Psychological Management of Individual Performance

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JOHN WILEY & SONS, LTD

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John Wiley & Sons (Canada), Ltd., 22 Worcester Road,
Rexdale, Ontario M9W 1L1, Canada

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN 0-471-87726-3

Typeset in 10/12pt Times from the authors' disks by TechBooks, New Delhi, India
Printed and bound in Great Britain by Antony Rowe Ltd, Chippenham, Wiltshire
This book is printed on acid-free paper responsibly manufactured from sustainable forestry,
in which at least two trees are planted for each one used for paper production.

CHAPTER 1

Performance Concepts and Performance Theory

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Summary

This chapter gives an overview of research on individual performance. Individual performance is highly important for an organization as a whole and for the individuals working in it. Performance comprises both a behavioral and an outcome aspect. It is a multi-dimensional and dynamic concept. This chapter presents three perspectives on performance: an individual differences perspective with a focus on individual characteristics as sources for variation in performance; a situational perspective with a focus on situational aspects as facilitators and impediments for performance; and a performance regulation perspective with a focus on the performance process. The chapter describes how current changes in the nature of work such as the focus on continuous learning and proactivity, increase in team work, improved technology, and trends toward globalization have an impact on the performance concept and future performance research.

INTRODUCTION

Individual performance is a core concept within work and organizational psychology. During the past 10 or 15 years, researchers have made progress in clarifying and extending the performance concept (Campbell, 1990). Moreover, advances have been made in specifying major predictors and processes associated with individual performance. With the ongoing changes that we are witnessing within organizations today, the performance concepts and performance requirements are undergoing changes as well (Ilgen & Pulakos, 1999).

In this chapter, we summarize the major lines within performance-related research. With this overview we want to contribute to an integration of the scattered field of performance-related research. First, we briefly discuss the relevance of individual performance both for individuals and organizations. We provide a definition of performance and describe its multi-dimensional and dynamic nature. Subsequently, we present three different perspectives on performance: the individual differences perspective, the situational perspective, and the performance regulation perspective. Finally, we summarize current trends in the nature of work and discuss how these trends may affect the performance concept as well as broader performance research and management.

RELEVANCE OF INDIVIDUAL PERFORMANCE

Organizations need highly performing individuals in order to meet their goals, to deliver the products and services they specialized in, and finally to achieve competitive advantage. Performance is also important for the individual. Accomplishing tasks and performing at a high level can be a source of satisfaction, with feelings of mastery and pride. Low performance and not achieving the goals might be experienced as dissatisfying or even as a personal failure. Moreover, performance—if it is recognized by others within the organization—is often rewarded by financial and other benefits. Performance is a major—although not the only—prerequisite for future career development and success in the labor market. Although there might be exceptions, high performers get promoted more easily within an organization and generally have better career opportunities than low performers (VanScotter, Motowidlo, & Cross, 2000).

The high relevance of individual performance is also reflected in work and organizational psychological research. To get a clearer picture about the importance of individual performance in empirical research we conducted a literature search in the twelve of the major work and organizational psychology journals.[1] These journals cover a broad range of individual, group-level and organizational-level phenomena. Based on this literature search we located a total number of 146 meta-analyses within the past 20 years. Among these meta-analyses, about a half (54.8%) addressed individual performance as a core construct.[2] In the majority of these meta-analyses, individual performance was the dependent variable or outcome measure (72.5%). In about 6% of those meta-analyses that included individual performance measures, individual performance was the independent or predictor variable. Twenty-one per cent of the meta-analyses addressed performance appraisal and performance measurement issues.

The widespread use of individual performance measures in single studies and meta-analyses shows that individual performance is a key variable in work and organizational

psychology. Interestingly, individual performance is mainly treated as a dependent variable—which makes perfect sense from a practical point of view: individual performance is something organizations want to enhance and optimize.

