Chapter 8: A review of existing and potential future methodologies in OMC

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The extent and quality of accumulated knowledge within a research field depends importantly on how it has been produced (cf. Gibbons, Limoges, Nowotny, Schwartzman, Scott, & Trow, 1994). Similarly, as in many other fields in social sciences, over the last two decades career research has witnessed a strong increase of research output and notable changes in the manner of how knowledge is produced. The number of published papers in organizational and management career research has almost quadrupled (from about 35 papers per year in 1995 to about 131 papers per year in 2015), with empirical articles being the most voluminous driver of the increasing research output (currently amounting to about 80% of yearly production). However, just increasing the quantity of output is usually not sufficient to ensure that a field is making progress. Future formation of knowledge in the field is contingent upon appropriate use and upgrading of existing methodology as well as upon careful adoption of emerging methodologies that could provide new insights into careers in a highly dynamic, interconnected, and increasingly digitalized world.

In this chapter, we review knowledge creation in organizational and management career research in the last two decades (1995-2015) and discuss methodological approaches we see as fruitful for further developing our knowledge about careers. We first offer a robust overview of the development, current state and use of approaches for producing knowledge in academic journals that publish career research. We continue by describing emerging methods in social sciences and beyond that have the potential to facilitate further creation of knowledge about careers. We discuss their potential along with identifying areas within the career research field where they could most likely be applied. We conclude by a summary of current state and future directions of OMC career research methodology.

The domain of career research in management and organization and the scope of or our methodological overview

In its broadest sense, career research is a highly fragmented, multidisciplinary research field with several taxonomic approaches trying to make sense of the vast landscape (Peiperl & Gunz, 2007). The most recent attempt to classify career research by Lee, Felps, and Baruch (2014) used bibliometric techniques (science mapping) to distinguish between the *global* and *local* career research. The global view encompasses career research done in all social science disciplines and includes research areas such as education, social policy, and doctorate careers, while the local view only includes career studies in the domain of management and organization research. For the 1990-2012 period Lee et al. (2014) identified more than 16,000 publications using the global view and 3,141 publications if they considered the local view within the relevant Web of Science categories (p. 340).

Similarly as Lee et al. (2014), we adopt the narrower view and examine the knowledge base about careers in the organization and management research domain. In particular, we draw on what Gunz and Mayrhofer (In Press) refer to as "organizational and management career (OMC) studies". They define the OMC field as the (ibid., p. XX) "area of scholarship, where the primary interest is in individuals as career actors, where their career is seen from the three perspectives, ontic, spatial, and temporal, and where the implicit or explicit frame of reference is management and organization studies." In addition, we considered what Gunz (2015) characterized as a career study following four criteria. First, it has an identifiable career actor (i.e., an individual); second, it addresses at least two 'conditions' of the career actor (e.g., a personality trait such as extraversion and a state such as career satisfaction); third, it includes a temporal dimension (unfolding in time is at least implied); fourth it at least implicitly addresses the social space within which the career

unfolds (e.g., organizations). This represents the general scope for our review of career research methodology for the 1995-2015 period.

Data and procedure

The selection of publications (academic articles) used in our overview is based on the Thomson Reuter Web of Science (WoS) database. The database includes the vast majority of world's quality academic journals. To find studies that satisfy our criteria we used a multi-step process that involved journal category selection, keyword search and manual filtering. The first step was to search the WoS database for publications published in the 1995-2015 period in the Business and Management categories that have "career" in their abstract, keywords or title. This search returned 8,244 articles published in specialized career journals and other journals publishing career research.

Consistently with the domain of our research, we further filtered the articles by excluding those that were published in professional-focused journals (e.g., Fortune, Harvard Business Review), in journals that have not been published continuously throughout the period, and in journals that were not listed on the Academic Journal Guide 2015 (AJG) high quality journals lists (to ensure sufficient quality we considered only journals with AJG ranking 2 or higher). Further, we excluded articles published in journals focusing on career counseling (e.g., Journal of Employment Counseling, Journal of Counseling Psychology, British Journal of Guidance & Counselling), and journals from other social science disciplines (i.e., education, sport, public relations, tourism, migrations). We also excluded all commentaries, book reviews, and teaching cases. This further reduction resulted in 4,107 articles published in 47 quality scholarly journals publishing career research.

The final stage of the funneling process was done by reviewing titles and abstracts of all remaining articles using the criteria introduced in the previous section. In order to develop

coding protocol, two raters first independently examined 200 randomly drawn papers (100 from specialized career journals and 100 from other journals) from the remaining articles. Based on inductive reasoning they developed a selection protocol by jointly discussing their individual selections of career papers from the sample. A third, independent (external) rater reviewed the initial (pilot) selection and provided feedback, which was jointly discussed before final selection criteria were set.

