

Job Performance

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Individual performance is of high relevance for organizations and individuals alike. Showing high performance when accomplishing tasks results in satisfaction, feelings of self-efficacy and mastery (Bandura, 1997; Kanfer et al., 2005). Moreover, high performing individuals get promoted, awarded and honored. Career opportunities for individuals who perform well are much better than those of moderate or low performing individuals (Van Scotter et al., 2000).

This chapter summarizes research on individual performance and addresses performance as a multi-dimensional and dynamic concept. First, we define the concept of performance, next we discuss antecedents of between-individual variation of performance, and describe intraindividual change and variability in performance, and finally, we present a research agenda for future research.

JOB PERFORMANCE AS A MULTI-DIMENSIONAL CONCEPT

The concept and definition of individual performance has received considerable scholarly research attention over the past 15 to 20 years.

Researchers agree that performance has to be considered as a multi-dimensional concept. On the most basic level one can distinguish between a process aspect (i.e., behavioral) and an outcome aspect of performance (Borman and Motowidlo, 1993; Campbell, McCloy, Oppler, and Sager, 1993; Roe, 1999).

The behavioral aspect refers to what people do while at work, the action itself (Campbell, 1990). Performance encompasses specific behavior (e.g., sales conversations with customers, teaching statistics to undergraduate students, programming computer software, assembling parts of a product). This conceptualization implies that only actions that can be scaled (i.e., counted) are regarded as performance (Campbell et al., 1993). Moreover, this performance concept explicitly only describes behavior which is goal-oriented, i.e. behavior which the organization hires the employee to do well as performance (Campbell et al., 1993).

The outcome aspect in turn refers to the result of the individual's behavior. The actions described above might result in contracts or selling numbers, students' knowledge in statistical procedures, a software product, or numbers of products assembled. Empirically,

the behavioral and outcome aspect are related. However, there is no complete overlap, as the outcome aspect is affected by other determinants than the behavioral aspect. Imagine a car retailer who communicates the preferences of a product (behavioral aspect) excellently, but who nevertheless achieves low sales figures (outcome aspect) due to low demand of this specific type of cars. Similarly, a teacher who provides an excellent statistics lesson which fulfills all learning requirements (behavioral aspect) might not provide students with knowledge (outcome aspect) if students' lack motivation or cognitive abilities.

Moreover, performance must be distinguished from effectiveness and from productivity or efficiency (Campbell et al., 1993; Pritchard et al., 1992). Effectiveness refers to the evaluations of the results of performance (i.e., financial value of sales). In comparison, productivity is the ratio of effectiveness to the cost of attaining the outcome. For example, the ratio of hours of work (input) in relation to products assembled (outcome) describes productivity.

A great deal of attention has been paid to the distinction between task and contextual performance. There are three basic differences between task and contextual performance (Borman and Motowidlo, 1997; Motowidlo et al., 1997; Motowidlo and Schmit, 1999):

- (1) contextual performance activities are comparable for almost all jobs, whereas task performance is job specific;
- (2) task performance is predicted mainly by ability, whereas contextual performance is mainly predicted by motivation and personality;
- (3) task performance is in-role behavior and part of the formal job-description, whereas contextual performance is extra-role behavior and discretionary (i.e. not enforceable), and often not rewarded by formal reward systems or directly or indirectly considered by the management.

Task performance

Task performance covers a person's contribution to organizational performance, refers

to actions that are part of the formal reward system (i.e., technical core), and addresses the requirements as specified in job descriptions (Williams and Karau, 1991). At a general level, task performance consists of activities that transform materials into the goods and services produced by the organization or to allow for efficient functioning of the organization (Motowidlo et al., 1997). Thus, task performance covers the fulfillment of the requirements that are part of the contract between the employer and employee.

Moreover, task performance in itself can be described as a multi-dimensional construct. Campbell (1990) proposed a hierarchical model of eight performance factors. Among these eight factors, five refer to task performance:

- (1) job-specific task proficiency;
- (2) non-job-specific task proficiency;
- (3) written and oral communication proficiency;
- (4) supervision, in case of leadership position; and partly
- (5) management/administration.

Each of these five factors itself consists of subfactors which are differently important for various jobs. For example, the supervision factor includes (1) guiding, directing, and motivating subordinates and providing feedback, (2) maintaining good working relationships, and (3) coordinating subordinates and others resources to get the job done (Borman and Brush, 1993).

Contextual performance

Often it is not sufficient to comply with the formal job requirements, one needs to go beyond what is formally required (Parker et al., 2006; Sonnentag and Frese, 2002). Contextual performance consists of behavior that does not directly contribute to organizational performance but supports the organizational, social and psychological environment. Contextual performance is different from task performance as it includes activities that are not formally part of the

job description. It indirectly contributes to an organization's performance by facilitating task performance.

Borman and Motowidlo (1993) enumerate five categories of contextual performance:

- (1) volunteering for activities beyond a person's formal job requirements;
- (2) persistence of enthusiasm and application when needed to complete important task requirements;
- (3) assistance to others;
- (4) following rules and prescribed procedures even when it is inconvenient; and
- (5) openly defending organization objectives.

Examples of contextual performance are demonstrating extra effort, following organizational rules and policies, helping and cooperating with others, or alerting colleagues about work-related problems (Borman and Motowidlo, 1993; Motowidlo et al., 1997).

