

The socio-material nature of careers work: an exploration of knowledge co-creation amongst career practitioners

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Abstract. While knowledge co-creation is a main source of innovation in organisations, little is known about the co-creation of knowledge in career settings, particularly in the context of career guidance. This study represents a novel contribution in the consideration of knowledge co-creation in career settings through the exploration of daily routines of a previously underexplored group of professionals. Ten semi-structured interviews with career practitioners employed by Skills Development Scotland (SDS) were conducted and analysed through a socio-material methodological approach. The findings indicate that career knowledge co-creation is an assemblage of information and socialisation practices situated in a set of socio-material contexts. Specifically, these practices are performed in both physical and technological spaces, and are predicated on career practitioners' interpretation of their employing organisation's practice-structuring concepts. While technologies are conducive to the information and socialisation practices that constitute career knowledge co-creation, they can also serve as barriers to its success.

Keywords: knowledge co-creation, careers, technologies, socio-material

1 Introduction

The impact of globalisation, post-industrialisation, and technological advances on the labour market, and the job precarity that results from these developments, have been recognised for decades (e.g. Patton & McMahon, 2001). More recently, the global coronavirus pandemic has further exacerbated job precarity, particularly in certain sectors,

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and amongst particular age groups (e.g. Dias, Joyce & Keiller, 2020). In response, governments, organisations, and individuals seek to adapt to the post-industrial, technologically advanced, and increasingly interconnected world so that workers can be best prepared for career success in the evolving employment landscape (Minocha, Hristov & Leahy-Harland, 2018).

In this landscape, information is abundant (Webster, 2014). The career resilience of the workforce at large, and younger members of society in particular, is dependent on the access to, and use of, information, including that made available by careers information and advisory services (Maguire & Killeen, 2003). Little is known, however, about the means by which careers guidance services interpret and apply career information for the purposes of generating new career knowledge and providing timely and relevant career support to workers. The study of knowledge co-creation amongst career practitioners is thereby valuable to the development of an understanding of a key stage in the delivery of careers guidance in a precarious labour market.

In the research project presented in this poster, career knowledge co-creation practices of career practitioners in applied careers settings were explored, taking into account extant theoretical perspectives on knowledge creation. A socio-material methodology was adopted for data gathering and analysis. While socio-material methodological approaches are typically used in Science and Technology studies (STS) more so than in other disciplines, the selection of such a research paradigm for this research project was warranted by its context-sensitive nature. In the account of the research presented here the following research question is addressed:

How do career practitioners co-create career knowledge?

The main finding to be detailed below is that career practitioners co-create career knowledge through an assemblage of information and socialisation practices in physical and online environments. The account of this work represents a novel contribution in its consideration of knowledge co-creation amongst a previously underexplored group of professionals, and in its adoption of a socio-material research design.

2 Background: knowledge creation theory

Since the 1990s, many researchers have attempted to model organisational processes associated with the creation and exploitation of new knowledge. See, for example, the models reviewed by Dalkir (2018, pp. 52-60).

One of the most enduring articulations of knowledge creation from the domain of Knowledge Management (KM) is the *Model of knowledge dimensions* with its focus on processes of socialisation, externalisation, combination, and internalisation (SECI).

This model was developed by Nonaka in the early 1990s (Nonaka, 1991) and further elaborated with others (e.g. Nonaka et al, 1996). Other less cited, but also valuable, work includes Engeström's (1999) *Theory of expansive learning*. In these theories, knowledge co-creation is treated as a series of organisational transformations of knowledge and as a multi-step process of organisational problem-solving.

While approaches to knowledge co-creation in the KM literature are quite prescriptive in nature with a firm focus on 'the organisation', those who view new knowledge creation as an outcome of individuals working together in communities are more attuned to the importance of the context in which the new knowledge is (to be) created. Indeed, leading Communities of Practice (CoP) theorist Wenger (2004) sees knowledge co-creation as a non-prescriptive contextual process in which community members are self-selecting, and assemble and disassemble according to shared interests. Here, knowledge co-creation derives from participation behaviours and attitudes within the community in question. Equally, scholars such as Stoll and colleagues (2006) and Scardamalia and Bereiter (2010) highlight the importance of context for knowledge processes. They argue that knowledge co-creation is predicated upon a set of learning conditions in self-selected communities, and facilitated by the presence of certain practical, cultural, and social success conditions for the conduct of such communities.