The general inclusion rule was that papers, where career (or mobility) was the central and explicit focus of the article are included in the final sample. Articles that addressed very early (i.e., before school-to-work transition) or very late career (i.e., post-retirement time) were considered outside of the scope and thus not included. In addition, as the focus was on the long-term issues of individuals associated with working in organizations, we excluded studies with exclusively short-term focus (e.g., job-search and turnover studies) were excluded. Papers on related topics (e.g., mentoring, expatriates, work-life balance, professional identity, talent management) were included only if they were explicitly career-focused. Two raters independently read and coded the abstracts of all 4,107 articles and indicated whether an article fits the criteria for final selection. After coding all articles, the inter-rater agreement was 92 %. Disagreements were settled by discussion between the raters. For especially difficult decisions, an additional evaluation was sought within the research team. The final sample included 1,251 articles published in the 1995-2015 period.

An overview of most relevant journals, where OMC research was published in the 1995-2015 period, is available in Table 1. We rank-ordered them by total number of publications, total citations and mean citations per paper. Specialized career journals top the rankings by the total number of publications and total number of citations. They are, however, not listed among the 15 journals with the highest mean citations per career paper (the closest is the Journal of Vocational Behavior, ranked 17, with 24.5 citations per paper).

The abstracts of the final sample of articles were content analyzed, which allowed us to categorize them with regard to their type and methodology used.

Table 1: The overview and rank ordering of journals publishing OMC research between 1995 and 2015

Journal rank	Total number of publications		Total number of citations		Mean citations per paper	
1	**JVB**	357	**JVB**	8,752	PP	138
2	**JCA**	165	**JCA**	2,312	JOM	94
3	**CDI**	81	JAP	2,251	AMJ	91
4	**CDQ**	78	JOB	2,194	JAP	90
5	IJHRM	77	PP	1,936	AMR*	69
6	JOB	52	**CDQ**	1,453	JBV*	50
7	HR	45	AMJ	1,094	AME*	50
8	PR	41	IJHRM	1,048	JWB	42
9	GWO	32	HR	741	JOB	42
10	JOOP	27	JOOP	670	ASQ	38
11	IJM	26	JOM	659	ETP*	34
12	JAP	25	HRM	518	JIBS	29
13	HRM	24	PR	499	SMJ*	29
14	PP	14	**CDI**	414	HRMR	27
15	RP	14	GWO	411	JOOP	25
Totals OMC field		1,251		29,023		23

Notes. List of full journal names is available in the Appendix; * 5 or less papers published in the journal in the observed period; bold text denotes **specialized career journals**.

Overview of knowledge creation in the OMC field in the 1995-2015 period

The field of organizational and management career (OMC) is renowned for cohabitation of a diversity of research traditions spanning from the positivist epistemological position and quantitative research designs to constructivist epistemological position and corresponding qualitative research designs (cf. Gunz & Peiperl, 2007; Gunz & Mayrhofer, In Press). In Table 2 we offer a general overview of how knowledge was produced in the field in the

1995-2015 period. Scholarly articles using quantitative approaches accounted for almost 50% of the field's aggregated publications, followed by qualitative papers (16.2%), method and instrument development papers (14.4%), conceptual papers (8.1%), review papers (6.7%), mixed methods papers (2.9%), method review papers (2.7%), and meta-analysis papers (1.6%). Whereas quantitative papers have had almost the same position in the publication and in the citation space (i.e., the share of total citations received and the share of the number of publications is almost the same), other types of papers have had asymmetric representations. Notably, meta-analysis papers have had by far the strongest relative impact (e.g., Ng, Eby, Sorensen, & Feldman, 2005). They are followed by conceptual and review papers, which also exhibit strong relative impact, while qualitative papers, method papers, and mixed methods papers are on the other side of the continuum with low relative impact.

Table 2: The knowledge created in the OMC field in the 1995-2015 period by publication type

Type of paper	Number of papers	Share of papers	Mean citations per paper	Share of total citations	Ratio
Quantitative	590	47.4%	24	49.4%	1.04
Qualitative	202	16.2%	12	8.6%	0.53
Method/Instrument Development	179	14.4%	16	9.5%	0.66
Conceptual	101	8.1%	37	13.0%	1.60
Review	83	6.7%	35	10.3%	1.54
Mixed Methods	36	2.9%	17	2.2%	0.77
Method Review	34	2.7%	13	1.5%	0.56
Meta-Analysis	20	1.65%	38	5.4%	3.36

Note. Six papers from our final sample that could not be classified in any of the above categories were not considered in calculations.

It is also worth looking into the relative importance of different ways of how knowledge was produced across the observed period. In Figure 1 we can see that the percentage of yearly knowledge production in the OMC field by means of empirical papers (including quantitative, qualitative, mixed method and meta-analysis papers) has increased considerably in the last 20 years and amounts to almost 80% in 2015. The share of conceptual (including review) papers, on the other hand, has shrunk drastically to as little as 5% in 2015, while the share of methodological contributions (including instrument development and method review papers) is on the rise again after exhibiting the lowest shares among the three types in the 2008-2011 period. Based on this, we can argue that at least in terms of volume empiricism as a general epistemological position is gaining in comparison to rationalism within the OMC research.