In the past, contextual performance was conceptualized and measured in numerous ways. On a very general level, these different conceptualizations can be identified that aim at the effective functioning of an organization as it does at a certain time ('stabilizing' contextual performance), and proactive behaviors which intend to implement new and innovative procedures and processes in an organization, thus changing the organization ('proactive' contextual performance; Sonnentag and Frese, 2002).

The 'stabilizing' contextual performance comprises organizational citizenship behavior (OCB; Organ, 1988), and some aspects of prosocial organizational behavior (Brief and Motowidlo, 1986). OCB describes discretionary behavior which is not necessarily recognized and rewarded by the formal reward system. Discretionary means that the behavior is not enforceable and not part of the formal role in terms of the person's contract with the organization. Furthermore, Organ (1988) explains that not every single discrete instance of OCB is expected to make a difference in organizational outcomes, but that the aggregate promotes the effective functioning of an organization

(Organ, 1988; 1997). OCB consists of five components:

- altruism (i.e. helping others);
- conscientiousness (i.e., compliance to the organization);
- civic virtue (e.g., keeping up with matters that affect the organization);
- courtesy (e.g., consulting with others before taking action); and
- sportsmanship (e.g., not complaining about trivial matters)

(LePine et al., 2002; Organ, 1988).

The more 'proactive' view on contextual performance includes concepts such as personal initiative (Frese et al., 1996), taking charge (Morrison and Phelps, 1999), and proactive behavior (Crant, 1995). Personal initiative is characterized as a self-starting and active approach to work and comprises activities that go beyond what is formally required. Consequently, employees show personal initiative when their behavior fits to an organization's mission, when their goals have a long-term focus, and when they are capable of finding solutions for challenging situations. Similarly, taking charge implies that employees accomplish voluntary and constructive efforts which effect organizationally functional change. Proactive behavior refers to showing self-initiated and future-oriented action that aims to challenge the status quo and improve the current situation (Crant, 1995; Parker et al., 2006). In sum, contextual performance is not a single set of uniform behaviors, but is multidimensional in nature (Van Dyne and LePine, 1998).

Adaptive performance

Campbell et al.'s (1993) taxonomy of work performance did not initially include adaptive performance. However, due to changing and dynamic work environments, the need for adaptive employees has become increasingly important (Pulakos et al., 2000; Smith et al., 1997). Numerous authors refer to adaptability using different names. Hesketh and Neal (1999) referred to adaptive performance,

Murphy and Jackson (1999) discussed role flexibility, and London and Mone (1999) wrote about the proficiency of integrating new learning experiences. As a result of extensive literature review and factor analyses, Pulakos et al. (2000) presented an eight-dimensional taxonomy of adaptive performance:

- (1) handling emergencies or crisis situations;
- (2) handling work stress;
- (3) solving problems creatively;
- (4) dealing with uncertain and unpredictable work situations;
- (5) learning work tasks, technologies and procedures;
- (6) demonstrating interpersonal adaptability;
- (7) demonstrating cultural adaptability; and
- (8) demonstrating physically oriented adaptability.

These dimensions of adaptive performance were shown to exist across many different types of jobs (Pulakos et al., 2000).

Like task and contextual performance, adaptive performance also appears to be a multidimensional construct. However, future research is needed to specify, for example, the antecedents and consequences of adaptive performance and the generalizability of the adaptive performance taxonomy suggested by Pulakos and her co-workers (2000). Given the increased importance of adaptive performance, more empirical research is needed.

Relationship between task, contextual and adaptive performance

One can distinguish conceptually between task, contextual, and adaptive performance; and task and contextual performance can be separated empirically (Griffin et al., 2000, Motowidlo and Van Scotter, 1994). Additionally, there is evidence that task and contextual performance are differently important for outcome variables (Conway, 1999; Johnson, 2001). In a meta-analysis of managerial jobs, Conway (1999) found that task and contextual performance (job dedication, interpersonal facilitation) contributed

uniquely to overall managerial performance. Moreover, Johnson (2001) showed that raters vary the relative weight they put on different aspects of performance speaking in favor of raters' implicit models of performance dimensions.

Recently, Griffin et al. (2007) presented and tested a model that aimed at integrating major performance concepts. These authors argued that two principle changes (i.e., increasing interdependence and uncertainty of work systems) require an integrative model of different performance dimensions. They defined three core performance dimensions, namely proficiency, adaptivity, and proactivity which they classified at three levels (individual, team and organization). Proficiency covers the fulfillment of role requirements that can be formalized, adaptivity refers to the extent of adaptation to changes at the workplace and proactivity describes the extent of self-directed action necessary to adapt to changes. Griffin et al. (2007) regarded individual task proficiency to be comparable to task performance, and adaptivity and proactivity to be especially important in uncertain situations. Furthermore, these different types of behavior are not considered to be mutually exclusive but their importance should vary depending on the uncertainty of the environment.

In sum, performance should be seen as a multidimensional construct with the dimensions being multidimensional themselves. Moreover, each performance dimension is related to different aspects of organizational success (e.g., task performance helps to satisfy technical core requirements). The ongoing rapid changes in technology (Burke and Ng, 2006), mergers and fusions (Pike, 2006), and the globalization of many firms (Black et al., 1991) require workers to be increasingly tolerant of uncertainty (Pulakos et al., 2000).

Measurement of performance

Given the centrality of job performance in organizations, it becomes clear that the measurement of individual performance should capture job performance as reliable and valid as possible.