The combination of these dominant, yet different, explanations of knowledge creation constituted the theoretical background against which the question of knowledge co-creation amongst career practitioners was considered. As will be outlined in the next section of this paper, a socio-material methodological approach underpinned the design of this research project.

3 Methodology and methods

The concept of knowledge (in general) and knowledge co-creation (in particular) were explored in this study using ethnographic analytical tools commonly adopted in Science and Technology Studies (STS). Socio-material methodologies are well-suited to the study of phenomena located in particular temporal, spatial, cultural, and social planes of existence and have been successfully applied to the study of situated practices of knowing, notably so in the work of Fenwick (e.g. Fenwick, Doyle, Michael & Scoles, 2015).

It is important to note that socio-material methodologies stem from social complexity and socio-material theories. These are unique as generalised analytical theories pertaining to the organisation of social and material elements of worlds (and more so than standalone theories pertaining to any specific research questions). The primary theories that underpin socio-material methodological approaches are Latour's (2013) *Actor-Network Theory* (ANT) and Barad's *Agential realism* (2007). While a thorough coverage

of these theories is beyond the scope of this paper, the fundamental building blocks of socio-material methodologies as rooted in these theories can be summarised as follows:

- (1) knowledge systems are dynamic, self-sustained, and self-organising;
- (2) within these systems, human and non-human elements (i.e., agential nodes) interact to produce and sustain knowledge phenomena (i.e., agential assemblages);
- (3) the systems are normative, hence organisational activity in them is encouraged or discouraged through assemblages of agential nodes.

The adoption of a socio-material approach in this research thus allowed for the socio-material entanglements of agency associated with career knowledge co-creation to be identified.

Socio-material research entails an immersion in the meanings, practices, and contexts of actors through ethnographic fieldwork (as advised, for example, by Nimmo, 2011). It typically involves case studies, observations, artefact analysis, and interviews (MacLeod et al, 2019). Criteria guiding methodological decisions in such work includes research method synchronicity, ethics of online data collection, time constraints, and potential technological limitations. In 2020, the social distancing restrictions imposed by the Scottish Government in response to the coronavirus pandemic also needed to be taken into consideration for the study reported here. Online interviews were selected for data collection. These partly (though not entirely) emulated the real-world conditions of ethnographic interviewing and allowed for elements of materiality to be surveyed via specialised interviewing techniques. (Other possible techniques rejected following a process of systematic elimination and risk assessment included artefact analysis, photo and document elicitation, digitally native research methods (such as online chatroom research), and online focus groups. These may, however, be adopted in future research of the nature discussed here once pandemic restrictions are lifted.)

Since the aim of the study was to capture the contextual aspects of career knowledge co-creation practices in applied career settings within a socio-material research paradigm, it was necessary to identify a research setting and participant pool that had experience of knowledge co-creation. Career development agencies are suitable environments for such study as they comprise communities immersed in career knowledge work, including making sense of socioeconomic change, technological advances, and setting strategic career development goals (Dey & Cruzvergara, 2014). Career practitioners assist jobseekers in making career decisions and managing transitions between education, training, and work (Niles, Engels & Lenz, 2009), hence they are considered to be appropriate targets for this study. Permission was granted by Skills Development Scotland (SDS), Scotland's national career development agency, for ten one-hour, online, semi-structured interviews to be conducted with career practitioners in June 2020. In total, ten career practitioners were recruited through a gatekeeper contact at SDS to take part in interviews: six Careers Advisers, who work directly with school

pupils, and four members of SDS' Career and Information Guidance (CIAG) group who develop resources and guidance materials for the use of Careers Advisers in their everyday work.

The interview topic guide centred on four themes:

1. 'Role' corresponded to the socio-material principle of studying human agents as part of the wider organisational network, and allowed for the exploration of individual experiences and perceptions of everyday practice by inviting accounts of mundane and routine activities.
2. 'Relationships' articulated with the interlinked nature of human agency and the socio-material principle of relationality, and allowed for discussion of shared practice in groups.
3. 'Artefacts' related to non-human aspects of the career practitioners' work environments, and allowed for consideration of the flow of agency through networks of (a) artefacts and (b) human agents.
4. 'Career knowledge' was introduced as a sensitising concept for the elicitation of accounts representative of socio-material assemblages, in acknowledgment of its place as both the subject and the output of knowledge co-creation practices.