Figure 1: The share of empirical, methodological, and conceptual (including review) papers in the OMC field in the 1995-2015 period
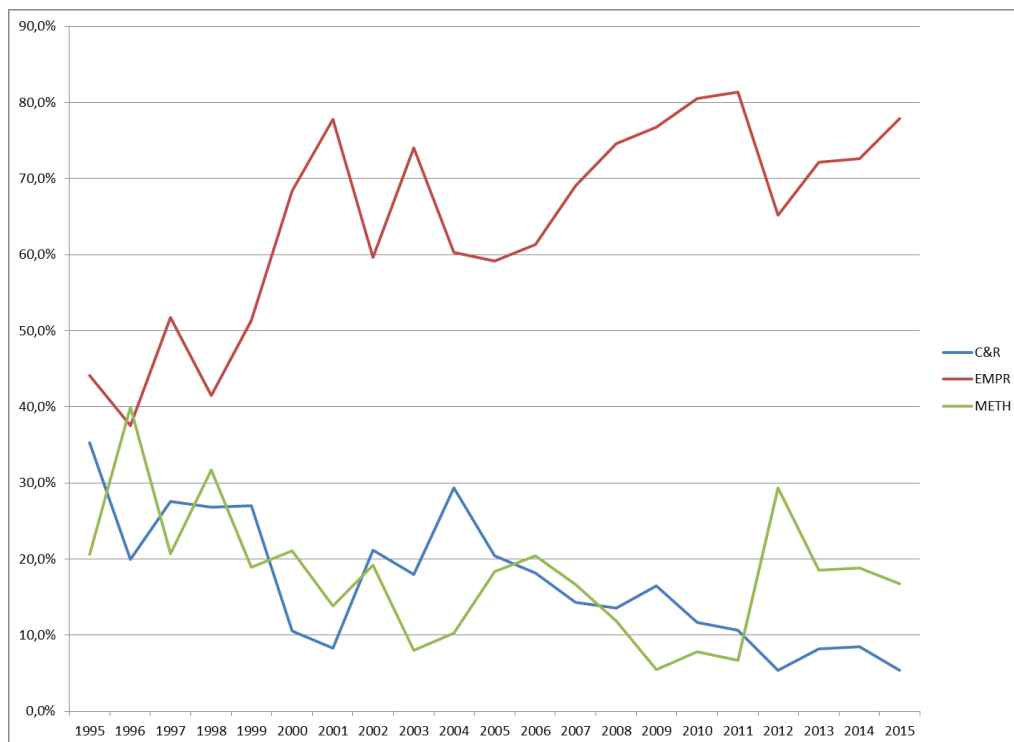
If we take a more in-depth view into the empirical papers throughout the period, we observe that the share of empirical papers using quantitative approaches has decreased and stabilized in the last ten years at about 65%. The share of papers adopting qualitative approaches, on the other hand, has increased and recently represents around 25% of yearly empirical contributions within the OMC research. This observation suggests that constructivism and relativism (e.g., by acknowledging the role of context) have emerged as a robust alternative to the dominant positivistic approach in the field's research landscape. The share of papers using meta-analyses and mixed methods approaches, however, remains at very low levels. Mixed methods papers in particular have shrunk in the recent years after signs of stronger adoption in the 2009-2012 period. It seems that within the OMC research combining epistemological positions is both difficult to do (only a small number of contributions adopting this approach exist) and disseminate widely in the research community (the share of citations relative to share of publications is among the lowest).

