A Look Back and a Leap Forward:

A Review and Synthesis of the Individual Work Performance Literature

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Abstract

Individual work performance has been a central topic for scholars over the past century. There is a mass of research on performance but it is embodied in a variety of disconnected literatures each using their own set of constructs and theoretical lenses. In this paper, we synthesize this disparate literature to better understand individual work performance and pave the way for future research. First, using a bibliometric technique to analyse 9299 articles, we identify the cumulative intellectual structure of the field and show how the field has evolved over the past 40-years. Second, drawing on the Griffin, Neal, and Parker (2007) model of individual performance, we classify 97 performance constructs according to their form (proficiency, adaptivity, proactivity) and level of contribution (individual, team, organization). We conclude this model is useful for understanding the similarities and differences amongst many distinct performance constructs. Third, using the Griffin et al., model, we illuminate the nomological network by mapping the antecedents and outcomes of each form and level of contribution. Our synthesis identified theoretically-relevant and differentiating antecedents of form; whereas the nomological network is underdeveloped in relation to the level of contribution. Finally, we propose 18 recommendations which include: ensuring conceptual clarity for performance constructs, expanding theoretical models to account for more performance dimensions, greater attention to the underlying mechanisms through which individual performance contributes to higher-level outcomes, increased consideration of how performance changes over time and across contexts, and more investigations into how multiple performance constructs interact with each other to shape effectiveness.

***Keywords*:** individual performance; task performance; adaptive performance; proactive performance; organizational citizenship behaviour; review; nomological network.

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> *[By assessing performance]..."the individual can measure his comparative value as a worker and thereby determine his position among his fellow men" (Henderschott, 1917, p. 215).*

Work performance is an essential concept for understanding an individual's contribution to the organization. Defined as individual behaviour that generates value for the organization (Campbell et al., 1993), work performance is a primary dependent variable in almost every area of management and organizational behavior. Indeed, individual work performance constitutes around one fifth of all dependent variables in this field (Campbell & Wiernik, 2015), with over 290 meta-analyses including individual work performance as an outcome of interest since 1980[1]. The sheer volume of studies, including many meta-analyses, might suggest that research concerning performance has reached a mature stage of theoretical development. Unfortunately, that is not the case. There have been relatively few systematic attempts to comprehensively define the nature of work performance, and the processes through which individual behavior generates organizational value remains underspecified.

In this paper, we provide a historical and theoretical review of work performance research to identify advances and limitations in understanding this construct. In 1964, Katz (p. 131) wrote "our major dependent variables are the behavioral requirements of the organization". This influential essay represented a critical juncture in the development of work performance concepts. Katz presaged two alternative paths of understanding that have been explored to different degrees in subsequent decades. On the one hand, Katz foreshadowed a notable shift in the individual work performance literature away from a narrow focus on core task proficiency to a more pluralistic perspective that includes many other value-generating behaviors exhibited by employees at work. A prime example of this is the exponential growth in attention to organizational citizenship behaviors (OCB; P. M.

[1] Search executed using PsycINFO under the "job performance" subject heading and specifying 3600 - 3660 classification codes and specifying "meta analysis".

Podsakoff, MacKenzie, Paine, & Bachrach, 2000), and the same trajectory of rapid growth for constructs relating to proactivity (Potočnik & Anderson, 2016; see figure 1).

Insert Figure 1 here

On the other hand, Katz argued for a holistic and integrated view of the diverse ways that individual behavior contributes to the organization. Research has not built on this insight in a way comparable to the growth in research on specific performance sub-dimensions. There is little research investigating the way different sub-dimensions of performance relate to each other, or how they interact in more complex ways to influence organizational outcomes. This limitation not only impairs theoretical development, but makes it challenging to offer sensible guidance to practitioners. It is not surprising that scholars have pleaded for researchers to "locate the measure of performance within a broader *substantive* picture" (Campbell, 2012, p. 161) - that is, within a holistic framework that highlights similarities and differences between constructs. Our overall aim in this paper is to provide this more substantive picture by clarifying the content domain and theoretical structure of individual work performance. We have three specific goals.

Our first goal is to map the trajectory of development in individual work performance research. We extend existing meta-analyses and major reviews by conducting a systematic bibliometric analysis that captures the breadth of the field and clusters of topics within the field which helps to "overcome barriers to discussion and collaboration across disconnected research communities" (Lee, Felps, & Baruch, 2014, p. 340).

Our second goal is to synthesize and extend theory by establishing a comprehensive nomological network of constructs. To achieve this goal we leverage the Griffin et al. (2007) integrative performance framework. This framework is integrative because it results from the combination of form (proficiency, adaptivity, and proactivity) and the level of contribution of

the behavior (individual, team, and organization; Griffin et al., 2007) and as such draws various performance literatures together. Using this framework we review performance constructs and analyse similarities, differences, convergence, and divergence amongst them, as well as amongst their antecedents and consequences. We build greater coherence in a disjointed field by identifying linkages across various performance topic areas.

Our third goal is to articulate a research agenda to address key methodological and theoretical gaps in the literature. We propose ten construct and measurement-related recommendations, each designed to clarify the content of the field and build a more cohesive empirical literature. We then outline eight key research questions around which we believe future work should focus. A key theme of these research recommendations is the need to for additional work articulating the pathways through which different forms of individual work performance contribute to higher-level outcomes such as team and organizational performance and effectiveness, particularly under dynamic conditions.

Our article is bounded by the conceptualization of individual work performance "as things that people actually do, actions they take, that contribute to the organization's goals" (Campbell & Wiernik, 2015, p. 48). Therefore, we include constructs such as OCBs, adaptive and proactive performance. This definition means that we exclude positive work behaviors such as socialization and career behaviors, because the primary beneficiary of these work behaviors is the self, and the contribution to the attainment of organizational goals is indirect (e.g., Ashford, Blatt, & VandeWalle, 2003). We also exclude creativity because this focuses on the generation of novel ideas but precludes the implementation of ideas (Hammond, Neff, Farr, Schwall, & Zhao, 2011). We also exclude counter-productive behaviors, occupational violence, and deviance as these work behaviors are "intended to hurt the organization or its employees" (Spector & Fox, 2002, p. 269). Finally, we do not consider emergent team- or organization-level performance constructs that go beyond the individual level of analysis.

A Look Back: Mapping Historical Developments in Performance Research

We turn now to the first goal of our article, which is to review the development of work performance research. To conduct this review, we employed scientific mapping[2] procedures to analyse all relevant published research across 62 peer-review journals from 1972 to 2015. Scientific mapping quantitatively analyses the content of academic outputs (specifically, nouns in abstracts and titles of articles) and visualizes relationships between concepts by generating research topic maps (Van Eck, Waltman, Dekker, & van den Berg, 2010). Although high quality reviews of the individual performance literature exist, these qualitative reviews are reliant on the subjective view of authors (Ramos-Rodrigez & Ruiz-Navarro, 2004). On the other hand, quantitative reviews such as meta analyses are narrowly focused on only a select number of constructs (Lee, Felps, & Baruch, 2014) and usually fail to distinguish between types of performance (Campbell, 2012; e.g., Joseph & Newman, 2010; Oh, Harold, & Lee, 2014). Both quantitative and qualitative reviews are limited by theoretical research topic boundaries, which means only a piece of the performance literature is reviewed (e.g., OCBs, adaptive, and proactive). Science mapping overcomes these obstacles by allowing scholars to "zoom out further, and empirically capture the relationship between multiple topic areas" (Lee, Felps, & Baruch, 2014, p. 340). Insights generated through this process assist in identifying future directions, which we return to in the Discussion.

We adopted two strategies to analyse the individual work performance literature. First, we mapped the overall structure of the contemporary individual performance field ("the big picture") by analysing articles from 1972 until 2015. From this cumulative 40-year map, we are able to highlight areas where cross-fertilisation has occurred and where research areas are

[2] Scientific mapping uses multidimensional scaling procedures to extract nouns from article abstracts and titles, clustering topics into maps of research topics (Van Eck & Waltman, 2010; White, 1990). We used *VOSviewer* (Van Eck & Waltman, 2010) to create visual representations of the strength of association between scientific terms (Rip & Courtial, 1984). Appendix A details the selection of articles and the mapping process.

isolated from one another. Specifically, we identified five topic clusters, or themes of research, which we elaborate shortly. Second, to unpack how the field arrived at its current structure, we went back in time to analyse how research has developed over the 40-year period, focusing on how topics of interest have waxed and, in some cases, waned. Specifically, we analysed topic clusters for each of four consecutive 10-year periods beginning in 1972. We elaborate each strategy, and our observations, in turn.

The Big Picture: 40 Years of Research on Individual Work Performance

Right now, what does the field of research on performance look like? To answer this question, we used scientific mapping to analyse the abstracts of 9299 articles on performance published between 1972 and 2015. We began in 1972 since this is the first year of the *Social Science Citation Index* and captures a time when scholars began conceptualizing behavioural measures as criteria rather than output measures (Austin & Villanova, 1992).

The resulting big picture map of performance terms (from 1972 to 2015) was based on 996 terms - 36 of which were specific performance constructs. The terms formed five clusters (see Figure 2). Each cluster was quantitatively determined through the strength of association between terms, such that terms in the same cluster appear together more frequently than those in other clusters (Waltman, van Eck, & Noyons, 2010). Put simply, terms clustering together depicts that these topics are commonly investigated together. Table 1 shows the five clusters, the frequently occurring terms, and the underpinning theoretical perspectives of each cluster. We named each cluster by carefully analysing the high frequency terms that occur within it.

Insert Figure 2 and Table 1 here

The five clusters depicted in the overall map of individual work performance indicate a breadth of perspectives. First, the *management* cluster (Figure 2, green) largely represents the “so what” of performance, capturing key outcomes and highlighting the study of performance as an integral part of almost every element of organizations from employee

knowledge, skills, and abilities, to organization-level strategy and growth. Second, the *personnel selection perspective* (Figure 2, blue) is concerned with the measurement and prediction of job performance. Third, the *motivation* cluster (Figure 2, yellow) is dominated by a focus on the underlying motivational mechanisms of task performance. Fourth, the *good citizen* cluster (Figure 2, red) captures the OCB literature. Although this cluster is the smallest, it contains almost twice as many performance constructs as any other cluster, attesting to the importance of this perspective in broadening the domain beyond the traditional focus on task and job performance, to a wider set of positive behaviors. Finally, the *job attitudes* cluster (Figure 2, purple) represents the "happy-productive" worker debate, and the closely related job design literature. We briefly elaborate each of the five clusters.

The *management* cluster. The largest and most central cluster of terms in the map (*N* = 225 terms), which we refer to as *'management'*, has a strong focus on the role of individual performance in achieving organizationally-relevant outcomes. Frequent terms include: "strategy", "success", "quality", "productivity", and "production". The terms within and the centrality of this cluster attests to the age-old argument that individual work performance contributes to the achievement of organizational goals through bottom-up processes (Campbell & Wiernik, 2015; Katz, 1964) – an argument so pervasive in the literature that few question it – but as we shall discuss later, few explicitly test.

The *personnel selection perspective* cluster. A further key cluster of topics, which we refer to as the *'personnel selection perspective'* (*N* = 191 terms) captures two fundamental pursuits within the personnel selection literature. The first pursuit, to identify and reliably measure individual work performance, is represented in terms such as "criterion", "validity", "rating" and multiple performance-related terms (see table 2). The second pursuit is the reliable prediction of future work performance using selection tests, particularly of individual differences such as personality. Consistent with reviews of the personality-performance

literature that show its centrality for predicting core task performance (Barrick & Mount, 1991), "conscientiousness" is larger and more central in the map than the other four personality dimensions. These two pursuits come together as a single cluster of topics because they both originate in the personnel selection literature which is fundamentally concerned with defining, measuring, and predicting performance. Interestingly, this cluster is the most isolated, suggesting limited integration with the broader performance literature.

The *motivation* cluster. Scholars have long sought to understand what factors promote performance. The third cluster, which we refer to as '*motivation'* (*N* = 195 terms), covers questions about the role of motivation in facilitating task performance. This cluster is defined by the central term "task performance," and the closely related terms of "group", "feedback", "motivation", and "experiment". The importance of goal setting theory (Locke, 1968) is shown by a tight cluster of terms such as "goal setting", "goal commitment", and "incentive". In addition, the "performance appraisal" and "judgement" terms appear proximally to the "evaluation" and "rating" terms from the *motivation* cluster, highlighting dual interests in assessing individual performance (Levy & Williams, 2004). Finally, the presence of the "adaptive performance", "learning", and "performance change" terms within the same cluster as "task performance" is consistent with the domain-specific adaptation perspective (Baard, Rench, & Kozlowski, 2014) in which adaptation is a response to changes in order to maintain or improve task performance.

The *good citizen* cluster. As we will elaborate shortly, a key development within the performance literature has been to recognise that performance is not just about carrying out one's prescribed job requirements (task proficiency). The **'***good citizen'* cluster (*N* = 150 terms) captures OCBs and related concepts, and is almost as large as the *personnel selection perspective* and *motivation clusters*. Terms show the strong influence of social exchange theory (Blau, 1964), leadership (P. M. Podsakoff, MacKenzie, Moorman, & Fetter, 1990),

and the trust literature (Mayer & Gavin, 2005). Additionally, the proximity of the "OCB" term with "satisfaction" is not surprising given the vast literatures linking these variables (e.g., Bateman & Organ, 1983; Fassina, Jones, & Uggerslev, 2007).

The *job attitudes* cluster. One of the longest-running debates within the performance literature is the "happy-productive worker" hypothesis, that is, the belief that a satisfied worker is also a high performing one (Wright & Cropanzano, 2000). The final cluster, which we refer to as *'job attitudes'* (*N* = 235 terms), captures this debate as evident by the terms "role", "job satisfaction", "attitude", and "turnover" as well as the cluster's close proximity and overlap with the *good citizen* cluster. The role of job design in shaping job attitudes is well recognized, so it is unsurprising to see elements of the work design literature (e.g., "autonomy" and "engagement") are strongly represented (Hackman & Oldham, 1976). Finally, we also note the presence of proactive concepts, including "personal initiative" and "proactivity". The closeness of these concepts with research on job attitudes makes sense as early work on proactivity had a strong focus on job design (Grant & Parker, 2009).

The result of our mapping the individual work performance literature has revealed five distinct approaches to its study. As we will see next, these five topic areas are deeply rooted in the historical development of the field, as opposed to theoretical perspectives, a fact that may have impeded theoretical advancements and the bridging of topic areas.

A Look Back at the Development of the "Big Picture"

Next, to help understand how the cumulative structure of performance research emerged, we trace the development of the field using a sequence of four scientific maps with each map representing a ten year period[3] (1972-1982; 1983 – 1993; 1994 – 2004; 2005 – 2015). Mapping the evolution of the field allows us to ask how the field is progressing, which

[3] Our analyses of major reviews suggested 10-year periods provided adequate scope to identify changes in focus.

we do with reference to different hypotheses about field development (De Bakker, Groenewegen, & Den Hond, 2005). The *progression hypothesis* states the literature in a given domain benefits from incremental advances in empirical theory and testing; while the *variegation hypothesis* proposes that the literature is hindered by the proliferation of similar or slightly divergent terms. In contrast, the *normativism hypothesis* holds that limited progress in a field has been made due to a lack of theory and empirical study (De Bakker et al., 2005). As we shall see, the current structure of the field has strong roots in its history and has overall benefitted from progression, as indicated by more comprehensive coverage of multiple behaviors and attention to more nuanced types of performance over time. However, variegation does appear to be an issue in relation to the OCB and proactivity literatures, whereas normativism has likely limited the conceptualization of task performance.

In the first map (1972 – 1982; Figure 3a), which we characterize as "*understanding the core*", we highlight scholars' narrow focus on job and task performance – essentially capturing the most basic unit of an employee's organizational contribution. The following map (1983 – 1993; Figure 3b), which we describe as "*flowering of dimensions*", is characterised by many conceptual developments including the introduction of OCBs, prosocial organizational behavior, and contextual performance all of which expanded scholars' focus from "the core" to new types of employee contributions. In the third map (1994 – 2004; Figure 3c), described as "*scattering in the wind*", we note the rise of the proactivity and adaptivity literatures, but also underscore the increasing isolation of various performance constructs from one another – that is to say, there are more performance constructs in the map, but they are dispersed across it and with fewer linkages between constructs. The final map (2005 – 2015; Figure 3d), labelled "*new concepts take root*", contains the most unique performance construct terms and includes clusters of terms related to proactivity, adaptivity, and careers. In recognition of the ever more complex and disjointed

literature, during this period, scholars such as Bartram (2005) and Griffin et al. (2007) introduced comprehensive models attempting to bridge various types of performance.

Next, we elaborate the maps and recap key conclusions about the field's development.

"Understanding the Core" (1972 – 1982)

The contemporary structure of the performance field has been strongly shaped by research conducted between 1972 and 1982 (Figure 3a). The legacy of this early research is reflected in the fact that four of the five clusters in this map are also in the 'big picture' map (Figure 2), suggesting this early research formed a core foundation on which the field would build. Further, research during this period was dominated by a singular focus on task and job performance (core job performance) as reflected by the prominence of these terms; it would not be for some time after that the literature would move away from this limited conceptualization of performance to include additional positive work behaviors.

Insert Figure 3a here

More specifically, this 10 year map depicts five topic clusters (1281 articles). At the outset, we can see the emergence of the *management* cluster (N = 50 terms) that is still distinct and dominant within the 40-year map. This cluster includes generic terms such as "group", "manager", and "success", alongside theoretically important outcomes of individual work performance, such as "team performance", "innovation", "organizational effectiveness", and "efficiency". The term "voice" is present, but is linked to organizational concepts of whistle-blowing rather than later behavioral concepts such as speaking up (Farrell & Petersen, 1982; Parmerlee, Near, & Jensen, 1982). The presence of this cluster demonstrates early scholars were concerned with the higher-order outcomes of performance.

We can also see that the *personnel selection perspective* (N = 43 terms) was an early and influential focus of performance research. Attention to this issue reflected an important

aspect of the socio-political context at the time: the application of psychology to the recruitment and selection of appropriate military personnel beginning with World War I (Austin & Villanova, 1992; Ghiselli, 1973). The prominence of "performance appraisal", "ratings", "dimension" and "reliability" as key terms within this cluster reflects what Austin and Villanova (1992, p. 836) described as "[t]he legacy of the first 60 years of scientific research on criteria". Ghiselli (1973, p. 475 - 476) summarized over half a century of research on ability tests across eight categories of occupations, concluding "for every job there is at least one type of test which has at least moderate validity." The prevalence of research on personnel selection and the use of individual differences as predictors of performance are shown by its continued visibility in the 40-year cumulative scientific map.

This period was also one in which there were important developments in motivation theory, with the obvious question surfacing as to how motivation shapes performance. The *motivation* cluster (N = 47 terms) shows terms reflecting Vroom's (1964) expectancy theory, which proposed performance to be a function of ability and motivation, and goal setting theory (Locke, 1968), which explained how setting goals facilitates task performance. The importance of this perspective is underscored by its continued visibility in the 40-year map.

A further notable historical development that is again reflected in the map is shown by the beginning of the *job attitudes* cluster (N = 43). This cluster includes terms such as "job characteristic", "job enrichment", "job satisfaction," "perception", and "role ambiguity". This cluster captures research stimulated by the job characteristics model (Hackman & Oldham, 1976) as well as other theories such as the demand-control model of strain (Karasek Jr, 1979) and role theories (e.g., Rizzo, House, & Lirtzman, 1970). The array of terms in this cluster shows that research within this perspective often examined outcomes of work design beyond performance, such as "turnover", "absenteeism", and "stress".

Finally, a cluster of research, which we refer to as *appraisal* (*N* = 33 terms), also reflected an important issue of the time, that is, the US Equal Employment Opportunity Commission rulings designed to reduce adverse impact in selection practices (Bigoness, 1976). Terms in the map such as “bias”, “woman”, “man” and “race” all point to the strong emphasis on examining selection methods for potential adverse impact. In the 40-year map, the appraisal cluster is present within the larger *personnel selection perspective* cluster.

“Flowering of Dimensions” (1983 – 1993)

Scientific mapping of articles from 1983 to 1992 demonstrates a progression of research topics from the previous 10 years, with similar labels defining the five clusters (1310 articles, Figure 3b). In other words, the early avenues of performance research using the management and personnel selection perspectives continued, as did work examining the roles of individual motivation, appraisal, and job attitudes. Nevertheless, we refer to this period as “flowering” because researchers’ developed new concepts, and explored novel relationships within the *motivation and personality, personnel selection perspective, and job attitudes* clusters; whereas the other two clusters remained largely unchanged.

Insert Figure 3b here

The *motivation and personality* cluster (*N* = 64 terms) continues to focus on how to motivate individuals to achieve task performance, with expanded theoretical perspectives, such as how “self-efficacy” affects performance (Bandura, 1977). Additionally, the term “personality” is in close proximity to “job performance”, consistent with the publication of Barrick and Mount's (1991) meta-analysis; the culmination of over 25 years of empirical work on the question as to how personality affects performance. This meta-analysis cemented conscientiousness as the key antecedent of task performance.

The *personnel selection perspective* (*N* = 50 terms) remained a distinct cluster. An important meta-analysis in this period was Hunter and Hunter's (1984) review, which demonstrated ability to be a valid predictor of entry-level jobs, but also showed selection based on ability was likely to adversely impact minority groups. A further meta-analysis by Schmidt, Hunter, and Outerbridge (1986) found that job knowledge mediated the relationship between general mental ability and job experience on supervisory ratings of performance.

The emergence of the term "autonomy" in the *job attitudes* cluster (*N* = 33 terms) is consistent with the job characteristics model (Hackman & Oldham, 1976) that identified autonomy as key for enhancing meaning at work, and hence for promoting performance. Also within the same cluster is the term "commitment". Early commitment literature was predominately concerned with predicting turnover amongst employees; however, Meyer, Paunonen, Gellatly, Goffin, and Jackson (1989) advanced this literature by showing that affective commitment positively predicted performance and promotability, whereas continuance commitment negatively predicted these outcomes.

Perhaps most importantly during this period, three specific constructs were introduced that are visible within the *job attitudes* cluster (and which have become more important over time, as we shall see). The first new construct to be introduced, which lent on the earlier distinction between "in-role" and "extra-role" behavior (Katz, 1964), was OCB (Organ, 1988; Smith, Organ, & Near, 1983). Bateman and Organ define OCB as "behavior that cannot be prescribed or required in advance for a given job" (1983, p. 588) and "lubricate the social machinery of the organization but … do not directly inhere in the usual notion of task performance." Although an original taxonomy of nine distinct behaviors was identified (Bateman & Organ, 1983), Williams and Anderson (1991) later classified the constructs into two overarching categories: OCB-O, behaviors such as compliance that benefit the organization; and OCB-I, behaviours directed at specific individuals such as helping.

A second concept introduced during this period was *Prosocial Organizational Behavior* (POB; Brief & Motowidlo, 1986). Influenced by the above work, as well as advances in developmental and social psychology, POB refers to behaviors targeted toward an individual, group, or organization with the intention of improving the target's welfare. Brief and Motowidlo presented 13 forms of POB including 11 organizationally-functional behaviors (e.g., assisting co-workers) as well as two organizationally dysfunctional behaviors (e.g., showing leniency in personnel decisions). Scholars have argued (reasonably, we believe) that there is considerable overlap between OCB and POB constructs (Borman & Motowidlo, 1997; O'Reilly & Chatman, 1986). For instance, Bolino and Grant (2016) argued that both OCB and POB are types of 'prosocial behavior', along with mentoring, knowledge sharing, brokering introductions, and compassion.