DEFINITION OF PERFORMANCE

Despite the great relevance of individual performance and the widespread use of job performance as an outcome measure in empirical research, relatively little effort has been spent on clarifying the performance concept. Still, in 1990, Campbell described the literature on the structure and content of performance "a virtual desert" (p. 704). However, during the past 10 to 15 years, one can witness an increasing interest in developing a definition of performance and specifying the performance concept.

Authors agree that when conceptualizing performance one has to differentiate between an action (i.e., behavioral) aspect and an outcome aspect of performance (Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993; Kanfer, 1990; Roe, 1999). The behavioral aspect refers to what an individual does in the work situation. It encompasses behaviors such as assembling parts of a car engine, selling personal computers, teaching basic reading skills to elementary school children, or performing heart surgery. Not every behavior is subsumed under the performance concept, but only behavior which is relevant for the organizational goals: "Performance is what the organization hires one to do, and do well" (Campbell et al., 1993, p. 40). Thus, performance is not defined by the action itself but by judgemental and evaluative processes (cf. Ilgen & Schneider, 1991; Motowidlo, Borman, & Schmit, 1997). Moreover, only actions which can be scaled, i.e., measured, are considered to constitute performance (Campbell et al., 1993).

The outcome aspect refers to the consequence or result of the individual's behavior. The above described behaviors may result in outcomes such as numbers of engines assembled, sales figures, pupils' reading proficiency, or number of successful heart operations. In many situations, the behavioral and outcome aspects are related empirically, but they do not overlap completely. Outcome aspects of performance depend also on factors other than the individual's behavior. For example, imagine a teacher who delivers a perfect reading lesson (behavioral aspect of performance), but one or two of his pupils nevertheless do not improve their reading skills because of their intellectual deficits (outcome aspect of performance). Or imagine a sales employee in the telecommunication business who shows only mediocre performance in the direct interaction with potential clients (behavioral aspect of performance), but nevertheless achieves high sales figure for mobile phones (outcome aspect of performance) because of a general high demand for mobile phone equipment.

In practice, it might be difficult to describe the action aspect of performance without any reference to the outcome aspect. Because not any action but only actions relevant for organizational goals constitute performance, one needs criteria for evaluating the degree to which an individual's performance meets the organizational goals. It is difficult to imagine how to conceptualize such criteria without simultaneously considering the outcome aspect of performance at the same time. Thus, the emphasis on performance being an action does not really solve all the problems.

Moreover, despite the general agreement that the behavioral and the outcome aspect of performance have to be differentiated, authors do not completely agree about which

of these two aspects should be labelled 'performance'. In the remainder of this chapter we follow the suggestion of Campbell et al. (1993) and refer to the behavioral aspect when we speak about performance.

PERFORMANCE AS A MULTI-DIMENSIONAL CONCEPT

Performance is a multi-dimensional concept. On the most basic level, Borman and Motowidlo (1993) distinguish between task and contextual performance. Task performance refers to an individual's proficiency with which he or she performs activities which contribute to the organization's 'technical core'. This contribution can be both direct (e.g., in the case of production workers), or indirect (e.g., in the case of managers or staff personnel). Contextual performance refers to activities which do not contribute to the technical core but which support the organizational, social, and psychological environment in which organizational goals are pursued. Contextual performance includes not only behaviors such as helping coworkers or being a reliable member of the organization, but also making suggestions about how to improve work procedures.

Three basic assumptions are associated with the differentiation between task and contextual performance (Borman & Motowidlo, 1997; Motowidlo & Schmit, 1999): (1) Activities relevant for task performance vary between jobs whereas contextual performance activities are relatively similar across jobs; (2) task performance is related to ability, whereas contextual performance is related to personality and motivation; (3) task performance is more prescribed and constitutes in-role behavior, whereas contextual performance is more discretionary and extra-role.

Task Performance

Task performance in itself is multi-dimensional. For example, among the eight performance components proposed by Campbell (1990), there are five factors which refer to task performance (cf. