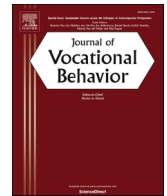




Contents lists available at ScienceDirect

Journal of Vocational Behavior

journal homepage: www.elsevier.com/locate/jvb

Towards a self-regulation model of career competencies: A systematic review and future research agenda

Surendra Babu Talluri^{a,*}, Nishant Uppal^b, Jos Akkermans^c, Alexander Newman^d^a Organizational Behavior and Human Resource Management Area, Indian Institute of Management Bangalore, India^b Human Resource Management Area, Indian Institute of Management Lucknow, India^c Department of Management and Organization, School of Business and Economics, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands^d Melbourne Business School, University of Melbourne, Carlton, VIC, Australia

A B S T R A C T

Owing to the growing emphasis on self-managed career patterns, career competencies as essential personal career resources play a vital role in several work and career outcomes. Despite extensive research on career competencies in the last three decades, it lacks a consistent theorization and often relies on diverse theoretical perspectives. To synthesize our scholarly knowledge of career competencies, we conducted a systematic literature review of 80 peer-reviewed articles from 1985 to November 2022. In doing so, we understand how the construct of career competencies has been conceptualized and measured, review prominent theoretical perspectives adopted, and build a theoretical model based on a self-regulation perspective. This review helped us identify significant research limitations and locate promising research gaps. Building on these insights, we craft a future research agenda highlighting opportunities for conceptual, theoretical, and empirical advancement of career competencies research.

1. Introduction

Over the past three decades, career competencies have been seen as a central construct in careers research. Career competencies are typically defined as 'knowledge, skills, and abilities central to career development, which can be influenced and developed by the individual' (Akkermans, Brenninkmeijer, et al., 2013, p.246) and can be divided into three dimensions: reflective, communicative, and behavioral. *Reflective* career competencies reflect the development of long-term career awareness and integration of one's professional career with personal reflections. *Communicative* career competencies showcase the ability to effectively communicate with others and build career-related networks. *Behavioral* career competencies indicate the proactive behavioral actions that shape one's career. These career competencies facilitate individual career development and success (Blokke et al., 2019; Eby et al., 2003). In addition, it is clear that these meta-competencies (i.e., overarching competencies that allow people to learn more specific competencies) play an essential role in today's flexible and global career landscape (Akkermans, Schaufeli, et al., 2013; Bäker et al., 2021; Dickmann & Harris, 2005; Drenzo et al., 2015). The scholarly debate in this area has become even more active with the emergence of new career perspectives, such as the sustainable careers perspective (De Vos et al., 2020), and alternative career patterns, such as freelancing and gig work (Duggan et al., 2021).

Research has established that career competencies are beneficial for various work and career outcomes. Regarding work outcomes, researchers have examined the role of career competencies in enhancing performance (Bäker et al., 2021; Pudenko & Tenzer, 2019), job resources (Akkermans, Schaufeli, Brenninkmeijer and Blonk, 2013), innovative work behaviors (Hussain et al., 2019), job crafting behaviors (Akkermans & Tims, 2017), job involvement (Kong, 2013), and job search self-efficacy (Akkermans et al., 2015;

* Corresponding author.

E-mail address: surendra.talluri@iimb.ac.in (S.B. Talluri).

Ayoobzadeh, 2022). Similarly, career competencies have been found to effectively strengthen relationships with supervisors and co-workers (Yang & Lau, 2015) and improve work-home enrichment (Akkermans & Tims, 2017). Further, career competencies help individuals achieve career success (Bonneton et al., 2019; Eby et al., 2003; Singh et al., 2009), maintain employability (Blokker et al., 2019; Drenzo et al., 2015), improve career adaptability (Safavi & Bouzari, 2019), facilitate career autonomy and reduce career insecurity (Colakoglu, 2011). Some research has also demonstrated that career competencies play a crucial role in supporting students who are preparing for their professional careers (e.g., Grosemans & De Cuyper, 2021; Kuijpers et al., 2011).

However, research on career competencies has been conducted using different conceptualizations and focusing on different empirical foci. For instance, research on boundaryless and global careers has mainly viewed career competencies as 'three ways of knowing,' whereas protean career researchers conceptualized them as the meta-competencies of self-awareness and adaptability. Further, empirical research in the context of boundaryless careers has focused mainly on the outcomes of career competencies (e.g., career success and employability) (Eby et al., 2003; Fleisher et al., 2014), but prior research on global careers has emphasized international experience as an antecedent of career competencies with little focus on their outcomes (Dickmann et al., 2018; Haslberger, 2013; Jokinen et al., 2008). As a result, the construct of career competencies has been conceptualized, measured, and examined in a multitude of different ways.

The integrated career competency framework of Akkermans et al. (2013) solved these issues to a certain extent by providing clarity on the above-mentioned conceptualization and measurement issues. Their efforts in clarifying the conceptualizations and developing a validated instrument for career competencies supported further empirical research in significant ways. However, their work focused on generating an overarching conceptual framework, not on conducting a systematic review of career competencies' antecedents, outcomes, mechanisms, and boundary conditions. Moreover, it has been ten years since that review was conducted, and it (and other scholarly work) has spurred a significant amount of new empirical research since then. Hence, we lack an up-to-date systematic overview of empirical research on the antecedents, outcomes, mechanisms, and boundary conditions related to career competencies. This is problematic because it hinders effective knowledge dissemination and advancement in the field.

To address these issues, this study presents a systematic literature review of empirical research on the construct of career competencies to comprehensively understand how career competencies are conceptualized and measured in prior empirical research. We further build the nomological network of variables related to career competencies, highlight the strengths and weaknesses of research designs employed, and craft a future research agenda. Although there are several other variables (e.g., career adaptability) closely related to the construct of career competencies, the current study focuses specifically on research on career competencies (please see the following section for some additional information).

We draw on self-regulation theory as an overarching framework that helps us to logically organize the nomological network of variables related to career competencies. The self-regulation framework explains how working individuals regulate their cognition, motivation, affect, and behavior to accomplish desired outcomes (Carver & Scheier, 2012; Lord et al., 2010). In the context of careers, the career self-regulation model posits that career progression depends on the self-regulatory feedback mechanism between 'individual attitudes and behavioral actions, and the conditions and reactions of the social and organizational context' (Hirschi & Koen, 2021, p. 9). We rely on this framework because career competency development and deployment are at the core of career self-regulation. Further, the self-regulation framework also emphasizes the role of individual agency, which is central in self-managed contemporary careers. At the same time, the self-regulation framework also acknowledges the role of contextual factors. Careers scholars have frequently applied the self-regulation framework to understand how people manage their resources and behaviors to achieve expected career outcomes (e.g., Hirschi & Koen, 2021; Hu et al., 2018; Lent & Brown, 2013). As such, we argue that using a self-regulation lens to organize existing career competencies research offers a promising direction for better organizing and understanding the existing knowledge in this area and framing a research agenda embedded in self-regulatory processes and mechanisms.

Our systematic review makes significant contributions to the literature. First, it makes a contribution by systematically reviewing the empirical research in this area and building a nomological network of the antecedents, outcomes, mechanisms, and boundary conditions investigated so far. Second, the extant literature on career competencies often relies on multiple theoretical perspectives without providing clear integration. By reviewing the nomological network of variables associated with career competencies drawing on the self-regulation framework, we introduce a promising theoretical perspective into career competencies research. Third, by locating the key themes already investigated and identifying the theoretical and empirical shortcomings in the literature, we propose a detailed future research agenda that acts as a foundation for advancing the literature on career competencies. Furthermore, this study also has implications for career interventions by highlighting opportunities to study the practical implications of career competencies.

1.1. Conceptualization of career competencies

Akkermans, Brenninkmeijer, et al. (2013) integrated various perspectives available in the literature at that time to develop the currently focused conceptualization of career competencies. For instance, drawing on a competency-based view of boundaryless careers, Defillippi and Arthur (1994) conceptualized career competencies as three 'ways of knowing': know-why, know-how, and know-whom competencies. Roughly at the same time as Defillippi and Arthur (1994)'s work, research using the protean career perspective specified career competencies as self-knowledge, environmental, and interpersonal skills (Hall, 1996). This line of research focused on two meta-competencies (i.e., competencies needed to develop more specific competencies): self-awareness (or identity) and adaptability (Hall et al., 2018). Further, Inkson and Arthur (2001) proposed a new term for career competencies, i.e., career capital, while using the three ways of knowing to define career competencies. Furthermore, Kuijpers and Scheerens (2006) defined career competencies with three sub-dimensions: career reflection, career forming, and career networking.

In all, these definitions focus mainly on three aspects: career motivation, career networks, and career-related skills. Although

researchers have conceptualized career competencies in different ways, Akkermans, Brenninkmeijer, et al. (2013)'s integrative framework clarified the conceptualization of career competencies into reflective, communicative, and behavioral dimensions. This framework has triggered burgeoning empirical research in the past ten years, which supports the importance of career competencies in fostering work-related well-being (e.g., Akkermans, Schaufeli, et al., 2013; Plomp et al., 2016), employability (e.g., Akkermans & Tims, 2017), career transitions (e.g., Grosemans & De Cuyper, 2021), and career success (e.g., Blokker et al., 2019). Therefore, we build on this integrative framework's definition to conduct a review of empirical research on career competencies.

1.2. Distinctiveness from related variables

As explained above, career competencies are an established construct with an existing body of literature. However, we acknowledge the existence of some closely related variables. For example, career adaptability is a personal resource which is a focal variable in the career construction model of adaptation grounded in career construction theory (Savickas, 2013; Savickas & Porfeli, 2012). Although career adaptability and career competencies can both be considered career resources, they have different conceptual foundations and research backgrounds (also see Johnston, 2018 and Rudolph et al., 2017 for a review and meta-analysis, respectively, on career adaptability). Hence, to prevent conceptual confusion, we focus specifically on career competencies in this literature review, not on career adaptability.

Moving beyond the specific context of careers, there is a great focus on developing managerial competencies in higher education and employment (Levenson et al., 2006; Rubin & Dierdorff, 2009). Similarly, a group of researchers focuses on the entrepreneurial competencies that are necessary for building successful businesses (Kyndt & Baert, 2015; Man et al., 2002). Finally, given the growing importance of diversity and inclusion, researchers also emphasize developing cross-cultural competencies to thrive in the current international business environment (Caligiuri & Tarique, 2012; Johnson et al., 2006). Overall, these competencies play a critical role in successfully navigating work and careers across various contexts. However, most of these competencies constitute more specific forms of knowledge and abilities necessary to, for example, successfully navigate one's role as a manager or deal with cultural differences. In contrast, career competencies denote a set of *meta-competencies* that allow individuals to master more specific competencies, like managerial or cultural competencies. Therefore, our focus in the current study is to review only the literature on career competencies relying on the conceptualizations discussed above.

2. Review framework

We review and organize the extant career competencies research using a self-regulation lens and build an integrative framework that can guide future research. Using a self-regulation perspective to organize the career competencies literature, we argue that individuals formulate goals to build their career competencies and then translate them into behavioral actions that yield favorable career outcomes. Furthermore, social and organizational contextual factors may further influence this career self-regulation, turning it into a continuous dynamic process.