Figure 2: The share of different types of empirical papers in the OMC field in the 1995-2015 period
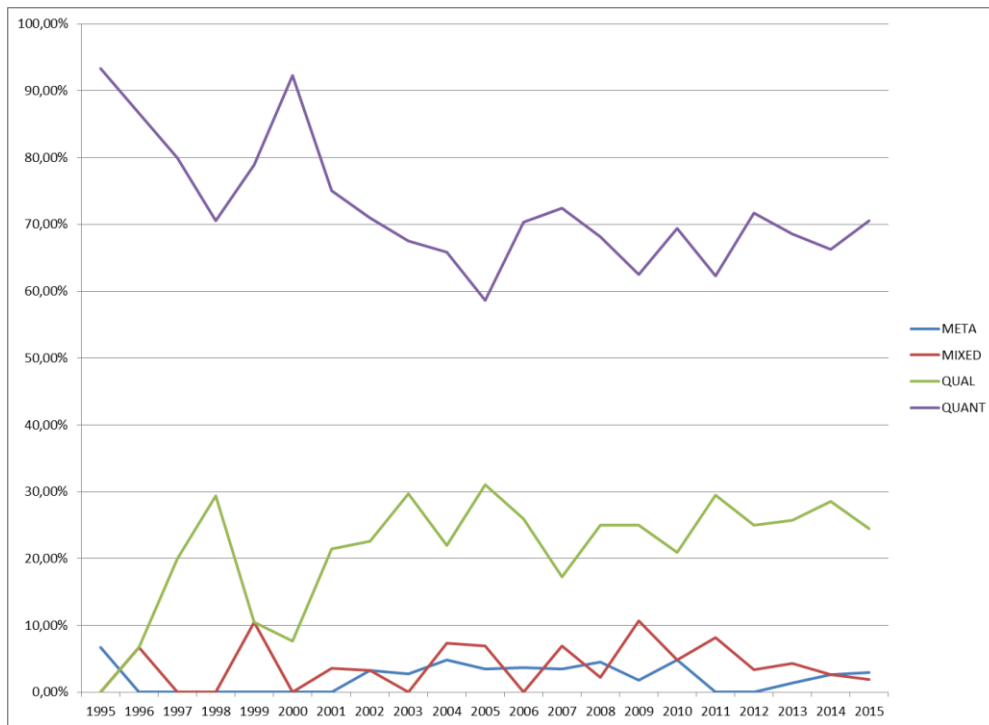
A typical quantitative paper in our sample follows deductive reasoning and adopts survey-based (field) data gathering methods in combination with multiple (hierarchical) linear regression or structural equation modelling for data analysis. For example, in a well-cited Journal of Vocational Behavior paper Seibert and Kraimer (2001) examined the relationship between the Big Five personality dimensions and career success by surveying approximately 500 employees and adopting hierarchical regression analyses along with observing incremental variance to test hypotheses. Some contributions, especially more recent ones, used more advanced structural equation models, mediation and conditional process analyses (e.g., Russo, Guo, & Baruch, 2014; De Vos, De Hauuw, & Van der Heijden, 2011), and multi-level (random coefficient) modeling (Eby, Allen, & Brinley, 2005; Biemann, Kearney, & Maggraf, 2015). However, the adoption of these more sophisticated quantitative methods is less prevalent than in some other areas of management and organization research.

In recent years, the papers adopting a quantitative approach have increasingly used longitudinal designs. This is consistent with the need for sound further development of theory and research in the broader management and organization field (cf. Ployhart & Vandenberg, 2010), but even more relevant for career studies because careers are inherently time-bound and should also be studied as such. Longitudinal designs in our sample included panel (e.g., Judge, Klinger & Simon, 2010; Bienamnn, Zacher, & Feldman, 2012), follow-up (e.g., Salmela-Aro & Nurmi, 2007), cohort (e.g., Higgins, Dobrow, & Roloff, 2010) and even diary studies (Zacher, 2015). A nice example of the application of longitudinal designs in career research is the work by Abele and Spruk (Abele & Spurk, 2009; Spurk, & Abele, 2014) on inter-temporal aspects of subjective and objective career success. In particular, Spurk and Abele (2014) used four-waves of data from a 9-year longitudinal study to explore feedback loops between occupational self-efficacy and objective and subjective career success over time. The design of the study allowed the authors not only to deal with typical problems stemming from cross-sectional designs (cf. Podsakoff, MacKenzie, & Podsakoff, 2012), but also to truly capture the dynamic nature of the focal variables and their interrelationships and make theoretical advancements that would not be feasible with a cross-sectional design.

Quantitative papers also built on archival (i.e., occupational records, job search portal data, labor market data) and biographical data (e.g., Shah, Bechara et al., 2014). Optimal matching analysis is a good example of a method that has been used several times to analyze sequences in archival data (e.g., Biemann & Wolf, 2009; Kovalenko & Morelmans, 2014). In a similar way researchers studied how various events affected careers of individuals (cf. Morgeson, Mitchell, & Liu, 2015). For example, Hamori (2007) gathered media coverage of organizations in daily business press to examine how stigmatizing events at the level of the current organization (e.g., lawsuits, downsizing, resignations of key representatives) affected

outgoing individuals' mobility (upward, downward, lateral) as they joined subsequent organizations.

While pure experimental design is rarely adopted in OMC research, we were able to identify several, mostly recent, papers building on quasi-experimental (e.g., Spruk, Kauffeld, Barthauer, & Heinemann, 2015; Rider & Negro, 2015; Kossek, Roberts, Fisher, Demarr, 1998) and scenario designs (e.g., Bright, Pryor, Chan, & Rijanto, 2009). These papers examine how exposure of study participants to various interventions (e.g., training in self-management and networking; providing coaching), organizational career circumstances (e.g., organizational failure) or scenarios affected (or would affect) their career outcomes.

Our analyses indicated that research designs using multisource ~~or cross-cultural~~ designs are rare in OMC research. We only found a few dyad/multisource studies (e.g., Rodrigues, Guest, Oliviera, & Alfes, 2015; Gentry & Sosik, 2010; Lyness & Judiesch, 2008), where multiple respondents (e.g., self, peer and supervisor rating) reported about focal career concepts. By and large this is reasonable because current conceptualizations of career (i.e., protean, boundaryless career) are primarily in the domain of the individual, who should then also report on career-related concepts. However, this again represents a deviation from the broader social sciences research, where multisource data is considered a research design's strength (Podsakoff et al., 2012; Heidemeier & Moser, 2009).