A variety of measures of job performance has been used over the past decades (Campbell et al., 1990; Viswesvaran et al., 1996). For example, rating scales, tests of job knowledge, hands-on job samples, and archival records have been used to assess job performance (Campbell et al., 1990). From these measurement options, performance ratings (e.g. peer ratings and supervisor ratings) are the most frequent way of measuring job performance (Viswesvaran et al., 1996). Often, 'objective' criteria such as sales figures and production records are requested. However, even these criteria involve subjective judgments of which specific type of criteria pictures performance (Campbell, 1990) and are, like other performance measures, not perfect.

Several studies have focused on the degree of convergence across various sources of performance ratings (Conway and Huffcutt, 1997; Harris and Schaubroeck, 1988; Mabe and West, 1982; Viswesvaran et al., 1996). Using meta-analysis, Viswesvaran et al., (1996) compared the reliability of supervisor ratings and peer ratings. They concluded that supervisory ratings showed higher interrater reliability than peer ratings. Another meta-analytic review (Harris and Schaubroeck, 1988) revealed that self and supervisor ratings correlated moderately ($r = 0.35$) as did self and peer ratings ($r = 0.36$), whereas correlations between peer and supervisory ratings were higher ($r = 0.62$). Comparing the reliability of peer and supervisor ratings, findings yield higher correlations of different supervisors ratings assessing the same individual compared to different peers ratings evaluating the same individual (Conway and Huffcutt, 1997; Mount et al., 1998).

Woehr et al. (2005) investigated the impact of the performance dimension (e.g., technical knowledge, integrity, and leadership) and rating source (i.e., peer, self, and supervisor) as well as the degree of measurement equivalence across sources. Results suggest that the impact of the underlying performance dimension is comparable across different rating sources. Woehr et al. (2005) also found that, in terms of a multi-trait multi-method approach, trait effects (source)

were larger than method (source) effects. Thus, Woehr et al. (2005) concluded that ratings from different sources are to some extent comparable. However, there is no perfect convergence of ratings across sources and at present it is not clear if this is attributable to systematic or random error components.

Literature examining the effect of contextual performance on managerial evaluations (Conway, 1999; Van Scotter and Motowidlo, 1996; Werner, 1994) suggests that manager ratings should, aside from evaluations of task performance, incorporate ratings of contextual performance and that the effects of contextual performance on organizational performance and success are at least as great as those of task performance (Podsakoff et al., 2000).

As it is not always possible to assess multiple performance dimensions in practice, it is valuable to know if there is one general factor in ratings of job performance. Viswesvaran et al. (2005) addressed this question using a meta-analytic framework, and their results suggest that there is one large general factor. This finding implies that the practice of generating a composite measure of various performance dimensions seems to be justifiable as long as it is theoretically satisfying.

Summary and conclusion

The overview of the major performance dimensions views individual performance as a multi-dimensional concept. At the most basic level, performance can be differentiated in terms of process and outcome. Moreover, one can distinguish between task, contextual, and adaptive performance and each of these types in itself is multidimensional. These performance types differ with respect to their antecedents and consequences and can be conceptually and empirically separated. Measurement of performance is central as important organizational decisions are based on individual performance. Future research is needed to clarify the interplay of the different performance types.

PREDICTORS OF INTERINDIVIDUAL DIFFERENCES IN JOB PERFORMANCE

Both theoretically and practically, it is critical to identify predictors of job performance. Most generally, one can differentiate between person-specific and situation-specific predictor variables. Person-specific variables are individual difference variables, that is, variables that differ between individuals, but are expected to be rather stable within individuals. Situation-specific variables characterize the work situation or the organizational context, but not the individual person.

Person-specific variables

Individuals differ considerably in job performance level. In jobs with low difficulty, the performance of the highest performer exceeds the lowest performers between two to four times, whereas in jobs with high difficulty, highest performers may exceed the lowest performers by even a greater ratio (Campbell et al., 1996). What predicts these differences? Most research on person-specific predictors of job performance focused on abilities, knowledge, experience, and non-cognitive traits.

Cognitive abilities

Ability refers to 'the power or capacity to act financially, legally, mentally, physically, or in some other way' (Ree et al., 2001: 21). Cognitive ability refers to qualifications or capacity with respect to mental tasks. Substantive research efforts have been undertaken to examine whether general mental ability (GMA), also referred to as 'g' (Spearman, 1904), is related to job performance. Meta-analyses show that GMA is a strong predictor of job performance. For example, in a comprehensive meta-analysis based on data from 425 studies ($N = 32,124$) Hunter and Hunter (1984) reported a corrected mean correlation of 0.51 (corrected for range restriction and criterion unreliability) between measures of GMA and job performance, a finding replicated from data in the US and Canada (for summaries, see Salgado et al., 2001; Schmidt

and Hunter, 2004). More recent meta-analyses based on UK and other European samples reported corrected mean correlations between GMA and job performance of 0.48 (Bertua et al., 2005) and 0.62 (Salgado et al., 2003) suggesting that the association between GMA and job performance is culturally invariant, at least within Western cultures. Additional analyses based on meta-analytic data showed that the correlations between GMA and job performance differ across job types. Generally, the correlations are higher for more complex jobs; but also for less complex jobs GMA remains substantially related to job performance.

Studies examining the association between more specific abilities also found substantive correlations between these abilities and indicators of job performance. For example, Bertua et al. (2005) reported corrected correlations between verbal, numerical, perceptual, and special abilities on the one hand and job performance on the other hand of 0.39, 0.42, 0.50, 0.35 respectively. Thus, these specific abilities were nearly as strong predictors of job performance as is GMA.