The self-regulation process typically consists of three stages: goal setting, goal striving, and goal attainment/evaluation (Lord et al., 2010). A feedback loop complements this process, comparing the actual and expected outcomes to provide inputs for future actions. In the context of careers, working individuals aim to build a successful career by developing necessary career resources (i.e., career competencies). Next, goal striving involves deploying the acquired career resources. These actions can affect more proactive career behaviors such as continuously exploring career opportunities, networking in relevant professional networks, and voluntary skill development. Finally, goal attainment refers to the actual career outcomes, such as excellent performance in the current job, maintaining future employability, and achieving objective and subjective career success. The central tenet of the self-regulation framework is the feedback loop, which we conceptualize as career appraisal/feedback in the context of the current study. Career appraisal compares actual with expected outcomes that will act as inputs for future career interventions.

At each stage of the self-regulation process, various categories of variables may impact the dynamic process of career competencies development or deployment. Following Carver and Scheier (2012), we categorize the core self-regulation variables as cognitive, motivational, affective, and behavioral. Cognitive self-regulation variables include metacognitive strategies for 'goal setting and planning, organizing and transforming, seeking information, and rehearsing and memorizing' (Zimmerman, 2008, p. 168). Similarly, Schunk (2005) states that cognitive factors play a vital role in self-regulation by helping us to set better goals, assess progress, and change them as needed. Accordingly, we conceptualize cognitive self-regulation variables as metacognitive strategies that help individuals set career competencies development or deployment goals, assess their progress, and modify them if needed.

Motivational self-regulation variables are crucial to the self-regulation process (Pintrich & Zusho, 2002). They include 'goal orientations, self-efficacy, perceptions of difficulty and ease of learning, task value, and interest' (Schunk, 2005, p. 86). Following this definition, we conceptualize motivational self-regulation variables as diverse career orientations, self-efficacy expectations, and career objectives that promote career competencies development or deployment.

Affective self-regulation variables focus on the feelings or emotional aspects of the self-regulation process (Carver & Scheier, 2012). These aspects measure the individual goal progress towards the subjective elements of career development, such as career satisfaction or commitment. Following the same, we conceptualize affective self-regulation variables as feelings or emotions that affect career competencies development or deployment.

Behavioral self-regulation variables showcase the ability to integrate attention, working memory, and inhibition to select an appropriate overt behavior (McClelland et al., 2007). It encapsulates a person's capacity to generate a suitable behavioral action in response to environmental conditions. Given this, we describe the behavioral self-regulation variables as individual actions and efforts

to develop career competencies or deploy them.

Although the above four categories of variables are at the core of the self-regulation process, several individual stable characteristics and contextual factors can affect self-regulated goal setting, pursuit, and attainment (Lord et al., 2010; Pavani et al., 2021). Stable characteristics are personal dispositions, such as demographics and personality traits, that vary between people. Contextual factors, such as social and organizational factors, are external elements that significantly influence an individual's self-regulation processes.

Overall, we use the self-regulation theoretical perspective as an overarching framework to synthesize the existing research on career competencies. We specifically highlight the dominant theoretical perspectives, measurements, research designs, and samples used in career competencies research before elaborating on the nomological network of variables linked to career competencies. Building on these insights, we craft a future research agenda highlighting several opportunities for theoretical and empirical advancement of the career competencies literature.

3. Methodology

To locate relevant articles for the study, we followed the approach suggested by Siddaway et al. (2019), which has been widely used in systematic literature reviews. This approach specifies a five-stage procedure that involves scoping, planning, searching, screening, and determining eligibility, followed by presenting review findings (see Fig. 1 for details on the complete process). Furthermore, we also paid attention to best practices in conducting systematic literature reviews (Short, 2009; Snyder, 2019). To undertake our literature search, we relied on two comprehensive databases, Scopus and Web of Science (WoS). We began the search using the terms “career competencies” OR “career competency” OR “career competences” OR “career capital” OR “career meta-competency” OR “career meta competency.” We used these terms in the two above databases to search fields, including titles, abstracts, and keywords. Our initial search yielded 499 results (329 in Scopus and 170 in WoS). We did not impose any time restrictions during our search procedure, resulting in coverage of articles published from 1985 to November 2022. Next, we combined both results and removed 146 duplicate articles. We excluded three articles that were not published in the English language. We also excluded book chapters and

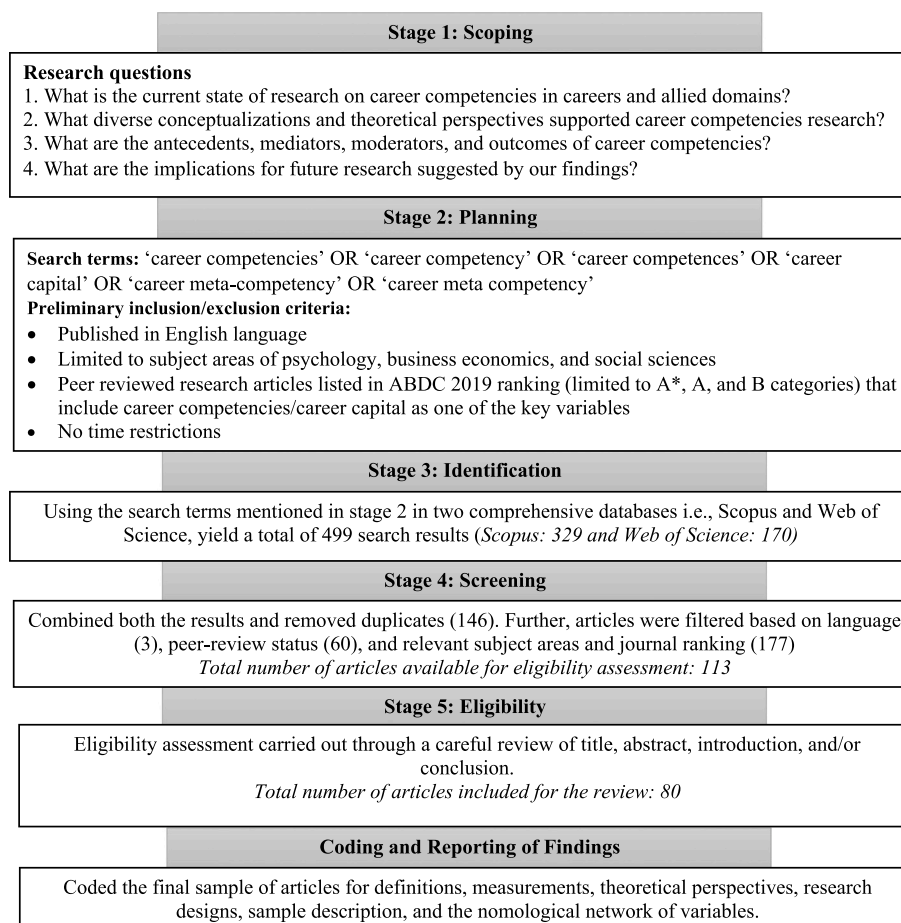


Fig. 1. Five-stage process of the systematic literature review.

dissertations (60 in total) as there was no way of ascertaining the extent to which they had been peer-reviewed. To ensure relevance and quality, we further eliminated 177 articles falling outside of (1) the most relevant subject areas like psychology, business economics, and social sciences and (2) journals ranked by the Australian Business Deans Council (ABDC) as B, A, and A* categories.

Subsequently, the first two authors screened the title, abstract, introduction, and conclusion of the remaining 113 articles to assess their eligibility within the study scope. This process resulted in 80 empirical articles being included in the study, of which 46 were quantitative, 32 were qualitative, and two employed a mixed-method approach. Following the best practice recommendations, the first two authors coded the final sample of articles independently for definitions, measurements, theoretical perspectives, research designs, sample description, and the nomological network of variables related to career competencies research (Simsek et al., 2021; Villiger et al., 2022). Further, we also coded the key themes drawn from the qualitative studies of final sample. The detailed coding data was made available in the online supplementary material. Upon reviewing the coding data of both authors, there were a few differences in four studies (5 %) out of a sample of 80 studies. This indicates that inter-coder reliability was 95 %, and the identified disagreements were resolved through discussion. Building on this coding data, we conduct a systematic review and present findings.

Our author team consists of one doctoral scholar (first author) and three full-time faculty members (an associate professor and two full professors) representing business schools across India, the Netherlands, and Australia. All members of the team are extensively trained in management research methods and have diverse capabilities in conducting and publishing rigorous literature reviews. We built our author team in such a way that it balanced expertise on the chosen literature and the adopted methodology. For example, one of the authors has had a leading role in research on career competencies and helped us interpret the review findings and formulate opportunities for theoretical and empirical advancement building on the review insights. Similarly, another author has published various highly-cited systematic review projects in top-tier management journals. Such complementary expertise in the author team facilitated this project to unfold a set of insights to advance the literature on career competencies.

4. Literature review findings

4.1. Descriptive findings

Before discussing the nomological network of variables related to career competencies research, we briefly discuss the descriptive findings drawn from the final sample of research articles chosen for the review.

4.1.1. Dominant theoretical approaches in career competencies research

The empirical research on career competencies draws from various theoretical perspectives and frameworks to establish the linkage between variables in the nomological network (see Table 1). First is the career capital framework (23.7 % of the sample), which suggests working professionals must yield the highest possible returns on their career capital to build a successful career (Inkson & Arthur, 2001). Career capital (a term often used as a synonym of career competencies) is a critical asset acquired through three ways of knowing (i.e., know-why, know-how, and know-whom). Second, is the intelligent careers perspective (12.5 %), which focuses on the development of 'know-why,' 'know-how,' and 'know-whom' competencies and, more importantly, how well they are applied to building a successful career (Arthur et al., 1995). Third, the boundaryless careers perspective (8.7 %) states that people develop their careers across organizational boundaries, emphasizing self-managed careers where career competencies are critical (Arthur, 1994; Defillippi & Arthur, 1994).

Further, scholars draw on various career-related theoretical perspectives in career competencies research, such as the career self-management model (6.2 %), Bourdieusian career theory (3.7 %), and the career construction theory (3.7 %). Drawing on the JD-R perspective (3.7 %), scholars identify career competencies as personal resources that positively influence job resources and enhance work engagement levels, promoting employee well-being (Akkermans, Schaufeli, et al, 2013). In addition to the above-mentioned theoretical perspectives, scholars also relied on a few other theories borrowed from related disciplines (23.7 %). Interestingly, we also identified a few studies (6.2 %) that did not explicitly mention any theoretical perspective. Overall, we did not observe a stable or clear pattern of using theoretical perspectives or applications in career competencies research. Instead, scholars

Table 1
Theoretical perspectives used in career competencies research.

Sl. No	Theoretical perspective	Number of studies
1	Career capital framework	19
2	Intelligent careers	10
3	Boundaryless careers	7
4	Career self-management	5
5	Bourdieusian career theory	3
6	Career construction theory	3
7	Job demands-resources model	3
8	Career learning perspective	2
9	Human capital theory	2
10	Integrative career competency framework	2
11	Others (e.g., fit, resource, and dependency theoretical perspectives)	19
12	Not clear	5
Grand total		80

used many different theories, and, in many cases, theory use was limited to the study framing. For example, studies using boundaryless and intelligent career frameworks often used these theoretical perspectives for their problematization, but not to build their theoretical arguments. Overall, this indicates a lack of solid and consistent theorizing in career competency research.