Finally, although we observed an increasing number of quantitative studies that collected and analyzed cross-cultural data (e.g., Willner, Gati, & Guan, 2015; Newburry, Belkin, & Ansari, 2008; Gunkel, Schlaegel, Langella, & Peluchette, 2010), these studies predominately narrowly reported on or replicated results from two or three countries/cultures (often using business or executive students as respondents). Broad cross-cultural (comparative) designs such as the one adopted by Lyness and Judiesch (2008), who explored

international perspectives on work–life balance and career advancement potential across 33 countries, are still missing in the OMC research.

A typical qualitative paper, on the other hand, follows inductive reasoning, builds on interviews (e.g., by using the life story approach) and uses various types of content analysis to create new knowledge. For example, in the International Journal of Human Resource Management, where a notable share of the qualitative papers has been published, Makela and Suutari (2009) examined the social capital paradox of global careers by interviewing 20 Finnish MNC managers and content analyzing answers about their career and their social capital development. Alternatively, in a less typical highly cited example in the Journal of Organizational Behavior, Hall and Chandler (2005) address subjective career success in circumstances where career represents a calling by presenting a real-life case example. The example of an unfolding career of a person with a strong calling serves as an illustration of the authors' conceptualization and as an introduction to stipulating the propositions. The differences between the two papers above show that although both papers can be classified as qualitative in our sample, there is more diversity in how qualitative research is executed. The prototypicality is weaker than in the case of quantitative papers.

Papers adopting qualitative designs often combine multiple sources of qualitative data (e.g., biographical and interview data, observation) and use grounded theory approach to develop new theory inductively (e.g., O'Mahony, & Bechky, 2006; Simosi, Rousseau, Daskalaki, 2015). Some qualitative studies also had explicit longitudinal design. Brodsky (2006), for instance, interviewed 54 British symphony orchestra musicians 8 times over a 10-month period. Also, researchers adopting qualitative designs used some alternative research methods such as q-sorting (Dries, Pepermans, & Carlier, 2008), analysis of symbolic networks (Jones, 2010) and even a pre- and post-career related developmental project video

analysis of career-related conversations (Ball, Valach, Turkel, Wong, 2003) to generate new knowledge about careers.

Finally, we would like mention **mixed methods approaches**. In our sample mixed method papers most often combine (field) survey with interview, focus group or case study. For example, in a Gender, Work and Organization article, Probert (2005) studied gender inequity in academic employment using mixed methods. In particular, she combined a large-scale nationally representative survey to gather information about human capital, family responsibilities, career preferences, workloads and objective experiences of appointment and promotion with a detailed case study of an organization, which adopted among other focus group method to study women identified with the survey as potentially 'just under the glass ceiling'. The two methods were used to mutually corroborate findings. In addition, the focus group helped to identify specific explanations that were not at the forefront in the quantitative part of the research. Further, we also identified a paper that combined panel data with biographical interviews (López-Andreu & Miquel Verd, 2013) and a paper combining survey, case and geographical data (Wheatley, 2013). A general observation is that mixed methodologies contribute to a more comprehensive understanding of careers in their contexts, but are rare in the OMC research.

Emerging methodologies in social sciences and implications for the OMC research

In recent years we have seen an increased attention of researchers in social sciences to how knowledge is being produced; both from the viewpoint of validity and replicability of findings (e.g., Open Science Collaboration, 2015) as well as from the viewpoint of introducing new methodologies for tackling problems that researchers have not yet been able to address successfully or efficiently. The emergence and increasing adoption of new methodologies stem mostly from increasing computing power, new technologies for

continuous unobtrusive observation, accumulation of *big data*, and opportunities for digitalization and automatic processing of qualitative data. In addition, cross-fertilization and transfer of methodologies between disciplines and fields of research, availability of outlets that disseminate knowledge about methods (methodological sections and special issues of high quality journals, specialized journals such as Organizational Research Methods etc.), and ever increasing demands for sophistication of methods at the top rated journals have helped excel these processes. Below we succinctly review selected emerging methodologies that in our view are relevant for future OMC research and discuss their implications.

The Internet has opened new avenues for research on careers that have to date not yet been sufficiently exploited by career researchers. Several approaches exist that provide researchers with access to career data from the Web. One example is individual voluminous career data available through **online career networks such as LinkedIn**, which provides self-reported information about current employment but also previous postings and developments (Ge, Huang & Png, 2016). Of particular interest for career researchers is that LinkedIn readily provides career profiles as complimentary measures of objective career success beyond number of promotions. LinkedIn includes profiles from professionals across a wide range of disciplines that can be helpful with respect to sample criteria for career research. Furthermore, both technical and managerial positions are identified which may aid researchers in investigating horizontal career developments and not only the more traditional vertical trajectories associated with objective career success. Since LinkedIn provides detailed information with respect to employment, location, education and interpersonal connections, future quantitative OMC research could combine this data and investigate issues such as the effects of an individual's social networks on her job or geographical mobility, or the effects of her formal education on both horizontal and/or vertical career advancement (Ge et al., 2016).

Further, qualitative OMC researchers could resort to **netnography** – an online, systematic study of people and cultures – to study career-related phenomena. Netnography has its origins in the traditional observation techniques of anthropology and extends these to the study of the interactions and experiences that manifest themselves through digital communications (Kozinets 1998). This methodology was first applied in consumer research (e.g., Schau & Gilly, 2003) and has since spread to a range of other disciplines in the social sciences, yet its influence on career research remain limited. Netnography is recognized as naturalistic and immersive. As such, it seeks to explain online social interaction by involving the researcher in online communication as a key player. Data is collected from naturally occurring public online conversations thereby creating new insights with respect to what actually unfolds in individual's online social lives. Given the culture-centered focus of netnography, its main source of data is found in collecting and interpreting publicly-available, interactive digital communications, complemented with methods including but not limited to interviewing, social network analysis, and big data analytic tools and techniques (Kozinets, 2015). Since technology is becoming more important for individual decision-making netnography could be a fertile approach for understanding their activities when making themselves readily available for new employment opportunities through activities on public profiles such as LinkedIn and Twitter (see for example sentiment analysis of Twitter) and which sites they seek out to see available positions and openings. In addition, their communications within virtual communities and other online social sharing formats would be interesting to analyze with respect to which of these are perceived more as online mentor-mentee and based on trust in order to predict future career decisions, transitions, and perceptions of career success. These electronic traces provide researchers with data from a vast range of individuals from different context and cultures that would otherwise be less readily accessible and allows the opportunity to trace the nature of these interactions and how

they quantify and unfold over time. Empowered with new methods for (quantitative) analysis of text using computer-aided approaches and machine learning techniques (cf. Pollach, 2012; Althoff, Clark, & Leskovec, 2016), this methodological approach provides a very promising opportunity for a large-scale analysis of career narratives publically available on the Web.

Finally, publicly available career data can be transformed into a relational database for further analysis by using **web crawler and extractions along with text analyzer and codifier algorithms** (e.g., Geuna, Kataishi, Toselli, Guzman, Lawson, Fernandez-Zubieta, & Barros, 2015). These algorithms search for webpages and metadata from the whole internet for a combination of provided search terms such as names and affiliations of individuals to extract their biographical information (CVs) and transform it into a relational database. Geuna et al. (2015) developed such a tool to build a database and studied careers and productivity of biomedical scientists, using only public information available on the Internet. This kind of method is especially valuable where biographical information of individuals in question are available online and when commercial sites such as online career networks (platforms) are not restricting access to their data.

We could see in the review of existing OMC research methodology that quantitative researchers increasingly use longitudinal research designs. A recent development in longitudinal designs are **intensive longitudinal methods** (ILMs, see Beal & Weiss, 2003; Fisher & To, 2012). ILMs assess individuals repeatedly within short intervals (i.e., by administering measures on multiple occasions during the same day). They are particularly useful for in-depth analyses of momentary and defining moments evolving over shorter periods. In contrast to retrospective self-reports, ILMs are less prone to retrospective recall bias, which influences the accuracy of information through blurred memories and self-justification processes. They are also better in following participants in their natural context (in contrast to more artificial lab settings). The third and final advantage of ILMs is the

possibility to investigate dynamic within-subject processes through higher level of specificity of temporal events (Bamberger, 2016). ILM data sources include but are not limited to daily diaries and experience sampling (Bamberger, 2016). The method is gaining in popularity since the ability to employ such designs has increased recently, also due to intense use of smartphones (Raneto, Oulasvirta, & Engle, 2009), and because the statistical tools for conducting data analysis have become more available. With the advent of Internet of Things – and increased use of sensors in everyday life (cf. Chaffin et al., 2015) – and movements like "Quantified Self", whose members proactively, willingly and continuously use technology to record data about various aspects of their daily lives (Wilson, 2012), this approach seems to only grow in prospects for career researchers. For instance, a more detailed analysis of events preceding, accompanying, and following important career events or career transitions could be made more readily available through ILM rather than retrospective perceptual measures comparing previous employment with current employment. Zacher (2015) already adopted the method for career research and studied daily manifestations of career adaptability.

Our review also showed that while experimental research is very rare in career studies there is an increased use of **quasi-experimentation** (cf. Grant &Wall, 2009). Given that organizations invest time and resources in facilitating career developmental activities for their employees (Kraimer, Seibert, Wayne, Liden, & Bravo, 2011) this methodology could be used more frequently, since studies examining the actual influence of these activities on, and not mere covariation with, important employee outcomes such as career success, job embeddedness and turnover remain limited. Even though careers is a challenging topic to study within an experimental framework given the numerous challenges associated with confounding variables stemming from the broad range of influences on individual careers, attempts to conduct even more experimental designs are welcomed. There are several strengths found in (quasi-)experimental designs in terms of establishing causal claims. For

instance, interventions in one or several groups compared to control groups would allow researchers and organizations to assess the influence of differing inducements on career-related outcomes and ensure better control over temporal progression. As noted previously, classical experimental designs are rare in OMC research. Some papers using quasi-experimental approaches are available (e.g. Kossek, Roberts, Fisher, Demarr, 1998) evaluating the effects of career self-management training on getting employees to engage in career self-management activities.