The third key construct to be introduced during this period came from Borman and Motowidlo (1993, p. 73), who distinguished core task performance from *contextual performance,* which they defined as behaviors that "do not support the technical core itself as much as they support the organizational, social, and psychological environment in which the technical core must function". Contextual performance encompasses both OCB and POB constructs. Empirical studies support the distinction between task and contextual performance (Motowidlo & Van Scotter, 1994), with the latter being more strongly predicted by personality than the former (Borman & Motowidlo, 1997). Meta-analytic reviews have supported the importance of contextual performance (e.g., Christian, Garza, & Slaughter, 2011), although many studies use contextual performance and OCB interchangeably (Carpenter, Berry, & Houston, 2014; Organ, 1997). As we discussed, several authors have lamented the variegated state of the OCB/ contextual performance literature (e.g., Organ, 1997; Organ et al., 2006), although the overall convergence of concepts is evident in the cumulative map's OCB cluster because the constructs are all positioned as OCBs.

Finally, in an effort to be comprehensive Campbell et al. (1993) introduced a taxonomy of performance. Drawing on research in the military, and critiquing the notion of a single performance criterion (Dunnette, 1963), these authors identified eight performance factors that were argued to capture "the top of the latent hierarchy in all jobs in the *Dictionary of Occupational Titles*" (Campbell et al. 1993, p. 46). Later, Campbell (2012) updated the eight-factor model. This model played an important role in expanding the criterion domain, although the structure requires additional validation.

"Scattering in the Wind" (1994 – 2004)

In this period (Figure 3c) there was further growth in the number of performance constructs. While this increase reflects more nuance and diversity in performance constructs, it also shows an increasing detachment of some dimensions from the overall concept of job performance. For example, terms such as "voice", "extra-role", "proactivity", "adaptivity" and "counterproductive work behavior" are quite dispersed across the map with little connection to task performance or one-another. Therefore, we describe this period as one of scattering concepts. During this period, two integrative models were also introduced which attempted to address the fragmented literature, which we describe shortly.

The map for this period is based on six clusters (2305 articles; Figure 3c) with a threefold increase in the total number of performance constructs represented in the map compared to the previous map. This map signals the reorganization of the overarching intellectual structure of the field with the dissolution of the *management* and *appraisal* clusters into other clusters as well as the splitting of existent clusters into parts.

Insert Figure 3c here

The *motivation* cluster continued to be distinct and now has the largest number of terms (N = 87 terms), among them "task performance", "feedback", and "intervention". For example, the meta-analysis by Kluger and DeNisi (1996), showed feedback interventions on

average improved performance, although interventions also decreased performance in about a third of cases. The term “safety performance” also emerges reflecting the introduction of distinct safety behavior dimensions spurred on by advances in safety performance models (Burke, Sarpy, Tesluk, & Smith-Crowe, 2002; Griffin & Neal, 2000).

The *personnel selection perspective* is the second largest cluster (*N* = 79 terms) and continues to focus on generic “job performance” and many of the criterion-centric terms such as “criterion”, “validity”, and “test”. Of note is the shift of “personality” and related terms (e.g., “conscientiousness”) out of the *motivation* cluster (previously *motivation and personality*) and into this cluster. Additionally, “contextual performance” is introduced (Borman & Motowidlo, 1993) and scholars elaborated its sub-dimensions (Borman & Motowidlo, 1997) and discriminate validity (Motowidlo & Van Scotter, 1994).

As the field has matured, methodological issues have received more attention. Consistent with this, we continue to identify the *appraisal* cluster (*N* = 33 terms) in the map. The measurement of performance, particularly from multiple sources such as self, supervisor, and peer is a consistent theme in this area. A seminal review on common method bias by P. M. Podsakoff, MacKenzie, Lee, and Podsakoff (2003) continues to be highly influential.

At this time, the map shows the growing separation of performance elements and the emergence of a very prominent “OCB” term within the larger *job attitudes* cluster (*N* = 78 terms). The “OCB” term was not present in the maps of the previous decades, and appears as the nexus of the *good citizen* cluster in the 40-year map. The *job attitudes* cluster includes broad terms such as “employee”, “role”, “job satisfaction”, and “supervisor”, but is characterized by a substantial increase in “OCB” and related terms such as “altruism”, “loyalty”, “extra-role performance”, “organizational support”, and “social exchange theory”. The expansion of the OCB literature is highlighted in LePine et al.'s (2002) review of 133 OCB studies which identified 40 different measures. The dimensionality of OCB was also

investigated suggesting seven (P. M. Podsakoff et al., 2000), five (LePine et al., 2002), and three (Coleman & Borman; 2000) underling factors. Additionally, the OCB cluster now includes "voice" which was previously located in the *management* cluster; however, Van Dyne and LePine (1998, p. 109) presented voice as a form of extra-role behaviour involving "innovative suggestions for change and recommending modifications to standard procedures even when others disagree." Another similarly constructive and active construct associate with OCB during this period was "taking charge" (Morrison & Phelps, 1999).

The emergence of a further set of performance concepts is shown in the *proactive concepts* (*N* = 77) cluster, defined by terms such as "proactivity", "initiative", and "personal initiative"; all highly agentic concepts that focus on changing the environment (Crant, 2000). Although interest in the topic of employee proactivity occurred in periods before this one (Ashford & Cummings, 1983), the earlier literature occurred within specific topic domains such as careers and socialization (Ashford and Black, 1996). Specific proactive concepts introduced during this period included Bateman and Crant's (1993) notion of proactive personality, and the concept of personal initiative (Frese, Kring, Soose, & Zempel, 1996).

An unintended consequence of the growth of scholarship related to proactivity was construct proliferation because of the origin of these constructs in different literatures. For example, voice has been considered a challenge-oriented OCB (Van Dyne et al., 1995), an extra-role behaviour (Van Dyne & LePine, 1998), a change-oriented OCB (Chiaburu et al., 2013), and a proactive construct (Parker & Collins, 2010). This means that authors examining the same phenomena are sometimes contributing to different literatures that often do not intersect (Carpini & Parker, 2017). Consequently, neither the proactivity nor adaptivity literatures have emerged as discrete clusters within the larger performance field.

The final cluster, the *expanded job attitudes*, contains 62 terms which are fairly dispersed across the map. Some key terms include "work family conflict", "demand",

"resource", "stress", "cope", "burnout", as well as "counterproductive work behavior" and "adaptation". These topics reflect the popularity of job demands-resource model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), the growing counterproductive work behavior literature (Spector & Fox, 2002), and the emerging adaptivity literature (Pulakos, Arad, Donovan, & Plamondon, 2000). "Adaptation" occurs near to "culture", "diversity", and "organizational context", indicating a growing acknowledgement of the need for employees to operate within increasingly volatile, diverse, and dynamic contexts (Schmitt et al. 2003). Pulakos et al. (2000) presented an empirically-derived taxonomy of individual adaptive work performance which synthesized the existing literature and added two new dimensions.

It is clear that the literature at this point had become quite diffuse, with many different concepts and competing perspectives. Unsurprisingly, therefore, scholars began to develop integrative frameworks intended to draw the literature together. One of the most important in this period was the *role-based model of performance* (Welbourne, Johnson, & Erez, 1998), which incorporated role theory (Katz, 1964) and identity theory (Stets & Burke, 2000) to identify five distinct employee roles: job, organization, team, innovator, and career roles. The job role is defined as "doing things specifically related to one's job description" (Welbourne et al., 1998, p. 554). The organization role is defined in terms of "extra role behaviors" and is consistent with the OCB literature, specifically the support and civic virtue dimensions. The team role is defined as working interdependently with coworkers to achieve objectives, capturing the helping and cooperative elements of OCB. The innovator role mirrors the proactivity literature and is defined as "creativity and innovation in one's job and the organization as a whole" (Welbourne et al. 1998, p. 554). Finally, the career role reflects self-development behaviors necessary for career progression. Welbourne et al. (1998) provided evidence of the distinctiveness of the five roles using multisource data from five organizations, although subsequent work has failed to replicate the five factor structure

(Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). The role-based model of job performance has been used in several empirical studies (e.g., Wallace, Edwards, Arnold, Frazier, and Finch, 2009), although the inclusion of outcome measures (e.g., quality and quantity of work) is inconsistent with a behavioral approach to job performance (Campbell et al. 1993).

A further integrative model introduced in this period was Johnson's (2003) *hierarchical taxonomy of individual performance* that has three distinct dimensions: task performance, citizenship performance, and adaptive performance. Task performance includes five of the eight components from the Campbell et al. (1993) taxonomy, plus an additional sixth component, conscientious initiative. Citizenship performance is similar to OCB, and includes conscientious initiative, organizational support, and personal support. Adaptive performance refers to dealing with uncertain and unpredictable work situations (Hesketh and Neal, 1999; Pulakos et al., 2000), and includes behaviors such as imposing structure in dynamic situations, taking action under uncertainty (Pulakos et al., 2000), and demonstrating flexibility to cope with change (Hesketh & Neal, 1999). Interestingly, Johnson (2003) allocated many of the other adaptive performance dimensions proposed by Pulakos et al. (2000) into the task performance and citizenship performance dimensions (e.g., handling emergencies was categorized as part of the task performance dimension and handling work stress was argued to be an element of citizenship performance). Although this model lacks empirical validation, including adaptive performance as a job performance dimension was unique at the time, and adaptivity was subsequently introduced into other performance models (e.g., Griffin et al., 2007; Schmitt et al., 2003).

"New Concepts Take Root" (2005 – 2015)

This final period is characterised by the continued rapid growth of the field with almost twice as many articles and terms included in this map compared to the previous one (4403 articles, Figure 3d). Structurally, the map in this period yielded six clusters that have

considerable parallels with the previous period, as well as some key points of divergence. Consistent with the previous period, there are clear *motivation, personnel selection perspective,* and *expanded job attitudes* clusters. The most significant deviations from previous maps are the emergence of a clear *OCB and job attitudes* cluster, the redefining of the *proactive concepts* cluster, and a distinct *careers* cluster. Consistent with the rise of the OCB literature, other performance concepts such as adaptivity and proactivity continued to be investigated in their own right - without necessarily referencing to concepts of task performance or overall performance. The increase in performance concepts led some scholars during this period to develop further integrative models, which we elaborate shortly.

Insert Figure 3d here

As previously, the *motivation* cluster (*N* = 186 terms) remained central and includes recurring terms such as “task performance”, “goal setting”, “feedback”, and “experiment”. Interestingly this cluster also includes terms (e.g., “manager” and “production”) associated with the *management* cluster as seen in previous maps and in the 40-year map. The cluster also depicts advances in motivation research assessing explanatory mechanisms underlying task performance using experimental methods (e.g., “process model” and “incentive”).

Consistent with previous maps, the *personnel selection perspective* cluster (*N* = 111 terms) remains a prominent element of the present map. The driving theme of this cluster continues to be the examination of individual differences in the prediction of performance. The cluster contains the “contextual performance” term, consistent with the personality-performance model presented by Johnson (2003). The continued attention to personality traits predicting performance is illustrated in the meta-analysis by Dudley, Orvis, Lebiecki, and Cortina (2006) and a growing literature examining the role of context in shaping the personality-performance literature (Tett & Burnett, 2003).

The *expanded job attitudes* cluster (*N* = 63 terms) remains almost identical to that of the previous map, with key terms such as “job satisfaction”, “value”, “attitude” and “turnover”. Consistent with previous decades, research continued to investigate the job satisfaction-performance relationship (e.g., Sy, Tram, & O'Hara, 2006; Wright, Cropanzano, & Bonett, 2007), the effect of commitment on performance (e.g., Fu & Deshpande, 2014; Hunter & Thatcher, 2007; Jaramillo, Mulki, & Marshall, 2005) and a strong research tradition using the job demands-resource model (Bakker & Demerouti, 2007). This cluster also depicts developments in relation to the fit literature. “Fit”-related terms increased twofold during this period and a meta-analysis by Kristof-Brown et al. (2005) showed consistent effects of fit constructs on job satisfaction, but more complex relationships with job performance.

Attesting to the study of OCBs as a bona fide research area, the *job attitudes* cluster from the previous map is now defined by the dramatic growth of OCB-related terms including “OCB”, “OCBI”, and “OCBO”; as such this cluster is now referred to as the *OCB and job attitudes* cluster (*N* = 136). Continuing to cement the distinction between OCBs and task performance, Hoffman, Blair, Meriac, and Woehr (2007) found OCBs to be more highly related to attitudinal variables compared to task performance. Of note is the dramatic increase in prominent leadership-related terms (e.g., “transformational leadership” and “LMX”). These terms reflect the longstanding tradition to leveraging social exchange theory in understanding the role of leaders in shaping subordinates’ OCBs (Cropanzano & Mitchell, 2005; Ilies, Nahrgang, & Morgeson, 2007) with consistent support for the positive effect of transformational leadership and high LMX (Piccolo & Colquitt, 2006; Wang et al., 2005). A final theme within this cluster are trickle-up effects of individual performance on group outcomes as evident in terms such as “group”, “team”, and “cross level”. The meta-analysis by N. P. Podsakoff, Whiting, Podsakoff, and Blume (2009) demonstrated OCBs to be related

to a number of important individual-level outcomes (e.g., performance ratings, turnover) as well as collective outcomes (e.g., productivity, unit-level turnover).

The fifth cluster, *adaptive and proactive performance*, (*N* = 146 terms) evolved from the earlier cluster of *proactive concepts.* Relative to its previous incarnation, the cluster includes more behaviourally-oriented terms, as well as those concerned with coping with change (e.g., adaptive performance) or initiating change (e.g., personal initiative, proactivity, job crafting and i-deals). The literature on adaptive performance distinguished reactive adaptive in response to an external change, whereas anticipatory adaptive performance is a change in behavior occurring prior to an anticipated external change (Jundt et al., 2015), with the latter definition overlapping with proactivity. A meta-analysis by Huang, Ryan, Zabel, and Palmer (2014) distinguished antecedents of reactive and anticipatory adaption.

Proactivity research also burgeoned during this time, with attention moving to behaviors rather than proactive personality (Parker, Williams, & Turner, 2006), Much research examined the antecedents (Fritz & Sonnentag, 2007; Ohly, Sonnentag, & Pluntke, 2006; Parker et al., 2006) and consequences (e.g., Thomas et al., 2010) of proactive behaviour. A meta-analysis of 107 studies by Fuller and Marler (2009) showed that proactive personality predicts proactive work behaviors and, in turn, supervisor ratings of overall job performance whereas Parker and Collins (2010) demonstrated 11 types of proactive work behaviour formed three higher-order factors with differential antecedents.

The sixth cluster is also a departure from the previous decade's map. We refer to this cluster as *careers* (*N* = 99 terms) because of the dominance of several career-related terms (e.g., "career development" and "career success"). The cluster reflects a growing concern for the longer-term impact of work behaviors for individuals. For example, Thompson (2005) showed that proactive personality is positively related to networking-building (which in turn predicts career success), as well as initiative-taking both of which in turn predicted overall

job performance. “Core self-evaluations”, or one’s overall assessment about their worthiness, competence, and capabilities (Judge, Locke, Durham, & Kluger, 1998), also emerged within this cluster. A meta-analysis by Judge and Bono (2001) found that core self-evaluations positively related to job performance with a magnitude similar to that reported for conscientiousness by Barrick and Mount (1991).

As well as the developments reflected in the scientific map, two important integrative models of individual performance were introduced in this period. The first is the *great eight competency framework***.** Competency models reflect how work is accomplished as opposed to just the outcomes of behavior (Catano, Darr, & Campbell, 2007). Bartram's (2005) evidence-based competency framework, validated across 29 studies and 10 countries, is structured hierarchically with eight competency domains at the highest level, 20 competency dimensions across the domains, and 112 competency components across the dimensions. Some scholars have criticised the model for confounding knowledge, skills, and performance (Campbell & Wiernik, 2015), as evident in such components as “thinking quickly”. The inclusion of components such as “meeting customer expectations” also confounds outcomes and performance. There is limited independent assessment of this framework, at least partially due to proprietary rights surrounding the instrument.

A further integrative model introduced in this period – and in fact the one we focus on most in this article – was Griffin, Neal, and Parker’s (2007, Table 2) *model of positive work role behaviors***.** This model combined role theory with an analysis of context to specify nine performance dimensions derived from the combination of two overarching dimensions: forms of role behavior (related to uncertainty) and levels of contribution (related to interdependence). The forms of behaviour (proficiency, adaptivity, proactivity) were argued to be relevant to different degrees of uncertainty, or unpredictability in work inputs, processes, or outcomes. When uncertainty is low, then employees can closely follow

prescribed job roles (proficiency) but as uncertainty increases, employees need to take on more dynamic and emergent roles within the organization, including reacting to change (adaptivity) as well initiating change (proactivity). The second dimension, levels of contribution, is based on the requirement for interdependence at work and distinguishes behaviors that contribute to effectiveness via individual tasks, contribution to the team, and contribution to the organizational context. In their initial paper, Griffin et al. presented factorial evidence for the distinctiveness of the nine types of performance and evidence of unique antecedents. Neal, Yeo, Koy, and Xiao (2012) similarly showed how big five personality dimensions related differentially to the various types of performance in the model. In the next section, we will synthesize the literature using this model.

Insert Table 2 here

Summary of How the Individual Work Performance Literature Developed

The individual work performance literature as a whole shows theoretical progression; however, the vast number of disconnected constructs militates against the integration of sub-research areas (e.g., OCBs, proactivity). Unfortunately, the variegation at the construct-level does not produce a coherent picture when viewed at a distance. We conclude that the individual work performance literature has largely developed in historical factions (e.g., the *personnel selection* and *job attitudes* clusters) that have had unique interests in the study of performance but lack a comprehensive theory to bridge topic areas. Consequently, we find strong evidence that many performance constructs have developed in desolation from one another and there remains little understanding of how various performance constructs relate to one another. To build a more integrated picture, we next systematically develop a nomological network that captures the relationships among various performance constructs, antecedents, and outcomes (Cronbach & Meehl, 1955). As Schwab (1980) argued, constructs are only valuable to the extent to which they relate to other valued constructs. Whereas

efforts have been made to identify nomological networks within specific performance topics (e.g., Parker & Collins, 2010; Spitzmuller, Van Dyne, & Ilies, 2008; Thomas et al., 2010; Van Dyne et al., 1995), there has been little research that seeks to bring the various networks together (Campbell, 2012). Our goal is to do just that in the next section.

Synthesizing the Nomological Network of Performance

The second goal of our paper is to synthesize and extend theory by establishing a comprehensive nomological network. We pursue this goal via two strategies. First, we use the Griffin et al. (2007) performance model as the underpinning framework to analyse how various performance constructs "fit together". We assess whether and to what extent this model can be used to synthesize diverse concepts. As such, we address the critical issue of variegation within the field. Our second strategy is to synthesize antecedents and outcomes of different performance constructs, again using the underpinning Griffin et al. model.

We use the Griffin et al. model as our underpinning framework for several reasons. First, this model is theoretically driven, grounded in role theory as well as an analysis of context. Second, this model integrates research across most of the key performance concepts, making it one of the most comprehensive models. Third, the model directly links to key aspects of organizational context, notably the interdependence and uncertainty of situations. Context has been argued to be an essential feature of work role performance (Hattrup & Jackson, 1996) yet is most often ignored (Austin & Villanova, 1992; Bailey, 1993; Johns, 2006). Fourth, the model circumvents the issue of in-role versus extra-role behavior by defining performance in terms of behaviors contributing to effectiveness - regardless of perceived role prescriptions (Morgeson, Delaney-Klinger, & Hemingway, 2005; Morrison, 1994; Vey & Campbell, 2004). Finally, by distinguishing the level of contribution (individual, team, organization), this model recognises the inherent nested nature of much organisational work and also draws parallels with Campbell's et al. (1990) categorization of

performance as either job-specific or job-non-specific, Williams and Anderson's (1991) distinction between OCBI and OCBO, as well as the work of Van Dyne et al. (1995) who classified beneficiaries of behavior as either the self, other people, or the organization.

We turn first to the question of whether this model is useful in capturing the diversity of constructs in the individual work performance literature.

A Synthesis of Individual Work Performance Constructs

In the scientific mapping section, we identified 97 unique performance constructs, and now ask: what extent do these constructs fit together in any sort of coherent way? In this section, we assess the extent to which the framework proposed by Griffin et al. (2007) provides a useful vehicle for fostering synthesis. This framework classifies work behaviors into proficient, adaptive, and proactive forms of performance, with each from being directed toward outcomes at the individual-, team-, and organization- level, resulting in nine broad performance dimensions (see Table 1). Using a range of information, including scale items, definitions, and empirical studies, we categorized all of the performance constructs into the model, with most constructs fitting well. With this said, we also highlight gaps where constructs do not fit well and propose opportunities for research and construct refinement.

Table 3 summarises our synthesis and contains the full list of performance constructs, each categorized into the nine performance dimensions. The following sections unpack these results, beginning with proficient forms of performance, classified by level of contribution, followed by adaptivity and proactivity.

Insert Table 3 here

Proficient Forms of Performance

Proficient performance refers to "behaviors that can be formalized and anticipated in advance" (Griffin et al. 2007, p. 331), including formal and informal requirements and

expectations of organizational members. The emphasis placed on this type of performance is evident in the fact that we identified 50 performance constructs as being types of proficiency including, as we elaborate next, several OCBs (Table 3). Indeed, we classified 71% of the OCB constructs[4] reviewed by N. P. Podsakoff et al. (2014) as being forms of proficiency.

Individual task proficiency. Griffin et al. (2007, p.331) defined individual task proficiency as behaviors "that can be formalized and are not embedded in a social context… [that] reflect the degree to which an employee meets the known expectations and requirements of his or her roles as an individual". This category represents the essence of the "task performance" term visualized in the bibliometric analysis and encapsulates many core performance dimensions including "job-specific", and "non-job-specific" (Campbell et al., 1993), "job-role performance" (Welbourne et al., 1998), "task performance" (Johnson, 2003), and "presenting and communicating information" (Bartram, 2005). All these dimensions concern expected performance of individuals in relation to their tasks, particularly in light of the growing importance of the knowledge and service industries. We identified 25 performance constructs that fit within this category (Table 3, individual task behaviors – proficiency); showing the importance of this category.

Griffin et al. (2007) also argued that various OCBs could be conceptualized as types of individual task performance because these behaviours can be readily anticipated in advance, especially when work is conducted interdependently (e.g., helping; Carpini & Parker, 2017), and OCBs can often be conceptualized as a high-degree of proficiency (e.g., conscientiousness); a view echoed in recent work by Dekas, Bauer, Welle, Kurkoski, and Sullivan (2013) on OCBs amongst knowledge workers. Carpini and Parker (2017) elaborated this perspective and identified 12 OCB-related constructs as types of individual task

[4] Consistent with the purpose of this review, we excluded self-development, self-training, and career development as these are directed at the self (Grant & Ashford, 2008).

proficiency; categorizing them as “persistence and effort”, “adherence to rules and procedures”, and “attendance and punctuality”. Several scholars have identified persistence and effort as important types of performance including Campbell et al. (1993), Borman and Motowidlo (1997), and Bartram (2005). In reviewing the OCB literature, Carpini and Parker (2017) found multiple examples of constructs with strong elements of persistence and effort (e.g., personal industry, job dedication). With this said, demonstrating persistence and effort in the pursuit of one’s own tasks is not necessarily going “above and beyond” but rather reflects a high degree of individual task proficiency (Griffin et al., 2007).

The adherence to rules and established procedures has long been recognized as a core element of individual job performance and are formalized in job descriptions and codes of conduct. Indeed, Katz (1964, p. 134) observed, “Once people enter a system they accept the fact that membership in the system means complying with legitimate rules”. Adherence to both formal and informal rules are evident in multiple performance constructs (Bartram, 2005; Borman & Motowidlo, 1993; Farh, Earley, & Lin, 1997; Van Dyne et al., 1995). For example, the safety literature includes constructs such as “using personal protective equipment” and “engaging in work practices to reduce risk” (Burke et al., 2002), all of which capture this “generalized acceptance of the rules of the game” (Katz, 1964, p. 134). Orderliness appears to be a related theme (Bateman & Organ, 1983; Dekas et al., 2013; Van Dyne et al., 1995). Indeed, most formal procedures and rules are designed to reinforce consistency from the bottom-up and as such contribute at the individual level.