4.1.2. Measurement of career competencies

We identified five composite scales that have been adopted to measure career competencies (see Table 2 for more details). First, Akkermans, Brenninkmeijer, et al. (2013)'s CCQ scale is the most recent one that comprises six factors comprising 21 items: reflection on motivation, reflection on qualities, networking, self-profiling, work exploration, and career control. This six-factor instrument exhibited acceptable structural validity figures: $\chi^2(174) = 253.45$, $p < .001$, CFI = 0.96, TLI = 0.95, GFI = 0.91, RMSEA = 0.046. Further, the CCQ showed acceptable discriminant validity: $\Delta\chi^2(16) = 365.97$, $p < .001$, CFI = 0.96, TLI = 0.94, GFI = 0.93, RMSEA = 0.07 when tested with related variables (i.e., career motivation, general self-efficacy, performance, and employability). This study has been cited by 337 articles (as of June 2023), and the latest research on career competencies has widely used this scale (e.g., Blokker et al., 2019; Grosemans & De Cuyper, 2021; Talluri & Uppal, 2022). Second, Jokinen et al. (2008) developed an alternative instrument to measure career competencies comprised of 33 items. They integrate the conceptualization of Defillippi and Arthur (1994) and Inkson and Arthur (2001) and use the term 'career capital' to refer to career competencies. This scale was developed in the context of global careers to measure the career competencies of expatriates and is often cited in the same context (620 citations). Yet, this article is predominantly cited for conceptual reasons, such as emphasizing the important role of career capital for global careers. The scale itself has been used much less often. Accordingly, empirical research on global careers has often relied on this instrument (e.g., Dickmann et al., 2018). Third, Kong et al.'s (2012b) scale measures career competencies in the hospitality management context in China, adapting items from Eby et al. (2003). Due to its limited focus on the hospitality sector, this article attracted limited visibility (101 citations) in the literature, and the scale has not been widely used in empirical research. Two more composite instruments are available to measure career competencies: Kuijpers and Scheerens's (2006) 54-item scale and the 43-item career competencies scale of Francis-Smythe et al. (2013). Despite their reasonable visibility in the literature with Kuijpers and Schreens's (2006) study with 364 citations and Francis-Smythe et al. (2013) study with 89 citations, their instruments' usage in the empirical research is scarce.

4.1.3. Research designs in career competencies research

The empirical research on career competencies has employed a variety of research designs. The predominant methods used are cross-sectional surveys and semi-structured interviews. In our sample, we found 38 (47.5 %) studies that employed cross-sectional surveys using a variety of instruments to measure career competencies and establish their linkages with important outcome variables. In addition, five of them collected data at different time points that may reduce common method bias to a certain extent (e.g., Akkermans & Tims, 2017; Talluri & Uppal, 2022). Only six (7.5 %) studies employed longitudinal surveys to establish the causal

Table 2

Composite instruments to measure career competencies.

Sl. No	Instrument	Items	Sub-dimensions	Main context	Studies using this instrument
1	Career Competencies Questionnaire (CCQ) - (Akkermans et al., 2013)	21	Six factors in total. <i>Reflective</i> : reflection on motivation (3) and reflection on qualities (4). <i>Behavioral</i> : work exploration (3) and career control (4). <i>Communicative</i> : networking (4) and self-profiling (3).	Working Professionals and Students	Akkermans et al., 2015; Akkermans & Tims, 2017; Blokker et al., 2019; Cöp et al., 2022; Grosemans & De Cuyper, 2021; Plomp et al., 2016; Safavi & Bouzari, 2019; Talluri & Uppal, 2022
2	Career Capital-(Jokinen et al., 2008)	33	<i>Know-why</i> (9): personal values, work interests, and capabilities. <i>Know-how</i> (20): task-related skills, social judgment skills, cognitive skills, social skills, organizational knowledge, knowledge of business, and knowledge of people. <i>Know-whom</i> (4): networking skills and social network	Expatriates	Dickmann et al., 2018; Felker & Gianecchini, 2015; Houldsworth et al., 2019; Lee, 2018; Mäkelä et al., 2016
3	Career Competencies-(Kong et al., 2012b)	30	Eight factors in total. <i>Know-why</i> (21): career insight, openness to experience, and proactive personality. <i>Know-how</i> (4): career identity and career-related skills. <i>Know-whom</i> (5): networking within the hotel, networking outside of the hotel and mentoring	Hotel Managers	Kong, 2013; Kong et al., 2016, 2021; Kong & Yan, 2014
4	Career Competencies-(Kuijpers & Scheerens, 2006)	54	Six factors in total. Career actualization ability (17), career reflection (5), motivation reflection (8), work exploration (6), career control (14), and networking (4).	Working Professionals	M. Kuijpers et al., 2011; M. Kuijpers & Meijers, 2012
5	Career Competencies Indicator (CCI) - (Francis-Smythe et al., 2013)	43	Seven factors: goal setting and career planning (5), self-knowledge(5), job performance (5), career-related skills (7), knowledge of (office) politics (5), career guidance and networking (8), and feedback-seeking and self-presentation (8).	Working Professionals	NA

relationship among the nomological network of variables related to career competencies (e.g., Grosemans & De Cuyper, 2021). These longitudinal studies frequently employed multiple-wave survey methods with a time lag ranging from one to eight years (Dickmann et al., 2018; Singh et al., 2009). We also found two studies with experimental research designs. One was a quasi-randomized control trial approach with a student and a worker sample measuring the effectiveness of a career skills intervention program (Akkermans et al., 2015), and the other studied the impact of a global talent management program in a multinational company (Bonneton et al., 2019). In-depth and semi-structured interviews account for the lion's share of qualitative research designs and have been used to carve out more fine-grained insights. In our review, we found that 29 (36.2 %) studies relied on this approach, typically in the context of global careers (e.g., Kanstrén & Suutari, 2021). These qualitative studies mainly focused on how people working in more than one country accumulate career competencies. In addition, three studies attempted to supplement this approach with panel studies, case methods, and focus groups (e.g., DeFillippi et al., 2003). Finally, two mixed-method studies employed semi-structured interviews and survey tools (Dickmann et al., 2008; Dickmann & Mills, 2010).

4.1.4. Samples used in career competencies research

Empirical research on career competencies has included a diverse set of populations spread across different career stages, demographics, and geographical locations (see Table 3 for more details). Our review findings indicate that most studies (75 %) draw on populations of working individuals to test their theoretical propositions related to career competencies. The majority of these (60 % of the total included studies) focused on “regular” worker groups. Interestingly, we observed that researchers often used early-career workers with relatively less attention to working professionals at mid to late-career stages. Other studies using this population (15 % of the total sample) focused on the career competencies of ex-pats and highlighted various strategies for developing career competencies while working abroad. Though there are some internal variations within this population segment (such as self-initiated expatriates, assigned expatriates, and qualified or skilled migrants), the focus of extant research was primarily on the acquisition of career competencies.

Second, a significant proportion of research has drawn on student samples (16.2 %) to assess their career competencies before entering the labor market. These studies offer insights related to how career competencies can help students navigate the transition into their initial employment destinations and to craft interventions to develop necessary career competencies. The final group (8.7 % of the studies) covered more specific, often non-standard or underrepresented groups of workers. For example, some research focused on gig worker samples and explored how career competencies help them strengthen their job search behaviors (Ayoobzadeh, 2022; Duggan et al., 2021). Further, a group of studies relied exclusively on a sample of working women (Duberley & Cohen, 2010; Jayashree et al., 2020; Terjesen, 2005; Yates & Skinner, 2021). This segment is of considerable importance due to the significance of diversity, equity, and inclusion in the current work environment.

Table 3
Samples used in career competencies research.

Sample description	Number of studies		Sample location	Number of studies	
<i>Working professionals</i>		60	<i>Asia</i>		17
Employed individuals	19		China	10	
Managerial employees	8		India	1	
Hotel employees	10		Taiwan	3	
Female professionals	3		Qatar	1	
Academicians	4		UAE	2	
University Alumni	4		<i>Australia</i>		3
Ex-pats	8		Australia	2	
International assignees	1		New Zealand	1	
Qualified immigrants	1		<i>Europe</i>		39
Self-Initiated Ex-pats	1		Austria	1	
Skilled migrants	1		Belgium	1	
<i>Students</i>		13	Finland	6	
Students	7		Ireland	1	
Economic graduates	2		Italy	2	
Management students	2		Netherlands	11	
Vocational education students	1		North Cyprus	1	
Scholars	1		Switzerland	2	
<i>Gig workers and freelancers</i>	3	3	Turkey	10	
<i>Women entrepreneurs</i>	1	1	UK	1	
<i>Others</i>	3	3	Multiple locations in Europe	3	
			<i>North America</i>		6
			USA	4	
			Canada	2	
			<i>Multiple locations</i>		3
			Australia and Others	1	
			UK and Others	1	
			Canada, Spain, and France	1	
			<i>Unlisted/different countries</i>		12
Total	80	80		80	80

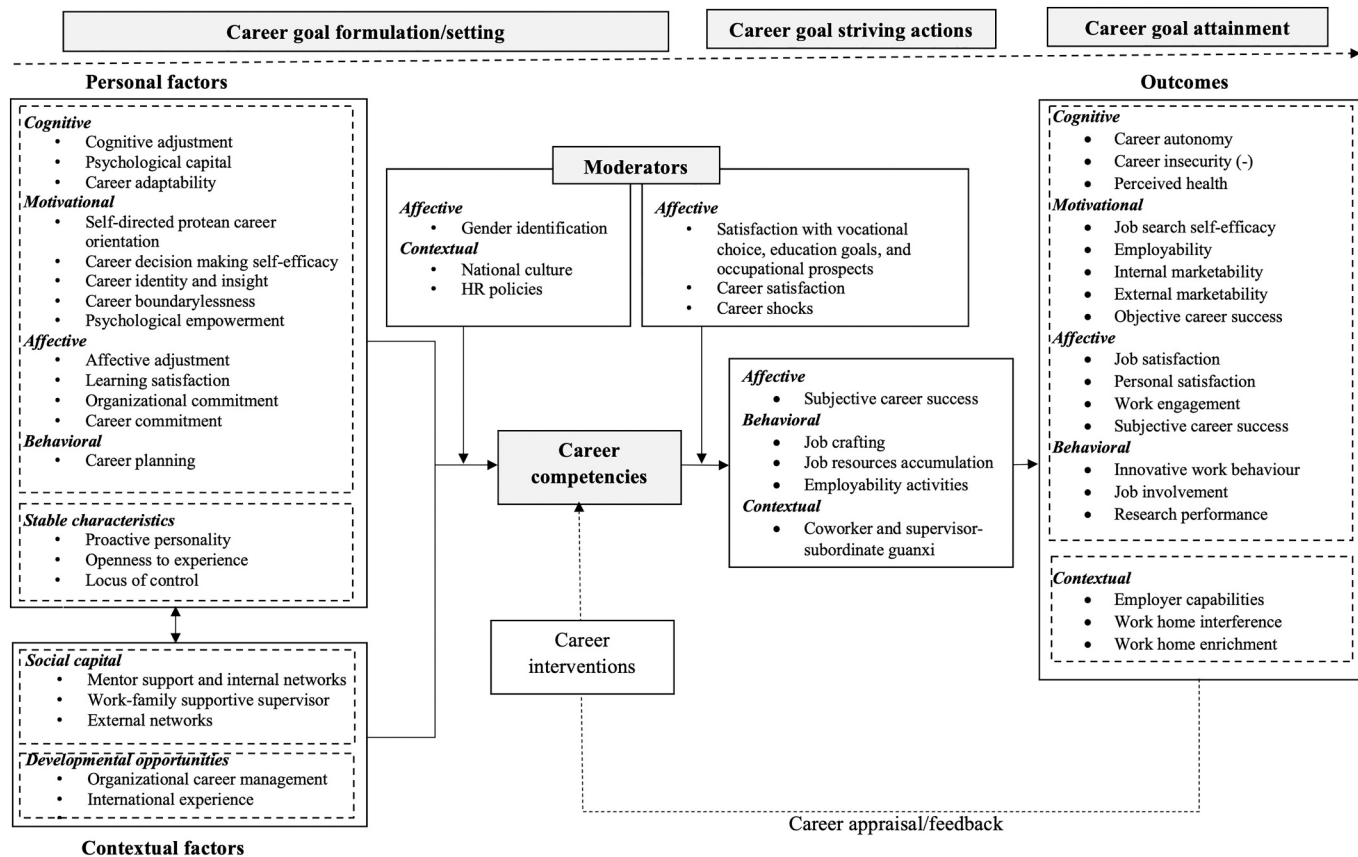


Fig. 2. A self-regulation model of career competencies research.