Another benefit from (quasi-)experimental designs is increased collaboration between academia and practitioners and thereby reduced research/practice divide. HR managers should be interested in nurturing career development of their employees in such ways that ensure their perceptions of uniqueness and belongingness (Guest & Rodrigues, 2012). But without the in-depth knowledge obtained from the field of career research and with little or no mastery with respect to methodological skills the same practitioners are left in the hands of consultants that vary substantially along the same dimensions of competence. Accordingly, helping practitioners make the interventions they are planning to do anyhow more in line with the best available evidence is far better than leaving them in the hands of consultants only. A final advantage of intervention studies is being able to take the influence of selected contexts into account. Organizations operating in global business environments, for instance, may be concerned with whether their career developmental programs are perceived and welcomed in similar ways across, or whether important cultural differences should be taken into account and if so how. Interventions in the form of selected pilots could reduce the probability that scarce resources wash away on initiatives with little or no value.

One of the observations of our review was that comparative studies are missing in OMC research, especially quantitative comparative research. **Qualitative comparative**

analysis (QCA) has the potential to generate more comparative careers research. The optimal situation for adopting QCA (Rihoux, 2006, Ragin, 1987) is when

(1) the availability of units of observation are limited,

(2) the study subject is complex and not easily available using quantitative analytical methods, or

(3) in-depth qualitative data using traditional qualitative methods was not collected.

QCA was developed by Ragin as a methodological approach for small-N comparative research (Meuer & Rupietta, 2016) as opposed to more quantitative-oriented methods. QCA is a case-sensitive approach but retains a holistic-analytic perspective in that cases are regarded as parts of a complex entity. These relationships are analyzed through preset theorizing with minimization procedures based on Boolean algebra and not correlational analyses (Meuer & Rupietta, 2016). As such, QCA also allows more complex causal models to be investigated in that several conditions may jointly cause changes in the dependent variable and that these outcomes may be highly context sensitive (Rihoux, 2006). Given the potential complexity involved, a central tenet of such comparative case analysis is that of analytical control, implying the need for the researcher to have in-depth knowledge of the relevant cases as well as relevant theory/theories to make meaningful interpretations and conclusions of the observed material. Career studies adopting QCA could thus be positioned somewhere in-between the large-scale quantitative (i.e., Lyness & Judiesch, 2008) and qualitative comparative career research (i.e., Shen et al., 2015). Career researchers could, for example, examine which theoretically plausible combinations of institutional and/or cultural factors actually shape particular types of career value/aspirations configurations across countries/cultures.

Further, recent advances in neurosciences and emerging organizational neuroscience research area could offer new opportunities for OMC research, especially for studying career decisions. Since the beginning of the decade there have been efforts to introduce neuroscience in studies of management and organizations (e.g., Becker, Cropanzano, & Sanfey, 2011; Becker & Cropanzano, 2010) and a continued debate about its promises and limitations (Lindebaum & Zundel, 2013; Ashkanasy, Becker, & Waldman, 2014). Its main promise is that it offers new (relatively accessible) methods for studying and understanding people's cognitive processes by examining their brain functions/activity (Waldman, Wang, & Fenters, In Press). In particular, **neuroscanning or neurosensing technologies** such as functional magnetic resonance imaging (fMRI) and quantitative electroencephalogram (qEEG) have been frequently mentioned and already adopted in studies within the broader management and organizational research (e.g., Laureiro-Martínez, Brusoni, Canessa, & Zollo, 2015). These studies typically examine the difference between ongoing intrinsic brain activity and brain activity, which occurs as a reaction to stimuli, by identifying particular brain region(s) activated by the stimuli or imitating others (Waldman, Wang, & Fenters, In Press). For example, Laureiro-Martínez et al. (2015) used fMRI to identify brain regions that are associated with exploitation and exploration decisions. Neurosensing technologies could be used to study sensemaking of career-related situations and career decision making as well as emotional reactions to events and changes in (others') careers. These methods would be particularly valuable as complementary to existing methods in OMC research (i.e., interviews and surveys). When used this way researchers could compare findings derived by using traditional methods with those derived with these innovative interdisciplinary techniques and increase confidence in using them. We think that studies using both traditional and neuroimaging methods could invigorate the stagnating mixed method research in OMC research.