The final category of OCB constructs identified by Carpini and Parker (2017) as a type of individual task proficiency is attendance and punctuality. Most organizations have clear standards for attendance (e.g., amount of annual leave and sick days) as well as formal and informal expectations related to punctuality which are reflected in several constructs (Farh, Earley, & Lin, 1997b; Moorman, Blakely, & Niehoff, 1998; Smith, Organ, & Near,

1983b; Van Scotter & Motowidlo, 1996). Interestingly, we also include OCB-Os within the individual task proficiency category as this construct emphasises attendance and the adherence to both formal and informal rules (Williams & Anderson, 1991).

In addition to the conceptual fit of OCBs as types of proficiency, some empirical evidence supports our reasoning. Turnley, Bolino, Lester, and Bloodgood (2003) observed a correlation of .85 between in-role performance and OCB-O, and a correlation of .74 between in-role performance and OCB-I with similar patterns reported by Le et al. (2011) and Sinclair, Tucker, Cullen, and Wright (2005). Across the literature, we find many examples of studies demonstrating high correlations between task performance and OCB constructs (Allen & Rush, 1998; Hoffman et al., 2007; Piccolo & Colquitt, 2006; Wang et al., 2005).

Team member proficiency. Team member proficiency involves meeting the expectations and requirements that arise from being a contributing member of work group. Scholars have long argued for the integral role of helping and cooperation: "Cooperation is a fundamental aspect of organizational life that has become increasingly important… Interdependent job roles are more common… Indeed, for most members of organizations, cooperation with fellow coworkers… is a routine exercise" (Flynn, 2006, p. 133-134). This observation echoes a much earlier observation by Katz (1964, p. 132) "that we are not aware of the co-operative nexus any more than we are of any habitual behavior like walking." In essence, we suggest co-operation is an expected requirement in interdependent contexts, and hence is best considered as a type of proficiency.

In support of this argument, the continued centrality of cooperation is evident in a review of occupations listed on O*NET, a comprehensive national (US) information system describing both worker and occupation attributes across 957 occupations (Peterson et al., 2001). O*NET includes "interpersonal relationships" as one of three core work context dimensions, representing the extent to which individuals work interdependently within a

given occupation. With 80% of occupations listed on O*NET rating high on this dimension, there is little doubt of the importance of interdependent work in the modern workplace[5]. These observations are consistent with empirical work by Morrison (1994) and Vey and Campbell (2004) who demonstrated the majority employees believe helping and cooperating with coworkers to be part of their designated roles, can be readily anticipated, and are an essential element of organizations. Indeed, the pervasiveness of interdependent work, as well as the requirements for coordination and cooperation is well documented (Dekas et al., 2013; Nielsen et al., 2012; Van der Vegt & Van de Vliert, 2005).

Team member proficiency is conceptually similar to several existing interpersonal performance dimensions found across various taxonomies (Borman & Motowidlo, 1993; Campbell, 2012; Williams & Anderson, 1991). In their recent review of the OCB literature, Carpini and Parker (2017) observed that many of the OCB constructs could be further categorized according to two broad themes: helping and cooperation. OCB constructs such as "altruism" (Becker & Vance, 1993) and "interpersonal helping" (Moorman & Blakely, 1995) all capture assistance to team or group members in the pursuit of organizational goals (Organ, 1997). Alternatively, constructs such as "team-role performance" (Welbourne et al., 1998) and "supporting and cooperating" (Bartram, 2005) readily fit within the cooperation dimension. Such a classification of constructs is consistent with the meta-analytic findings of LePine et al. (2002) who, upon reviewing the OCB literature, concluded that many OCB constructs represent a general tendency toward helping and cooperation.

Organization member proficiency. Griffin et al. (2007, p. 331) defined organization member proficiency as behaviors reflecting "the degree to which an individual meets the

[5] Data obtained from: www.onetcenter.org. The "interpersonal relationships" dimension is a composite of three sub-dimensions assessed on five-point Likert-like scales: "work with work group or team", 0 = "not important at all", 50 = "important", and 100 = "extremely important" (97% = "important" or above); "responsibility for outcomes and results", 0 = "no responsibility", 50 = "moderate responsibility" and 100 = "very high responsibility" (68% = "moderate responsibility" or above); "coordination", (75% = "important" or above).

expectations and requirements of his or her role as a member of an organization." Constructs classified within this category (e.g., "organization role behavior") embody a general tendency for representing the organization in a positive light and participating in organizational affairs such as sitting on committees. As Griffin et al. (2007, p. 331) explain, "behaviors such as defending organizational reputation and participating in organizational committees would be considered organization member proficiency… as these contributions are often expected". Building on these observations, many constructs can be distinguished based on their intended target (Grant & Ashford, 2008) with some types of performance directed at those outside the organization (e.g., clients), and some directed internally (e.g., sitting on committees).

Employees are often considered organizational ambassadors charged with representing the organization's interest to the wider community. As such there are multiple examples of constructs capturing organizational member behavior directed at external clients (George & Jones, 1997; Johnson, 2003; Moorman et al., 1998; N. P. Podsakoff, Podsakoff, MacKenzie, Maynes, & Spoelma, 2014; Wisecarver, Carpenter, & Kilcullen, 2007). Conversely, we also find several types of performance directed toward the organization and its internal stakeholders (Farh et al., 1997; Graham, 1991; P. M Podsakoff, et al. 1990).

Adaptivity as a Form of Performance

While proficiency is fundamentally about the required and expected types of individual performance, scholars have increasingly considered the dynamic forms of performance that facilitate the achievement of organizational objectives (Allworth & Hesketh, 1999). Okakura Kakuzo, a Japanese scholar, is credited with saying, "The art of life is a constant readjustment to our surroundings." Indeed, in the workplace employees need to adapt to economic, technological, regulatory, and structural changes in work (Chan, 2001; Jundt et al., 2015; Parker, Van den Broeck, & Holman, 2017).

Among the various approaches to individual adaptivity (see Baard, Rench, & Kozlowski, 2014 for review), we focus on adaptive performance, or "the degree to which individuals cope with, respond to, and/or support changes that affect their roles" (Griffin et al., 2007, p. 331 – 332). Adaptive performance is distinct from the trait of individual adaptivity, or the ability or skills necessary for adaptation, as well as the motivation to adapt (Schmitt & Chan, 2014); and is narrower than the definition presented by Baard et al. (2014, p. 50), who define "performance adaptation as cognitive, affective, motivational, and behavioral modifications made in response to the demands of a new or changing environment, or situational demands." As such, we do not consider constructs such as "willingness to adapt" (Cronshaw & Jethmalani, 2005), or any other such motivational, cognitive and emotional states. Although the majority of the adaptivity literature conceptualizes adaptive performance as a response to external changes, few models of adaptivity explicitly connect types of adaptive performance to the wider organizational context; integrating the adaptivity literature within the broader Griffin et al. model contributes a much needed link to the broader context (Jundt et al., 2015).

In essence, adaptive performance is about meeting changing environmental demands. Multiple constructs fall within this category, such as "overcoming challenges or crises" in the pursuit of organizational goals (Campbell et al., 1993; Tucker & Gunther, 2009), "dealing with ambiguity" (Bartram, 2005), and "reactive adaptivity" (Griffin & Hesketh, 2003). More contextually-specific examples include "adaptive selling" (Spiro & Weitz, 1990) and the "communication of critical incident information" (Burke, Sarpy, Tesluk, & Smith-Crowe, 2002). Finally, Carpini and Parker (2017) also include "sportsmanship" as a type of adaptivity. The authors argue that the "get on with it" facet of sportsmanship represents a core element of individual adaptivity (Bachrach, Bendoly, & Podsakoff, 2001). We identified

a total of 19 adaptive performance constructs and classified them by their level of contribution with many contributing at multiple levels.

Individual task adaptivity. Individual task adaptivity is defined as adapting to changes in one's core individual tasks and learning new skills when necessary (Griffin et al., 2007). For example, surgeons in a new hospital adapt to new instrument sets, anaesthesiologists to new equipment, and nurses to new rules and procedures (Carpini, Flemming, & Parker, 2015). Table 3 shows that constructs that fit within this category including "task adaptivity" (Smith, Ford, & Kozlowski, 1997), "adapting and responding to change" (Bartram, 2005) and several of the dimensions identified by Pulakos et al. (2000).

Team member adaptivity and organization member adaptivity. We combine our discussion of constructs reflecting team and organizational member contributions as the adaptivity literature seldom distinguishes between them (Griffin et al. 2007). Exceptions are Bartram (2005) who identified "adapting to the team" as a sub-competency, and Carpini and Parker (2017) who argued that "OCB-supervisor" is a type of team member adaptivity when conceptualizing the supervisor as a core member of a team. Indeed, in reviewing the current measure of OCB-supervisor, 40% of the items fit within the team member adaptivity role category: "*Helps when you have a heavy workload*" and "*Accepts added responsibility when you are absent*" (Rupp & Cropanzano, 2002, p. 942). Both of these constructs focus on the need for the individual to constructively adapt to changes within the team environment.

Shifting to organization member adaptivity, constructs that fit clearly within this category include "demonstrating cultural adaptivity" in relation to working with other groups within the organization, and other organizations (Pulakos et al., 2000). Griffith and Hesketh (2003) included the need for individuals to adapt their behavior when working cross functionally (team or department). These performance constructs are examples of organization member adaptivity as this behavior goes beyond one's immediate team.

There are several constructs that span the team or organizational member roles which Table 3 shows clustering in two groups: "the need to adapt to other people" and "the need to adapt to demanding situations". Adapting to others is an increasingly important type of performance (Allik & McCrae, 2004) as the interdependence of work continues to intensify in many industries (see O*NET data above; Bartram, 2005; Pulakos et al., 2000). Furthermore, the need to adapt in the face of challenging situations has become a prominent theme in the adaptivity literature with examples including Pulakos et al.'s (2000, p. 617) "handling emergencies or crisis situations" and "handling work stress".

Proactivity as a Form of Performance

Proactive behavior is defined by the presence of three critical elements: self-initiation, a future-focus, and change (Parker & Collins, 2010). For example, an employee only exhibits proactive upward voice if the voice is self-initiated, without the supervisor soliciting input. Similarly, creativity involves both agency and foresight but lacks the behavioral change element, which distinguishes it from individual innovation (Hammond, Neff, Farr, Schwall, & Zhao, 2011; Scott & Bruce, 1994).

Research on individual proactivity and related constructs shows exponential growth over the past 20 years (see Figure 1 and bibliometric analysis; Potočnik & Anderson, 2016). Individual proactivity has been linked to numerous important outcomes including: job satisfaction (Thomas et al., 2010), career progression (Seibert, Kraimer, & Crant, 2001), task performance (Thompson, 2005; Tornau & Frese, 2013), and has been argued to be a critical ingredient for organizational performance (Bateman & Crant, 1993; Parker, 2000). Indeed, Katz (1964, p. 133) observed in relation to the proactive sharing of constructive ideas that "the system which does not have this stream of contributions from its members is not utilizing its potential resources effectively."

In total, we classified 26 different constructs as types of proactivity although only 14 of those constructs were clearly directed to only one level contribution; the other constructs span multiple levels and did not have specified targets or the target is ambiguous. These general proactive constructs include the "voluntary performance of task activities" (Borman & Motowidlo, 1993), the "innovator role" (Welbourne et al., 1998), "voice" (Van Dyne & LePine, 1998), "taking charge" (Morrison & Phelps, 1999), and "proactive work behavior" (Parker & Collins, 2010). Thus future research should clarify the intended level of contribution of various proactive performance constructs and thus support more fine-grained theory building. Furthermore, a review of the measures suggests considerable overlap. For example, voice (Van Dyne & LePine, 1998), innovation (Scott & Bruce, 1994), and taking charge (Morrison & Phelps, 1999) all include at least one item which entails the promotion and champion of ideas to others or the expression of a unique opinion (Tornau & Frese, 2013) and virtually all the measures include items describing the generation and implementation of ideas to achieve organizationally functional outcomes.

It is equally important to distinguish proactive work performance from closely related constructs including "change-oriented citizenship behavior" (Chiaburu et al., 2013; Choi, 2007) and "change and innovation-related constructs" (Potočnik and Anderson, 2016). Chiaburu et al., (2013, p. 292) defined change-oriented citizenship behavior as "proactive actions aimed at identifying and implementing changes in work processes, products, and services" and included creative performance, proactive behavior, taking charge, and adaptive performance without considering the origin of the change. We also distinguish proactive work performance from more general change and innovation behaviors discussed by Potočnik and Anderson (2016), such as job crafting, that encompass a wide range of different behaviors. As discussed later, future research should consider how generic constructs involving work performance link to specific performance constructs described here.

Individual task proactivity. Individual task proactivity is constructive self-initiated, anticipatory action that seeks to change the nature of work tasks (Griffin, Neal, & Parker, 2007). There is dearth of constructs explicitly assessing the extent to which employees are proactive in the performance of their core tasks. Apart from Griffin et al. (2007), we did not locate any other measure using one's core tasks as a referent. Although voice and taking charge are examples of proactive performance constructs, the measures of these behaviours do not specify a referent, and when they do, it is often as a team member contribution (e.g., Liang, Farh, & Farh, 2012; Van Dyne & LePine, 1998)

At first glance , it might appear that constructs such as task revision (Staw & Boettger, 1990), job crafting (Wrzesniewski & Dutton, 2001), and i-deals (idiosyncratic deals; Hornung, Rousseau, Glaser, Angerer, & Weigl, 2010) are examples of individual task proactivity. However, these proactive behaviours are primarily directed toward the self (Grant & Ashford, 2008; Potočnik & Anderson, 2016) as evident in the definition of job crafting: "In job crafting, employees independently modify aspects of their jobs to improve the fit between the characteristics of the job and their *own* needs, abilities, and preferences," (Tims, Bakker, & Derks, 2013, p. 230; emphasis added). Similarly, i-deals are defined as "employment terms individuals negotiate *for themselves,* taking myriad forms from flexible schedules to career development" (Hornung et al. 2010, p. 188; emphasis added). Although job crafting can generate value for the organization (e.g., Leana, Appelbaum, & Shevchuk, 2009), the primary purpose is to benefit the individual, falling outside the performance definition of Campbell et al. (1993). Thus, our conceptualization of individual task proactivity is more stringent than the original operational definition presented by Griffin et al. (2007) and distinguishes proactive performance constructs from closely related proactive behavior constructs. The lack of constructs explicitly addressing individual task proactivity represents a rich opportunity for research and theory building.

Team member proactivity. Team member proactivity is defined as "the extent to which an individual engages in self-starting, future-directed behavior to change a team's situation or the way the team works" (Griffin et al., 2007, p. 332). Building on established OCB-affiliative constructs (Van Dyne et al., 1995), a stream of research within the proactivity literature has examined general forms of interpersonal proactivity. Extending the work by Grant and Ashord (2008), Belschak and Den Hartog (2010) introduced interpersonal proactivity which is defined as proactive behaviors "directed at the work-group/colleagues" (p. 476) and demonstrated its discriminant validity from organizational and personal proactivity. The measurement of the construct included proactive knowledge sharing, newcomer socialization, and collaborative idea implementation. Additionally, Grant, Parker, and Collins (2009) and Spitzmuller and Van Dyne (2013) both presented proactive helping constructs that recognize providing help can be proactive as well as reactive.

Voice is a second major form of team member proactivity. Voice was defined by Van Dyne and LePine (1998, p. 109) as "making innovative suggestions for change and recommending modifications to standard procedures even when others disagree." Although the construct definition does not specify this type of performance as being a team-level contribution, the items use the work group as a referent throughout making this a form of team member contribution. There are two important recent extensions of the voice construct. First, the work of Liang et al. (2012) who identified two forms of voice: promotive (defined as "employees' expression of new ideas or suggestions for improving the overall functioning of their work unit or organization", p. 74), and prohibitive (defined as "employees' expression of concern about work practices, incidents, or employee behavior that are harmful to their organization", p. 75). Again, although the operational definition appears to position this construct as an organization-member contribution, the measurement items all use the "work unit" and "colleagues" as referents. Second, work by Liu, Zhu, and Yang (2010)

differentiated between voice directed toward peers (speaking out) and voice directed at the supervisor (speaking up). While the specific target within the team is different (peers vs. supervisors) between these two types of voice, these constructs remain team member contributions as supervisors and peers are part of the overarching team structure.

Organization member proactivity. Organization member proactivity is defined as "the extent to which an individual engages in self-starting, future-directed behavior to change her or his organization and/or the way the organization works" (Griffin et al., 2007, p. 332). Mirroring our analysis of the team member proactivity construct, we find constructs reflecting general proactive performance as an organizational member as well as more specific forms of voice.

Belshak and Den Hartog (2010) developed a measure of proactive performance directed at the organization. Replicating the findings of Griffin et al. (2007), the authors demonstrate organizational commitment to be an antecedent of "organizationally-directed proactive performance". Another general type of proactive organizational contribution is "strategic scanning", defined as "being concerned with proactively improving the organization's fit with the environment, such as by identifying future organizational threats and opportunities" (Parker & Collins, 2010, p. 639). Together, these constructs represent general individual proactive behaviors contributing at the organizational-level.

Several voice constructs can be seen as organizational member proactivity. In recent reviews, both Bashshur and Oc (2015) as well as Klaas, Olson-Buchanan, and Ward (2012) argued "voice", "grievance filing", "whistle-blowing", "informal complaints", "issue selling", "upward-feedback", and "participation in suggestion systems" to be forms of voice. Carpini and Parker (2017) extended these syntheses to include "advocacy participation", "principled dissent", "organizational participation", as well as "organizational identification"

(Farh et al., 1997). The commonality across all these constructs is the verbal communication of opportunities for improvement that are intended to benefit the organization.

Finally, we also include "issue selling" as a type of individual performance contributing at the organizational level. Issue selling is defined as "individuals' behaviors that are directed toward affecting others' attention to and understanding of issues" (Dutton & Ashford, 1993), and has been argued to be "an important form of change instigation… that enhances an organization's dynamic capability…by influencing what issues are treated as important enough to trigger action" (Dutton, Ashford, Lawrence, & Miner-Rubino, 2002, p. 355). Issue selling has been argued to be a critical mechanism through which change initiatives get activated (Dutton, Ashford, O'Neill, & Lawrence, 2001) and a means through which middle managers can shape the strategic agenda of the organization (Dutton & Ashford, 1993). Lending on the work of Liu et al. (2010), issue selling can be conceptualized as a type of speaking up, but in this instance it is directed at achieving changes at the organizational-level instead of within the team. Empirical work by Parker and Collins (2010) demonstrated issue selling and strategic scanning could be clustered together within a higher-order factor they called "proactive strategic behavior" and this higher-order factor is highly correlated to general proactive work behaviours including voice and taking charge.

While we conceptualize constructs such as voice, issue selling, and principled dissent as forms of voice contributing at the organizational-level, we do acknowledge that many represent unique forms of voice with different forms, focus, and level of identifiability (Klaas et al., 2012). For example, grievances operate through formal mechanisms, are justice oriented, and generally highly identifiable. In contrast, upward-feedback (speaking up) is often done through informal means, can be improvement or justice oriented, and identifiable. Klaas et al. (2012) noted that much of the research on voice has focused on the highly visible forms of voice (e.g., speaking out/up), neglecting more subtle forms (e.g., anonymous

suggestion making), which is a critique that can be applied to other proactive constructs. For example, a nurse may implement a new multidisciplinary briefing procedure in theatre to improve team coordination, which would be highly visible, whereas another might make more subtle changes to the way instrumentation is prepared and laid out to improve performance, which would be much less visible to others (Carpini et al., 2015).

Summary of a Synthesis of Individual Work Performance Constructs

Reflecting on Schwab's (1980) argument that constructs are only valuable to the extent to which they relate to other valued constructs, we have taken an important - albeit often ignored step - in clarifying similarities and differences amongst performance constructs. We leveraged the Griffin et al. (2007) model to classify 97 unique performance constructs by their form and level of contribution. Results of our synthesis suggest that all constructs could be meaningfully integrated within the framework and important links between constructs could be established based on the theoretical dimensions of interdependence and uncertainty.

Consequently, our synthesis has established bridges across research areas, linking together topic areas that were previously isolated from one another (see science map, Figure 2). Overall, 52 constructs were classified as types of proficiency, 19 as adaptive, and 27 as proactive (see Table 3)[6]. Of the 52 proficiency-related constructs, 25 were classified as types of individual task proficiency reflecting the historical emphasis on this type of performance (see historical review; Figures 1 and 3). Given the adaptive and proactive performance literatures are much more recent than the proficiency literature; it is not surprising to find that adaptive and proactive constructs have yet to fully distinguish between the levels of contribution. This highlights opportunities for additional theoretical and empirical work to refine constructs (e.g., voice and sportsmanship), a point we return to in the Discussion.

[6] The total here is 98 as opposed to 97 because OCB-supervisor is argued to be both a form of team member proficiency as well as team member adaptivity (Carpini & Parker, 2017).

Finally, this approach is particularly valuable in so far as our synthesis might allow us to better come to grips with the array of antecedents and outcomes related to individual work performance. Indeed, the vast amount of research on the antecedents and outcomes of performance far outweighs attention paid to the dimensionality of performance itself (Campbell & Wiernik, 2015) and thus would greatly benefit from our framework that can facilitate the integration research findings. Next, we leverage our synthesis to further elaborate the relationships between valued constructs by reviewing existing evidence related to how types of performance are related to important antecedents and consequences.

A Synthesized Nomological Network of Antecedents and Consequences of Performance

The different forms (proficiency, adaptivity, proactivity) and the different levels of contribution (individual, team, organization) provide a theoretical basis for distinguishing the antecedent and consequences of individual performance. To date, researchers have largely drawn antecedents from the domain of their primary topic area – operating within theoretical silos. For example, the OCB literature draws from antecedents rooted in social exchange theory such as justice, LMX, and leadership (see Figure 2; Konovsky & Pugh, 1994). Conversely, the proactivity literature emphasizes work design, motivational factors such as self-efficacy, and individual differences like proactive personality (Crant, 2000; Parker, Williams, & Turner, 2006). This means that research findings from one research domain do not necessarily translate to other similar domains, thus hindering our understanding of key phenomena. The consequences of performance have received much less attention, as evident through our bibliometric analyses, with sparse theory and empirical work linking individual work performance to higher-level outcomes.

The above features of performance research limit the conceptual space within which to develop new theoretical ideas or to implement novel practical strategies for performance improvement. Thus the full value of the literature remains untapped due to a lack of

understanding how constructs relate to one another (Schwab, 1980). The changing context of work also demands a better articulated nomological network of constructs related to performance. In this section we elaborate the nomological network by synthesizing research on the antecedents and consequences of, first, the different forms of performance and, second, the different levels of contribution. Specifically, we incorporate theory and results from 93 scholarly works that have been influential in summarizing and shaping understanding of the work performance domain (see Table 4)[7]. While previous meta-analyses and qualitative reviews are limited by their focus (e.g., OCBs, proactivity), our synthesis brings together key research findings across theoretical silos using our integrative framework.

Insert Table 4 here

To organize the antecedents of individual work performance derived from existing research, we adopt the distinction between 'capacity', 'willingness', and 'opportunity' (context; Blumberg and Pringle, 1982). Capacity to perform includes both proximal capacity determinants (knowledge and skill), as well as more distal capacity antecedents (e.g., ability), with the latter often having their effect via proximal determinants (Campbell et al., 1993; Griffin & Neal, 2000). Constructs belonging to this family of antecedents is largely represented by the *personnel selection perspective* cluster (see Table 2 and Figure 2). Willingness to perform similarly includes proximal determinants, which are mostly motivational states (e.g., job satisfaction), as well as more distal antecedents that affect motivation (e.g., personality). Research on willingness has largely emerged from the *motivation* and *job attitudes* clusters. Finally, opportunity to perform (context) includes core

[7] We distinguish between the types of articles covered in this section in Table 4. To ensure conceptual clarity, we only include studies where it was possible to distinguish the form and/or level of contribution of individual performance and thus exclude papers operationalization performance as "overall job performance", "performance ratings" or other similarly vague terms (Campbell, 2012). We identified relevant articles using PsycInfo and a set of keywords used in identifying the articles for the bibliometric analyses (Appendix A). We cross-validated the studies included by comparing them to those contained in other meta-analyses and reviews.

elements of the work environment such as equipment, and working conditions, as well as social elements including leadership, coworkers, policies, and work design. These contextual antecedents often have their influence on individual work performance through the more proximal determinants noted above (i.e., knowledge, skill, motivation), although they can also have direct effects on performance because they shape or constrain the opportunity for action (Blumberg & Pringle, 1982). Opportunity antecedents are found primarily across the *job attitudes* and *the good citizen* clusters.