4.2. Review of the nomological network of career competencies research

To logically organize the nomological network of variables of career competencies, we relied on the self-regulation model as an overarching theoretical framework. We discuss antecedents, outcomes, mediators, and boundary conditions based on the definitions mentioned in the review framework section. Fig. 2 shows our overall model.

4.2.1. A self-regulation perspective on antecedents of career competencies

The extant research highlighted various antecedents that lead to the development of career competencies. Drawing on the self-regulation perspective, we found that several individual and contextual factors helped individuals build career competencies. Specifically, prior research emphasized the motivational self-regulation variables as predictors of career competencies development compared to the other self-regulatory variables and stable characteristics. In addition, social capital and development opportunities, as contextual factors, are crucial in developing career competencies. We discuss them in detail in the following paragraphs.

4.2.1.1. Personal factors

4.2.1.1.1. Cognitive variables. Cognitive self-regulation variables are metacognitive strategies that help individuals set career competencies development goals. Prior research (3.7 % of the sample) investigated a few cognitive variables that help in developing career competencies. We categorized three such antecedents as cognitive self-regulation variables. For example, the cognitive adjustment of individuals has been significantly associated with the development of career competencies (Haslberger, 2013). Similarly, Safavi and Bouzari (2019) examined the role of psychological capital and career adaptability in developing career competencies. They found that individuals with psychological capital develop career competencies through enhanced career adaptability.

4.2.1.1.2. Motivational variables. Motivational self-regulation variables include goal orientations, self-efficacy expectations, and career objectives that encourage the development of career competencies. We identified nine such antecedents under the motivational self-regulation category (10 %), of which career mobility (5 %) is predominant. For example, people with self-directed protean career orientation develop career competencies to influence their job search strategies (Ayoobzadeh, 2022). Similarly, increasing levels of career mobility and boundarylessness necessitate developing career competencies to navigate the labor market (Colakoglu, 2011; Kuijpers & Scheerens, 2006; Ryazanova & McNamara, 2019). Further, people with high career skills, identity, and insight spend time building their career competencies to achieve career success (Eby et al., 2003). Furthermore, individuals' career decision-making self-efficacy positively influences career competencies development and deployment (Mittendorff et al., 2012). With a specific focus on the hospitality sector, Kong et al. (2016) found that psychological empowerment positively relates to the career competencies of Generation Y employees, leading to career satisfaction. Finally, a longitudinal investigation by Grosemans and De Cuyper (2021) revealed that career trajectories enhance the career competencies of individuals in the long run.

4.2.1.1.3. Affective variables. Affective self-regulation depends on the feelings and emotions of individuals in the career development process. We categorized four antecedents as affective self-regulation variables (5 %), of which commitment is most often studied. Researchers found that people with high learning satisfaction will acquire more career competencies (Kong & Yan, 2014). Further, working individuals' organizational commitment (Kong et al., 2021) and career commitment (Kong et al., 2012b) predict career competencies development. In the context of international careers, Haslberger (2013) showed that ex-pats who affectively adjust to cross-cultural settings develop more career competencies.

4.2.1.1.4. Behavioral variables. Extant research rarely focused on behavioral self-regulation (1.2 %) in predicting career competencies development. However, the empirical research showed that working individuals' career planning is positively related to the accumulation of career competencies (Direnzo et al., 2015).

4.2.1.1.5. Stable characteristics. Prior empirical research has identified several stable characteristics (2.5 %) as antecedents to developing career competencies. Specifically, we found three stable characteristics predicting career competencies development. For example, Eby et al. (2003) specifically identified proactive personality and openness to experience as predictors of career competencies. In particular, they highlighted that highly proactive individuals would identify future development opportunities and initiate necessary action to build up essential resources that help future career development and act as a buffer in challenging times. Similarly, individuals with a high locus of control take ownership of their careers and develop the necessary career competencies to build a successful career (Mittendorff et al., 2012).

4.2.1.2. Contextual variables

4.2.1.2.1. Social capital. The immediate supervisor and organization's internal networks (6.2 %) supplement the above personal characteristics and self-regulatory variables in fostering the development of career competencies. We found supervisor support and network access are crucial to the development of career competencies. For instance, good mentoring relationships have been shown to advance learning opportunities and enhance the visibility within and external to the organization that develops career competencies (Eby et al., 2003). A qualitative investigation by Jayashree et al. (2020) highlights the facilitating role of mentors in building career-related networks, which is relatively challenging for working women due to their family responsibilities. Similarly, Kong (2013) found a positive relationship between a work-family supportive supervisor and career competency development. A family-supportive work environment balances work-life responsibilities, promoting more effort in career management via career competency development. Finally, people accessing external networks outside their current employer may get additional learning opportunities that positively impact the development of career competencies (Akkermans, Brenninkmeijer, et al., 2013; Eby et al., 2003).

4.2.1.2.2. Developmental opportunities. As another critical contextual factor, organizations' developmental opportunities (31.2 %)

also help working professionals enhance their career competencies. We categorize six antecedents as developmental opportunities in predicting career competencies development. Prior research predominantly employed qualitative methods to highlight the role of international experience (25 %) in accumulating career competencies in the context of global careers. For instance, Zikic et al. (2010) explored how qualified immigrants manage their global careers through self-initiated international experience, which facilitates the accumulation of career competencies. Similarly, researchers found that company-assigned expatriates develop career competencies because of their international exposure (e.g., Dickmann et al., 2018; Kirk, 2016; Yao, 2014). Furthermore, organizations support their employees' careers by deploying career management practices such as providing timely opportunities for skill development, sharing relevant information, crafting personal development plans, and providing constructive feedback. Prior research found that such organizational career management practices (Kong et al., 2012b), career guidance (Kuijpers et al., 2011), and career skills interventions (Akkermans et al., 2015) have a positive influence on career competencies development. Similarly, contemporary careers push for increased mobility between organizations, occupations, and geographies, which also warrants acquiring relevant career competencies to facilitate smooth transitions (Pudelko & Tenzer, 2019). In the case of students, the role of the learning environment that includes program organization (e.g., practice-based or student-oriented) and situational factors (e.g., school type and specialization) plays a significant role in the development of career competencies (Kuijpers et al., 2011).

4.2.2. A self-regulation perspective on the outcomes of career competencies

In the context of self-managed careers, career competencies are one of the critical personal resources to help working individuals navigate their careers. Though the research highlights career success and employability as the predominant outcomes, a great variety of variables are influenced by career competencies development and deployment. As an interesting observation, most of the studies examining outcomes were quantitative, as the qualitative studies included in this review primarily focused on the predictors of career competency development. We categorize them based on the self-regulation perspective and discuss them in the following paragraphs. We acknowledge that not all of these outcome variables can be easily classified into one specific self-regulatory category. For example, subjective career success can focus on people's cognitions about goal evaluation but also on their affective satisfaction with their careers. Similarly, objective career success is often studied in the form of salary increases and promotions (Seibert et al., 2024). These factors are motivational in nature yet are also partially determined by external contextual factors. As such, our aim is to categorize the outcome variables into the category we believe they fit most accurately to fit with our self-regulation lens.

4.2.2.1. Personal factors

4.2.2.1.1. Cognitive variables. Cognitive outcomes of career competencies help working individuals assess and revise career development goals. We coded three variables, career autonomy, career insecurity, and perceived health, as cognitive outcomes (2.5 %) of career competencies. Research indicates that people with high career competencies have extensive job-related knowledge, career-relevant skills, and access to external networks that help them to effectively mobilize these resources across organizations, leading to career autonomy and thereby reducing career insecurity (Colakoglu, 2011). Further, career competencies act as personal resources that facilitate working individuals' career development, protecting them against the high work demands and relieving exhaustion. Therefore, people with high career competencies experience enhanced well-being through perceptions of better health (Plomp et al., 2016).

4.2.2.1.2. Motivational variables. Motivational outcomes focus on career objectives, self-efficacy levels, and career orientations that help in self-regulated career competencies development and deployment. We coded five variables as motivational outcomes (16.2 %) of career competencies, and research often investigated these outcomes. Career success is the focal variable in understanding individuals' career development, generally assessed through salary increases, promotions, and hierarchical positions. Researchers widely investigated the role of career competencies in achieving career success and found a positive effect (Blokke et al., 2019; Francis-Smythe et al., 2013; Singh et al., 2009). They also found a strong link between career competencies and career success in diverse contexts such as boundaryless careers (Eby et al., 2003), global careers (Fang et al., 2009), and hospitality careers (Kong et al., 2012a, 2012b, 2016). Given the nature of self-managed boundaryless careers, working individuals' employability has become critical. Research shows that people with career competencies exhibit high internal and external employability (Ayoobzadeh, 2022; Blokke et al., 2019; Drenzo et al., 2015; Eby et al., 2003). It indicates that people with high career competencies are recognized by the organization through the provision of better career advancement and learning opportunities. Similarly, these individuals are highly employable, with more alternative job opportunities outside the organization. Though research on career competencies primarily focuses on achieving career-related outcomes, they also significantly influence aspects of the current job. For example, career competencies enhance job search self-efficacy (Ayoobzadeh, 2022).

4.2.2.1.3. Affective variables. Affective outcomes describe the resultant emotions and feelings of career competencies development and deployment. We identified four variables as affective outcomes (11.2 %) of career competencies dominated by career satisfaction. More often, the empirical research highlighted that career competencies significantly enhance the subjective career success of individuals measured through their career satisfaction levels (Eby et al., 2003; Kong et al., 2012a; Kuijpers & Scheerens, 2006; Lo Presti et al., 2021; Singh et al., 2009). These studies majorly focused on working individual samples and developed economies. Further, career competencies also impact satisfaction at more granular levels, for instance, by enhancing personal and job satisfaction (Kong, 2013; Plomp et al., 2016; Wang, 2013). Furthermore, career competencies act as personal resources that positively enhance work engagement with the support of job resources (Akkermans, Schaufeli, et al., 2013).