An important question in this research area is whether specific cognitive abilities contribute to the prediction of job performance beyond the predictive power of GMA. Based on data from 1,036 enlistees from the US Air Force working in seven different jobs, Ree et al. (1994) concluded that specific abilities added significantly to the prediction of job performance, but that this incremental contribution was small in practical terms (cf. Olea and Ree, 1994). Ree et al.'s conclusion that, in the prediction of job performance, there is 'not much more than g' was and still is heavily debated in the field of personnel selection and beyond (Brown et al., 2006; Reeve, 2004; Sternberg and Wagner, 1993). For example, at least in some types of jobs, social skills add to the prediction of job performance (Ferris et al., 2001).

Most meta-analyses examining the association between cognitive abilities and job performance did not differentiate between various types of job performance, leaving

the question of whether cognitive abilities are uniformly related to all types of job performance largely unanswered. Motowidlo et al. (1997) have argued that cognitive ability is mainly related to task performance by impacting on task habits, task skills, and task knowledge. According to these authors, the relationship between cognitive ability and contextual performance should be weaker because cognitive ability should be only related to contextual knowledge, but not to contextual habits or contextual skills.

Empirical research largely supports this assumption. In most studies, the associations between cognitive ability and organizational citizenship behavior or related contextual performance constructs were weak and mostly non-significant (Chan and Schmitt, 2002; Hattrup et al., 1998; LePine and VanDyne, 2001; VanScotter and Motowidlo, 1996; for contrary findings, see Allworth and Hesketh, 1999; Motowidlo and VanScotter, 1994).

With respect to more proactive types of contextual performance, research evidence remains inconclusive. Whereas Fay and Frese (2001) reported a positive relationship between cognitive ability and personal initiative, Le Pine and Van Dyne (2001) showed that cognitive ability was not related to voice behavior as one specific aspect of proactive behavior. Clearly more studies are needed that also take the type of job into account.

Research evidence remains scarce regarding the relationship between cognitive ability and adaptive performance. The few studies that did examine the association between cognitive ability and adaptive performance, however, largely converge in their findings, inasmuch as cognitive ability was found to be positively related to adaptive performance (Allworth and Hesketh, 1999; LePine, 2003; Pulakos et al., 2002).

Thus, there is convincing empirical evidence that cognitive abilities, particularly GMA, are substantially related to overall job performance in general, and to task performance in particular. Cognitive abilities do not seem to be a strong and consistent predictor of contextual performance, but they are associated with adaptive performance.

Knowledge

Campbell et al.'s performance model (1993) proposed declarative and procedural knowledge as core performance determinants. Meta-analytic evidence suggests that job knowledge (i.e., declarative knowledge) is related to job performance. For example, Hunter and Hunter (1984) reported average correlations between job content knowledge tests and performance ratings of 0.48. A more recent meta-analysis examining the relationship between written knowledge tests and job performance resulted in an effect size (corrected for the effects of sampling error, range restriction and criterion unreliability) of 0.45. Moderator analysis indicated that the relationship was higher for more complex jobs (Dye et al., 1993).

Studies assessing more procedural aspects of knowledge reported that the correlations between tacit knowledge and job performance ranged between 0.20 and 0.40 (Sternberg, 1997). A meta-analysis that used situational judgement tests as measures for procedural knowledge found a mean estimated population correlation of 0.34 between these knowledge measures and job performance (McDaniel et al., 2001).

Generally, it is argued that job knowledge mediates between individual dispositions (e.g., cognitive ability and personality) and job performance. Using path-analysis, Schmidt et al. (1986) demonstrated that job knowledge mediates the relationship between general mental ability and job performance, suggesting that individuals high on cognitive ability are more successful in acquiring job-relevant knowledge that in turn helps them to accomplish their work tasks.

Chan and Schmitt (2002) examined the relationship between situational judgement test measures and various aspects of job performance. In a study based on data from 160 civil service employees the authors found that the situational judgement test score predicted task performance as well as contextual performance (job dedication, interpersonal facilitation). Interestingly, the situational judgement test predicted task and contextual performance beyond cognitive abilities, personality factors, and job

experience (for a similar finding see also Clevenger et al., 2001).

Knowledge might not only be related to task performance but also to proactive and adaptive performance. For example, Fay and Frese (2001) have argued that knowledge helps in showing proactive behavior. Parker et al. (1997) conceptualized the subjective importance of production knowledge as one core facet of a flexible work orientation (i.e., an individual's propensity to show proactive performance). In addition, research has shown that knowledge can also be beneficial for adaptive performance (Chen et al., 2005).

Taken together, there is convincing evidence that knowledge is related to various aspects of job performance. However knowledge may not only affect performance, but specific facets of performance may help in increasing knowledge (cf., Seibert et al., 2001).

Experience

Job experience is also relevant for performance. Hunter and Hunter (1984) reported a mean corrected correlation between job experience and job performance of 0.18 (corrected for measurement error in job performance ratings). Another meta-analysis (McDaniel et al., 1988) reported a higher estimate of the population estimate and further indicated that the relationship between job experience and job performance decreases with age. A more recent meta-analysis resulting in an overall effect size of 0.13 suggests the relationship between job experience and performance might be also contingent on job complexity and type of performance measurement (Sturman, 2003).