The interviews were audio-recorded using internal facilities of video conferencing software and transcribed manually. The interview data were subject to a two-stage thematic analysis. This was undertaken with a view towards giving equal consideration to human and non-human elements of the landscape, as advised by Davis and Riach (2018). The first stage comprised manual open coding during which themes were generated by checking for patterns in the data, and events, objects, and interactions were grouped thematically. In the second stage, the themes were reviewed (again manually) so that it was possible to demonstrate the ways in which human and non-human agents are situated in different contexts, and how they assemble into knowledge co-creation practice.

A specialised interview technique known as 'interviewing to the double' (see Nicolini, 2009) was employed for the elicitation of materiality in environments. Participants were asked to envision the work practices of their doppelgänger when responding to questions about their activities at work and the context in which they are performed. In addition, analysis was also informed by 'key incidents' (Emerson et al, 2004). These were instances of spontaneous incorporation of material artefacts into the discussions, such as documents which acted as triggers for discussion. They served as examples of the material and mundane coming to the fore and provided important indications of the meaning and value of artefacts to practice.

4 Findings and discussion

The research question explored in this poster was noted above as ‘How do career practitioners co-create career knowledge?’ The main finding from the analysis of the data collected from the ten semi-structured interviews is that career practitioners co-create career knowledge through an assemblage of information and socialisation practices in physical and online environments. This is elaborated further in the summary of findings below.

In their normal daily work practice, career practitioners meet physically and virtually. They perform the same set of knowledge co-creation practices, organised along the same set of practice-structuring concepts, in both spaces. In technological spaces, they emulate established forms of working and informal modes of socialisation. For example, they take advantage of the affordance of new ways of working in online team meetings and use social networking platforms for far-reaching socialisation. Technology is also considered valuable for the fast aggregation of information.

The career knowledge co-creation practices of career practitioners encompass career information seeking, career information sharing, contextualisation work, and asking others for help. The collective nature of knowledge creation is evident in this study in the social nature of these information practices, not least in the reliance on other people as information sources. As well as effective information practices, the employing organisation’s two practice-structuring concepts have been identified as particularly important to knowledge co-creation: (1) shared interpretations; (2) a culture of sharing. Work practices are performed on the basis of the interpretation of these practice-structuring concepts (i.e., sets of meanings and attitudes) and career practitioners’ own subjective experience of assembling via technologically mediated co-creation channels.

The co-creation processes that surfaced from the analysis of the interview data fit closely with the SECI model (Nonaka et al, 1996), especially the socialisation and externalisation phases. For example, when study participants spoke in interviews of adding context to abstract and generalised information to transform it into knowledge that supports applied careers practice, they articulated a process that matches with the internalisation stage of the model.

Career knowledge co-creation is supported by a socio-material assemblage of people, spaces, behaviours, meanings, attitudes, and artefacts. This means that certain conditions need to be met for knowledge co-creation to occur in the organisation. For example, the provision of channels for knowledge co-creation is crucial. In addition, the allocation of time, space, and structure needs to be conducive to clustering actors together in a manner consistent with Communities of Practice theory, as well as identifying and resourcing existing communities of practice.

However, as career practitioners interact with their environment and perform knowledge co-creation practices, they also encounter barriers to career knowledge co-creation. For example, while technologies are conducive to career knowledge co-creation in terms of providing access to physically distant contacts or information sources, they can also serve as barriers to its success. In this case, career practitioners reported being overwhelmed by the wealth of information available and expressed a preference for access to more user-friendly and visually engaging career information technologies than those currently at their disposal.

5 Conclusion

An understanding of the ways in which career practitioners co-create new career knowledge can point to priorities to support the endeavours of the labour force that seeks to keep those who want to work *in* work. This is especially important at a time of uncertainty in labour markets. Through the deployment of a socio-material approach to research design, this study has brought into focus the assemblage of information and socialisation practices in physical and online working environments that result in the co-creation of new knowledge amongst career practitioners. It has also underlined the applicability of prior theory on knowledge creation processes to this particular professional group.

This work represents a novel contribution in the consideration of knowledge co-creation amongst a previously underexplored group of professionals through the adoption of an STS research design which is less-commonly used in studies of information behaviour and use. It also highlights the potential for further research as related to careers information and advice services.

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