4.2.2.1.4. Behavioral variables. Behavioral outcomes discuss how career competencies facilitate working individuals to deliver necessary performance in their current jobs and take action to build a successful career. We coded three variables as behavioral

outcomes (6.2 %) of career competencies. Research shows that individuals who accumulate career competencies by temporarily staying abroad have better research performance in academic settings (Bäker et al., 2021; Pudielko & Tenzer, 2019; Ryazanova & McNamara, 2019). In this regard, quantitative research highlights how academics build research capital and boost international mobility by deploying career competencies (Bäker et al., 2021; Ryazanova & McNamara, 2019), whereas the qualitative research showcases how know-where competencies (i.e., reducing language barriers) enhance scholarly success (Pudielko & Tenzer, 2019). In hospitality, career competencies have been found to improve job involvement (Kong, 2013). In addition, career competencies also promote innovative work behaviors in diverse work contexts (Hussain et al., 2019).

4.2.2.2. Contextual variables. In addition to the above individual-level outcomes, career competencies impact the surrounding work environment, relationships with colleagues and supervisors, and balancing work with family. Research shows that developing career competencies can positively affect the employer's culture, capabilities, and connections (Fleisher et al., 2014). Further, individuals with high career competencies better manage their work-home responsibilities by achieving work-home enrichment and minimizing work-home interference (Akkermans & Tims, 2017).

4.2.3. A self-regulation perspective on career competency mechanisms

Research on career competencies unveiled various self-regulatory mediating mechanisms through which career competencies impact different outcomes. Drawing on the self-regulation perspective, we consider them as goal-striving in that they involve deploying the developed career competencies to attain expected goals. Fitting this definition, whereas behavioral self-regulatory variables were underrepresented in the antecedents and outcomes of career competencies, they were the most commonly studied type of mediator. For example, people with high career competencies have the ability to network, but it is even more important how often they engage in networking behaviors to reap its benefits. That said, overall, the number of mediators examined in career competencies research was surprisingly low, as most studies have looked at direct relationships between career competencies and outcomes. We briefly discuss them below.

4.2.3.1. Behavioral variables. Working individuals deploy their career competencies (i.e., personal resources) to accumulate more resources and engage in proactive career behaviors. For instance, Akkermans, Brenninkmeijer, et al. (2013) found that career competencies increase work engagement by building more job resources. Further, Akkermans and Tims (2017) investigated how career competencies help to attain career success by promoting job crafting behaviors. More recently, Lo Presti et al., 2021 examined the mediating role of employability activities in translating the benefits of career competencies to achieve career success.

4.2.3.2. Affective variables. While prior research primarily focuses on behavioral self-regulation to deploy career competencies, Blokker et al. (2019) found subjective career success as a mediator in the relationship between career competencies and perceived employability.

4.2.3.3. Contextual variables. In addition, Yang and Lau (2015) establish that people with high career competencies actively build strong relationships with supervisors, co-workers, and subordinates, resulting in high co-worker and supervisor-subordinate guanxi. These relationships significantly help them to achieve career success.

4.2.4. A self-regulation perspective on career competency moderators

Researchers have identified several moderators that influence the strength of the above-mentioned relationships. Overall, empirical research has shed some light on the moderating role of several self-regulation factors in developing and deploying career competencies. However, it primarily focused on affective self-regulation variables. Furthermore, a couple of studies explored the moderating role of contextual variables. In all, though, similar to the conclusion we drew about mediators, research on moderators in career competency research is relatively scarce.

4.2.4.1. Affective variables. In accumulating career competencies, Çöp et al. (2022) found that gender identification weakens career adaptability's positive influence on the development of career competencies. Further, high levels of career satisfaction can strengthen the positive association between career competencies and workers' contribution to the organization's culture, connections, and capabilities (Fleisher et al., 2014). Also, in academic settings, career competencies substantially influence subjective career success when the graduates are satisfied with their vocational choice, educational goals, and occupational prospects (Lo Presti et al., 2021). Additionally, career shocks can moderate the impact of career competencies on career outcomes in either way, i.e., a positive career shock further strengthens the relationship. In contrast, a negative career shock may weaken the relationship (Blokker et al., 2019).

4.2.4.2. Contextual variables. In global career settings, researchers argue that the national culture (Yao, 2014) and human resource policies (Kirk, 2016) significantly impact the accumulation of career competencies. However, we have yet to witness significant empirical research in this area.

5. Discussion

5.1. Key insights from the review

Our review highlights specific patterns in the current empirical research. Based on this, we identify opportunities for future research. First, the empirical research relied on different theoretical perspectives across several literature streams, hindering theoretical advancement in each of them and reflecting that the research on career competencies lacks consistent theorization. Second, we observed that extant research widely examined several personal factors, including various self-regulatory variables, stable characteristics, and contextual factors as predictors of career competencies development. However, researchers often emphasized motivational self-regulation with relatively less attention paid to other self-regulation variables. Third, our findings revealed that the current research does not measure career competencies in a consistent manner and typically relies on cross-sectional survey methods. These practices negatively affect our ability to generalize the findings and make causal inferences. Further, cross-sectional methods do not inform us about the long-term growth patterns of career competencies and limit our understanding of within-person effects. Finally, empirical research has primarily focused on the direct link between different variables and career competencies, with little attention paid to the mediating mechanisms and moderating conditions underlying such relationships. This limits our fine-grained understanding of how career competencies are developed and deployed. Based on these key insights, we discuss future research opportunities to advance our theoretical and empirical understanding of career competencies research.

5.2. Agenda for future research

We craft our future research suggestions on career competencies research by highlighting opportunities to extend the conceptualization of career competencies, advance consistent theorization, and foster robust empirical investigation. In doing so, we build on the above key insights drawn from the review and also pay utmost attention to issues in the contemporary work environment.

5.3. Opportunities for conceptual advancement

Although researchers have conceptualized career competencies in different ways, most of them are similar to the definition of Akkermans, Brenninkmeijer, et al. (2013), albeit with different labels. To enhance conceptual consistency and knowledge development and dissemination, we, therefore, call on researchers to use the above definition for consistency in theorizing and measurement. As these career competencies function as meta-competencies that allow individuals to develop other specific competencies, it is likely that the three-dimensional structure of the career competencies will prove valid across different career types and contexts. For example, being able to reflect on one's strengths or to build a professional network should be relevant for people's career development regardless of career stage, occupation, or country.

At the same time, we draw attention to some opportunities for complementing and extending the conceptualization of career competencies. These extensions may be necessary given the rapid changes in the external environment, growing contemporary career patterns (e.g., sustainable and gig careers), and the increasing importance paid to diversity and inclusion matters. For example, Pudielko and Tenzer (2019) recently proposed a new type of career competency, i.e., 'know-where', such as alleviating language barriers in a global career context. Hence, future research could explore how people develop career competencies across geographies and cultures (see, e.g., Dickmann et al., 2018). Such a focus is important in modern career contexts due to increased interactions between people from diverse cultural backgrounds, frequent movement across multiple cultural contexts, and the rise of skilled migration to new geographical locations. Being able to effectively navigate and reconcile different cultural contexts may even become a meta-competency in its own right. More broadly speaking, such research would contribute to a contextualized perspective of career competencies by examining how various contextual factors may impact which career competencies matter and how they are developed.

We also recognize the need for long-term orientation in the process of development and deployment of career competencies, given the rising importance of sustainable careers. To build a sustainable career, working professionals need to maintain a balance between health, happiness, and productivity across the career span (De Vos et al., 2020). In approaching careers in such a way, it is worthwhile to explore how the current conceptualization of career competencies helps working professionals develop a long-term orientation to their careers in addition to relevant short-term work and career-related outcomes. In other words, developing knowledge and skills that allow individuals to carefully balance short-term and long-term career (sustainability) goals and outcomes may constitute a separate career competency dimension. Such a new perspective of career competencies may help working professionals across the career span to make better choices related to the timing and frequency of career changes, balancing work-home responsibilities, maintaining a healthy-happy work routine, and continuous learning and exploration opportunities. In all, we encourage researchers to explore such important new dimensions to the existing conceptualization of career competencies, broadening the scope and relevance to contemporary career settings.

5.3.1.1. Opportunities for theoretical advancement. Our review findings suggest that the current empirical research on career competencies has employed different theoretical perspectives. Although these have their unique values in understanding how career competencies can be developed and deployed, the lack of consistency and integration hinders further knowledge development and

dissemination. Moreover, many empirical studies did not explicitly mobilize theory to explain and understand their findings. To start bringing together research using no theory or different theoretical perspectives, our review of career competencies research used the self-regulation framework (Carver & Scheier, 2012; Lord et al., 2010) to introduce a promising theoretical perspective that can help scholars understand how career competencies can be developed (antecedents) and deployed (outcomes). Furthermore, it can help shed light on the mechanisms and boundary conditions related to career competencies. We argue that self-regulation theory is particularly suited for this purpose because it emphasizes the processes and boundary conditions that allow individuals to self-regulate their careers (Hirschi & Koen, 2021). As such, it encompasses many ideas from theories that have been applied in career competencies research, for instance, how individuals can navigate flexible and boundaryless career paths, which career self-management behaviors connect with career competencies, and how various types of resources may play a role. Overall, using a self-regulation lens in future research can contribute to more consistent theorizing in career competencies research and the advancement of knowledge.

We also see opportunities to advance career competency research by distinguishing the different types of self-regulatory constructs involved. Specifically, our review findings indicated that researchers have primarily focused on motivational self-regulation as the key predictor of career competencies development (Ayoobzadeh, 2022; Eby et al., 2003; Grosemans & De Cuyper, 2021; Mittendorff et al., 2012). However, they focused much less on cognitive and affective predictors. Moreover, behavioral self-regulatory variables were missing entirely in this regard. For instance, Bandura (2015) commented that accumulating critical competencies needs a lot of cognitive guidance, followed by behavioral self-regulation to routinize or deploy them. Similarly, researchers found affective self-regulation variables (e.g., learning satisfaction) help in developing career competencies that result in favorable affective outcomes (e.g., job and career satisfaction) (Eby et al., 2003; Kong et al., 2012a; Plomp et al., 2016; Lo Presti et al., 2021). Thus, it is highly likely that other self-regulatory variables (i.e., cognitive, affective, and behavioral) are also at the foundation of career competency development. Yet, career competencies should allow individuals to (proactively and successfully) navigate their careers, so it is critical that such competencies trigger career-related behaviors. Therefore, we urge researchers to include cognitive, affective, and especially behavioral self-regulatory variables when studying antecedents and outcomes of career competencies.

Further, we observed that studies rarely focused on the interdependency of self-regulated factors. For example, antecedents were typically studied as separate factors that independently predict career competencies. However, self-regulation theory proposes dynamic interactions between self-regulatory variables that can strengthen or weaken their effects on outcomes (Carver & Scheier, 2012; Lord et al., 2010). For instance, individuals who adopt effective metacognitive strategies to formulate career goals and who are highly motivated to pursue them may be especially successful in developing their career competencies. Conversely, someone may experience a lot of positive affect and motivation about their careers, but if they are unable to formulate and reflect on them effectively, it may lead to significant disappointment and frustration. Therefore, we recommend future research to investigate the interdependency of self-regulatory variables and how this may impact career competency development and deployment.