For the consequences of performance, we build on the work of Campbell and Weirnik (2015) who distinguished between "indicators" of performance such as efficiency and productivity; and "outcomes" of performance such as sales, salary, and career advancement. In our review we refer to both types of performance consequence as "outcomes". Outcomes of individual work performance can be seen across several clusters but most notably the *management, personnel selection perspective,* and *job attitudes* clusters.

Antecedents of Form (Proficiency, Adaptivity, and Proactivity)

We identified some constructs that were antecedents across all three forms of performance and others that were more clearly linked to specific forms. For example, job satisfaction, cognitive ability, and transformational leadership were consistent drivers of all three forms suggesting their enabling and motivational underpinnings are important drivers of work-related behaviors regardless of the level of uncertainty. Antecedents of specific forms included cognitive ability and role clarity for proficiency, meta-cognition and support for adaptivity, and self-efficacy, proactive personality, and autonomy for proactivity.

The relative importance of different forms of behavior is a function of uncertainty and predictability in work requirements. When predictability is high, performance requirements can be anticipated in advance and formalized through job descriptions and other formal and informal processes (proficient performance), but when uncertainty is high, tasks cannot

always be pre-specified and things change, so adaptive and proactive performance is required to achieve organizationally functional outcomes (Griffin et al., 2007). These contextual requirements help to differentiate the kind of antecedents that are important for motivating and enabling each form of performance.

Proficiency. In terms of individual capacity to perform proficiently, the most robust antecedent has been cognitive ability, or the ability to learn (Schmidt, 2002; Schmidt & Hunter, 2004). This results is likely due to the strong relationship between job knowledge and general cognitive ability (Hunter, 1986), such that job knowledge allows an individual to execute prescribe tasks to a high-degree of proficiency (Schmitt et al., 2003). The robustness of this relationship is summarized by Hunter (1986, p. 342), "the fact that general cognitive ability predicts job performance [proficiency] on all jobs needs not be theoretically proved. It can be demonstrated by [the] brute force [of] empirical studies showing positive correlations for a large representative sample of jobs".

In addition, there is clear evidence that proficiency is shaped by a willingness to perform, notably motivational factors such as satisfaction, commitment, engagement, and justice (Hoffman, Blair, Meriac, & Woehr, 2007; Moorman, 1991; Moorman, Blakely, & Niehoff, 1998; Sinclair, Tucker, Cullen, & Wright, 2005). The motivational mechanisms of these factors are consistent with social exchange theory such that individuals are likely to want to reciprocate positive feelings, such as satisfaction, with effort (Cropanzano & Mitchell, 2005). The propensity to get along with others (agreeableness; Bartram, 2005) and experience positive affect (P. M. Podsakoff, MacKenzie, Paine, & Bachrach, 2000) are also consistent antecedents of proficiency. Positive affect likely triggers the desire to reciprocate with effort, and in addition, can improve perceptions of self-efficacy (Baron, 1990) which motivate performance on prescribed tasks (Lyubomirsky, King, & Diener, 2005).

From the perspective of context, Griffin et al. (2007) found a positive relationship between role clarity and proficiency. A similar pattern of results was observed by Judge and Piccolo (2004) in regards to transformational leaders who provide subordinate with a clear direction. Given that individual task proficiency is about completing one's prescribed tasks, it is not surprising that clarity would foster this type of performance by reducing uncertainty.

Adaptivity. Adaptive performance, or coping with and responding well to change, has been predicted by several capacity factors, including knowledge and cognitive ability, but also – and distinct from proficiency - meta-cognition, and adaptive experience (Jundt, Shoss, & Huang, 2015). As Bell and Kozlowski (2008, p. 299) explain, "meta-cognitive activities include planning, monitoring, and revising goal appropriate behavior". The authors found meta-cognition to be positively related to adaptivity as mediated through knowledge enhancement. Meta-cognition appears to be a quite distinct capacity predictor for adaptive performance relative to other forms of performance, perhaps because it is highly related to the acquisition of new skills and knowledge, as well as self-awareness, which are implicated in adaptation (Bell & Kozlowski, 2008). Indeed, both meta-cognition and adaptive experience are likely to support adaptive performance through the acquisition and implementation of novel information (Pulakos, Arad, Donovan, & Plamondon, 2000).

When it comes to willingness factors, evidence shows that job satisfaction and justice perceptions predict individuals' motivation to accommodate change (Fassina, Jones, & Uggerslev, 2007). For example, satisfied employees are more likely to react constructively to change: it seems they are better able to tolerate the increased stress and inconvenience that often arises when things change (Podsakoff et al. 2000). Due to the dynamic nature of change, there is inherent uncertainty, so willingness factors that enable responding to this uncertainty have been also identified as important predictors of adaptivity, including: self-efficacy (Jundt et al. 2015), mastery goal orientation (Jundt et al., 2015), openness to change

(Griffin et al., 2007; Griffin et al., 2010), and emotional stability (Bartram, 2005; Huang, Ryan, Zabel, & Palmer, 2014) – all of which play a more global role in the personal management of change. Additionally, conscientiousness is important when learning new tasks and adhering to new policies and procedures (Neal, Yeo, Koy, & Xiao, 2011).

With respect to opportunity factors, there are rather consistent findings in relation to leadership and several characteristics of the work environment that support and engender adaptivity (e.g., team support, team learning climate). Griffin et al. (2010) showed that leader vision promoted adaptive performance, which these scholars attributed to the fact that vision highlights there is a discrepancy between the current state of affairs and the desired state, and therefore endorses the need for change. Adaptive behaviour is also fostered by leader support (Jundt et al., 2015) which makes sense because adaptivity occurs when there is uncertainty and hence likely comes with anxiety. An environment that values learning by offering multiple learning activities, or a learning climate, has also been shown to foster adaptive performance (Han & Williams, 2008). In contrast to proficiency, role ambiguity and conflict (Podsakoff et al., 2000) as well as dynamic and complex work environments (Griffin et al., 2007; Schmidt & Chan, 2014; Baard et al. 2014) are strong drivers of adaptive performance because these environmental forces exert pressure on individuals to adapt.

Proactivity. Proactive performance is defined by self-initiated, future-focused, and change-oriented behavior. As such, the role of capacity in predicting proactive performance has had less attention relative to both proficiency and adaptivity. This trend makes sense because, agency is often perceived as psychologically risky, and thus scholars have argued that motivation is most crucial for proactivity (Parker et al., 2010). Nevertheless, individual studies have shown a positive correlation between both education (e.g., Van Dyne & LePine, 1998) and cognitive ability (Frese & Fay, 2001) with proactive performance. Frese and Fay (2001) argued that capacity matters for stimulating proactivity because – when individuals

possess knowledge and skill – they are more likely to experience feelings of mastery, which in turn motivates proactive behaviour. From this perspective, capacity is more of a motivational resource. It is possible that capacity matters more when it comes to promoting highly *effective* proactivity (e.g., Chan, 2006) and that it matters more for promoting highly creative forms of proactive behaviour (e.g., Wu, Parker, & de Jong, 2014).

As noted above, willingness factors (e.g., motivation) are likely to be vital for proactive performance because it involves self-initiated effort and persistence in overcoming obstacles, as well as confidence to engage in what is often considered risky behaviour. Research shows the important role of job satisfaction (Ng & Feldman, 2012; Whitman & Viswesvaran, 2010) and felt responsibility for change (Tucker, 2016) for proactive behavior. Importantly, employees are also motivated to change the status quo through enhanced role breadth self-efficacy, the perception of having the capabilities necessary to proactively carry-out a wider set of work-related tasks (Parker, 1998). Additionally, proactive performance is inherently future-focused (Parker & Collins, 2010), self-starting, and change-oriented (Parker et al., 2006) so it is unsurprising that personality variables related to these behaviors have been shown to be important, including proactive personality (Bateman & Crant, 1993; Fuller & Marler, 2009) creative personality (Hammond, Neff, Farr, Schwall, & Zhao, 2011), and openness to new experience (Tornau & Frese, 2013). Because change is often risky and challenging, it often requires individuals to transgress against norms and to be assertive in bringing about change. Consistent with this notion, ambition (Huang et al., 2014), and extraversion (Bartram, 2005) have been shown to be important predictors of this outcome.

When it comes to contextual predictors, several opportunity factors have been shown to be important. One of the most vital aspects is having job autonomy (e.g., Marinova, Peng, Lorinkova, Dyne, & Chiaburu, 2015), in part because autonomy generates the sorts of motivation required to self-initiate change (e.g., engagement, self-efficacy), and in part

because autonomy directly allows individuals the latitude to behave proactively. In a similar vein, more complex jobs offer greater opportunity for proactivity as there are more elements present and greater scope for modification (Belschak & Den Hartog, 2009; Hammond et al., 2011). Other aspects of the context also motivate proactivity. For example, with respect to the change-focus of proactive behavior, leader vision promotes this outcome (Griffin, Parker, & Mason, 2010; Lowe, Kroeck, & Sivasubramaniam, 1996), likely because it raises awareness of the need for improvement and thereby motivates change-oriented action. Evidence also shows having a positive environment conducive to taking risks is important: both climate for innovation and top management openness predict proactive behaviour (Hammond, Neff, Farr, Schwall, & Zhao, 2011). Similarly, because proactivity often requires endorsement and support from co-workers, it makes sense that team support (Marinova et al., 2015) and psychological safety (Edmondson, 2003; Edmondson & Lei, 2014) have been shown to promote this behaviour.

Antecedents of Contribution Level (Individual, Team, and Organization)

In this section we differentiate antecedents that motivate or enable performance constituting individual-, team-, and organizational- level contributions. The level of contribution of each behavior reflects the degree of interdependence. When interdependence is low the relationship between behavior and effectiveness is relatively straight forward; however, when interdependence increases (team or organization member behaviors) the relationship between individual behavior and effectiveness become more complex (Griffin et al., 2007). The various levels of contribution are related to one another through an additive composition model (Chan, 1998, p. 236) such that a “higher level unit [e.g., team member behavior] is a summation of the lower level units [e.g., individual task behavior]”.

Some antecedents naturally overlap with those that predict different forms, so we focus on key theoretical differences among antecedents for each level. Notably, capacity

factors show little discrimination between levels of contribution (Table 4). This is not surprising given that factors such as declarative knowledge, cognitive ability, and job experience are likely to contribute to a wide range of behaviors differing in their form rather than level of contribution. Additionally, the comparatively newer adaptivity and proactivity literatures are less well developed than the proficiency literature which means antecedents are not yet distinguished to the same degree. Finally, some antecedents reflect interdependence rather than a specific level of contribution (team or organization member behavior). Scholars have found factors including fairness (Podsakoff et al. 2000), justice (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Fassina et al., 2007; Hoffman et al., 2007), and psychological safety (Edmondson & Lei, 2014) to be positively related to both team and organization member contributions. These results are consistent with the notion that interdependence, by definition, requires organizational members to care about, consider, and support their immediate (team) and distal colleagues (organization).

Individual task behaviors. Individual task behaviors are not embedded within a larger social context and as such the relationship between behavior and effectiveness is simplest. In terms of willingness, self-efficacy (Griffin et al., 2007; Jundt et al., 2015; Tornau & Frese, 2013), commitment (Hoffman et al., 2007; Marinova et al., 2015; Rich, Lepine, & Crawford, 2010), and engagement (Marinova et al., 2015; Piccolo & Colquitt, 2006; Rich et al., 2010) have all been demonstrated to be positively related to individual task behaviors as these motivational factors support and energize effort directed toward core tasks. Additionally, conscientiousness is positively associated with individual task behaviors (Barrick & Mount, 1991; Neal, Yeo, Koy, & Xiao, 2012; Salas & Cannon-Bowers, 2001; Tornau & Frese, 2013). This is likely due to the fact that conscientiousness reflects dependability manifested in careful, thorough, and organized behavior (Barrick & Mount, 1991, p. 4), all of which are particularly important in the completion of prescribed core tasks

as well as learning new tasks. Finally, transformational leadership support individual task behaviors (Jundt et al., 2015; Piccolo & Colquitt, 2006; Wang et al., 2005), albeit through different mechanisms. Griffin et al. (2010) observed that leader vision was positively related to individual adaptivity when employees were high on openness to work role change, whereas high role breadth self-efficacy resulted in more proactive behavior.

Team member behaviors. Team member behaviors reflect interdependence within a broader team social context such that individual behavior contributes to team effectiveness rather than to individual effectiveness (Griffin et al., 2007). Antecedents emphasizing cohesiveness and identification with the group are strongly related to the willingness to support the team, its members, and constructive social structures that enable team performance. Of the motivational factors, the most distinct is team commitment. For example, studies by Van Dyne and LePine (1998) found affective commitment to the team to be positively associated with helping behavior, and Belschak and Den Hartog (2010) observed a positive relationship between team commitment and team member proactive behavior. Affective team commitment is likely to result in the team becoming an extension of oneself and thus motivates behavior directed toward the betterment of the group and its members (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002).

In addition to the willingness to contribute to the team, certain opportunity factors are also shape team member contributions. Several studies have pointed to the central role of transformational leadership in fostering team member contributions (Detert & Burris, 2007; Liu, Zhu, & Yang, 2010; Piccolo & Colquitt, 2006; Podsakoff et al., 2000). Transformational leaders create cohesion within groups by articulating a shared vision (P. M. Podsakoff et al., 2000), fostering team potency (Schaubroeck, Lam, & Cha, 2007), and engendering high LMX relationships with subordinates (Wang et al., 2005). Indeed, Karriker and Williams (2009) demonstrated high LMX was positively and strongly related to subordinates' team

member contributions. During periods of change, the leader support element of transformational leadership is likely to be particularly important for adaptive team member contributions (Jundt et al., 2015) as team members must adapt to new ways in which the team functions, and exhibit sportsmanship. Finally, team characteristics such as group cohesiveness (C. V. Chen, Tang, & Wang, 2009; Cohen et al., 2012; P. M. Podsakoff et al., 2000) and team support (Griffin et al. 2007) / norms (Morrison & Phelps, 1999) are important proximal contextual factors that shape team member contributions. Consistent with social exchange theory, these interpersonal factors likely increase the propensity for team members to help and coordinate with one another and reciprocate positive behavior in the future.

Organization member behaviors. Organization member behaviors are directed at, and support, organization effectiveness as opposed to team or individual effectiveness (Griffin et al. 2007). The willingness to contribute to organizationally functional behavior that extends beyond one's immediate work tasks and team has been consistently linked to individuals' organizational commitment (Hoffman et al., 2007; P. M. Podsakoff et al., 2000; Tornau & Frese, 2013). Griffin et al. (2007) demonstrated organizational commitment to be positively related to all forms of organization member behavior, results which were replicated by Belschak and Den Hartog (2010) in relation to proactive organization member behaviors. These findings are consistent with the notion that individuals will contribute to the wider organizational context when they perceive the organization to be concerned with their general welfare (Griffin et al. 2007). This explanation is consistent with findings regarding the opportunity to perform organization member behaviors such that climates characterised by organizational support (Rich et al., 2010) and top management support (Hammond et al., 2011; Morrison & Phelps, 1999) have been related to increases in these behaviors.

Outcomes of Form (Proficiency, Adaptivity, and Proactivity)

Relative to the burgeoning body of research on the antecedents of individual work performance, the literature on the outcomes of performance is far less developed (Campbell & Wiernik, 2015). As previously explained, the relative contribution of individual behavior is a function of the level of environmental uncertainty as evident in the outcomes associated with each form of performance.

Proficiency. Proficiency has been positively related to several traditionally important outcomes. In their review and synthesis of the individual work performance literature, Schmitt et al. (2003) included individual productivity and efficiency as key outcomes of proficiency, a finding later supported in a meta-analysis (N. P. Podsakoff et al. 2009). Scholars have also examined negative outcomes of low proficiency such as individual-level turnover, absenteeism, and counterproductive work behaviors (Schmitt et al., 2003). For example, Chen, Hui, and Sego (1998) found subordinates' actual turnover was predicted by supervisor-rated OCB, results which were supported by a subsequent meta-analysis (N.P. Podsakoff et al. 2009). It can be inferred that a reduction in proficient behaviors may signal psychological detachment from the organization resulting in reduced effort directed at core tasks and interpersonal behavior such as helping (Burris, Detert, & Chiaburu, 2008).

Adaptivity. Adaptivity reflects a response to change and as such the literature has generally focused on a rather narrow set of outcomes such as successfully responding to change (Pulakos et al. 2000), safety, and accidents (Schmitt et al. 2003). The existent research has largely been theoretical rather than empirical. Indeed, the literature on outcomes of adaptive performance is considerably less developed than comparative literatures examining adaptivity as an individual difference or as a process (Baard et al., 2014). With this said research on sportsmanship point to potentially important outcomes such as reduced organizational costs (N.P. Podsakoff et al., 2009), and research on adaptive selling behavior suggests adaptivity may contribute to overall performance ratings (Spiro & Weitz, 1990).

Thus the outcomes of individual adaptive performance requires further attention (Jundt et al., 2015) and should consider a breadth of potential outcomes.

Proactivity. Proactive efforts to drive improvements and constructive change in the workplace has been argued to result in learning, adaptivity, improved decision making, and as a whole, meta-analyses support the positive role of proactive behavior on overall performance (Maynes & Podsakoff, 2014; Tornau & Frese, 2013), although there remains scant empirical evidence (Bashshur & Oc, 2015). Existing evidence shows that proactivity results in task-specific (Griffin et al. 2007) and general innovation (Tornau & Frese, 2013). The outcomes of voice extend well beyond those of innovation with research showing important unit- and organization-level outcomes such as service performance, customer satisfaction (Lam & Mayer, 2014), unit-level performance (Detert, Burris, Harrison, & Martin, 2013), and overall profitability (MacKenzie, Podsakoff, & Podsakoff, 2011). There is also growing concern for negative outcomes of proactive behavior and an increasing awareness of boundary conditions (Bolino & Grant, 2016; Bolino, Valcea, & Harvey, 2010).

An outcome more specific to proactivity is the effect of proactive behaviour on positive career-related outcomes (Morrison, 2014). In the first paper of its kind, Seibert, Crant, and Kraimer (1999) found innovation to be positively related to salary progression, promotions, and career satisfaction. Interestingly, this study also highlighted that not all voice results in positive outcomes such that voice was negatively related to both salary progression and promotions. This point was later elaborated on by Burris (2012) who found supportive voice was related to improved performance evaluations whereas the reverse was true for challenging forms of voice. Interestingly, results of the science map situate key terms such as quality, success, efficiency and productivity in close proximity to proactive terms, although as we discuss later, the aggregate effects of proactivity, and performance constructs at large, on higher-level outcomes like organisational productivity have sparsely been examined.

Outcomes of Contribution Level (Individual, Team, and Organization)

The level of contribution reflects the extent to which behaviors are interdependent. Individual task behaviors are those executed with the least amount of interdependence, and as such, the relationship between performance and outcomes is relatively simple; however, as interdependence increases, the relationship between individual behaviors and outcomes becomes more complex (Griffin et al. 2007). Integrating the level of contribution of various behaviors implies looking at higher-level outcomes (e.g., team outcomes and organizational outcomes) which is very complex and is an issue we return to later in the discussion.

Individual task behaviors. Interesting patterns related to the outcomes of individual-level work performance emerged from our synthesis. Of particular note are the commonalities between proficiency and proactivity – which is somewhat surprising given the difference in form. Both proficiency and proactivity at this level of contribution have been related to improved performance appraisals (Whiting, Podsakoff, & Pierce, 2008), reduced turnover (Morrison, 2014), and both withdrawal and counterproductive work behaviors (Schmitt et al., 2003; science map). It is likely these outcomes are related to both individual task proficiency and proactivity through similar underlying processes such as exerting high amounts of effort (proficiency) and high commitment to the organization (proactivity; Griffin et al. 2007). Interestingly, both proactivity (Piccolo & Colquitt, 2006) and adaptivity (science map) appear to be related to effectiveness although via different pathways. While individual adaptivity likely results in improved effectiveness through successful adaptation, proactivity instigates changes to make improvements in core tasks and is thus is expected to be related to effectiveness through individual task innovation (Griffin et al. 2007).

Team and organization member behaviors. As previously noted during our synthesis of performance constructs, there are few constructs that effectively distinguish between team and organization member-levels, particularly within the adaptivity and

proactivity literatures. As such we cluster the outcomes of both team and organization member (interdependent) behaviors together. Consistent with the intended level of contribution, we find general support for the positive impact of team and organization member behaviors on both subjective and objective collective outcomes. Van Dyne and LePine (1998) found helping to be positively related to a functional group climate. Similarly, Bachrach and colleagues (2006) demonstrated OCBs to support group task performance when task interdependence was high, but negative when interdependence was low; these results were replicated by Nielsen, Bachrach, Sundstrom, and Halfhill (2012). Finally, research on voice also underlines the utility of team and organization member behaviors on group task performance (Detert et al. 2013), customer satisfaction (N. P. Podsakoff, Whiting, Podsakoff, & Blume, 2009) and overall experience (Spiro & Weitz, 1990), as well as objective outcomes (e.g., profitability and reduced costs; MacKenzie et al., 2011; N. P. Podsakoff et al., 2009). Together, these results suggest interdependent behaviors can have functional outcomes for teams and organizations, although it is likely the underlying mechanism are highly related to the form of the behavior and remain largely unarticulated.

Also of note are the individual-level outcomes of team and organization member contributions. Several studies have found these behaviors to be positively related to supervisor-rated performance (Johnson, 2001; Motowidlo & Scotter, 1994; N. P. Podsakoff et al., 2009; P. M. Podsakoff et al., 2000) as well as broader career outcomes (Morrison, 2014; N. P. Podsakoff et al., 2009). One possible explanation for these findings is that team and organization member contributions are intended to be organizationally functional, thus making the jobs of supervisors easier (N. P. Podsakoff et al., 2009); subordinate contributions are then reciprocated through formal systems such as appraisals and promotions. Despite the growing body of literature emphasizing the positive career outcomes related to interdependent behaviors, scholars including Bergeron, Shipp, Rosen, and Furst (2013) found

OCBs may in fact be negatively related to career outcomes in an outcome-based performance management system as these behaviors detract from time spent on core tasks.

Summary of the Synthesized Nomological Network of Individual Work Performance

Our nomological network is not exhaustive; however, patterns have begun to emerge linking antecedents and consequences with various forms and levels of contribution. Our analysis highlights the considerable literature on individual task proficiency as well as the dearth of scholarship on individual task adaptivity and proactivity. The lack of research clearly differentiating between team and organization member contributions clouds the nomological network in regards to both antecedents and consequences, giving the illusion of convergence. Consistent with our review of the antecedents, we find a clearer nomological network related to the form of individual work performance relative to the level of contribution. Finally, the mechanisms by which individual behavior results in objective outcomes (e.g., sales, promotions) and higher-level outcomes (e.g., team performance) remain to be articulated and tested - an issue we will come back to in the next section. Altogether, our analysis shows that there is value in synthesizing the literature taking into account the level of environmental uncertainty and interdependence to better tease apart and simultaneously bring together the nomological network of performance.

A Leap Forward: Future Directions in Individual Work Performance Research

In looking back across the existing literature we have come a long way. Research examining individual work performance is burgeoning and there is a steady increase in the breadth of constructs and theoretical lenses used to understand this key phenomenon (see Figure 1). Although the literature began with a monocular focus on individual task proficiency it has since grown, and scattered across a wide range of organizationally functional behaviors. We now know that the current fragmented state of the literature is

largely a product of its historical development rather than a broader theoretical framework that integrates individual work performance constructs across research domains.