Another meta-analysis on the relationship between experience and job performance differentiated between diverse performance measures (soft vs. hard), measurement mode (amount, i.e. number of times having performed a particular task, time, and type), and level of specificity (task experience, job experience, organizational experience; Quiñones et al., 1995), with an overall mean estimated population correlation, of 0.27. Correlations were higher for hard as

opposed to soft performance measures, for amount of experience compared to time and type, and for task experience, compared to job or organizational experience. This meta-analytic finding suggests that experience is a complex construct and the time aspect of job experience might not be most relevant for job performance.

To advance knowledge on the role of experience, Tesluk and Jacobs (1998) suggested a comprehensive model that includes qualitative aspects of experience, particularly type of experience including variety, challenge and complexity. Also, research on managerial learning suggests that specific experiences and individuals' reactions to these experiences might matter more for subsequent performance than simple quantitative indicators of experience (McCauley et al., 1994).

Meta-analytic findings on the role of experience mostly refer to task performance or overall job performance. Research evidence on the relationship between job experience and contextual performance is relatively scarce, and mostly yields weak correlations between job experience and contextual performance, particularly OCB-related indicators (Chan and Schmitt, 2002; Motowidlo and VanScotter, 1994; VanScotter and Motowidlo, 1996). With respect to adaptive performance, research showed a weak positive correlation between experience with change and this performance aspect (Allworth and Hesketh, 1999).

Thus, quantitative aspects of job experience show weak to moderate associations with task performance, and rather low correlations with contextual and adaptive performance. Moderator variables probably play a substantial role in the relationship between job experiences and performance.

Non-cognitive predictors

In addition to cognitive factors (e.g., general mental ability and knowledge) and experience, non-cognitive traits have also received considerable research attention as potential person-specific predictors of job performance. These non-cognitive traits include personality factors such as proposed by the Five Factor

Model (Digman, 1990; McCrae and Costa, 1989), more narrow traits (Dudley et al., 2006), the proactive personality concept (Crant, 1995), and core self-evaluations (Judge and Bono, 2001).

The Five Factor Model differentiates five distinct dimensions of personality:

- emotional stability;
- extraversion;
- openness to experience;
- agreeableness;
- conscientiousness.

Individuals high on emotional stability (i.e., low neuroticism) are characterized by low negative affectivity and tend to respond with less subjective distress to negative events than do individuals low on emotional stability. Extraversion refers to individuals' propensity to experience positive affect and to be sociable, assertive, and energized by social interactions. Openness to experience characterizes an individual's tendency to be creative, flexible, imaginative and willing to take risks. Agreeableness describes individuals who are kind, gentle, likable, cooperative, and considerate. Conscientiousness refers to an individual's degree of being orderly, self-disciplined, achievement-oriented, reliable and perseverant.

An early meta-analysis on the relationship between these Big Five personality factors and job performance (based on 162 samples from 117 studies) showed generally low correlations between personality factors and performance measures. Specifically, the estimated true correlations were 0.08 for emotional stability, 0.13 for extraversion, 0.04 for openness to experience, 0.07 for agreeableness and between 0.22 for conscientiousness (Barrick and Mount, 1991).

Kanfer and Kantrowitz (2002) summarized the findings from 11 meta-analytic studies published between 1990 and 2000 that addressed the relationship between personality and job performance. The estimated true-score correlations between personality and overall job performance ranged between 0.08 and 0.22 for emotional stability, 0.09

and 0.16 for extraversion, -0.03 and 0.27 for openness to experience, -0.01 and 0.33 for agreeableness and 0.12 and 0.31 for conscientiousness.

When differentiating between diverse aspects of job performance, the pattern of overall findings picture does not change substantially. Meta-analyses on the relationship between dimensions of the Five Factor Model of personality and OCB resulted in estimated true correlations ranging between 0.23 and 0.30 for conscientiousness (Dalal, 2005; LePine et al., 2002; Organ and Ryan, 1995). The estimated true correlation between emotional stability (low negative affect) and OCB was 0.10 (Dalal, 2005; Organ and Ryan, 1995) and between agreeableness and OCB it was 0.12 (Organ and Ryan, 1995).

It has been suggested that proactive performance is predicted by a specific personality concept, namely proactive personality (Crant, 1995). Not surprisingly, proactive personality predicts proactive performance (Parker et al., 2006; Thompson, 2005). More interestingly, proactive personality was also significantly related to task performance (Crant, 1995; Thompson, 2005). In addition, there is some evidence that personality predicts adaptive performance (Pulakos et al., 2002; but see also Griffin and Hesketh, 2003, 2004).

Broad personality traits such as global conscientiousness might not be the best predictors of job performance (Dudley et al., 2006). Meta-analysis showed that more narrow personality traits (achievement, dependability, order, and cautiousness) contribute to the prediction of performance beyond the predictive power of global conscientiousness. The amount of additional variance explained varied across performance criteria with the largest increase of more than 25 per cent of the variance for job dedication and much smaller increases for other performance facets such as overall job performance and task performance (Dudley et al., 2006).

One personality-related framework that received increasing research attention during the past decade refers to individuals' core self-evaluations. Judge et al. (1998) characterized core self-evaluations as 'fundamental,

subconscious conclusions individuals reach about themselves, other people, and the world' (Judge et al., 1998: 18; cf. also Judge et al., 1997). Core self-evaluations comprise an individual's self-esteem, generalized self-efficacy, locus of control, and emotional stability. Meta-analytic evidence suggests that these core self-evaluations are related to job performance (Judge and Bono, 2001). More specifically, self-esteem showed a corrected correlation of 0.26 with job performance. For generalized self-efficacy, locus of control and emotional stability the corrected correlations were 0.23, 0.22, and 0.19 respectively.