Our systematic literature review uncovered insufficient research on the mechanisms and boundary conditions between career competencies and their antecedents/outcomes. Though researchers have studied them to some degree, we were surprised by the scarcity of research using mediators and moderators. Indeed, the vast majority of included studies examined direct relationships, either by studying predictors of career competencies (i.e., the direct relationship between antecedents and career competencies) or their outcomes (i.e., the direct relationship between career competencies and outcomes). Therefore, more research is urgently needed that sheds light on *how* and *under which conditions* career competencies can be developed and deployed. Self-regulation theory may again be helpful in this regard. For example, scholars could examine what kind of cognitive, affective, and behavioral mediators might connect antecedents to more effective career competency development and deployment. Furthermore, we need more knowledge about the specific boundary conditions that may strengthen or weaken career competency development and deployment.

Furthermore, researchers might employ the self-regulation theory to complement other theoretical perspectives that are already in substantial use. For example, the career capital and intelligent careers framework highlight the agent role in careers, explaining how individuals develop career competencies to build successful careers (Arthur et al., 1995; Inkson & Arthur, 2001). Applying the self-regulation framework deepens our theoretical understanding of these perspectives by revealing granular aspects (e.g., cognitive, motivational, affective, and behavioral) that contribute to career competencies development and deployment. Similarly, the theoretical perspectives of boundaryless and protean careers mostly describe career patterns but not the processes (Defillippi & Arthur, 1994; Hall, 1996); the self-regulation framework could complement them in studying career competencies, which facilitates researchers to investigate the long-term process of career competencies development and deployment. Finally, Bourdieu's theory of practice focuses on context (Gander, 2019; Jayashree et al., 2020), which could combine with self-regulation to understand context-agency interactions. Therefore, we advise researchers to integrate self-regulation theory with other theories in conducting research on career competencies.

Finally, the development and deployment of career competencies is a continuous process across the career span. Individuals constantly monitor the accumulation of their career competencies and deploy them to engage in proactive career behaviors. Building on these inputs, individuals regulate their future activities and behaviors. However, extant research rarely hypothesizes such longitudinal processes with the limited support of existing theoretical perspectives. In this case, the self-regulation theoretical perspective may provide immense support. The critical tenet of the self-regulation perspective is the feedback loop that shows the discrepancy between expected and actual outcomes (Carver & Scheier, 2012; Lord et al., 2010). Though the self-regulation perspective emphasizes the negative feedback loop, we also believe that the positive feedback significantly reinforces individuals to craft future self-regulation strategies for career competency development and deployment. Therefore, we call for future research which investigates how the feedback highlighting discrepancies in career competencies development and deployment impacts future interventions and outcomes. Additionally, this feedback generally arises from individual expectations and actual outcomes. However, understanding how contextual inputs (e.g., from the supervisor or organization) get into this feedback loop and affect future self-regulation could be

another promising avenue of research. Therefore, we also recommend future research to employ a self-regulation perspective to investigate the impact of self and multi-level inputs in the feedback loop in developing and deploying career competencies.

5.3.2. Opportunities for empirical advancement

To further advance the empirical research on career competencies, based on our review findings, we identify several opportunities and possible approaches to address them.

5.3.2.1. Measurement of career competencies. Although various composite instruments exist to measure career competencies, we did not find consistent usage. We observed this inconsistency due to the following three reasons. First, prior research measured career competencies with a group of standalone instruments of other constructs. For example, know-why competencies measured with standalone proactive personality and psychological capital instruments may not capture all the facets (Direnzo et al., 2015; Kong et al., 2012a). The same is the case with know-how competencies and know-whom competencies. However, given that several validated instruments for career competencies are available, we encourage scholars to use those scales if they research career competencies instead of scales originally developed to measure other, more specific constructs. Second, a few of the composite instruments seem lengthy for academic researchers and practitioners alike to deploy. For example, the composite scale developed by Francis-Smythe et al. (2013) comprises 43 items, and Kuijpers and Scheerens (2006) scale includes 54 items that may fail to keep the attention span of respondents and warrant random response patterns. Consequently, researchers rarely use these two instruments to measure career competencies. Third, some of the instruments focus on a specific career context. For example, the Jokinen et al. (2008) scale focuses on global careers, and Francis-Smythe et al. (2013) and Kuijpers and Scheerens (2006) focus on student populations. Though these instruments may have more items relevant to specific contexts, using composite instruments applicable across contexts is desirable. Therefore, we recommend future research use standardized composite instruments to measure career competencies that can be applied across various contexts. In this case, the career competencies questionnaire (CCQ) developed by Akkermans, Brenninkmeijer, et al. (2013) can be an appropriate option that has already been the subject of growing attention in the recent empirical research on career competencies (see Table 2 for details).

As an additional suggestion, we encourage scholars to start examining potentially unique effects of the dimensions within the composite career competency scales. Until now, most empirical research used those composite scales as one overall construct (i.e., often a latent variable encompassing the different dimensions) (e.g., Blokker et al., 2019; Grosemans & De Cuyper, 2021). This approach is fine and has offered many valuable insights. However, it might be possible that certain antecedents and outcomes relate more strongly – or even *only* – to specific elements of career competencies. For instance, from a self-regulatory perspective, perhaps cognitive self-regulatory variables (e.g., goal reflection) relate most strongly to reflective career competencies. Similarly, behavioral self-regulatory variables (e.g., initial goal setting) may be most closely associated with behavioral career competencies. Examining such fine-grained relationships would not only allow for a more detailed theoretical understanding of the development and deployment of career competencies but also for specifically tailored interventions.

5.3.2.2. Improving research designs. In addition to improving consistency in measuring career competencies, future research may engage in more robust research designs with better chances of establishing causality. We observed that many studies used cross-sectional research designs, limiting the causal inferences of results. Though a few attempted longitudinal surveys allow a time gap between predictor and criterion variables, they also have limited scope for establishing causality. Therefore, future research may engage longitudinal-based panel research designs that provide valuable findings in two streams. First, longitudinal methods allow researchers to test the complete self-regulation process of career competencies development and deployment. For example, testing a full self-regulatory cycle, including feedback loops, would offer new insights into these processes. Such attempts also unveil several intermediary mechanisms that carry the benefits of various antecedents to develop career competencies and their consequences. Second, these methods allow researchers to observe within-person changes over time. For example, a recent study by Grosemans and De Cuyper (2021) followed such a methodology to observe career competencies development trajectories and how they yield favorable career outcomes over two years. Therefore, we recommend that future research follow a similar path to investigate how accumulating career competencies delivers positive career outcomes over the lifespan by capturing temporal changes. These longitudinal within-person designs could complement between-person designs by showing how career competency changes contribute to achieving career success or undertaking a desired career transition.

Samples of individuals in new occupations, such as gig workers or freelancers, seem under-explored, with only two studies drawing on such samples (Ayoobzadeh, 2022; Duggan et al., 2021). Similarly, the research on working women professionals also seems underexplored, with only four studies (Duberley & Cohen, 2010; Jayashree et al., 2020; Terjesen, 2005; Yates & Skinner, 2021). We also observed that the research on career competencies is skewed towards developed economies, with very little representation of developing and underdeveloped economies. Research states that vocational choice (Lo Presti et al., 2021), gender identification (Çöp et al., 2022), and the national culture (Yao, 2014) significantly influence the development and the impact of career competencies. This suggests two crucial directions for advancing career competencies research. First, career competencies researchers might provide additional insights by focusing on newly emerging career categories such as gig workers and entrepreneurs. This path may extend the application of career competencies beyond the traditional career patterns that depend on organizations. Second, samples from diverse geographical locations (e.g., developing and underdeveloped economies) will provide additional nuance in understanding the role of career competencies in different contexts. Contextual differences may profoundly impact the job market, career growth, and career success. Therefore, future researchers must draw on more diverse samples from underrepresented yet important categories and

geographies.

5.3.2.3. Multilevel effects of career competencies. Prior empirical research has typically focused on how organizational resources such as training programs and challenging job assignments foster career competencies (Akkermans et al., 2015; Fang et al., 2009). However, the role of peer networks, supervisor support, and contextual factors have been underexplored and offer an excellent pathway for future research. For example, future research may investigate how peers at the workplace facilitate career competency development. In doing so, future research may integrate and empirically test several workplace interdependence theories, such as the social exchange theory (Cropanzano & Mitchell, 2005), cross-over model (Bakker & Demerouti, 2013), and actor-partner interdependence model (Cook & Kenny, 2005) with the self-regulation perspective. For instance, if one employee is good at 'know-how' competencies and the other is good at 'know-whom' competencies, they may share their competencies that facilitate their overall development of career competencies.

Similarly, a supportive supervisor may play an important role in developing the career competencies of subordinates by mentoring, referring to training programs, and exposing them to diverse networks (Kirk, 2016; Kong, 2013; Singh et al., 2009). Hence, future research may examine how supervisors can support/hamper the development of career competencies in addition to organizational activities. Finally, contextual factors may also influence the development of career competencies. For example, whilst in some industries, organizations push the employees to learn more skills to be employable and offer to work on multiple projects that may positively impact career competencies development, in other industries, organizations may stop employees from learning new knowledge and hinder the development of career competencies. Therefore, we recommend that future research identifies contextual factors that profoundly influence career competencies.

5.3.3. Practical implications of career competencies

Our review findings offer relevant insights to career counseling and vocational psychologists. For instance, Akkermans et al. (2015) presented the CareerSKILLS intervention, which showed that a career competency intervention could enhance participants' employability and well-being through positive reinforcement and self-efficacy enhancement. Their intervention shows that career competency training is valuable. Generally, career counselors could benefit from our integrative model (Fig. 2) to select specific factors that may be helpful in strengthening people's career competencies and zoom in on specific self-regulatory elements and mechanisms to support their career development. Likewise, although intervention studies related to career competencies are rare, practitioners could draw inspiration from vocational psychology and career counseling. For example, studies by Lent and Brown (2013) and Savickas (2013) highlight the role of career adaptation in developing career adaptability resources and employability perceptions, thereby positively impacting their future vocational outcomes (e.g., Carvalho et al., 2023). In a more recent study, Sheu (2023) indicates that career interventions help students across racial and gender backgrounds enhance their career decision self-efficacy and career exploratory behaviors. It is likely that the principles and mechanisms underlying such career interventions could also help individuals to develop career competencies. As such, we encourage scholars and practitioners to collaborate in developing and testing such programs.

6. Conclusion

By conducting this systematic review of career competencies research, we discussed diverse conceptualizations, measurements, theoretical perspectives, and research designs. Further, we reviewed the nomological network of variables related to career competencies relying on the self-regulation perspective. Finally, we provide a detailed future research agenda that highlights the gaps in the existing research and offers directions for future research to advance theoretical perspectives and empirical research. We hope our review will provide researchers with a base to progress future research on career competencies.

CRedit authorship contribution statement

Surendra Babu Talluri: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Nishant Uppal:** Methodology, Resources, Supervision. **Jos Akkermans:** Conceptualization, Writing – review & editing. **Alexander Newman:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jvb.2024.103969>.

References¹

- Akkermans, J., Brenninkmeijer, V., Huibers, M., & Blonk, R. W. B. (2013). Competencies for the contemporary career: Development and preliminary validation of the career competencies questionnaire. *Journal of Career Development*, 40(3), 245–267. <https://doi.org/10.1177/0894845312467501>. *
- Akkermans, J., Brenninkmeijer, V., Schaufeli, W. B., & Blonk, R. W. B. (2015). It's all about CareerSKILLS: Effectiveness of a career development intervention for young employees. *Human Resource Management*, 54(4), 533–551. <https://doi.org/10.1002/hrm.21633>. *
- Akkermans, J., Schaufeli, W. B., Brenninkmeijer, V., & Blonk, R. W. B. (2013). The role of career competencies in the job demands—resources model. *Journal of Vocational Behavior*, 83(3), 356–366. <https://doi.org/10.1016/j.jvb.2013.06.011>. *
- Akkermans, J., & Tims, M. (2017). Crafting your career: How career competencies relate to career success via job crafting. *Applied Psychology*, 66(1), 168–195. <https://doi.org/10.1111/apps.12082>. *
- Arthur, M. B. (1994). The boundaryless career: A new perspective for organizational inquiry. *Journal of Organizational Behavior*, 15(4), 295–306. <http://www.jstor.org/stable/2488428>.
- Arthur, M. B., Claman, P. H., & DeFillippi, R. J. (1995). Intelligent enterprise, intelligent careers. *Academy of Management Perspectives*, 9(4), 7–20. <https://doi.org/10.5465/ame.1995.9512032185>
- Ayooobzadeh, M. (2022). Freelance job search during times of uncertainty: Protean career orientation, career competencies and job search. *Personnel Review*, 51(1), 40–56. <https://doi.org/10.1108/PR-07-2020-0563>. *
- Bäker, A., Breuninger, S., & Pull, K. (2021). Pushing performance by building bridges: Human and social capital as mechanisms behind the mobility-performance link. *Journal of Vocational Behavior*, 129, Article 103613. <https://doi.org/10.1016/j.jvb.2021.103613>. *
- Bakker, A. B., & Demerouti, E. (2013). The spillover-crossover model. In J. G. Grzywacz, & E. Demerouti (Eds.), *New frontiers in work and family research* (pp. 55–70). Psychology Press.
- Bandura, A. (2015). On deconstructing commentaries regarding alternative theories of self-regulation. *Journal of Management*, 41(4), 1025–1044. <https://doi.org/10.1177/0149206315572826>
- Blokke, R., Akkermans, J., Tims, M., Jansen, P., & Khapova, S. (2019). Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals' employability. *Journal of Vocational Behavior*, 112, 172–184. <https://doi.org/10.1016/j.jvb.2019.02.013>. *
- Bonneton, D., Schworm, S. K., Festing, M., & Muratbekova-Touron, M. (2019). Do global talent management programs help to retain talent? A career-related framework. *The International Journal of Human Resource Management*, 33(2), 203–238. <https://doi.org/10.1080/09585192.2019.1683048>. *
- Caligiuri, P., & Tarique, I. (2012). Dynamic cross-cultural competencies and global leadership effectiveness. *Journal of World Business*, 47(4), 612–622. <https://doi.org/10.1016/j.jwb.2012.01.014>
- Carvalho, L., Mourão, L., & Freitas, C. (2023). Career counseling for college students: Assessment of an online and group intervention. *Journal of Vocational Behavior*, 140, Article 103820. <https://doi.org/10.1016/j.jvb.2022.103820>
- Carver, C. S., & Scheier, M. F. (2012). *Attention and self-regulation: A control-theory approach to human behavior*. Springer Science & Business Media.
- Colakoglu, S. N. (2011). The impact of career boundarylessness on subjective career success: The role of career competencies, career autonomy, and career insecurity. *Journal of Vocational Behavior*, 79(1), 47–59. <https://doi.org/10.1016/j.jvb.2010.09.011>. *
- Cook, W. L., & Kenny, D. A. (2005). The actor-partner interdependence model: A model of bidirectional effects in developmental studies. *International Journal of Behavioral Development*, 29(2), 101–109. <https://doi.org/10.1080/016502504440000405>
- Çöp, S., Alola, U. V., & Lasisi, T. T. (2022). Does my personality affect my competency? The role of gender identification and career adaptability among hotel employees. *Journal of Public Affairs*, 22(2), Article e2407. <https://doi.org/10.1002/pa.2407>. *
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
- De Vos, A., Van der Heijden, B. I. J. M., & Akkermans, J. (2020). Sustainable careers: Towards a conceptual model. *Journal of Vocational Behavior*, 117, Article 103196. <https://doi.org/10.1016/j.jvb.2018.06.011>
- DeFillippi, R., Arthur, M., & Parker, P. (2003). Internet odysseys: Linking web roles to career and community investments. *The International Journal of Human Resource Management*, 14(5), 751–767. <https://doi.org/10.1080/0958519032000080785>. *
- DeFillippi, R. J., & Arthur, M. B. (1994). The Boundaryless career: A competency-based perspective. *Journal of Organizational Behavior*, 15(4), 307–324. <https://doi.org/10.1002/job.4030150403>
- Dickmann, M., Doherty, N., Mills, T., & Brewster, C. (2008). Why do they go? Individual and corporate perspectives on the factors influencing the decision to accept an international assignment. *The International Journal of Human Resource Management*, 19(4), 731–751. <https://doi.org/10.1080/09585190801953749>. *
- Dickmann, M., & Harris, H. (2005). Developing career capital for global careers: The role of international assignments. *Journal of World Business*, 40(4), 399–408. <https://doi.org/10.1016/j.jwb.2005.08.007>. *
- Dickmann, M., & Mills, T. (2010). The importance of intelligent career and location considerations: Exploring the decision to go to London. *Personnel Review*, 39(1), 116–134. <https://doi.org/10.1108/00483481011007896>. *
- Dickmann, M., Suutari, V., Brewster, C., Mäkelä, L., Tanskanen, J., & Tornikoski, C. (2018). The career competencies of self-initiated and assigned expatriates: Assessing the development of career capital over time. *The International Journal of Human Resource Management*, 29(16), 2353–2371. <https://doi.org/10.1080/09585192.2016.1172657>. *
- Direnzo, M. S., Greenhaus, J. H., & Weer, C. H. (2015). Relationship between protean career orientation and work-life balance: A resource perspective. *Journal of Organizational Behavior*, 36(4), 538–560. <https://doi.org/10.1002/job.1996>. *
- Duberley, J., & Cohen, L. (2010). Gendering career capital: An investigation of scientific careers. *Journal of Vocational Behavior*, 76(2), 187–197. <https://doi.org/10.1016/j.jvb.2009.005>. *
- Duggan, J., Sherman, U., Carbery, R., & McDonnell, A. (2021). Boundaryless careers and algorithmic constraints in the gig economy. *The International Journal of Human Resource Management*, 1–31. <https://doi.org/10.1080/09585192.2021.1953565>. *
- Eby, L. T., Butts, M., & Lockwood, A. (2003). Predictors of success in the era of the boundaryless career. *Journal of Organizational Behavior*, 24(6), 689–708. <https://doi.org/10.1002/job.214>. *
- Fang, T., Zikic, J., & Novicevic, M. M. (2009). Career success of immigrant professionals: Stock and flow of their career capital. *International Journal of Manpower*, 30(5), 472–488. <https://doi.org/10.1108/01437720910977661>. *
- Felker, J., & Gianecchini, M. (2015). Influence of pre-graduation international experiences on early career internationalization: The mediation effect of career capital. *European Management Journal*, 33(1), 60–70. <https://doi.org/10.1016/j.emj.2014.07.001>. *
- Fleisher, C., Khapova, S. N., & Jansen, P. G. W. (2014). Effects of employees' career competencies development on their organizations: Does satisfaction matter? *Career Development International*, 19(6), 700–717. <https://doi.org/10.1108/CDI-12-2013-0150>. *
- Francis-Smythe, J., Haase, S., Thomas, E., & Steele, C. (2013). Development and validation of the career competencies indicator (CCI). *Journal of Career Assessment*, 21(2), 227–248. <https://doi.org/10.1177/1069072712466724>. *
- Gander, M. (2019). Let the right one in: A Bourdieusian analysis of gender inequality in universities' senior management. *Gender, Work and Organization*, 26(2), 107–123. <https://doi.org/10.1111/gwao.12327>. *
- Grosemans, I., & De Cuyper, N. (2021). Career competencies in the transition from higher education to the labor market: Examining developmental trajectories. *Journal of Vocational Behavior*, 128, Article 103602. <https://doi.org/10.1016/j.jvb.2021.103602>. *
- Hall, D. T. (1996). Protean careers of the 21st century. *The Academy of Management Executive (1993–2005)*, 10(4), 8–16. <https://doi.org/10.5465/ame.1996.3145315>

¹ * indicates articles included in the review.

- Hall, D. T., Yip, J., & Doiron, K. (2018). Protean careers at work: Self-direction and values orientation in psychological success. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 129–156. <https://doi.org/10.1146/annurev-orgpsych-032117-104631>
- Haslberger, A. (2013). Does cross-cultural adjustment coincide with career capital growth? Evidence from Vienna, Austria. *The International Journal of Human Resource Management*, 24(4), 791–805. <https://doi.org/10.1080/09585192.2012.700170>. *
- Hirschi, A., & Koen, J. (2021). Contemporary career orientations and career self-management: A review and integration. *Journal of Vocational Behavior*, 126, Article 103505. <https://doi.org/10.1016/j.jvb.2020.103505>
- Houldsworth, E., McBain, R., & Brewster, C. (2019). 'One MBA?' How context impacts the development of post-MBA career outcomes. *European Management Journal*, 37(4), 432–441. <https://doi.org/10.1016/j.emj.2019.01.001>. *
- Hu, S., Hood, M., & Creed, P. A. (2018). Negative career feedback and career outcomes: The mediating roles of self-regulatory processes. *Journal of Vocational Behavior*, 106, 180–191. <https://doi.org/10.1016/j.jvb.2018.02.002>
- Hussain, T., Iren, P., & Rice, J. (2019). Determinants of innovative behaviors among self-initiated expatriates. *Personnel Review*, 49(2), 349–369. <https://doi.org/10.1108/PR-09-2018-0321>. *
- Inkson, K., & Arthur, M. B. (2001). How to be a successful career capitalist. *Organizational Dynamics*, 30(1), 48–61. [https://doi.org/10.1016/S0090-2616\(01\)00040-7](https://doi.org/10.1016/S0090-2616(01)00040-7)
- Jayashree, P., Lindsay, V., & McCarthy, G. (2020). Career capital development of women in the Arab Middle East context: Addressing the pipeline block. *Personnel Review*, 50(4), 1253–1278. <https://doi.org/10.1108/PR-10-2018-0436>. *
- Johnson, J. P., Lenartowicz, T., & Apud, S. (2006). Cross-cultural competence in international business: Toward a definition and a model. *Journal of International Business Studies*, 37(4), 525–543. <https://doi.org/10.1057/palgrave.jibs.8400205>
- Johnston, C. S. (2018). A systematic review of the career adaptability literature and future outlook. *Journal of Career Assessment*, 26(1), 3–30. <https://doi.org/10.1177/1069072716679921>
- Jokinen, T., Brewster, C., & Suutari, V. (2008). Career capital during international work experiences: Contrasting self-initiated expatriate experiences and assigned expatriation. *The International Journal of Human Resource Management*, 19(6), 979–998. <https://doi.org/10.1080/09585190802051279>. *
- Kanstrén, K., & Suutari, V. (2021). Development of career capital during expatriation: Partners' perspectives. *Career Development International*, 26(6), 824–849. <https://doi.org/10.1108/CDI-12-2020-0314>. *
- Kirk, S. (2016). Career capital in global kaleidoscope careers: The role of HRM. *The International Journal of Human Resource Management*, 27(6), 681–697. <https://doi.org/10.1080/09585192.2015.1042896>. *
- Kong, H. (2013). Relationships among work-family supportive supervisors, career competencies, and job involvement. *International Journal of Hospitality Management*, 33, 304–309. <https://doi.org/10.1016/j.ijhm.2012.09.006>. *
- Kong, H., Cheung, C., & Song, H. (2012a). From hotel career management to employees' career satisfaction: The mediating effect of career competency. *International Journal of Hospitality Management*, 31(1), 76–85. <https://doi.org/10.1016/j.ijhm.2011.03.002>. *
- Kong, H., Cheung, C., & Song, H. (2012b). Determinants and outcome of career competencies: Perspectives of hotel managers in China. *International Journal of Hospitality Management*, 31(3), 712–719. <https://doi.org/10.1016/j.ijhm.2011.09.007>. *
- Kong, H., Sun, N., & Yan, Q. (2016). New generation, psychological empowerment: Can empowerment lead to career competencies and career satisfaction? *International Journal of Contemporary Hospitality Management*, 28(11), 2553–2569. <https://doi.org/10.1108/IJCHM-05-2014-0222>. *
- Kong, H., & Yan, Q. (2014). The relationship between learning satisfaction and career competencies. *International Journal of Hospitality Management*, 41, 133–139. <https://doi.org/10.1016/j.ijhm.2014.05.013>. *
- Kong, H., Yuan, Y., Baruch, Y., Bu, N., Jiang, X., & Wang, K. (2021). Influences of artificial intelligence (AI) awareness on career competency and job burnout. *International Journal of Contemporary Hospitality Management*, 33(2), 717–734. <https://doi.org/10.1108/IJCHM-07-2020-0789>. *
- Kuijpers, M., & Meijers, F. (2012). Learning for now or later? Career competencies among students in higher vocational education in the Netherlands. *Studies in Higher Education*, 37(4), 449–467. <https://doi.org/10.1080/03075079.2010.523144>. *
- Kuijpers, M., Meijers, F., & Gundy, C. (2011). The relationship between learning environment and career competencies of students in vocational education. *Journal of Vocational Behavior*, 78(1), 21–30. <https://doi.org/10.1016/j.jvb.2010.05.005>. *
- Kuijpers, M. A. C. T., & Scheerens, J. (2006). Career competencies for the modern career. *Journal of Career Development*, 32(4), 303–319. <https://doi.org/10.1177/0894845305283006>. *
- Kyndt, E., & Baert, H. (2015). Entrepreneurial competencies: Assessment and predictive value for entrepreneurship. *Journal of Vocational Behavior*, 90, 13–25. <https://doi.org/10.1016/j.jvb.2015.07.002>
- Lee, P.-Y. (2018). How to develop dynamic capabilities in multiunits: The roles of international experience and career capital. *Management Decision*, 56(2), 344–357. <https://doi.org/10.1108/MD-11-2016-0854>. *
- Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60(4), 557–568. <https://doi.org/10.1037/a0033446>
- Levenson, A. R., Van der Stede, W. A., & Cohen, S. G. (2006). Measuring the relationship between managerial competencies and performance. *Journal of Management*, 32(3), 360–380. <https://doi.org/10.1177/0149206305280789>
- Lo Presti, A., Capone, V., Aversano, A., & Akkermans, J. (2021). Career competencies and career success: On the roles of employability activities and academic satisfaction during the school-to-work transition. *Journal of Career Development*, 49(1), 107–125.
- Lord, R. G., Diefendorff, J. M., Schmidt, A. M., & Hall, R. J. (2010). Self-regulation at work. *Annual Review of Psychology*, 61(1), 543–568. <https://doi.org/10.1146/annurev.psych.093008.100314>
- Mäkelä, L., Suutari, V., Brewster, C., Dickmann, M., & Tornikoski, C. (2016). The impact of career capital on expatriates' perceived marketability. *Thunderbird International Business Review*, 58(1), 29–40. <https://doi.org/10.1002/tie.21742>. *
- Man, T. W. Y., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(2), 123–142. [https://doi.org/10.1016/S0883-9026\(00\)00058-6](https://doi.org/10.1016/S0883-9026(00)00058-6)
- McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology*, 43(4), 947–959. <https://doi.org/10.1037/0012-1649.43.4.947>
- Mittendorff, K., Beijard, D., Pj, B., & Koopman, M. (2012). The influence of teachers' career guidance profiles on students' career competencies. *Journal of Vocational Education and Training*, 64. <https://doi.org/10.1080/13636820.2012.727853>. *
- Pavani, J.-B., Fort, I., Moncel, C., Ritz, H., & Dauvier, B. (2021). Influence of extraversion and neuroticism on the weekly dynamics of jobseekers' self-regulation. *Journal of Vocational Behavior*, 130, Article 103618. <https://doi.org/10.1016/j.jvb.2021.103618>
- Pintrich, P. R., & Zusho, A. (2002). The development of academic self-regulation: The role of cognitive and motivational factors. In *Development of achievement motivation* (pp. 249–284). Elsevier.
- Plomp, J., Tims, M., Akkermans, J., Klapova, S. N., Jansen, P. G. W., & Bakker, A. B. (2016). Career competencies and job crafting: How proactive employees influence their well-being. *Career Development International*, 21(6), 587–602. <https://doi.org/10.1108/CDI-08-2016-0145>. *
- Pudelko, M., & Tenzer, H. (2019). Boundaryless careers or career boundaries? The impact of language barriers on academic careers in international business schools. *Academy of Management Learning & Education*, 18(2), 213–240. <https://doi.org/10.5465/amle.2017.0236>. *
- Rubin, R. S., & Dierdorff, E. C. (2009). How relevant is the MBA? Assessing the alignment of required curricula and required managerial competencies. *Academy of Management Learning & Education*, 8(2), 208–224. <https://doi.org/10.5465/amle.2009.41788843>
- Rudolph, C. W., Lavigne, K. N., & Zacher, H. (2017). Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. *Journal of Vocational Behavior*, 98, 17–34. <https://doi.org/10.1016/j.jvb.2016.09.002>
- Ryazanova, O., & McNamara, P. (2019). Choices and consequences: Impact of mobility on research-career capital and promotion in business schools. *Academy of Management Learning & Education*, 18(2), 186–212. <https://doi.org/10.5465/amle.2017.0389>. *
- Safavi, H. P., & Bouzari, M. (2019). The association of psychological capital, career adaptability and career competency among hotel frontline employees. *Tourism Management Perspectives*, 30, 65–74. <https://doi.org/10.1016/j.tmp.2019.02.001>. *

- Savickas, M. L. (2013). Career construction theory and practice. In , 2. *Career Development and Counseling: Putting Theory and Research to Work* (pp. 147–183). Hoboken, NJ: John Wiley & Sons.
- Savickas, M. L., & Porfeli, E. J. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80(3), 661–673. <https://doi.org/10.1016/j.jvb.2012.01.011>
- Schunk, D. H. (2005). Self-regulated learning: The educational legacy of Paul R. Pintrich. *Educational Psychologist*, 40(2), 85–94. https://doi.org/10.1207/s15326985sep4002_3
- Seibert, S., Akkermans, J., & Liu, C-H. (2024). Understanding contemporary career success: A critical review. *Annual Review of Organizational Psychology and Organizational Behavior*, 11, 509–534. <https://doi.org/10.1146/annurev-orgpsych-120920-051543>
- Sheu, H. B. (2023). Temporal precedence between and mediating effects of career decision self-efficacy and career exploratory behavior among first-year college students: Within-person and between-person analyses by race/ethnicity and gender. *Journal of Vocational Behavior*, 144, Article 103882. <https://doi.org/10.1016/j.jvb.2023.103882>
- Short, J. (2009). The art of writing a review article. *Journal of Management*, 35(6), 1312–1317. <https://doi.org/10.1177/0149206309337489>
- Siddaway, A. P., Wood, A. M., & Hedges, L. V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology*, 70(1), 747–770. <https://doi.org/10.1146/annurev-psych-010418-102803>
- Simsek, Z., Fox, B., & Heavey, C. (2021). Systematicity in organizational research literature reviews: A framework and assessment. *Organizational Research Methods*, 26(2), 292–321. <https://doi.org/10.1177/10944281211008652>
- Singh, R., Ragins, B. R., & Tharenou, P. (2009). What matters most? The relative role of mentoring and career capital in career success. *Journal of Vocational Behavior*, 75(1), 56–67. <https://doi.org/10.1016/j.jvb.2009.03.003>. *
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Talluri, S. B., & Uppal, N. (2022). Subjective career success, career competencies, and perceived employability: Three-way interaction effects on organizational and occupational turnover intentions. *Journal of Career Assessment*. , Article 10690727221119452. <https://doi.org/10.1177/10690727221119452>. *
- Terjesen, S. (2005). Senior women managers' transition to entrepreneurship: Leveraging embedded career capital. *Career Development International*, 10(3), 246–259. <https://doi.org/10.1108/13620430510598355>. *
- Villiger, J., Schweiger, S. A., & Baldauf, A. (2022). Making the invisible visible: Guidelines for the coding process in meta-analyses. *Organizational Research Methods*, 25(4), 716–740. <https://doi.org/10.1177/10944281211046312>
- Wang, Y.-F. (2013). Constructing career competency model of hospitality industry employees for career success. *International Journal of Contemporary Hospitality Management*, 25(7), 994–1016. <https://doi.org/10.1108/IJCHM-07-2012-0106>. *
- Yang, F. X., & Lau, V. M.-C. (2015). Does workplace guanxi matter to hotel career success? *International Journal of Hospitality Management*, 47, 43–53. <https://doi.org/10.1016/j.ijhm.2015.03.004>. *
- Yao, C. (2014). The impact of cultural dimensions on Chinese expatriates' career capital. *The International Journal of Human Resource Management*, 25(5), 609–630. <https://doi.org/10.1080/09585192.2013.792862>. *
- Yates, J., & Skinner, S. (2021). How do female engineers conceptualise career advancement in engineering: A template analysis. *Career Development International*, 26(5), 697–719. <https://doi.org/10.1108/CDI-01-2021-0016>. *
- Zikic, J., Bonache, J., & Cerdin, J.-L. (2010). Crossing national boundaries: A typology of qualified immigrants' career orientations. *Journal of Organizational Behavior*, 31(5), 667–686. <https://doi.org/10.1002/job.705>. *
- Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166–183. <https://doi.org/10.3102/0002831207312909>