We brought the fragmented field together by first synthesizing 97 individual performance constructs within a broader theoretical framework that accounts for the level of uncertainty and interdependence (Griffin et al. 2007). Our synthesis highlights the rich tradition of research on proficiency and the relative dearth of adaptive and proactive constructs. Leveraging our synthesis to build the nomological network highlighted important common antecedents and consequences of the various forms and levels of contribution. However, it is also apparent that many constructs are not clear in their intended targets, losing nuances between the levels of contribution detracting from the coherence of the literature.

Although the field has grown tremendously and amassed over 9,000 peer-reviewed articles since 1972, as we elaborate in this section and as summarized in Table 5, there is considerable scope for further development in terms of constructs, measures, and theory.

Insert Table 5 here

Construct Recommendations

Our first recommendation is quite straightforward, albeit one that is not always upheld in contemporary research: ensure that performance constructs actually focus on performance - "performance means to do and act" (Frese & Fay, 2001, p. 173). As such performance is about observable behaviors rather than cognitive, motivational, or affective states (Schmitt et al., 2003) or the outcomes of behaviour (Campbell & Wiernik, 2015). For example, measures of innovation behavior (Scott & Bruce, 1994; Welbourne, Johnson, & Erez, 1998) assess idea generation, which is a cognitive process rather than an observable behavior (Hammond, Neff, Farr, Schwall, & Zhao, 2011). The construct of prosocial behavior (Brief & Motowidlo, 1986) confounds motivation and behavior (De Dreu & Nauta, 2009). And too often, outcomes and indicators are referred to as performance, even though

they are not behaviors (e.g., sales, salary, efficiency; Campbell, 2012; Campbell, McCloy, Oppler, & Sager, 1993; Campbell & Wiernik, 2015).

The results of the scientific mapping analysis, as well as our review of constructs, suggests that the individual work performance literature is no exception to the challenge of construct proliferation that has long been lamented in the wider field (e.g., Schwab, 1980; Shaffer, DeGeest, & Li, 2016). As Swales (1986, p. 85) noted, "In the history of science and scholarship, we find numerous examples of related research streams that advance without awareness of one another". In fact, we identified 154 unique performance construct labels, many of which are conceptually similar (see Table 3). Thus, our second recommendation is also relatively straightforward: scholars should accurately define and label constructs. As an example, the constructs of "challenge-oriented OCB" (e.g., Podsakoff, Podsakoff, MacKenzie, Maynes, & Spoelma, 2014), "change-oriented OCB" (e.g., Chiaburu, Lorinkova, & Van Dyne, 2013) and proactive behavior (Crant, 2000; Grant & Ashford, 2008; Parker & Collins, 2010) all lay claim to a collection of behaviors that challenge the *status quo* and drive change (e.g., voice, taking charge). Researchers investigating these topics should build more on each other's work and, ideally, adopt consistent labels (our preference is for proactive behaviour, for the reasons already discussed).

Third, and related to the above, we advise scholars to situate their performance constructs within the larger literature. In part, this is about incremental validity: As Shaffer and colleagues (2016, p. 81) noted, "researchers must demonstrate that the construct is empirically distinct from related constructs…" In part, it is about building on findings from research on closely-related constructs. Our analysis of constructs according to the Griffin et al., model (see Table 3) can be used to facilitate this situation of a construct's contribution within the broader literature. In reviewing the literature, we note that most newly developed constructs are compared to individual task proficiency, even though more similar types of

performance might exist. The lack of a general framework for the individual work performance literature has likely contributed to this issue. Indeed, not that long ago, many scholars only considered "in-role" behaviors (task proficiency) and "extra-role" behaviors (everything else) as being polarized constructs. However, the Griffin et al. (2007) framework provides a more nuanced understanding of work performance and thus the opportunity for scholars to provide more stringent tests of discriminate validity. For example, should a construct of proactive helping amongst team members (Carpini & Parker, 2017; Spitzmuller & Van Dyne, 2013) be developed, this would constitute a type of team member proactive behaviour. As such, it should be distinct from the more reactive form of helping that is assessed in traditional citizenship models (P. M. Podsakoff et al., 2000), which we categorized as team-member proficiency; Meanwhile, proactive helping amongst team members would be expected to have some convergence with other proactive concepts, as well as with other constructs operating at the team level of contribution. Crucially, we also expect to see commonalities in the antecedents as we know apply to proactive constructs (e.g., proactive personality) and to team-member contributions (e.g., interdependence).

Although construct proliferation is a problem, we agree with Katz (1964) that there are rich opportunities for scholars to examine the multiple ways in which employees contribute to their organizations (see Table 3). Thus our fourth recommendation is for the development and refinement of some performance constructs. Our review shows there is a relatively thorough consideration of the individual task and team proficiency performance categories, although fewer constructs fitting within the organization member proficiency category. Most interestingly, we find that those constructs falling within the adaptive and proactive categories typically do not distinguish the level of contribution. For example, constructs such as voice (Van Dyne & LePine, 1998), taking charge (Morrison & Phelps, 1999b) proactive behavior (Parker & Collins, 2010), sportsmanship (Organ, et al., 2006) and

reactive adaptivity (Huang, et al., 2014) can apply at multiple levels of contribution, and yet these potentially important distinctions have not been drawn. For example, distinguishing between taking charge behavior directed toward one's individual tasks, team, and organization will illuminate important distinctions in both antecedents and consequences. Taking charge to change one's individual tasks will likely be driven by job complexity and autonomy and may result in task specific innovation. Taking charge as a team-member contribution is likely fostered by psychological safety and team support, potentially resulting in team innovation and effectiveness. Finally, taking charge as an organizational-member contribution is likely supported by top management openness and interdependence amongst work units, and may result in organizational innovation and productivity. While we do not advocate that all constructs must neatly fit within a given cell of the Griffin et al. (2007) model, our synthesis highlights previously neglected construct development opportunities.

Measurement Recommendations

Having reinforced the need for construct clarity in the field of performance (P. M Podsakoff, et al. 2016), the immediate trickle-down consequence is to measurement.

First, as discussed, constructs are often labelled differently yet are almost synonymous in their definition and/or operationalization. This problem results in *chameleon items*, that is, "the same or highly similar items that shift between different constructs, even though the constructs are intended to be discrete from one another" (Carpini & Parker, 2017, p. 36). For example, items about "speaking up" are present in measures of personal industry (Moorman et al. 1998) and organizational participation (Graham, 1991), which we categorized as types of proficiency, as well as in measures of voice (Van Dyne & LePine, 1998) and taking charge (Morrison & Phelps, 1999), which we consider to be proactive constructs. Although superficially different in their labels, if construct measures use the same items then the constructs might not be truly different (Kelley, 1927). To avoid the occurrence

of chameleon items, performance scales should be accessible either in published manuscripts or as online resources. In the 'measures chest' hosted by the *Research Methods Division of the Academy of Management*, only nine of the 195 instruments are measures of individual work performance, and in all cases, the nine scales were already published. There are many examples of performance scales that are not readily available (e.g., Bartram, 2005; Pulakos et al. 2000) and thus force scholars to derive items from operational definitions.

Second, measures of constructs should also tap just one aspect, and avoid blurring across categories. For example, "change-oriented citizenship", defined as a proactive behaviour, includes items tapping adaptive performance (Choi, 2007; Chiaburu et al. 2011; Chiaburu et al. 2013). However, we and others (e.g., Griffin et al. 2007; Pulakos et al. 2000; Schmitt et al. 2003) have argued adaptive and proactive behaviors are not the same.

Third, it is almost self-evident that, if performance is about behaviour, (Campbell et al. 1993), then the items should be about behavior. As noted earlier, this is not always the case. As such, scholars should be cautious when using antithetical items (reverse scored items; Dalal, 2005) because such items often represent the lack of a desired behavior (e.g., "does not work beyond what is required"; Van Dyne, Graham, & Dienesch, 1994) or an undesirable behavior which has cross-over with counter-productive work behaviors (e.g., "complains about insignificant things at work"; Williams & Anderson, 1991). Statistically, antithetical items can be source of common method bias (P. M Podsakoff et al. 2003), and can inflate the observed relationship between variables (e.g., Spector, Bauer, & Fox, 2010).

Our final measurement recommendations relate to the use of archival supervisory ratings as proxies for individual work performance. We define archival supervisor ratings as existing performance evaluations generated and collected by the organization for internal purposes, most commonly as annual performance appraisals. Archival supervisory ratings are distinct from ratings obtained by researchers using psychometrically validated scales that ask

supervisors to report on subordinates' behaviors. Beyond various rater-errors (e.g., halo effect; see Landy & Farr, 1980; Arvey & Murphy, 1998 for review), archival supervisory ratings were not collected for research purposes, and therefore additional factors beyond the assessment of behaviour might be at play. As Rynes, Gerhart, and Parks (2005, p. 595) note, performance appraisals are "used both to provide developmental feedback and to motivate employees via linkages between [performance appraisal] and rewards" which adds an additional layer of complexity in using such ratings for research purposes. Political issues also can be in operation. Thus although the use of multi-source data is desirable in reducing common method bias (P.M Podsakoff et al., 2003), scholars should report the organization's intended use of the supervisory ratings and control for these effects where possible. Such transparency will assist in the identification of moderators in future meta-analytic studies.

A further concern is that archival supervisory ratings often assess a composite of constructs. For example, a recent study by Meneghel, Borgogni, Salanova, and Martínez (2016) used ratings made up of five behavioral domains including openness, innovation (proactive construct), and cooperation and interpersonal facilitation (team-member proficiency), which represent elements from multiple categories of the Griffin et al. model. Although the results of a Principle Factor Analysis supported the proposed uni-dimensionality of the ratings into a composite score, this quite likely reflects a halo effect. In the end, we don't know what aspect of performance these ratings represent, or how to fit them into a broader understanding of individual work performance.

Theoretical Directions

In the previous section we addressed what we consider to be fundamental issues related to the operationalization, conceptualization, and measurement of individual work performance. In this section, we use our synthesis of the literature to outline a broad research agenda. In our opinion, some of the most pressing issues in the field centres around extending

current models examining the antecedents and consequences of individual work performance, exploring mechanisms through which individual performance contributes to higher-level performance, the role of time and the interaction amongst multiple forms of performance, as well as extensions of our synthesis to the team-level of analysis.

How can we expand existing theoretical frameworks using the present synthesis? Individual work performance is one of the most important dependent variables in the field of organizational behavior (Campbell & Wiernik, 2015). Yet many of the prominent theories used to explain individual work performance heavily emphasize the antecedents and pay sparse attention to the performance construct. In fact, many theoretical frameworks designed to predict performance focus on individual performance as a single criterion (e.g., Ashkanasy, 2003; Barrick, Mount, & Li, 2013; Chen & Kanfer, 2006; Hackman & Oldham, 1976; Humphrey et al., 2007; Knippenberg & Sitkin, 2013). When multiple performance criterion are considered, these are most commonly task performance and OCBs (e.g., Cohen-Charash & Spector, 2001; Gagné & Deci, 2005; Smith, Organ, & Near, 1983; Tyler & Blader, 2003), which we consider to be both types of proficiency. To some extent, this lack of conceptual development in performance constructs present in prominent models reflects the state of the literature when these models were developed (e.g., Hackman & Oldham, 1976). But the problem also occurs in recent articles, suggesting it is a contemporary issue. As we elaborate below, failing to consider multiple performance dimensions results in piece-meal contributions to the nomological network, and a failure to identify important distinctions between types of performance. Our first recommendation, therefore, is that scholars pay greater attention to the dimensionality of individual performance.

We use the group engagement model (Tyler & Blader, 2003) as an example of how adopting a multidimensional approach to individual performance can build theory. The group engagement model leverages social identity theory to understand “an individual’s behavioral

effort on behalf of a collective [and how it...] is influenced by the role the group plays in how the individual thinks and feels about themself" (p. 445; Blader & Tyler, 2009). According to this model, one's social identity within a group is informed by perceptions of procedural justice and economic outcomes (e.g., outcome fairness and distributive justice). The group engagement model (Blader & Tyler, 2005; Tyler & Blader, 2001) distinguishes between "mandatory behaviors (in-role), those behaviors directly incentivized and sanctioned, and "discretionary behaviors" (extra-role/helping), those behaviors driven by an individual's attitudes and values (Tyler & Blader, 2003). Tyler and Blader (2001) demonstrated group identification is more highly related to discretionary behaviors than it is to mandatory behaviors. With this said group members can contribute to the attainment of important group-related outcomes through more than just completing assigned tasks and helping each other.

Teams are an ever increasing mode of managing dynamic and uncertain work environments (Marks, Mathieu, & Zaccaro, 2001; Townsend, Demarie, & Hendrickson, 1998) and as such adaptive and proactive behaviors become more important to ensure team success (Griffin et al., 2007). Indeed, in one expansion of the group engagement model that considered voice, Fuller, Hester, Barnett, and Frey (2006) found identification increased voice, proactive and challenge-oriented behavior (Van Dyne & LePine, 1998). These initial findings could be expanded to consider different forms (prohibitive/promotive; Liang, Farh, & Farh, 2012) and targets of voice (Liu et al., 2010). For example, perceived inequity or injustice may trigger a more protective state and as such may engender more prohibitive forms of voice (Burris et al., 2008; Near & Miceli, 1985). Conversely, when one perceives equity and justice this may prime individuals to be more growth oriented and engage in more promotive forms of voice directed at improvement (Kickul & Lester, 2001). It is also possible the target of voice will change as a function of inequity. For example, when treated poorly by a supervisor (low respect), employees may speak-out to peers; whereas when supervisors are

perceived as supportive (high respect) this will reduce the risk associated with both speaking-up (to a leader) and speaking-out (to peers; Detert et al., 2007).

In regards to the level of contribution, the group engagement model has largely focused on predicting individual team-level contributions. However, there is reason to believe that the underlying processes may also be important in understanding individual- and organization-level contributions. For example, meta-analyses have found procedural justice to be positively related to individual- (personal industry), team- (helping; P. M. Podsakoff et al., 2000), and organization- (loyal boosterism) level contributions (Moorman, et al., 1998). The conceptual overlap between identification (Blader & Tyler, 2009) and organizational commitment (Allen & Meyer, 1990) also suggests this theory may be useful in examining organizational-level contributions such as those targeting internal and external clients.

In sum, the value of our synthesis is more than simply organizing the individual performance literature: rather it can be used as a tool to build better theory that considers differential antecedents related to the form and level of contribution of individual work performance. Empirically, of course, our reasoning also implies that researchers should as far as possible include multiple performance constructs within a single study, ideally taking into account both their form (proficiency, adaptivity, and proactivity) as well as the level of contribution (individual, team, organization). While our model contributes to the organization of the antecedents of different types of performance, it also assists in explaining the relationship between various types of performance and organizationally-relevant outcomes.

How do the different performance dimensions contribute to organisational effectiveness? A key rationale for distinguishing amongst different performance dimensions is that different types of behavior contribute to organizational effectiveness in distinct ways. For example, as we discussed, proactive performance is likely to contribute to innovation outcomes, and team- and organisation-member contributions across all forms (proficiency,

adaptivity, proactivity) are likely to be crucial for achieving co-ordinated outcomes in highly interdependent settings.

Nevertheless, despite the appeal of this argument, there is limited systematic research investigating the relative importance of different dimensions for effectiveness outcomes. On the one hand, when objective effectiveness outcomes such as sales performance are used in studies, these are usually considered only in relation to a general measure of individual performance (e.g., overall performance) rather than specific dimensions. On the other hand, when different dimensions are compared, it is often in relation to a criterion of general individual performance assessed by performance ratings, with the latter often constituting multiple or highly vague elements. For example, Johnson (2001) evaluated the relative contribution of task and contextual performance to supervisors' "overall evaluation of performance", but the latter was assessed by using a composite of ratings across multiple dimensions. Overall performance ratings thus often reflect multiple individual elements (Borman, White, Pulakos, & Oppler, 1991) and are only an indirect measure of effectiveness.

A further example of this challenge of linking multiple performance dimensions to effectiveness is shown by the meta-analysis by Podsakoff, Whiting, Podsakoff, and Blume, (2009). These scholars found that OCBs were positively related to organizational-level outcomes such as unit productivity; with an overall measure of unit performance correlated .44 with OCBs in five time-lagged studies. However, they could only compare the relative contribution of task performance and OCB to the outcome of general job performance at the individual level; In other words, comparison of the relative importance of different performance dimensions was not possible at the unit level and only a in a limited way at the individual level. So the unique or incremental consequences of task performance versus OCB for effectiveness at a more aggregate level remain unknown.

Three types of studies do provide some insights as to the differential effects of various individual performance categories. First, studies have compared the effects of task performance and OCB on outcomes like career success. For example, Bergeron, Shipp, Rosen, and Furst (2013) investigated the joint effects of OCB and task performance on salary increases in an outcome-focused consulting firm. Similarly, the relative contribution of contextual compared to task performance has been shown for the prediction of career advancement (Van Scotter, Motowidlo, & Cross, 2000) and supervisor rewards (Kiker & Motowidlo, 1999). Second, a few studies have evaluated task and contextual performance as predictors of effectiveness ratings in specific contexts. These studies show, for example, that contextual performance accounts for variance in ratings above and beyond task performance (Kayha, 2009), even in highly technical work such as air traffic control (Griffin et al. 2000). Third, conducted at the team level, some studies have evaluated the role of multiple performance dimensions, suggesting the value of differentiating them. For example, in a study of front-line service teams, De Jong and de Ruyter (2004) showed adaptive behaviour was more strongly related to customer satisfaction, whereas proactive behavior was more strongly related to sales. Although these studies hint that individual-level adaptivity and proactivity will relate differentially to effectiveness at higher levels, there is limited empirical evidence or detailed theoretical explanation.

All together, we quite simply know little about the relative impact of individual performance dimensions on effectiveness at a business unit or organizational level. Empirical studies fall short of systematically testing the theories and the assumptions that have driven interest in distinguishing these dimensions. The meta-analyses and specific studies noted above provide a broad but piecemeal picture of the way specific dimensions of performance generate effectiveness for individuals, groups, and organizations. Making a similar point, Podsakoff et al. (2009) echoed Organ's (1997) comments that little was known about the

mediational process through which OCB influenced aggregate outcomes. We recommend researchers develop theory about, and test, the different ways that individual performance dimensions shape outcomes that support organizational success and sustainability.

How do team processes mediate the impact of individual performance dimensions on effectiveness? Related to the above point, team processes likely mediate the links between individual performance and aggregate outcomes. It is important to understand how different individual performance dimensions contribute to team processes which in turn affect organizational outcomes. Lorinkova, Pearsall, and Sims (2012) showed team performance improved for teams with empowering leadership when considered over longer periods, whereas directive leadership was beneficial only in the short term. They explained these results in terms of the different behaviors that team members exhibited in the different leadership contexts. In particular, teams sustained higher performance when leaders were empowering because team members engaged in more coordination and knowledge sharing.

The above study shows that the application of team development models can generate insights into the role of teams as mediators of individual performance on aggregate outcomes. The Marks, Mathieu, and Zaccaro (2001) model of team processes has stimulated numerous studies to better understand the dynamics of team development. Their delineation of multiple action and transition phases also creates a framework for integrating dimensions of individual performance. The relative importance of proactive and adaptive behaviors is likely to change as teams move through multiple action and transition phases. The relative importance of task versus team oriented behaviors is also likely to change through these developmental cycles. For example, proactive task behavior might be particularly important in the early action phases but adaptive team-oriented behaviors might be more important as team members adjust to the demands of the task and to the demands generated by other team members.

Future research that specifies the way individual performance contributes to critical aspects of team performance will build understanding of the bottom-up effects of individual performance. We recommend that researchers investigating team development integrate more specific dimensions of performance into their models of team development. For example, studies linking team process and team effectiveness might provide new information about the specific individual behaviors that contribute to team processes and subsequent team performance. We further recommend that researchers investigating the link between individual performance and higher-level effectiveness outcomes draw on team research.

How does a changing work context influence the individual performance dimensions? We have argued that little is known about how specific performance dimensions influence organisational effectiveness. This concern is magnified when we consider the rapid change that is now occurring in many work contexts. For example, we could speculate that uncertainty is increasing globally and, hence, the value of proactivity and adaptivity for effectiveness is increasing - but that is speculation at this point. There is also limited guidance about the changing features of the context that are most important. Again, we can only speculate that organisations exposed to dynamic and volatile markets will require higher level of adaptivity and proactivity to be effective over time.

Ongoing adaptation is an intrinsic element of human development, but has only recently been incorporated in theories of work performance (e.g., Ployhart & Bliese, 2006). The pace of social and technological change makes it untenable to describe work performance without reference to this change. We recommend research that better articulates and assesses specific changes in the context, and how this changing context elicits or requires different types of work behavior from individuals. For example, adaptivity is particularly important in a dynamic and rapidly changing work situation, yet – as evident from our analysis (see also Jundt et al. 2015) - relatively few studies have investigated the context that

supports adaptive behaviors. There is substantial scholarship examining the relationship between job characteristics and OCBs, as well as a reasonable amount looking at how work design affects proactive behavior (Parker, Bindl, & Strauss, 2010), but there is limited research examining this set of antecedents for adaptive behaviors (Jundt et al., 2015).

To support our recommendation for more theory and research on how the work context influences performance dimensions, we further advocate attention to research design. A key feature of the context is the pace and unpredictability of change. Therefore, it is important to more directly incorporate changing contexts into longitudinal research designs. For example, current research provides insight into the job characteristics associated with different performance dimensions, but is less clear about the performance implications of ongoing change in these characteristics. Also important is that scholars should select contextually-relevant performance constructs. If there is low uncertainty and relatively high interdependence then team member proficiency contributions are likely to be useful. Conversely, in more dynamic and unpredictable environments, adaptive and proactive constructs become more important. Researchers should therefore ensure their selection of performance constructs captures the key variance in individual behavior likely to matter within the context. Of course, bearing in mind our earlier argument for including multiple performance constructs within a single study, we would hope that researchers include several relevant performance constructs within the study.

Finally, scholars should consider a wider range of context variables. For example, lending on the job characteristic model (Hackman & Oldham, 1976; Humphrey et al., 2007; Oldham & Hackman, 2010), future research could consider the dispersion of skill variety in teams, or the extent to which individuals in a team possess similar or different skills. Consider a surgical team made up of nurses, surgeons, and anaesthesiologists. These various clinical professionals all apply very different skills (high skill variety dispersion) in order to

achieve a common objective. Now consider a team of nurses in an intensive care unit, which would be low skill variety dispersion. Low skill dispersion might facilitate helping behaviors as team members are familiar with the tasks of team-mates, and can easily take the perspective of others. There is ample room for additional theoretical and empirical work examining the role of context for individual performance.

How do multiple performance dimensions interact with each other over time? Researchers have begun to articulate the way different performance dimensions might dynamically co-evolve. The importance of temporal relationships were noted by Grant and Ashford (2008) who proposed planning, preparing, and implementing new ideas was likely to stimulate further proactivity. Sitzmann and Yeo (2013) showed that task performance also evolves through a dynamic interaction between behaviors and motivational states.

Change in task performance has received substantial attention as "dynamic criteria" (Deadrick & Madigan, 1990; Ghiselli, 1956; Hofmann, Jacobs, & Baratta, 1993). Earlier debates have been resolved to some extent through studies of the specific trajectories over which individual performance might change (Chen & Mathieu, 2008; Zyphur, Chaturvedi, & Arvey, 2008). Studies of performance trajectories continue to provide insights about the dynamics of within-person change but do not illuminate temporal change among multiple criteria. For example, as a newcomer becomes proficient in core tasks, more individual resources should be available for proactivity. This process implies distinct but inter-related trajectories for proficiency and proactivity. The shape and correlation of these trajectories is likely to be influenced by individual and contextual differences.