Thus, empirical data show that personality is related to job performance. However, overall the effect sizes are relatively small, particularly in comparison to cognitive ability predictors.

Situation-specific variables: work characteristics and job design

Job performance is not only influenced by person-specific variables such as general mental abilities, but also by characteristics of the situation in which the performance occurs. Research on situational antecedents of job performance addresses workplace factors that enhance as well as potentially hinder performance, and includes research on leadership and reward systems (e.g. Gerstner and Day, 1997; Podsakoff et al., 2006). We now concentrate on workplace factors and their relationships to job performance.

The Job Characteristics Model (JCM) is a major approach that deals with workplace factors that enhance performance (Hackman and Oldham, 1976). The JCM describes the relationships between core job characteristics, critical psychological states and personal and work outcomes. Hackman and Oldham (1976) assumed that core job characteristics (i.e., skill variety, task identity, task significance, autonomy, and feedback) support the quality of job performance as well as other outcomes such as internal work motivation, job satisfaction, absenteeism, or turnover by enhancing critical psychological states (i.e., experienced meaningfulness of the work, experienced

responsibility for outcomes of the work, and knowledge of the actual results of the work activities). Additionally, they proposed that individual growth need strength moderates these relationships.

Most of the empirical work based on the JCM focused on task performance and overall job performance. Meta-analytic findings showed small, but positive associations between job characteristics and job performance. Fried and Ferris (1987) reported corrected mean correlations between job performance and feedback, autonomy, task identity, and skill variety of 0.22, 0.18, 0.13, and 0.09 respectively, based on data from eight studies ($N = 1,091$) and between job performance and task significance of 0.14 based on seven studies ($N = 1,031$). However, the data also suggested the existence of moderators between autonomy and task significance on the one hand and job performance on the other hand. In a meta-analysis based on data from 18 studies ($N = 6,291$), Spector (1986) reported an adjusted mean correlation of 0.26 (corrected for unreliability of the measures) between autonomy and job performance. Concerning mediating effects of the assumed psychological states in the job characteristics-performance relationships inconclusive results were reported in the mentioned meta-analyses. Additionally, in a review of 26 studies, only weak support was found for the assumed moderator effect of individual growth need strength on the relationships between job characteristics and job performance (Graen et al., 1986). Because of the cross-sectional character of many studies, causal interpretations are not warranted, and it remains unclear whether better jobs foster high performance, or vice versa. However, intervention studies showed that job redesign had positive effects on job performance (Guzzo et al., 1985; Parker and Turner, 2002), lending some support to the interpretation that well-designed jobs increase performance (for the most recent meta-analysis see Humphrey et al., 2007).

Although there is empirical evidence for a positive relationship between particular job characteristics and task performance,

the specific mechanisms are not yet fully understood. Exemplary for the relationship between task autonomy and job performance Langfred and Moye (2004) discussed motivational, informational, and structural mechanisms with some mechanisms enhancing but other mechanisms impeding performance.

Research on relationships between job characteristics and contextual or adaptive performance is very scarce. However, Chiu and Chen (2005) reported significant associations between particular job characteristics (i.e., skill variety and task significance) and OCB, which were partially mediated by intrinsic job satisfaction. Furthermore, significant relationships were found between autonomy or job control and proactive behavior (Ohly et al., 2006; Parker, 2003; Parker et al., 1997), which were mediated by psychological states such as control orientation and self-efficacy (Frese et al., 2007; Parker et al., 2006; Speier and Frese, 1997).

Regarding workplace factors that potentially hinder job performance (often called stressors), much research has focused on role stressors. Role theory suggests that role ambiguity and role conflict deplete job performance (Kahn et al., 1964; see the Chapter by Jex in this volume). Meta-analytic findings revealed a negative, non-significant relationship between role ambiguity and job performance (corrected mean correlations with various performance measures ranging between -0.04 and -0.28 ; Tubre and Collins, 2000). The relationship between role conflict and job performance was also negative, but much smaller than between role ambiguity and performance (corrected mean correlations between -0.12 and 0.03 depending on the performance measure; Tubre and Collins, 2000).

Situational constraints are also negatively related to job performance (Bacharach and Bamberger, 1995; Peters and O'Connor, 1980). Situational constraints refer to problems with machines, incomplete materials or lack of necessary information, and these stressors impede job performance directly and indirectly: For example, problems with machines directly hinder the accomplishment

of a task and can additionally reduce effort-to-performance expectancies. In a meta-analysis Villanova and Roman (1993) reported a negative, non-significant relationship between situational constraints and job performance (mean correlation of -0.14 based on 11 studies with $N = 9,273$).

In their meta-analysis, LePine et al. (2005) summarized relationships between various stressors and job performance by classifying different stressors as hindrance versus challenge. Hindrance stressors included role stressors and situational constraints and were negatively related to job performance (corrected mean correlation of -0.20 based on 73 studies with $N = 14,943$). Challenge stressors on the other hand (e.g., demands, pressure, time urgency, and workload) were positively related to performance (corrected mean correlation of 0.12 based on 20 studies, $N = 3,465$). Thus, some stressors hinder job performance, but others enhance job performance.

Importantly, these results refer mainly to task or global performance. Initial studies on the relationships between stressors and contextual performance (namely proactive behavior) reported positive relationships between time pressure and personal initiative (Fay and Sonnentag, 2002; Sonnentag, 2003), which is consistent with the results of LePine et al. (2005) on challenge stressors. Furthermore, Fay and Sonnentag (2002) reported a positive relationship between situational constraints (a hindrance stressor) and personal initiative. Thus, whereas hindrance stressors seem to impede task performance, this does not have to be true for specific aspects of contextual performance. Perhaps situational constraints point to sub-optimality in the work organization that elicit attempts for improving the situation (Fay et al., 1998).

Overall, challenge stressors (e.g. time pressure, demands) seem to be positively associated with task performance and also with proactive behavior, whereas hindrance stressors (e.g. role stressors and situational constraints) seem to be negatively associated with task performance but possibly positively with proactive behavior.

INTRAINDIVIDUAL CHANGE AND VARIABILITY IN PERFORMANCE

Most research discussed in earlier sections of this chapter adopted a between-person perspective on performance, assuming that individual performance is rather stable – at least as long as the work situation does not change and as long as no learning occurs. However, researchers have long recognized that performance is not a stable construct and that within-individual performance variability is large (e.g., Ghiselli and Haire, 1960). During the past 10 to 20 years, questions regarding within-person performance variability and change received increased research attention – a trend that may be, at least partially – attributed to the increased availability of statistical methods and software programs that allow for analyzing within-person variability and change. Research in intraindividual change and variability of performance is important and interesting for a number of reasons. First, it promises a more thorough understanding of the performance phenomenon itself. Second, it examines if performance predictors such as cognitive ability are uniformly relevant and powerful across various levels of job experience. Third, it points to additional, more transient predictors of performance that can not be captured when approaching performance only from an individual difference or a job design perspective.

Research on intra-individual variability and change of performance addressed a number of issues. A basic issue is whether individual performance itself is stable over time (Henry and Hulin, 1987). Empirical evidence suggests that individual performance does not only change contingent on job tenure (McDaniel et al., 1988) and – to a small extent – ageing processes (Waldman and Avolio, 1986), but also that individuals' rank order with respect to performance changes over time (Hanges et al., 1990; Hofmann et al., 1992): The best performers at a given point in time might not be the best performers five or ten years later.

A related line of research aims at describing the patterns of change, and identifying

predictors of intraindividual change over time. In other words, the core question is which variables account for increases (or decreases) in performance over time – relative to the performance of other individuals working under similar conditions. Interindividual differences relevant for skill acquisition are one core reason for intraindividual change over time (Ackerman, 1987; Fleishman, 1972).

Murphy (1989) suggested that cognitive abilities and other dispositional variables are not uniformly important at all levels of job tenure. Murphy differentiated between a transition stage (e.g., times when an employee is new to a job or when major aspects of the job change) and a maintenance stage (i.e., times when an employee has well learned his or her major tasks). During the transition stage, when new skills must be learned, cognitive abilities are important for performing well, whereas during maintenance stage, cognitive abilities will not play a major role for job performance any more, and personality and motivational factors become more important. Using meta-analyses, Keil and Cortina (2001) showed that the relationship between cognitive ability and job performance decreases over time spent on a task, supporting the proposition that cognitive ability loses its predictive validity as experience increases (Ackerman, 1987; Murphy, 1989).

Several studies focusing primarily on sales personnel (for an exception, see Zickar and Slaughter, 1999) showed that there is substantial interindividual difference in intraindividual change in performance over time (Hofmann et al., 1993; Ployhard and Hakel, 1998; Thoresen et al., 2004). A few studies tried to identify predictors of intraindividual change. For example, Ployhart and Hakel (1998) found that initial performance levels and person-specific predictor variables were related to increases in performance over a two-year period: Individuals with higher performance in the first year tended to increase their sales performance more quickly. Similarly, persuasion and empathy (self-report measures of others' perceptions) were positively related to the *increase* in performance increase. Zickar and Slaughter's (1999) study on film

directors revealed that those who directed more films per year showed a higher increase in performance (as rated by external film critics) over time, and also demonstrated performance trajectories that were more strongly accelerating. In a study with pharmaceutical sales representative, Thoresen et al. (2004) differentiated between employees working on a maintenance stage and those working on a transitional stage. In the maintenance stage, personality factors were not related to changes in performance over time. In the transition stage, sales representatives high on agreeableness and low on emotional stability were more likely to increase their performance over time. One explanation for this finding is that individuals low on emotional stability will be more concerned in a transitional situation, and therefore might invest more effort that will lead to better performance.

As a whole, empirical research demonstrated that individuals differ in their performance trajectories, with some individuals increasing their performance at a faster rate than others. With respect to predictors of intraindividual changes, recent studies are promising. However, compared to the vast amount of studies on person-specific and situation-specific predictors of interindividual differences in performance, research evidence on predictors of intra-individual change in performance remains limited and not yet well-integrated. Clearly, more studies are needed that include a broader range of predictors and that systematically address cognitive, non-cognitive, experience-related and situational variables and their relative importance. In addition, it appears to be helpful to differentiate between maintenance and transition stages as predictors of the performance change probably differ between these stages.

Most studies on intraindividual change in performance summarized so far refer to changes over longer periods of time (mostly months or years – for an exception see Deadrick et al., 1997). However, performance may also vary within shorter periods of time. For example, Stewart and Nandkeolyar (2006) demonstrated substantial weekly performance

variation in a sample of sales representatives. Thus, it is not only important to identify variables that predict performance change over longer times, it is also interesting to address performance variability within shorter time frames. Beal et al. (2005) recently offered a theoretical approach to intraindividual performance variability that addresses within-person fluctuations of performance within relatively short periods of time (e.g., over the course of a working day). They presented a model of episodic performance to describe how immediate affective experiences are linked to within-person variations of performance. They defined performance episodes as ‘behavioral segments that are thematically organized around organizationally relevant goals and objectives’ (p. 1055). This model suggests that performance within each performance episode is influenced by a person’s general resource level (e.g., cognitive ability, task-relevant skills) and the momentary allocation of resources. Beal et al. argued that performance within an episode is impeded when the person does not succeed in allocating all resources to the primary work task and when attention is diverted by off-task demands. The authors assumed that affective experiences – along with distractions and interruptions that cause specific affective states – are a core source of attentional demands that interfere with the attentional demands of the primary work tasks. A recent empirical study related to this model provided promising results (Beal et al., 2006).

Taken together, the literature summarized in this section suggests that individual performance is not necessarily stable over time. We anticipate that with the advance of available software that can analyze change, more research will be conducted addressing performance variability and change over time.

RESEARCH AGENDA

During the past decades research on job performance has made substantial progress. Core accomplishments are certainly the differentiation between task performance and

contextual performance, the differentiation between various contextual performance constructs with a particular focus on proactive performance, the emergence of the adaptive performance concept, new insights on the dynamic nature of performance, and the understanding of the predictors of performance, particularly person-specific predictors. Nonetheless, many questions still remain unanswered. In this section, we suggest some avenues for future research.

Adaptive performance is an interesting concept that receives increasing research attention (Griffin et al., 2007; Pulakos et al., 2000). Conceptual refinements and improved measures are important: Compared to other aspects of job performance (particularly task performance), little is known about predictors of adaptive performance. This applies both to person-specific and situation-specific predictors.

With respect to situational variables as predictors of job performance, future research may address several issues. First, more research is needed on the processes by which specific features of the work situation (e.g., job control) translate into various aspects of job performance (Langfred and Moyer, 2004). Second, more focus on job design studies would be helpful in learning about the causal link between situational variables and job performance. Although there is evidence (e.g., Wall and Clegg, 1981) that job design results in performance improvement, more studies are needed that take the recent changes on the nature of work and the context in which work occurs (e.g., globalization) into account when testing the impact of job design interventions (Holman et al., 2003). Third, there is increasing evidence that job stressors do not necessarily impair job performance (LePine et al., 2005), and this is particularly true for proactive performance (e.g., Fay and Sonnentag, 2002). More research is now required that examines how and under what conditions job stressors facilitate performance – without compromising employee health and well-being.

Most studies examining job performance investigated how person-specific and

situation-specific variables affect performance. Nevertheless, an interesting avenue for future research would be to examine how performance affects other organizational phenomena and processes. The core underlying assumption here is that showing specific performance behaviors may predict individual orientations, behaviors, or even knowledge (Seibert et al., 2001). Similarly, experiencing oneself as someone who performs well, or being perceived as demonstrating high performance levels, may also influence specific behaviors (Sonnentag and Volmer, in press). More theoretical work is needed that specifies how objective performance levels, as well as subjective perceptions of performance, influence other organizationally relevant processes.

A related question concerns possible effects of task performance on contextual and adaptive performance. As past research has aimed at a differentiation between these three performance aspects (Griffin et al., 2007), the question how task performance might influence contextual and adaptive performance – and vice versa – has received little research attention so far.

Research demonstrated that performance is a dynamic construct and that performance fluctuates within individuals and changes over time. Comprehensive studies are needed that systematically examine the time frames of such fluctuations and changes (Mitchell and James, 2001). Moreover, research on within-individual variability and change focused on task performance (for an exception, Sonnentag, 2003). Future studies may also investigate how contextual and adaptive performance fluctuate and change over time (Grant and Ashford, in press). In addition, as performance in general is predicted by person-specific and situation-specific variables, it seems to be promising to include both person-specific and situation-specific constructs in the prediction of performance fluctuations and change.

Long-term changes in performance levels are at least partially caused by learning processes. While there is a tremendous amount of research examining training and learning processes, resulting in improved

task performance (Colquitt et al., 2000; Sonnentag et al., 2004), little is known about how training impacts contextual and adaptive performance. Because it is increasingly important that employees show proactive and adaptive performance at work, opportunities associated with training approaches should be explored (Frese et al., 2002), as investing in training and learning is likely a promising avenue for increasing contextual and adaptive performance.

Although many researchers agree that performance is a process (Campbell, 1990; Grant and Ashford, in press), the performance process itself remains a 'grey box.' There are few attempts to disentangle the various aspects of the performance process (Frese, 2007; Marks et al., 2001; Sonnentag and Frese, 2002). For example, such approaches specify how the performance process evolves from goal development, via planning, analysis of the situation, performance execution and monitoring to feedback processing. Much more research is needed to arrive at a more comprehensive understanding of what happens while individuals are performing.

CONCLUSION

Research on job performance has come a long way. Numerous studies have been conducted that have resulted in a solid knowledge base, for example when it comes to the differentiation between different aspects of job performance and person-specific predictors of job performance in general, and task performance in particular. Other areas received comparably less attention but scholars have demonstrated that there are great opportunities for better understanding and predicting job performance. For example, situational variables must not be neglected when predicting job performance. In addition, researchers increasingly challenge the view that job performance is stable over time. These different lines of research provide a set of different approaches that scholars may pursue to ensure a greater knowledge of the nature and predictors of job

performance, that in turn is predicted to facilitate, and high performance in organizational contexts.

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