Fiona explained that the success of her application “totally validated my thoughts and the fact that I could possibly go somewhere with this” explaining that “the act of getting in made me know that that’s what I wanted to do.”

For some it was evidence of their ability to do the job well that made the difference. Alison explained “I fell in love with teaching—seeing how I interacted with the students and how my teaching helped them in their learning,” and this decision seemed reinforced when “at the end of the first term I got a gratitude card from my class—they all wrote wonderful things about me and how they enjoyed learning with me [...] I knew from then on that was exactly what I wanted to do.” Ava was put through her paces during her internship: “It was terrifying! I had to do a presentation and everything, but yeah, it was so interesting and it just made me confident in my abilities to actually work in HR,” and Rachel, through her work experience realized: “I was naturally good at it.”

Pivotal conversation

Rachel also used others' perceptions of her to help her decide: "I had conversations with my family and friends about like what my strengths were and whether or not it was something that they could actually see me flourishing in," and Julia found the careers adviser really helpful: "they said, 'yeah, like I think you would really work for this, you should go for it.'" Sarah was very influenced by her family, explaining "I spoke to my mum and my family about it and they sort of supported me in wanting to go for law, so, obviously, I thought I should." For Ben, it was meeting his future boss: "I decided actually during my interview [...] she was very passionate about the job in human resources." Summaya's key moment was when the person interviewing her "explained the company to me [...] I think at that moment where I kind of understood, I was like, oh, I think I'd actually really like doing this job."

Discussion

This study offers what is thought to be the first published descriptive model of the career decision-making processes of UK recent graduates. The model incorporates three processes: generating an idea, exploring, and choosing. It aligns to some degree with existing normative career decision-making models, but also includes five aspects of the participants' career decision-making that are distinctive from existing models: the number of options analyzed at one time, the timing of self-exploration, the focus on option generation, the use of the application process as a way to explore in-depth, and the role of chance.

The first difference concerns the number of options considered at one time. Existing models suggest that graduates should identify approximately seven promising career alternatives and choose between them, calculating the option that is most likely to suit them (Gati & Asher, 2005; Hirschi & Läge, 2007). This approach allows decision-makers to consider all of the options thoroughly, thus maximizing their chances of identifying the best one (Edwards, 1971). In this study, however, the students did not generally compare alternative career ideas, focusing instead on one option at a time, only returning to identify another option if they concluded that the first was not suitable.

This simple approach is akin to Simon's idea of the satisficing approach (Simon, 1955), in which options are taken one by one, and the first option that meets a minimum acceptable threshold is selected. Satisficing deviates from normative ideals in that the decision-maker does not examine all the options analytically, yet evidence suggests that it can lead to good career outcomes. Iyengar et al. (2006) found that participants who made their career decisions in this way ended up with higher levels of job satisfaction (albeit with lower salaries) than those who approached their career choice in a more normative way.

A second key difference between existing normative models and this new descriptive model relates to self-exploration—the process through which decision-makers identify their strengths, values, and interests and work out what they want from a job. In existing models this takes place toward the start of the process, and

the results of the self-exploration are used as criteria for shortlisting promising alternatives (Gati & Asher, 2005). In the present study the graduates described focusing on self-exploration at a later stage: their understanding of themselves, their interests, strengths, values, and requirements emerged after they had identified a job and explored it in-depth. None of the graduates in this study spoke about a preexisting list of clear criteria that an occupation needed to match, identifying instead how well each specific option suited them on a case-by-case basis. Although at odds with the advice from normative models, this does align with the empirical evidence that Germeijs and Verschueren (2006) found when testing their model with high school students in Flanders. Their participants' self-exploration increased as the decision-making progressed, indicating that they spent more time reflecting on themselves once they had a specific option in mind. Perhaps the process of developing a clear idea of oneself is easier to do in response to a specific idea, because this makes it a more tangible and less abstract process. These findings suggest that it may be more profitable for students to focus on self-exploration a little later in the process, with reference to one particular occupational idea rather than, or perhaps in addition to, spending time on context-free self-exploration in the early stages.

This model offers some detail about the process of generating ideas within the model. Generating ideas is challenging for career decision-makers, so the detailed steps identified in this model could add value to career decision-makers (Gati et al., 1996; Yates & Hirsh, 2022). Existing models incorporate a stage in which career decision-makers identify a shortlist of promising options, but offer scant detail of how, exactly, decision-makers should do this. Some models have been based on high school students choosing degree majors (Germeijs & Verschueren, 2006; Harren, 1979), and perhaps this particular context makes shortlisting less challenging as there are fewer overall options. However, for career decision-makers at university, the number of possible options is vast (ONS, 2020), and the process of identifying a small number of promising alternatives is cognitively demanding (Sauermann, 2005; Yates & Hirsh, 2024). Some models (for example, Gati & Asher, 2005) advise decision-makers to use a computer-aided guidance program to help with shortlisting, taking advantage of the computational power of the software to identify a handful of promising occupations that individuals find appealing. Computer-aided guidance programs are readily available to students in the UK, yet not one of the graduates interviewed mentioned using one. This could suggest that, for this population, this may not be an appealing or effective route to a shortlist of promising career ideas. Empirical research that explores how career decision-makers generate options is sparse (Yates, 2022), but the findings from this study suggest that those making career decisions identify occupations related to their existing life activities, undertake work experience, and engage in online research as ways to generate ideas. Career practitioners could discuss these with students who are struggling to generate ideas.

The fourth difference is the students' use of the job application process as a way to explore options in depth. Existing models treat the application process as a stage that comes after the decision has been made; the assumption is that people make decisions and then apply for jobs. In contrast, the graduates in this study generated an idea, applied for a job, and then made a decision. The

application process seemed to offer useful insights to the role and the organization, allowing the students to meet future managers and learn more about the culture and expectations. This is an effective source of valuable information, and career practitioners could encourage students to conceptualize the application process in this way. However, a consequence of this approach seemed to be that students sometimes seemed to accept a job offer almost without making a deliberate decision: they applied for a job to find out more about the role, and then accepted simply because they had an offer. It was not always clear that the students had spent time reflecting on the insights they had gained from the application process before deciding to accept the job offer. It is plausible that students might be tempted to accept a job offer, perhaps because they are flattered, because they do not want their efforts to have been wasted, and perhaps because they are struggling to make a choice and see the job offer as a sign that it is the right choice for them. The use of the application process could thus be seen as a double-edged sword: giving access to valuable information but leading to a less optimal decision-making process.

The final difference between this descriptive and existing normative models is the thread of chance that runs throughout the process, as a complement to the graduates' focused career research. Existing models do not incorporate chance events, instead emphasizing deliberate research, but existing evidence convincingly demonstrates the widespread impact that chance events have on career choices (Bright et al., 2005; Chen, 2005). The narratives of the students in this study align with this empirical evidence, incorporating chance encounters, serendipitous educational experiences, and surprise outcomes as ways that the students generated ideas, explored further, or made choices. Given how influential chance is on career paths, advice to students making career choices could be to capitalize on opportunities that present themselves. This advice is incorporated in some existing career development theories but is not present in normative career decision-making models, and its inclusion could inform prescriptive models that are more aligned with students' experiences (Bright et al., 2005; Krumboltz et al., 1999).

Limitations and directions for future research

As an exploratory study, the inclusion criteria were broad, and this resulted in a sample that is not representative of the population, with more women than men and a high number of psychologists. The participants were asked to recall the steps on their career decision-making journey, which meant drawing on memories that were some years old. A longitudinal study could allow for more accurate narratives. In addition, some testing of the model is needed. A quantitative study could explore the degree to which this model is generalizable to a broader population, and further research should explore the processes associated specifically with positive career outcomes to help build a picture of the decision-making approaches that lead to good outcomes.

Implications for career practice

Without further testing, the practical value of this model is limited. Nevertheless, the findings point toward two suggestions. The detail in the model could be used to offer specific suggestions for approaches students could use to generate ideas, explore in depth, and make decisions. A career practitioner working with students who have not been able to generate career ideas could share some of the approaches that the participants in this study used, and offer these as possible starting points. The model also highlights the value of self-exploration with reference to a particular career idea. Career practitioners working with students who are struggling with self-exploration could focus on supporting clients to identify their own strengths, values, interests, and requirements with reference to each specific occupation, rather than, or perhaps as well as, a more holistic and abstract approach to self-exploration at the start of the process.

Conclusions

This study focuses on a neglected area within career research, offering an empirically derived descriptive model of the process of career decision-making of recent graduates. Existing normative models have not been widely adopted in career practice, which may be because they are not sufficiently aligned with the natural decision-making processes that students use. Indeed, this model highlights a number of ways in which natural approaches to career decision-making differ from normative approaches, including the place of self-exploration, the role of chance, the routes to idea generation, and the one-at-a-time analysis of occupational suitability. These findings could make a contribution to existing career decision-making models, offering ideas to help them align more closely with the natural decision-making approaches of students and graduates.

Funding This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability The data are available from the author on reasonable request.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical approval All procedures were performed in compliance with relevant laws and institutional guidelines and have been approved by the Psychology Department Committee at City, University of London, ethical approval no.: ETH2122-1159. Informed consent was obtained from all participants. The privacy rights of human subjects were observed.

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