Research in the area of job crafting provides an example of analyses of changing performance over time. Job crafting describes an active process through which individuals change the nature of their work including the content and relational boundaries of their tasks (Wrzesniewski & Dutton, 2001). Job crafting is a proactive form of work behaviour that

results in positive outcomes for individuals and the organization. Proactive dispositions influence the propensity to engage in job crafting and engagement is thought to mediate the impact of job crafting on other outcomes (Bakker, Tims, & Derks, 2012). Longitudinal studies have shown that this type of proactivity leads to subsequently higher levels individual task performance and citizenship behaviors (Tims, Bakker, & Derks, 2015), and indeed, to subsequent adaptivity (Petrou, Demerouti, & Schaufeli, 2016). In other words, over time, proactive work behaviour might generate both proficiency and adaptivity. Likewise, when one is adaptive, this can facilitate proactivity. Berg, Wrzesniewski, and Dutton (2010, p. 159) addressed the possible dynamic relationship between proactivity and adaptivity "as interrelated processes, in which efforts to initiate or create change (proactivity) can shape and be shaped by responses to perceived challenges to making such change (adaptivity)". They proposed that, as part of a mutually reinforcing process, adaptivity might occur during or after proactive behaviour. In essence, the link between performance constructs is conceptualized as a within-person process of mutual reinforcement.

Research into new employee socialization and expatriate adjustment also illuminate the relationships among dimensions of performance dimensions. Although these areas address performance links as a secondary or implicit part of their focus on adjustment to change and uncertainty, they provide important insights into adaptive and proactive processes in the workplace. Socialization research identifies proactive information seeking an important element successful adjustment (or adaptation) of employees (Wanberg & Kammeyer-Mueller, 2000). A meta-analysis by Bauer, Bodner, Erdogan, Truxillo, and Tucker (2007) found proactivity was related to subsequent role clarity and role performance. However, the authors noted there was limited information about how experiences during socialization influenced other performance outcomes such as role innovation. Ashforth, Sluss, and Saks (2007) included both task performance and role innovation as outcomes of proactive behavior

during socialization. They found newcomers who were more proactive learned more about the organization, resulting in higher self-ratings of task performance.

The unfolding relationships between performance dimensions might also engage team level processes. Tims, Bakker, Derks, and van Rhenen (2013) found job crafting was related to both individual and team-member proficient performance via engagement. McClelland, Leach, Chris, and McGowan (2014) found that job crafting at the team level was associated with team task performance.

The above research begins to establish a more dynamic process through which dimensions of performance interact with each other over time. Incorporating this question with the preceding questions will build a more dynamic picture of patterns of individual performance and their link to a changing work context. For example, a particular individual team member might at one time proactively change the team context, initiating adaptive responses from other team members. At another time, the same individual might need to adapt to the changes that have been proactively initiated by others (Kozlowski et al., 2013). This dynamic, involving team and individual processes, begins to address fundamental question about reciprocal relationships between context and behavior (Bandura, 1978).

Can we use a framework to organize the team performance literature? Up to this point, our focus has been uniquely at the individual level of analysis. However, we suggest that the present synthesis could prove a valuable starting point for further construct and theoretical development at the team-level. At present, there is no comprehensive multi-dimensional model of team performance. Thus, developing a framework similar to the present one would contribute to the organization of the field and help to develop theory about antecedents and outcomes. This is particularly important because the current team performance literature is dominated by team-level outcomes (e.g., decision quality, product quantity; De Dreu & Weingart, 2003) and indicators (e.g., expert ratings; Lim & Klein,

2006), with relatively fewer examples of team performance (that is, team behaviors that contribute to these outcomes). Indeed, Stewart (2006, p. 38) noted "there are too few studies to conduct separate meta-analyses for different types of dependent variables [performance]."

Some advances have been made in specifying different forms of team performance. For example, Williams, Parker, and Turner (2010) examined work design, transformational leadership, and team composition as antecedents of team-level proactivity, and De Jong and de Ruyter (2004) explored team-level adaptive and proactive customer service recovery strategies. Additionally, there is evidence of different levels of contribution based on interdependence. Ehrhart et al., (2006) found that unit-level helping was associated with higher unit effectiveness in a military sample, which is consistent with the individual-level findings of Nielsen et al., (2012) when teams are interdependent. Additionally, Li, Kirkman and Porter (2014) presented a team-level model of altruism that is an extension of the growing body of research examining OCBs at the unit-level of analysis (see N. P. Podsakoff et al., 2014 for review). Thus there appears to be sufficient team-level performance constructs to be meaningfully integrated into a structure similar to the Griffin et al. (2007) framework.

By way of illustration, consider the integrative theoretical model of individual and team motivation as described by Chen and Kanfer (2006). This multilevel model presents parallel motivational processes (motivational states, goal orientation, and goal striving) with both the individual- and team-level processes resulting in individual performance, and the team motivational processes and individual performance resulting in team performance. Beyond unpacking the individual performance component of this model (as per our previous recommendations), in terms of team performance, it is possible to elaborate various forms of team performance. An elaborated framework would, for example, be able to capture how team adaptivity emerges following individual proactivity. It would also allow scholars to select contextually appropriate performance dimensions such that under relatively stable and

certain environments team proficient performance would be an apt choice whereas, under more dynamic uncertain conditions, team proactive and adaptive performance will likely be most relevant. Finally, an expanded model would facilitate theoretical development, tying differing types of team performance to various team-level outcomes (e.g., team production, and qualitative team outcomes; Horwitz & Horwitz, 2007). The potential for advances in this area is evident in the work of Han and Williams (2008) who adopted a multilevel approach to understanding the relationship between individual and team adaptive performance.

Conclusion

Over forty years ago, Katz asked "what are the types of behaviour required for organizational functioning?" Our review shows progress in articulating the number and nature of these behaviors, and our synthesis is an optimistic attempt to show the conceptual linkages among diverse constructs. A bigger picture of performance has emerged that suggests individual performance can be articulated at a fine-grained level, and understood within the organizational context that gives performance its meaning. Extensive research has identified important proximal antecedents, such as motivation and personality, and distal antecedents such as leadership and job design.

However, we are less optimistic that this bigger picture represents a more integrated view of the dynamic processes linking individual performance with organizational effectiveness. The separate pieces that might comprise elements of a more integrated picture are currently dispersed across different topic domains and levels of analysis. We believe it is important to work towards a more theoretically oriented understanding of performance over time and the unfolding dynamics of individual behaviours that both react to and create change in increasingly interdependent contexts. Addressing these fundamental questions will shape the future of the field as we continue to uncover the many performance dimensions relevant to understanding the value of workers (Henderschott, 1917).

Table 1. *Positive Work Role Behavior Model Summary*

		Level of Uncertainty		
Level of Interdependence		**Proficiency** Individual behaviors that can be formalized and anticipated in advance.	**Adaptivity** "Behaviors in which individuals cope with, respond to, and or/support changes" [1]	**Proactivity** Individual agentic and self-starting, change-oriented, and future focused behavior.
	Individual Task Behaviors	**Individual Task Proficiency** "that reflect the degree to which an employee meets the known expectations and requirements of his or her role as an individual."[1]	**Individual Task Adaptivity** "reflects the degree to which individuals cope with, respond to, and/or support changes that affect their roles as individuals."[1]	**Individual Task Proactivity** "extent to which individuals engage in self-starting, future-oriented behavior to change their individual work situations, their individual work roles, or themselves."[2]
	Team-Member Behaviors	**Team Member Proficiency** "behaviors that can be formalized and are embedded in a team or group… (or) the degree to which an individual meets the expectations and requirements of his or her role as a member of a team" [1]	**Team Member Adaptivity** "reflects the degree to which individuals cope with, respond to, and/or support changes that affect their roles as members of a team."[1]	**Team Member Proactivity** "extent to which individuals engage in self-starting, future-oriented behavior to change their a team's situation or the way the team works."[2]
	Organization-Member Behaviors	**Organization Member Proficiency** "reflects the degree to which an individual meets the expectations and requirements of his or her role as a member of an organization." [1]	**Organization Member Adaptivity** "reflects the degree to which individuals cope with, respond to, and/or support changes that affect their roles as organization members."[2]	**Organization Member Proactivity** "extent to which individuals engage in self-starting, future-oriented behavior to change his or her organization and/or the way the organization works."[2]

Notes. All quotes from Griffin et al. (2007). [1] = p. 331. [2] = p. 332. Table replicated with permission from Carpini and Parker (2017).

Table 2. *Terms Defining each of the Five Clusters of the Individual Performance Literature*

	What Terms				**Methodological Terms**		
	Correlates	**Performance Constructs**	**Outcomes & Indicators**	**Theoretical Perspectives**	**Where**	**Who**	**How**
Cluster 1 *Management*	Development Ability Strategy Knowledge Nature Structure Skill Interest Opportunity Focus Idea Culture Respect Participation	Effort Whistle Blowing / Voice Communication Loyalty Help Cooperation Collaboration Innovative performance Problem solving Employee participation	Quality Value Success Productivity Innovation Pay Efficiency Output Recognition Production	Agency theory Organization theory Interactionist perspective	Service Industry Uncertainty Interdependence Office Labor market Bank United state Manufacturing	Manager [a] Worker [b] Practitioner Professional Staff	Process model Intervention Field experiment

	What Terms				**Methodological Terms**		
	Correlates	**Performance Constructs**	**Outcomes & Indicators**	**Theoretical Perspectives**	**Where**	**Who**	**How**
Cluster 2 *Personnel Selection Perspective*	Validity Test [c] Personality [d] Conscientiousness [e] Age Selection Trait Criterion validity Interview	Job performance Criterion Overall job performance Proficiency Managerial performance Mean performance Supervisor	Rating Performance rating Promotion Supervisory rating Superior performance Sale	Five factor model	Assessment center	Woman [f] Man Personnel Applicant Candidate Psychologist Officer Job applicant White Black	Meta-analysis Factor Analysis Self-report Personality Measure Peer rating

	Bias Gender Reliability Cognitive ability	performance				Minority	
	What Terms					**Methodological Terms**	
	Correlates	**Performance Constructs**	**Outcomes & Indicators**	**Theoretical Perspectives**	**Where**	**Who**	**How**
Cluster 3 *Motivation*	Time Feedback [g] Goal Motivation Training Judgment Individual Difference Reaction Belief Learning Reward Tendency Appraisal	Task performance Persistence Adaptive performance	Effectiveness Performance appraisal Team performance Performance outcome High performance Work quantity Performance change	Goal setting theory Expectancy theory Person-team fit Equity theory	Group Context	Student [h] Rater Group Member Decision Maker Ratee Performer Trainee	Experiment [i] Rate Observation Simulation
	What Terms					**Methodological Terms**	
	Correlates	**Performance Constructs**	**Outcomes & Indicators**	**Theoretical Perspectives**	**Where**	**Who**	**How**
Cluster 4 *The Good Citizen*	Perception Leadership Commitment Orientation Organizational commitment Identification	OCB Employee performance Contextual performance Extra role performance	Subordinate performance Leadership effectiveness Organizational effectiveness	LMX Social exchange theory Leadership theory	Workplace China USA	Employee Supervisor Team (Member) Leader Subordinate	Field study HLM Cross-level Multisource data

	Organizational support Trust Climate Counterproductive Work behavior Affective commitment	Role performance Altruism Safety performance Prosocial behavior OCBO Civic virtue OCBI Courtesy Interpersonal facilitation Sportsmanship	Leader effectiveness Individual outcome High quality leadership Development				
	What Terms					**Methodological Terms**	
	Correlates	**Performance Constructs**	**Outcomes & Indicators**	**Theoretical Perspectives**	**Where**	**Who**	**How**
Cluster 5 *Job Attitudes*	Satisfaction [j] Attitude Expectation Stress Intention Status Conflict State Emotion Autonomy Self-Esteem Health Feeling Workday Engagement	Proactivity Personal initiative	Turnover Career Status Adaptation Work outcome Work Engagement Career success Career development Organizational outcome Withdrawal behavior	Role theory Job resource-demands theory [k] Self-efficacy [l] Fit [m] Work design [n]	Hospital Home Germany Netherlands	Student [o] Newcomer Nurse Adult Teacher Mentor Full time Employee Graduate Parent Faculty Member Physician Diverse Sample	Survey [p] Longitudinal SEM

	Employee outcome Career satisfaction

Expanding on the framework proposed by Lee et al. (2014) we distinguish terms across several categories. Terms were coded by the first author and reviewed by the second and third authors. Discrepancies were resolved through discussion. “What” terms represent construct names and are divided into four categories: (1) “Correlates” which denote terms which are likely to be examined in conjunction with others. Given the high number of generic “what” terms, we present the top 10% of terms in this category. (2) “Performance Constructs” which represent individual performance constructs. Consistent with the focus of the paper, we include all performance constructs in a given cluster. Performance constructs accounted for the following percentage of variance in each of their respective clusters: (1) *Classical Perspective on Performance* = 6%, (2) *The Criterion Problem* = 12%, (3) *Motivating Goals for Task Performance* = 6%, (4) *The Good Citizen* = 7%, (5) *The Proactive Employee* = 1%. (3) The “Outcomes and Indicators” category builds on the work of Campbell and Weirnik (2015) who distinguished between individual performance and outcomes and indicators of individual performance. Building on this distinction, we highlight terms falling within the outcome (e.g., sales, salary, promotion), and indicators (e.g., efficiency, productivity) categories. (4) “Theoretical Perspectives” are prominent terms that relate to theories. In the second major category, “Methodological Terms”, terms are divided into three categories of terms: (1) “Where” terms reflect research context characteristics, (2) “Who” identifying terms emphasize the substantive actors, and (3) “How” terms highlight both data collection and analytical strategies (Lee et al. 2014). All terms are presented in order of the total number of occurrences. To search for terms using the interactive map, please use all lowercase letters without hyphenates. For all categories except “Correlates” and “Performance

Constructs", terms were included until at least 80% of the total number of terms occurrences were accounted for in the list. For parsimony, we combined some terms in this table: [a]: includes "manager", "boss", "top management team", "HR manager", "direct supervisor", "middle manager", "line manager" and "senior manager". [b]: includes "worker" and both "knowledge worker" and "blue collar worker". [c]: includes both "test" and "evaluation". [d]: includes "personality", "dimension", and "personality dimension". [e]: although Organ (1997) advocated the continued use of the term "conscientiousness" in relation to OCBs, the relative position of this term suggests it is in relation to the personality dimension and not the OCB term. [f]: includes "woman" and "female". [g]: includes both "feedback" and "performance feedback". [h]: includes "student", "undergraduate student", and "college student". [i]: includes both "experiment" and "lab study". [j]: includes "job satisfaction", "satisfaction" (undefined), and "life satisfaction". [k]: includes both "resource" and "demands" terms. [l]: includes both "self-efficacy" and "role breadth self-efficacy". [m]: includes "fit", "po fit", "person environment fit", and "person job fit". [n]: while "job characteristics model" is cited only a few times, 19% of terms in this cluster belong to the expanded work design model presented by Humphrey, Nahrgang, & Morgeson (2007). [O]:includes "university student", "graduate student", and "high school student". [p]: includes references to "survey" and "questionnaire".

Table 3. *Synthesis of Individual Performance Constructs into the Griffin et al. (2007) Performance Model*

	Proficiency	**Adaptivity**	**Proactivity**
Individual Task Behaviors	Job role behavior [1] Job specific performance [2] Monitoring and maintaining quality [3] Non-job specific performance [2] Planning and organizing [3] Presenting and communicating information [3] Task performance [4, 5] Working systematically [3] Writing and reporting [3] Written and oral communication [2] OCB-O [6] **Persistence and Effort** [7, 8] Demonstrating effort [2] Individual initiative [9] Job dedication [10] Personal industry [11] **Adherence to Rules & Procedures** [8, 21] Compliance [4] Organizational obedience [12] Protection of company resources [13] **Orderliness** [14, 12] **Attendance and Punctuality** [8, 21] Conscientiousness [13] Job dedication [10] Personal industry [15]	Adapting and responding to change [3] Adapting† [3] Dealing with ambiguity† [3] Dealing with uncertain and unpredictable work situations [5] Demonstrating physical adaptivity [24] Handling emergencies or crisis situations [24] Learning work tasks, technologies and procedures [24] Reactive adaptivity† [25] Sportsmanship† [21, 26] Task adaptivity [27]	Challenging OCB [45] Constructive ideas† [27] Individual Innovation† [29, 43] Innovator role† [1] Making constructive suggestions† [22] Personal initiative † [44] Proactive behavior† [30] Proactive work behavior† [31] Problem prevention† [31] Seeking and initiating change† [3] Taking charge† [32] Voice† [33] Voluntary performance of task activities† [4]

Team Member Behaviors	Affiliative OCB [45] Helping and cooperating with others [3] OCB-I [6] Peer/team member leadership [16] Personal support [5,] **Helping** [8, 9, 21] Altruism (toward colleagues) [17, 18, 19] Interpersonal helping / facilitation [11] OCB-supervisor [8, 28] **Cooperation & Interpersonal Facilitation** [3, 8] Cheerleading [20] Courtesy [21] Interpersonal harmony [13] Peacekeeping [20] Supporting and cooperating [3] Team-role performance [1]	Adapting to the team [3] Adapting┼ [3] Dealing with ambiguity┼ [3] OCB-supervisor [8, 28] Reactive adaptivity┼ [25] Sportsmanship┼ [21, 26]	Challenging OCB [45] Constructive ideas┼ [27] Individual Innovation┼ [29, 43] Innovator role┼ [1] Making constructive suggestions┼ [22] Personal initiative ┼ [44] Proactive behavior┼ [30] Proactive work behavior┼ [31] Problem prevention┼ [31] Seeking and initiating change┼ [3] Taking charge┼ [32] Voice┼ [33] Voluntary performance of task activities┼ [4] **General Interpersonal Proactivity** Interpersonal proactivity [34] Proactive helping [43] **Voice Constructs** [8] Prohibitive voice [35] Promotive voice [35] Speaking out [36] Speaking up [36]

Organizational Member Behaviors	Endorsement, Support, and Defence of the Organization [4] Organization role behavior [1] **External Clients** Loyal boosterism [22] Promoting the company's image [15] Spreading goodwill [22] Organizational identification [13] **Internal Clients** Altruism – Distant [17] Civic virtue [21, 42] Knowledge sharing [23, 41] Organizational identification [12] Organizational participation [13]	Adapting┼ [3] Cross functional adaptivity [25] Dealing with ambiguity┼ [3] Demonstrating cultural adaptivity [24] Reactive adaptivity┼ [25] Sportsmanship┼ [21, 26] **Adaptation – People** Adopting interpersonal style [3] Demonstrating interpersonal adaptability [25] Showing cross-cultural awareness [25] **Adaptation – Situations** Handling emergencies or crisis situations [24] Handling work stress [24, 3]	Challenging OCB [45] Constructive ideas┼ [27] Individual Innovation┼ [29, 43] Personal initiative ┼ [44] Innovator role┼ [1] Making constructive suggestions┼ [22] Proactive behavior┼ [30] Proactive work behavior┼ [31] Problem prevention┼ [31] Seeking and initiating change┼ [3] Taking charge┼ [32] Voice┼ [33] Voluntary performance of task activities┼ [4] **General Organizational Proactivity** Proactive performance directed at organization [34] **Voice** [8, 45] Advocacy participation [13] Grievance filing [38] Issue selling [39, 31] Organizational identification [13] Organizational participation [12] Principled dissent [12] Whistle-blowing [40]

Notes. ┼: constructs contributing at multiple levels (individual, team, organizational). **Bolded** constructs are those higher-order constructs previously discussed in text and as synthesized by Carpini and Parker (2017). [1]: Welbourne et al. (1998), [2]: Campbell et al. (1993), [3]: Bartram (2005), [4]: Borman and Motowidlo (1993), [5]: Johnson (2003), [6]: Williams and Anderson (1991), [7]: Motowidlo, Borman, and Schmit (1997), [8]: Carpini and Parker (2017), [9]: Organ et al. (2006), [10]: Van Scotter and Motowidlo (1996), [11]: Moorman and Blakely (1995), [12]: Van Dyne et al. (1994), [13]: Farh, Earley, and Lin (1997), [14]: Bateman

and Organ (1983), [15]: Moorman et al. (1998), [16]: Campbell (2012), [17]: Becker and Vance (1993), [18]: Brief and Motowidlo (1986), [19]: Smith et al. (1983), [20]: MacKenzie, Podsakoff, and Rich (1994), [21]: Podsakoff et al. (2000), [22]: George and Jones (1997), [23]: Bolino and Grant (2016), [24]: Pulakos, Arad, Donovan, and Plamondon (2000), [25]: Griffin and Hesketh (2003), [26]: Organ (1997), [27]: Smith, Ford, and Kozlowski (1997), [28]: Rupp and Cropanzano (2002), [29]: Scott and Bruce (1994), [30]: Crant (2000), [31]: Parker and Collins (2010), [32]: Morrison and Phelps (1999), [33]: Van Dyne and LePine (1998), [34]: Belschak and Den Hartog (2010), [35]: Liang et al. (2012), [36]: Liu, Zhu, and Yang (2010), [37]: Katz (1964), [38]: Farrell (1983), [39]: Dutton and Ashford (1993), [40]: Near and Miceli (1985), [41]: Dekas, Bauer, Welle, Kurkoski, and Sullivan (2013), [42]: Organ (1988), [43]: Hammond et al. (2011), [44]: Frese, Kring, Soose, and Zempel (1996), [44]: Bashshur and Oc (2015), [45]: Van Dyne et al. (1995).