Finally, one of the observations in our overview was that the share of conceptual papers is decreasing. One possibility of advancing theoretical development is **simulation modeling** (Davis, Eisenhardt, & Bingham, 2007; Harrison, Lin, Carroll, & Carley, 2007), which is defined as the use of algorithmic programming to model organizational behaviors and processes. The use of simulation modeling is still rare in organizational psychology (Weinhardt & Vancouver, 2012). Simulation models can address longitudinal, nonlinear and process phenomena (Davis et al., 2007) and provide formal modeling of complex relationships among constructs. Simulation modeling forces the theorist to explicitly deal with assumptions and theoretical logic with much greater precision than verbal theory. It is particularly suitable for developing dynamic theories, which makes it especially appropriate for modeling organizational theories. Simulation method with highest potential for OMC research is agent-based modeling (ABM) (Fioretti, 2013). It is based on computational agents representing social actors and models their behavior and interaction. ABMs are a great tool for conceptual experiments – by explicitly showing the theorist, where different assumptions and hypotheses might lead to. Theorists can explore the consequences of their conceptual models by simulating interaction dynamics among theoretical constructs in a computer-based artificial laboratory. This can be done in two ways: (1) as a series of "what if" simulation experiments and/or (2) basing the simulation on real-world data and trying to reproduce the data artificially in a simulation. ABMs can also explicitly model the development of social networks. For example, Vancouver and colleagues (2016) used simulation model to examine potential sources of skews in distributions of job performance. Simulation methods remain neglected in career research and thus hold great potential for greater use in development of career theories.

Conclusion: building on traditional and emerging methodologies for further progress of the OMC research

In this chapter, we have reviewed how knowledge has been is produced in OMC research between 1995 and 2015. Our findings show that empiricism has emerged as the prevailing way of producing knowledge in the OMC and in gradually more complex ways in terms of research designs and data quality. The introduction of new methodologies as shown and a clear move towards more longitudinal designs in OMC studies are in line with calls for increasing data and research quality in general terms for the organization and management research. In addition, this development represents a welcome development with respect to theoretical development and coherence within the OMC research given the longitudinal character of careers that, ideally speaking, warrants research designs where data is collected over longer periods of time. An interesting observation is that a large share of studies that use novel methodological approaches has been done by a limited number of researchers (e.g., Biemann, Spurk, Dries). We encourage current and emerging scholars within OMC research to add additional names to this list in the future.

The selected emerging technologies presented above that mostly build on technological developments and interdisciplinarity have the potential to facilitate further quantitative, qualitative and mixed study approaches in the areas such as career management (quasi-experiments), career decision making (neuroimaging), career transitions (intensive longitudinal methods), and comparative career research (QCA). We urge researchers in the field to be open to these new methodologies and (cautiously) embrace them for new knowledge creation.

In the end, we have to mention some of the limitations of the review presented in this chapter. The most obvious limitation is that we only considered papers published in academic journal based on relative stringent inclusion criteria. Consistently with the conventions of the field, it is likely that we may have neglected work published in other academic outlets such as monographs/books and edited (hand) books. Future work on analyzing the use of

methodology in OMC research should therefore also include work beyond the more narrow scope of our chapter. That said, we hope that our overview of the empirical studies conducted between 1995 and 2015 will be welcomed by OMC scholars as an inspiration for their future knowledge production on careers.

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Appendix: List of abbreviations and full journal names for Table 1.

AME: ACADEMY OF MANAGEMENT EXECUTIVE

AMJ: CADEMY OF MANAGEMENT JOURNAL

AMR: ACADEMY OF MANAGEMENT REVIEW

ASQ: ADMINISTRATIVE SCIENCE QUARTERLY

CDI: CAREER DEVELOPMENT INTERNATIONAL

CDQ: CAREER DEVELOPMENT QUARTERLY

ETP: ENTREPRENEURSHIP THEORY AND PRACTICE

GWO: GENDER WORK AND ORGANIZATION

HR: HUMAN RELATIONS

HRM: HUMAN RESOURCE MANAGEMENT

HRMR: HUMAN RESOURCE MANAGEMENT REVIEW

IJHRM: INTERNATIONAL JOURNAL OF HUMAN RESOURCE MANAGEMENT

IJM: INTERNATIONAL JOURNAL OF MANPOWER

JAP: JOURNAL OF APPLIED PSYCHOLOGY

JBV: JOURNAL OF BUSINESS VENTURING

JCA: JOURNAL OF CAREER ASSESSMENT

JIBS: JOURNAL OF INTERNATIONAL BUSINESS STUDIES

JOM: JOURNAL OF MANAGEMENT

JOOP: JOURNAL OF OCCUPATIONAL AND ORGANIZATIONAL PSYCHOLOGY

JOB: JOURNAL OF ORGANIZATIONAL BEHAVIOR

JVB: JOURNAL OF VOCATIONAL BEHAVIOR

JWB: JOURNAL OF WORLD BUSINESS

PP: PERSONNEL PSYCHOLOGY

PR: PERSONNEL REVIEW

RP: RESEARCH POLICY

SMJ: STRATEGIC MANAGEMENT JOURNAL