Table 4. *Preliminary Nomological Network for Synthesized Individual Work Performance Constructs*

	Capacity	***Willingness***	***Opportunity***	***Outcomes***
Individual Task Proficiency	<u>Knowledge & Skills</u> Declarative knowledge [7] Skills [8] Technical job knowledge [7] <u>Ability & Related</u> Abilities [8] Age [59] Cognitive ability [7, 55, 61, 62, 70] Experience [7]	<u>Motivational Factors</u> Commitment [38, 39, 52, 63, 64] Effort [a] Fairness [4] Goal commitment [25] Job engagement [26, 52] Job satisfaction [10, 57, 63, 66] Justice (interactional[10]) [38, 40] Psychological empowerment [63] Self-efficacy [65, a] Trust [47] <u>Personality</u> Conscientiousness [4,5, 45, 52, 54] *Negative affectivity* [4, 56] Positive affectivity [56] Work promotion focus [58]	<u>Leadership</u> Transformational leadership [25, 49] LMX [46, 49] <u>Climate</u> Support [50, 51, 60] <u>Work Design</u> Feedback [a] Role clarity [2, 50] Task complexity [a] <u>Environment</u> Low uncertainty / stable environment[2] *Role conflict* [44]	*Absenteeism*[7, 29] *Counterproductive work behavior*[7] Effectiveness [7, 25, a] Efficiency [7, a] Performance appraisal [29, a] Productivity [7, a] Quality [a] Team member proficiency[25, 26] *Turnover* [7, 29]
Team Member Proficiency	<u>Ability & Related</u> Cognitive ability [55] Age [59]	<u>Motivational Factors</u> Affective commitment to team /group [1, a] Commitment [38, 39, 53, 63, 68] Fairness[4, 48, a] Goal commitment [25, 48] Job engagement [26] Job involvement [1] Justice (interactional[10]) [1, 38, 40, 53, a] Psychological empowerment [63]	<u>Leadership</u> High LMX [4, 27, 46, 49, a] Transformational leadership [25, 49, a] Leader Support [48] <u>Climate</u> Group cohesiveness [1] / team support [2, 51] Organizational support [26, 60]	*Absenteeism* [7, 29] *Counterproductive work behavior*[7] Customer satisfaction [29] Efficiency [1, 29] Individual Performance Appraisal[29] Organizational effectiveness [28, a] Positive group climate [1] Productivity [29] Quality [1] Reduced costs [29]

		Satisfaction (overall & job) [1,10, 48, 53, a] Trust [47] Work promotion focus [58] Personality Conscientiousness [48, 53, 54, 67] Need for affiliation [1] / agreeableness [9, 45, 67] *Negative affectivity* [53, 67] *Neuroticism* [67] Openness [67] Perspective taking [1] Positive affectivity [4, 53, 57, 67, a] Trust propensity [1] Work promotion focus [58]	Work Design *Role ambiguity* [44] & *conflict* [4] Environment Interdependence [1, 2] Low uncertainty [2] / stable environment[1]	Supervisor-rated individual task proficiency [18, 25, 26] Team performance [37, a] *Turnover* [7, 29] *Unit-level turnover* [29]
Organization Member Proficiency	Knowledge & Skills Ability / Experience / Training Knowledge [4] Ability & Related Cognitive ability[7] Hierarchical level[6]	Motivational Factors Organizational affective commitment [1, 2] Job satisfaction[4,6,10, a] Job engagement [26] Commitment [38] Justice (interactional, procedural[10]) [38, 40] Personality Agreeableness [4]	Leadership High LMX [4, 27, a] Climate Organizational support [26] Environment Low uncertainty [1] / stable environment [2] Interdependence [2]	Productivity [29] Efficiency [29] *Turnover* [7] *Absenteeism* [7] *Counterproductive work behavior*[7] Organizational effectiveness[28, a] Reduced costs[29] Customer satisfaction [29] *Unit-level turnover* [29] Individual Performance Appraisal[4]
Individual Task Adaptivity	Knowledge & Skills Declarative knowledge [33] Ability & Related Adaptive experience [33]	Motivational Factors Commitment [38] distributive[10]) [38] Job satisfaction[10] Justice (procedural, interactional,	Leadership Leader support[33] Leader vision [24, 33] Climate	Adaptation [31, a] Effectiveness [a] Learning [31, a] Performance change [a] Reduced costs [29]

	Cognitive ability [33] Meta-cognition [33]	Self-efficacy [33] Personality Conscientiousness[33] Mastery goal orientation [33] Openness to change [2, 24, *32*] Emotional stability[9, 32, 33]	Continuous learning activities [30] Team learning climate [30] Work Design Role ambiguity [4] Environment Complexity [35] Organizational inflexibility[4] Uncertainty / dynamic environment [2,34,35]	Safety & *accidents* [7]
Team Member Adaptivity	Knowledge & Skills Declarative knowledge [33] Ability & Related Adaptive experience [33] Cognitive ability [33] Meta-cognition [33]	Motivational Factors Commitment [38] Job satisfaction [10] Justice (procedural [10], interactional[10], distributive[10])[38] Self-efficacy [33] Personality Conscientiousness[33] Mastery goal orientation [33] Openness to change [2, *32*] Emotional stability [9, 32,33]	Leadership Leader support [33] Transformational leadership[33] Work Design Role ambiguity [4] Environment Complexity[35] Interdependence [2] Organizational inflexibility [4] Uncertainty / dynamic environment [2,34,35]	Adaptation [31, a] Team performance [22] Inter-Team collaboration [31] Reduced costs [29] Safety & *accidents* [7]
Organization Member Adaptivity	Knowledge & Skills Declarative knowledge [33] Ability & Related Adaptive experience [33]	Motivational Factors Commitment [38] Job satisfaction [10] Justice (procedural[10], interactional[10], distributive[10]) [38]	Leadership Leader support [33] Transformational leadership [33]	Adaptation [31, a] Safety & *accidents* [7] Customer service [31] Reduced costs [29]

	Cognitive ability[33] Meta-cognition [33]	Organizational affective commitment [2] Self-efficacy [33] <u>Personality</u> Agreeableness [4] Conscientiousness[33] Emotional stability[9, 33] Mastery goal orientation[33] Openness to change[2]	<u>Climate</u> Team support [2] <u>Work Design</u> Role ambiguity & conflict [4] <u>Environment</u> Complexity [35] Interdependence [2] Uncertainty / dynamic environment [2, 34,35] Organizational inflexibility [4]	
Individual Task Proactivity	<u>Ability & Related</u> Education [18] Emotion regulation[13] Expert power [17] Cognitive ability [55] Hierarchical level [1] Job Experience [42]	<u>Motivational Factors</u> Commitment [58, 63] Engagement [a, 41] Felt responsibility for change [11,17, 42] Job satisfaction [13, 58, 63, a] Role breadth self-efficacy [2, 3, 11, a] Psychological empowerment [63] Self-Efficacy (general) [17] <u>Personality</u> *Agreeableness* [9] Ambition [32] Conscientiousness [42] Consideration of future consequences [11] Creative personality[36]	<u>Leadership</u> Leader vision [24] LMX [49] Transformational Leadership [49] <u>Climate</u> Climate for innovation [36] Top management openness [17, 36] <u>Environment</u> Uncertainty [2] / dynamic environment [1] Social Support [42] <u>Work Design</u>	Adaptation [a] Career outcomes [21, 42, 69, a] Creativity [14] Engagement [a] Impressions [21] Innovation (general) [42] Performance (other rated) [42, 69] Performance evaluation [21] Task-Specific innovation [2] *Turnover* [21, a] Overall Performance [13] Subjective Performance [13] *Withdrawal behavior* [a]

		Extraversion [9, 42] Learning goal orientation [11, 58] *Performance goal orientation* [58] Need for achievement [9] Openness[36, 42] *Neuroticism* [42] *Negative Affect* [50] Proactive personality [11,12, 41]	Ambiguity [15] *Role ambiguity* [a] *Role conflict* [a] Autonomy [15, 16, 36, 41, a] Job complexity [20,36, 41] Job Control [42]	
Team Member Proactivity	<u>Ability & Related</u> Education[18] Emotion regulation[13] Expert power [17] Cognitive ability [55] Hierarchical level[17]	<u>Motivation Factors</u> Engagement [41, a] Felt responsibility for change [11,17, 42] Job satisfaction [13, 42, 58, a] Organizational affective commitment [20, 42, 58] Role breadth self-efficacy [2, 3, 11, 42, a] Self-efficacy (general) [17, 42] <u>Personality</u> *Agreeableness* [9] Ambition [32] Consideration of future consequences [11] Creative personality[36] Extraversion [9] Learning goal orientation [11, 58] *Negative Affect* [50] Openness [36] *Performance goal orientation* [58] Proactive personality [11,12, 41]	<u>Climate</u> Climate for innovation [36] LMX [49] Psychological safety [14] Team Commitment [43] Team support [2] / group norms[17] Top management openness[17, 36] Transformational Leadership [49] <u>Work Design</u> Ambiguity [15] Autonomy [15, 16, 36, 41, a] Job complexity [20, 36, 41] <u>Environment</u> Interdependence [2] Uncertainty [2]/ dynamic environment [1]	Adaptation [a] Career outcomes [21, 42, 69, a] Creativity [14] Effectiveness [1, 21] Efficiency [29, a] Innovation [1, 42, a] Impressions [21] Performance evaluation [21, 42, 69] Productivity [29], [a] Quality [a] Success [42, a] *Turnover* [21, a] *Unit-turnover* [29] *Costs* [29] *Withdrawal behavior* [a]

Organization Member Proactivity	Ability & Related Education [18] Emotion regulation[13] Expert power [17] Cognitive ability [55] Hierarchical Level[6,17]	Motivational Factors Engagement [41, a] Felt responsibility for change [11,17] Job satisfaction [13, 58, a] Learning goal orientation [58] Organizational affective commitment [2,20, 58, a] *Performance goal orientation* [58] Role breadth self-efficacy [2, 3, 11, a] Self-efficacy (general) [17] Team affective commitment [20] Personality *Agreeableness* [9] Ambition [32] Consideration of future consequences [11] Creative personality[36] Extraversion [9] Learning goal orientation [11] *Negative Affect* [50] Openness [36] *Performance goal orientation* [11] Proactive personality [11,12, 41] Risk propensity [1]	Climate Climate for innovation [36] LMX [49] Psychological safety [14] Top management openness [17, 36] Transformational Leadership [49] Work Design Ambiguity [15] Autonomy [15, 16, 36, 41, a] Job complexity [20, 41] Environment Interdependence [2] Uncertainty [2] / dynamic environment [1]	Adaptation [a] Career outcomes [21, 69, a] Creativity [14] Effectiveness [1] Efficiency [a] Impressions [21] Innovation [1, 42, a] Performance evaluation [21, 69] Productivity [a] Quality [a] Success [42, a] *Turnover* [21, a] *Withdrawal behavior* [a]

Notes. Constructs appearing in *italics* are negatively correlated to the performance category. Superscript numbers refer to the citation. Article type is differentiated using the following notation: [M] = meta-analysis, [E] = empirical study, [T] = theoretical/qualitative review. [a]: results of cumulative science map (1972 – 2015), [1]: Van Dyne et al. (1995) [T], [2]: Griffin et al. (2007) [E], [3]: Parker (1998) [E], [4]: Podsakoff et al. (2000) [M], [5]: Barrick & Mount (1991) [M], [6]: Van Dyne et al. (1994) [E], [7]: Schmitt et al. (2003) [T], [8]: Johnson (2003) [T], [9]: Bartram (2005) [M], [10]: Fassina et al. (2008) [M], [11]: Parker & Collins (2010) [E], [12]: Fuller and Marler (2009) [M], [13]: Thomas et al. (2010) [M], [14]: Edmondson & Lei (2014) [T], [15]: Grant & Ashford (2008) [T], [16]: Parker et al. (2006) [E], [17]: Morrison & Phelps (1999) [E], [18]: Van Dyne & LePine (1998) [E], [19]: Grant (2013) [E], [20]: Belschak & Den Hartog (2010) [E], [21]: Morrison (2014) [T], [22]: Nielsen et al. (2012) [E], [23]: Demerouti et al. (2014) [E], [24]: Griffin et al. (2010) [E], [25]: Piccolo & Colquitt (2006) [E], [26]: Rich et al. (2010) [E], [27]: Wang et al. (2005) [E], [28]: Podsakoff & MacKenzie (1997) [E], [29]: Podsakoff et al. (2009) [M], [30]: Han & Williams (2008) [E], [31]: Pulakos et al. (2000). Outcomes derived from construct definitions [E], [32]: Huang et al. (2014) [M]. [33]: Jundt et al. (2015) [T], [34]: Schmitt & Chan (2014) [T], [35]: Baard et al. (2014) [T], [36]: Hammond, Neff, Farr, Schwall, and Zhao (2011) [M], [37]: Bachrach, Powell, Collins, & Richey (2006) [E], [38]: Hoffman et al. (2007) [M], [39]: Shore & Wayne (1993) [E], [40]: Colquitt, Conlon, Wesson, Porter, and Ng (2001) [M], [41]: Marinova et al. (2015) [M], [42]: Tornau & Frese (2013) [M], [43]: Belschak, Den Hartog, & Fay (2010)[E], [44]: Eatough, Chang, Miloslavic, & Johnson (2011) [M], [45]: Ilies, Fulmer, Spitzmuller, & Johnson (2009) [M], [46]: Ilies, Nahrgang, & Morgeson (2007) [M], [47]: Colquitt, Scott, & Lepine (2007) [M], [48]: Lepine, Erez, & Johnson (2002) [M], [49]: Chiaburu, Smith, Wang, & Zimmerman (2014)[M], [50]: Parker, Johnson, Collins, & Nguyen (2013) [E], [51]: Chiaburu & Harrison (2008) [M], [52]: Cooper-Hakim & Viswesvaran (2005) [M], [53]: Dalal (2005) [M], although OCB is included as a single factor, we categorized the results based on the most commonly used dimensions which are interpersonal in nature, [54]: Dudley, Orvis, Lebiecki, & Cortina (2006) [M], [55]: Gonzalez-mulé, Mount, & Oh (2014) [M], [56]: Kaplan, Bradley, Luchman, & Haynes (2009) [M], [57]: Harrison, Newman, & Roth (2006) [M], [58]: Lanaj, Chang, & Johnson, (2012) [M], [59]: Ng & Feldman (2008) [M], [60]: Rhoades & Eisenberger (2002) [M], [61]: Schmidt & Hunter (1998) [M], [62]: Schmidt & Hunter (2004) [M], [63]: Seibert, Wang, & Courtright (2011) [M], [64]: Wright & Bonett (2002) [M], [65]: Judge, Jackson, Shaw, Scott, & Rich (2007) [M], [66]: Judge, Thoresen, Bono, & Patton (2001) [M], [67]: Chiaburu, Oh, Berry, Li, & Gardner (2011) [M], [68]: Meyer, Stanley, Herscovitch, & Topolnytsky (2002) [M], [69]: Crant (2000) [T], [70]: Hunter (1986)[T], [71]: Moorman (1991) [E], [72]: Moorman, Blakely, & Niehoff (1998) [E], [73]: Sinclair, Tucker, Cullen, & Wright (2005) [E], [74]: Bell & Kozlowski (2008) [E], [75]: Neal, Yeo, Koy, & Xiao (2011) [E], [76]: Frese & Fay (2001) [T]: [77]: Bateman & Crant (1993) [E], [78]: Salas &

Cannon-Bowers (2001) [T], [79]: Karriker & Williams (2009) [E], [80]: Chen & Wang (2009) [E], [81]: Cohen et al. (2012) [E], [82]: Chen, Hui, & Sego (1998) [E], [83]: Spiro & Weitz (1990)[E], [84]: Maynes & Podsakoff (2014)[E], [85]: Lam & Mayer (2014)[E], [86]: Detert et al. (2013)[E], [87]: MacKenzie et al. (2011)[E], [88]: Seibert et al. (1999)[E], [89]: Burris (2012)[E], [90]: Whiting et al. (2008)[E], [91]: Johnson (2001)[E], [92]: MacKenzie et al. (1991)[E], [93]: Motowidlo & Scooter (1994) [E].

Table 5. *Design, Constructs & Measurement Recommendations*

Construct Recommendations	**Examples**
Ensure performance constructs are conceptualized as behavior, and do not cross-over into other related domains.	Adaptive performance (Baard et al., 2014) which includes willingness to adapt and Welbourne et al. (1998) who include effectiveness in their measure of job role behavior.
Scholars should accurately define and label constructs.	Voice has been considered an OCB, a challenge-oriented OCB, a change-oriented OCB, and a proactive work behavior.
Situate performance constructs within the larger performance literature, drawing on multiple theoretical perspectives.	Sportsmanship as a form of adaptive performance (Carpini & Parker, 2017).
Consider the introduction of new constructs and measures explicitly intended to fill gaps in the literature.	Opportunity to refine existing adaptive and proactive constructs to specify the intended level of contribution (Carpini & Parker, 2017).
Measurement Recommendations	**Examples**
Attend to overlapping content in construct operationalization and measurement.	Conscientiousness, personal industry, and job dedication (OCB constructs), as well as voice and personal initiative (proactive constructs) all contain similar items.
Scales should be published in full in the manuscript or online	Many scales are not readily available in print or online (e.g., Bartram, 2005; Pulakos et al. 2000).
Construct clarity should be maintained by ensuring measures tap one aspect and avoid blurring multiple performance categories.	Change-oriented citizenship includes both proactive and adaptive performance although established literatures exist supporting the distinction between these types of behaviors.
Performance should be conceptualized and measured as behavior.	Measures of proactivity capturing ideation, and sportsmanship that focuses almost uniquely on the absence of behaviors.
When using archival supervisory ratings, report the organization's intended use and control for these effects where possible.	Performance appraisals may be used for a variety of organizationally-relevant functions including the distribution of rewards and for developmental purposes, amongst others.
Composite performance constructs must be theoretically and practically meaningful, particularly when aggregating measures across multiple forms of performance.	Studies aggregating various forms and levels of contribution together to represent a composite "overall performance score" which is difficult to interpret.

Theoretical Recommendations	Examples
Expand existing theoretical models through the consideration of a wider breadth of performance constructs that differ in their form and level of contribution.	Integrate adaptive and proactive constructs within the group engagement model (Tyler & Blader, 2003) as well as additional types of proficiency behaviors.
When possible, include multiple performance constructs within a single study, taking into account contextually-relevant forms and levels of contribution.	When studies include more than one type of performance it is most commonly compared to proficiency (e.g., OCB and task proficiency), although other types of performance exist.
Consider the mechanisms through which individual work performance contributes to higher-level outcomes such as team and organizational performance.	A fit between the requirements of the team and either the form or level of contribution may result in improved team-level outcomes. For example, proactive behaviors during the early action phase.
Measure context as a key moderator of the relationship between antecedents and performance, and performance and consequences.	Consider the level of interdependence and uncertainty as potential moderators.
Select contextually relevant performance constructs.	When the context is characterised by greater levels of uncertainty, adaptive and proactive concepts should be included; whereas when interdependence is high, then team- and organization-level constructs should be included.
Systematically measure context considering a wide range of contextually relevant variables including new ones.	Skill variety dispersion – the extent to which individuals within a team utilise different activities and skills in achieving a common outcome. High skill variety dispersion (e.g., operating room teams), and low skill variety dispersion (e.g., intensive care units).
Assess changes in performance over time and how various performance constructs interact.	Proactivity introduces change which requires adaptivity on the part of interdependent others. Through adaptive performance, individuals should focus on proficiency as the change becomes ingrained.
Leverage the present synthesis as a model for the organization of the team performance literature, drawing parallels between the levels.	Application of the Griffin et al. (2007) framework to the team literature, thus expanding existing team-level models.

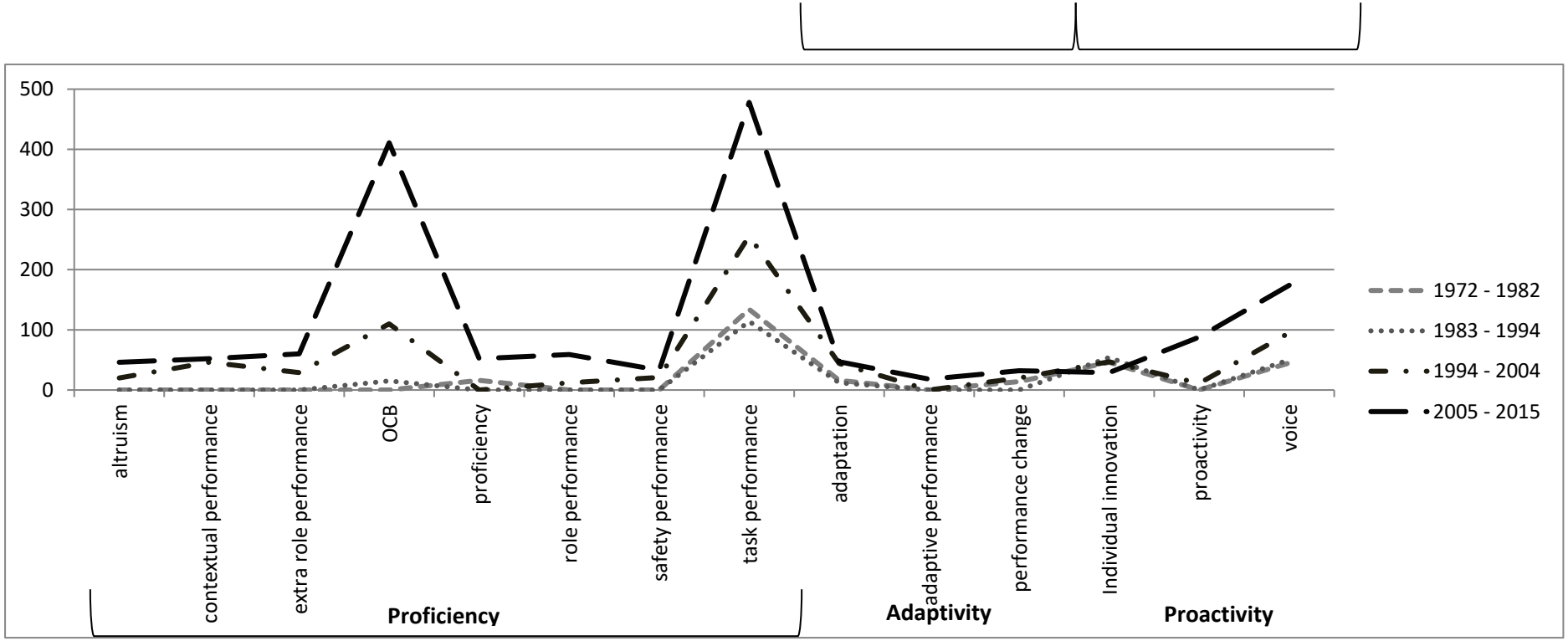

Figure 1. **Occurrence of performance-related terms by temporal interval**. Constructs are presented in alphabetical order and divided according to their ultimate classification within the Griffin et al. (2007) model of performance. Term counts are derived from *VosViewer* using binary counting and represents the number of articles in which a given term is present as opposed to the total number of times a term is present the corpus (van Eck et al., 2010).

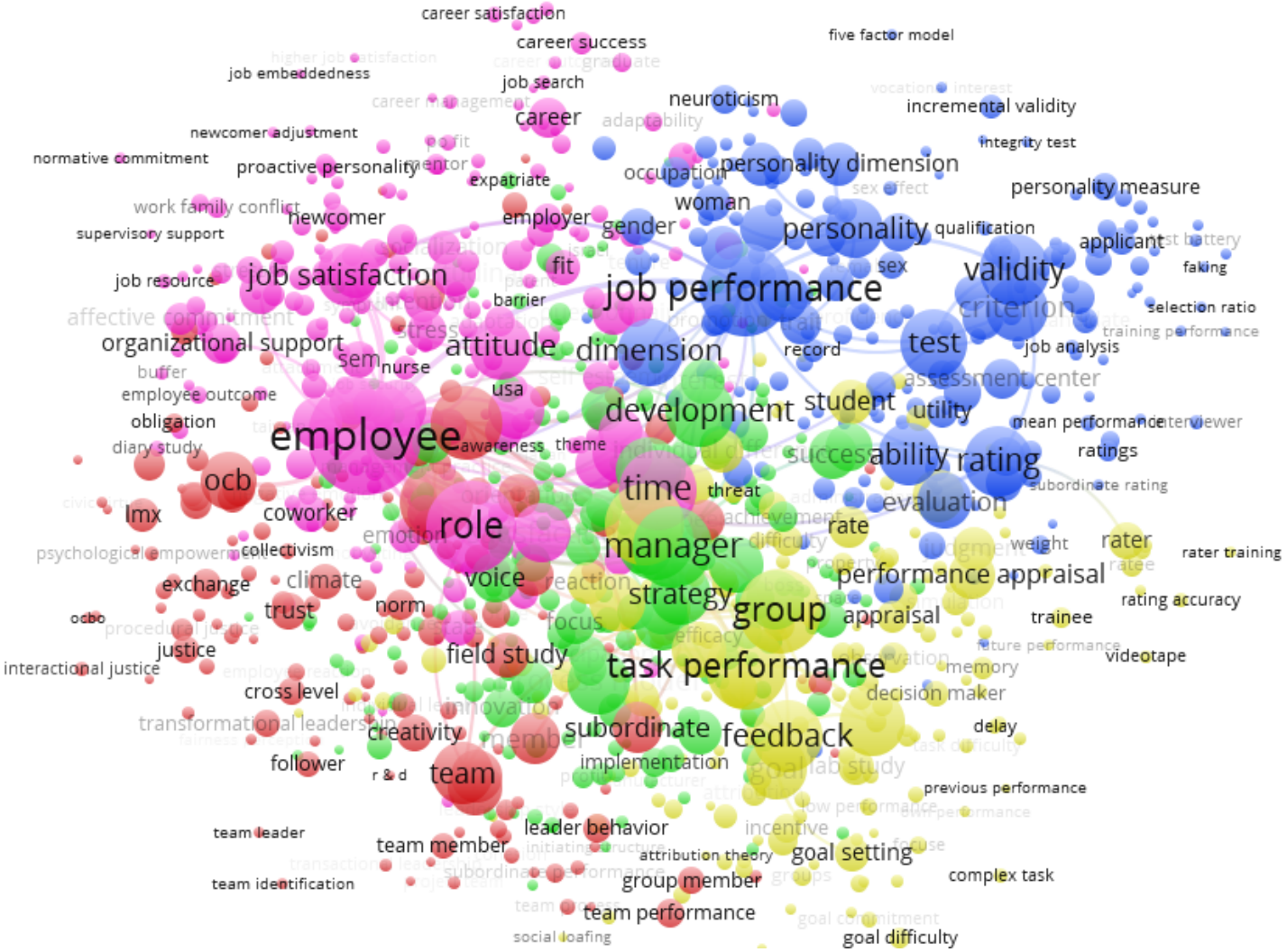

Figure 2. **Cumulative Map of the Individual Work Performance Literature (1972 – 2015).** Map Interpretation: Terms are presented in varying sizes representing the frequency with which terms are observed in the data such that larger terms appear more often than smaller ones. The distance between terms represents their relatedness. Relatedness can be assessed at two levels: first, terms appearing close to one another co-occur more often than those far apart; second, terms occupying central positions in the map co-occur with more terms in the map than those on the peripheral. The colour of terms denote "clusters" such that those terms most similar share a common colour and are more similar to one another than those terms of another colour (van Eck & Waltman, 2011).

The 40-year map includes 1006 scientific terms extracted from 9299 articles. The clusters present in the 40-year map are: the *Management* (green, N = 227 terms); the *Personnel Selection Perspective* (blue, N = 191 terms); *Motivation* (yellow, N = 195); *The Good Citizen* (red; N = 161); *and Job Attitudes* (purple; N = 232). Please refer to Table 2 for an analysis of key terms present in this map by corresponding cluster.

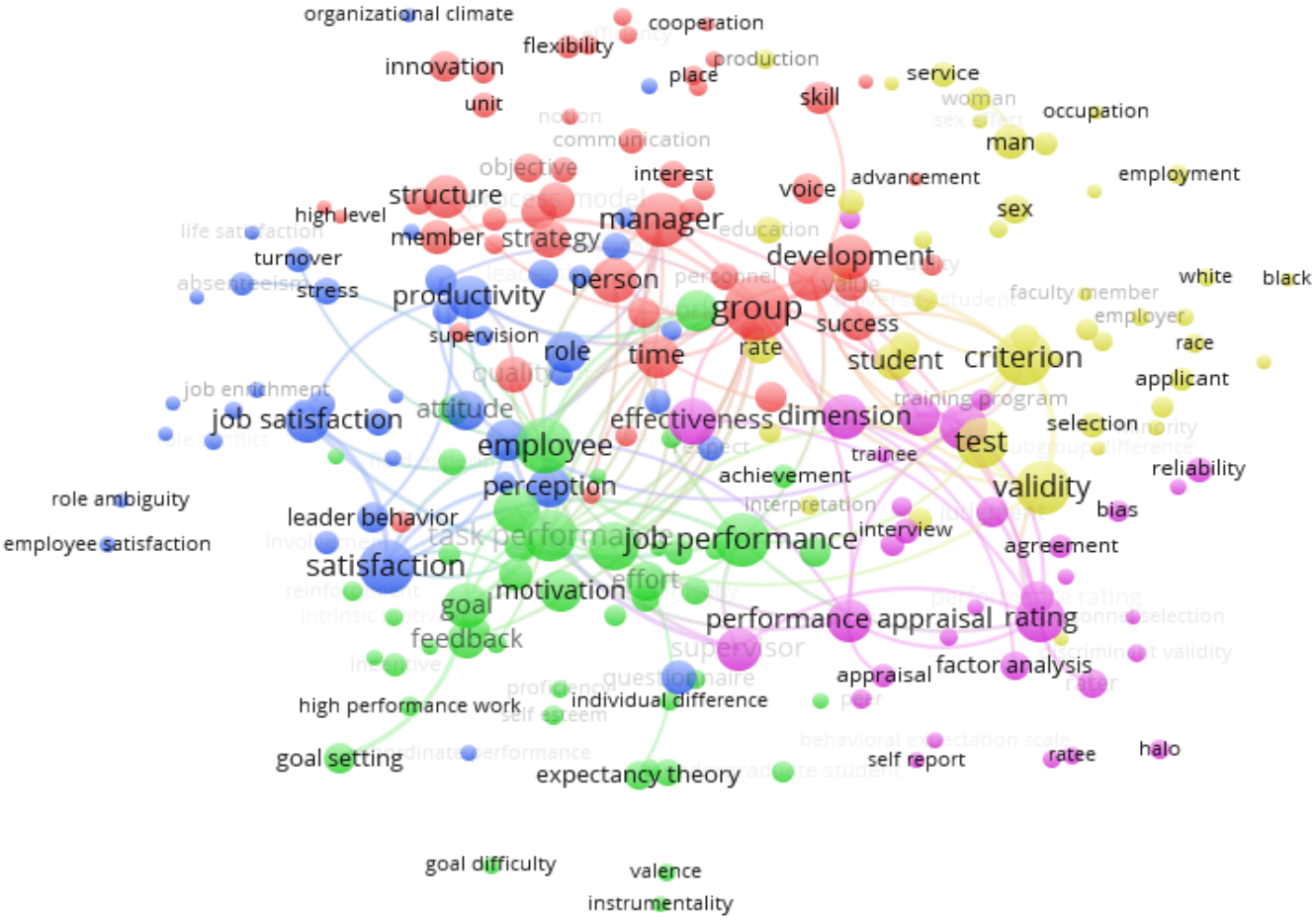

Figure 3a. **Understanding the Core: Term Map for 1972 – 1982**. Clusters: The *Management* (red), *appraisal* (yellow)*; Personnel Selection Perspective* (purple)*; Motivation* (green), *Job Attitudes* (blue).

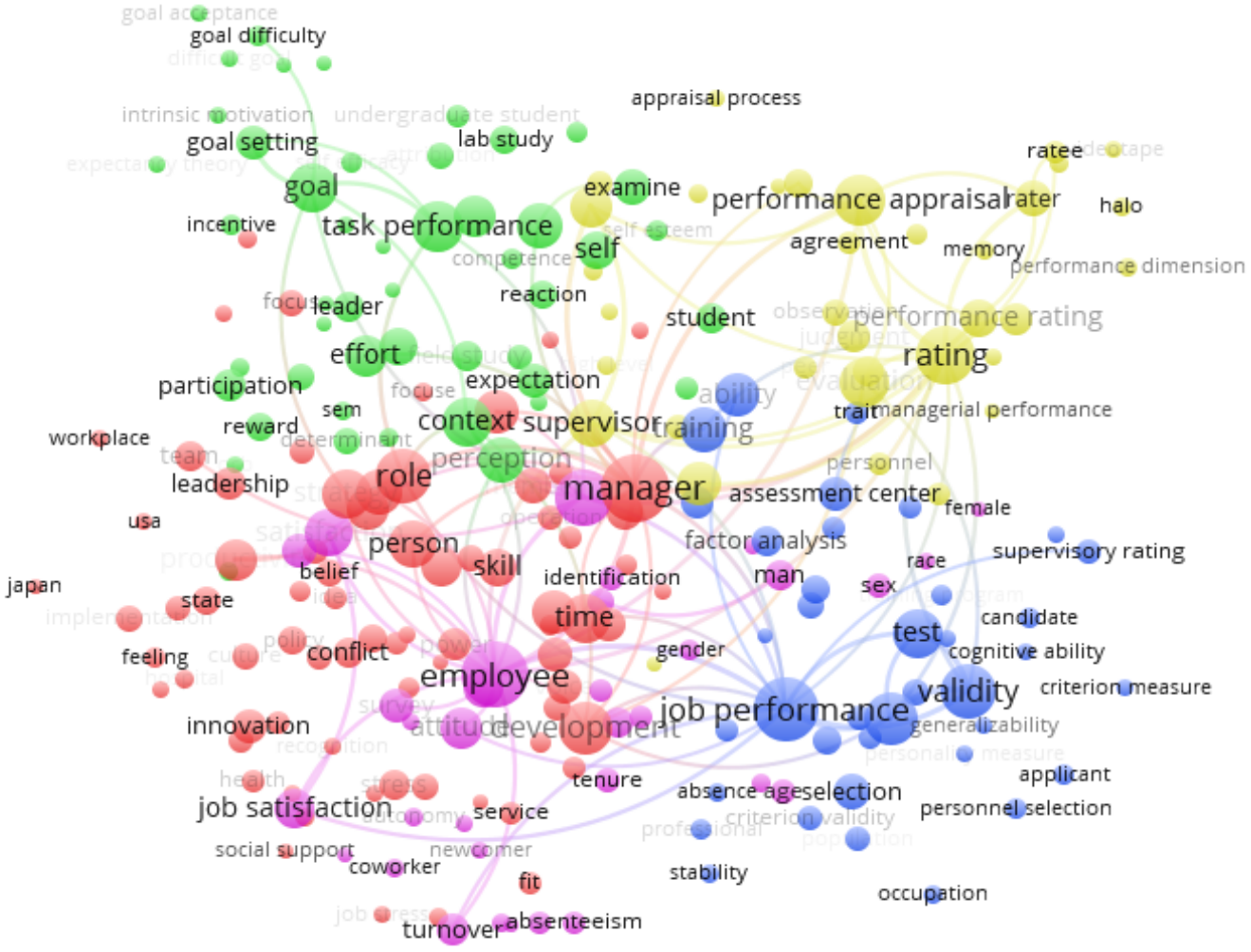

Figure 3b. **Flowering of Dimensions: Term Map for 1983 – 1993**. Clusters: The *Management* (red), *Appraisal* (yellow)*; Personnel Selection Perspective* (blue)*; Motivation and Personality* (green), *and Job Attitudes* (purple).

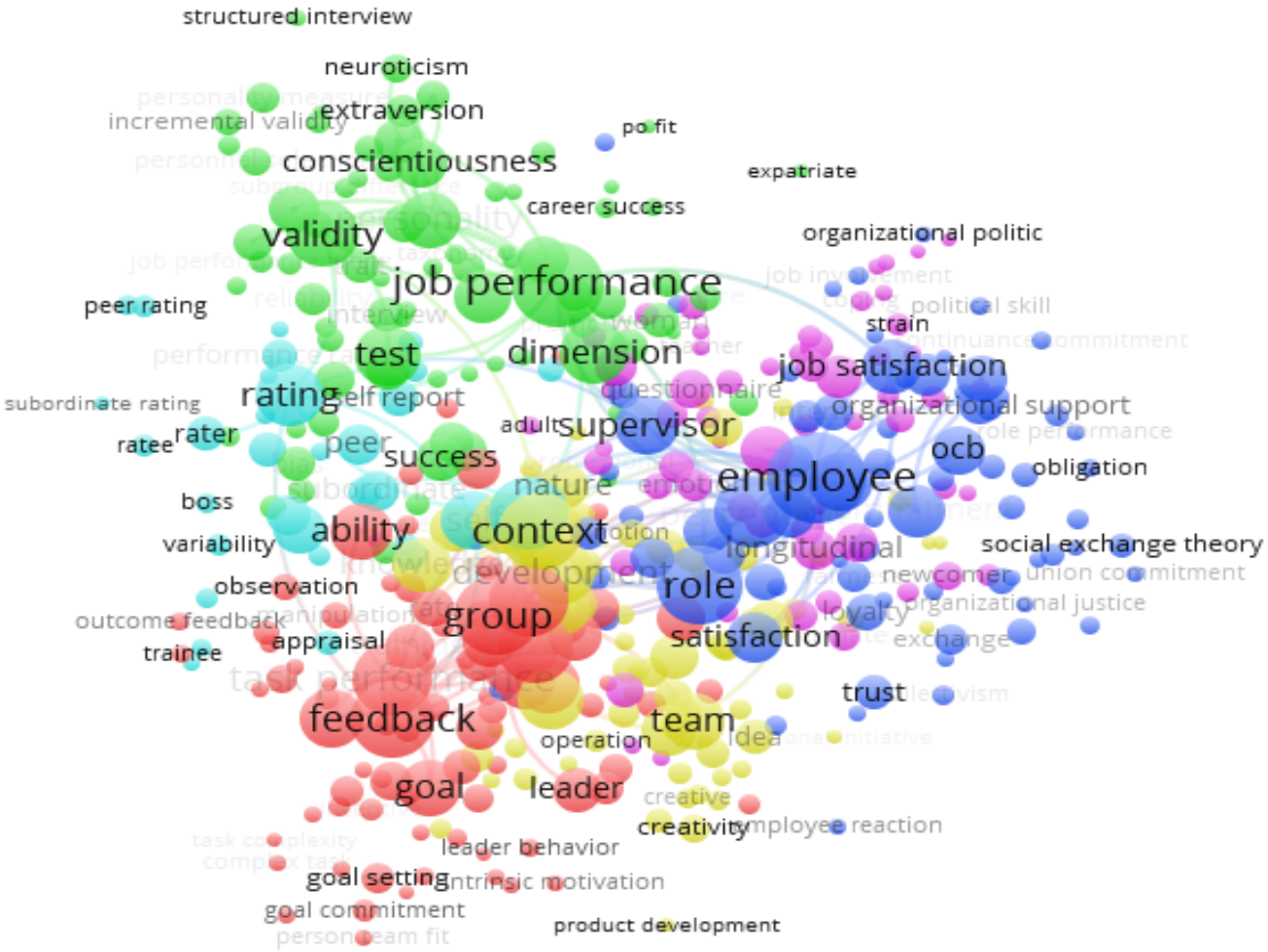

Figure 3c. **Scattering in the Wind: Term Map for 1994 – 2004.** Clusters: *Motivation* (red), *Personnel Selection Perspective* (green), *Job Attitudes* (blue), *Proactive Concepts* (yellow), *Expanded Job Attitudes* (purple), *Appraisal* (aqua).

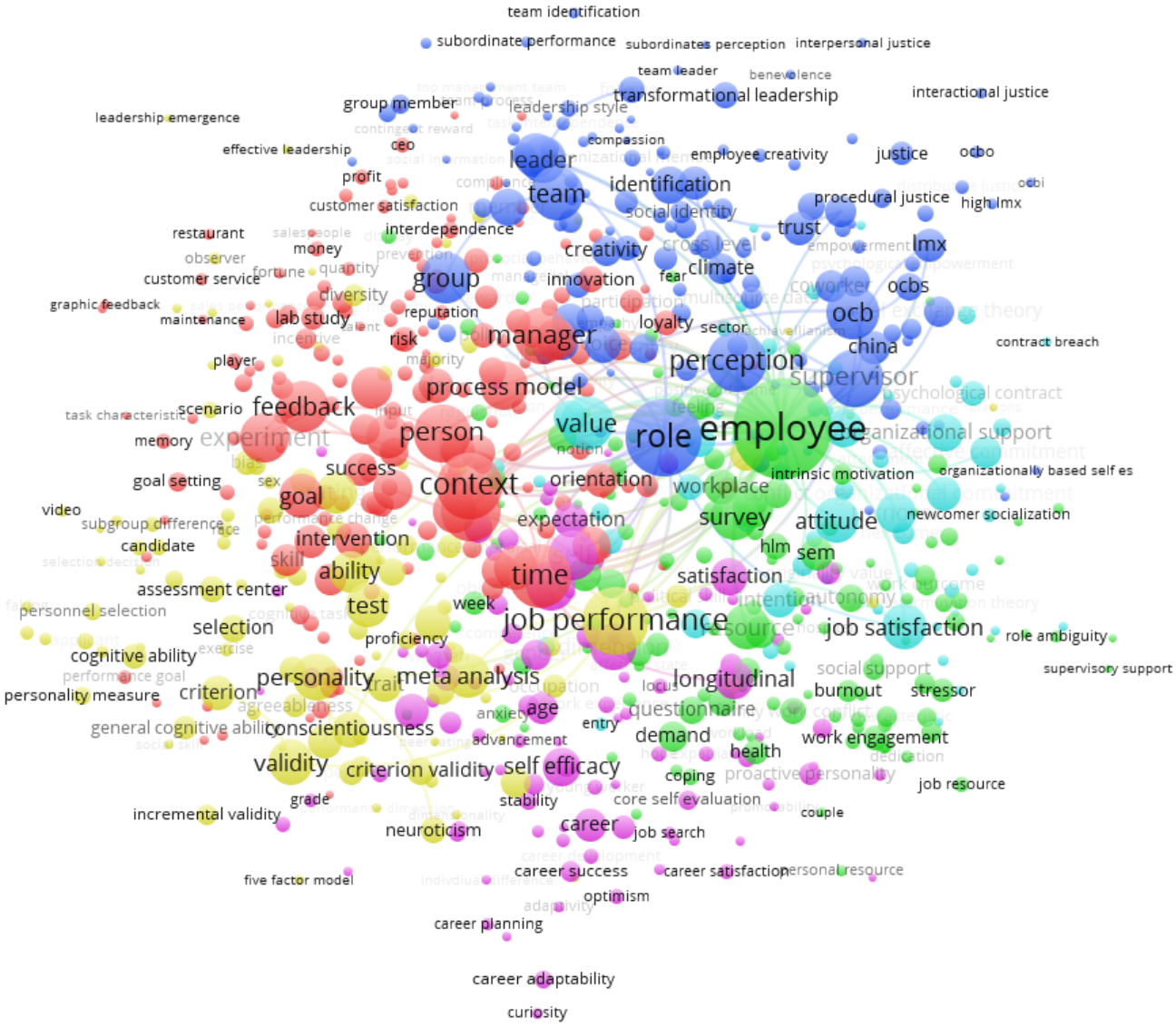

Figure 3d. **New Concepts take Root: Term Map 2005 – 2015**. Clusters: *Motivation* (red), *Expanded Job Attitudes* (green), *OCB* (blue), *Personnel Selection Perspective* (yellow), *Careers* (purple), *Proactive and Adaptive Concepts* (aqua).

Appendix A: Extended Science Mapping Methodology

To achieve the aforementioned goals of mapping the overarching intellectual architecture of the individual performance literature as well as examine the historical evolution of the field, we generated a summary map of the entire individual performance literature from 1972 to 2015 (summary map) as well as four maps in 10 year increments (map slices) to examine changes in the literature (Ramos-Rodrigez & Ruiz-Navarro, 2004).

We commence in 1972 as this is the year when the *Social Science Citation Index* commenced and we ended with 2015 to avoid preprint bias. We limited our search to 62 journals in management and organizational behavior which were identified using a multi-pronged approach. We began by searching the Web of Science for all journals listed as either "applied psychology" or "management" and identified journals appearing on both lists. We then used published quality lists (Gomez-Mejia & Ballcin, 1992; Harzing, 2014, 2015; Zickar & Highhouse, 2001) and the Web of Science *Journal Citation Report* (1997, 2005, 2014) to triangulate our selection. Finally, we used recent meta-analyses and reviews in OCB (Podsakoff et al. 2000), adaptivity (Huang et al. 2014), and proactivity (Thomas et al. 2010) to ensure appropriate coverage. Articles were extracted using ProQuest and the Web of Science and identified using a list of 154 unique search terms derived from key search terms contained in meta-analyses and review papers (e.g., adaptive performance, OCB, proactivity, task performance, helping). Our initial search resulted in the extraction of 13,188 titles.

We ensured the integrity of the data by first examining it for completeness and then cleaning our irrelevant entries. To ensure completeness, we searched for all the articles appearing in journals we cover contained in meta-analyses and reviews of the individual performance literature from various perspectives: Podsakoff et al. (2000), Thomas et al. (2005), Griffin et al. (2007), Parker and Collins (2010), and Carpini and Parker (2017). Overall, 97% of the articles cited in these papers were contained in the data file and missing

entries were manually entered. This provides strong evidence for the completeness of the data file. Consistent with previous work we excluded book reviews, letters to the editor, and comments (Gomez-Mejia & Balkin, 1992). We also searched for articles outside of this review's scope using 30 key words (e.g., invest, sensory, machine, computer, product life cycle, firm, venture, team performance, organizational performance, corporate) which were designed to tease the individual work performance literature out from closely related literature. Entries containing any of the key words were manually reviewed for relevance and irrelevant entries discarded. Following cleaning, our final dataset contained 9299 records. Please refer to appendix B for the journals contained in our review.

The summary map was generated using all records contained in the data file providing a macro-overview of the literature. The slice maps were created by segmenting the dataset into 10 year time frames beginning in 1972 resulting in four non-overlapping slices. Given the purpose of the review is to examine the evolution of the field it is necessary to split the data file into segments which are not intended to represent actual time periods (Ramos-Rodriguez & Ruiz-Navarro, 2004). We elected to divide the dataset into 10 year increments as it created four even slices (slice 1: 1972 – 1982; slice 2: 1983 – 1993; slice 3: 1994 – 2004; slice 4: 2005 – 2015) that should be sufficiently sensitive to changes in the literature. Slice one contained 1281 records, slice two 1310 records, slice three 2305 records and slice four 4403 records. Each record comprised of the full article title and the abstract[8].

Analyses and visualization of the data were executed using the *VOSviewer* software (van Eck & Waltman, 2010). The analyses begin with the elimination of noun phrases and the computation of term relevance scores. Next, the program calculates the co-occurrence of related terms. The strength of association between terms becomes the input for the visual

[8] Although not all articles were originally published with abstracts, recent work undertaken by ProQuest and others has resulted in the vast majority of articles now having abstracts, although some have been written retrospectively.

map. The resulting maps are visual representations of the strength of association between scientific terms (Rip & Courtial, 1984). Terms are presented in varying sizes representing the frequency with which terms are observed in the data such that larger terms appear more often than smaller ones. The distance between terms represents their relatedness. Relatedness can be assessed at two levels: first, terms appearing close to one another co-occur more often than those far apart; second, terms occupying central positions in the map co-occur with more terms in the map than those on the peripheral. The colour of terms denote "clusters" such that those terms most similar share a common colour and are more similar to one another than those terms of another colour (van Eck & Waltman, 2011). For a detailed explanation please see van Eck and Waltman (2009, 2010, 2014).

Visualization Parameters

The *VosViewer* software package allows for the adjustment of visualization parameters. Unlike previous reviews using science mapping (e.g., Lee et al. 2014) who sought to visualize a content area of scientific inquiry, we were specifically interested in performance terms. As such, we needed to adjust some of the default settings to extract the information most pertinent to our review. We outline these decisions below.

Term Thesaurus File. In addition to a file containing the articles (titles and abstracts), the development of a term thesaurus file is critical in fleshing-out the science map. The thesaurus file is designed to help merge similar terms together (e.g., performance rating, performance ratings) as well as except irrelevant or uninformative terms (e.g., copyright, bottom, chapter, many). The thesaurus is developed through multiple iterations of science maps. The final thesaurus file contained 2508 lines of code and is readily available from the first author upon request. All science maps used the same base thesaurus for consistency. In some cases, low frequency terms of interest (e.g., whistle blowing) were coded into their higher-order construct (e.g., voice) based on the synthesis presented in this article.

Scientific Map Parameters. For each of the ten year maps we used the default threshold count of 10 and a 100% mapping rule instead of the default 60% due to the relatively low number of terms. For the global map containing the full dataset, we adopted a 15 count threshold and subsequently mapped 100% of the terms. Increasing the threshold meant that only those terms that are counted most frequently are included in the map and is proportionate to the number of terms in the global map relative to the number of terms in any of the ten year maps.

Appendix B. Journals included in Science Maps

Academy of Management Annals

Academy of Management Executive

Academy of Management Journal

Academy of Management Perspectives

Academy of Management Review

Administrative Science Quarterly

Applied Psychology – Health and Well Being

Applied Psychology – An International Review

Asia Pacific Journal of Management

British Journal of Management

California Management Review

Decision Sciences

European Journal of Work and Organizational Psychology

European Review of Applied Psychology

Group & Organization Management

Harvard Business Review

Human Performance

Human Relations

Human Resource Management

Human Resource Management Journal

Human Resource Management Review

International Journal of Management Reviews

Journal of Applied Psychology

Journal of Behavioral Decision Making

Journal of Business and Psychology

Journal of Career Assessment

Journal of Career Development

Journal of Experimental Psychology – Applied

Journal of International Business Studies

Journal of Management

Journal of Management Studies

Journal of Managerial Psychology

Journal of Occupational and Organizational Psychology

Journal of Occupational Health Psychology

Journal of Organizational Behavior

Journal of Organizational Behavior Management

Journal of Vocational Behavior

Leadership Quarterly

Management and Organization Review

Management Science

Motivation and Emotion

Omega-International Journal of Management Science

Organization

Organization Science

Organization Studies

Organizational Behavior and Human Decision Processes

Organizational Dynamics

Organizational Research Methods

Personnel Psychology

Psychological Bulletin

Research in Organizational Behavior

Sloan Management Review

Work and Stress

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Barrick, M. R., Mount, M. K., & Li, N. (2013). The theory of purposeful work behavior: The role of personality, job characteristics, and experienced meaningfulness. *Academy of Management Review*, *38*(1), 132–153.

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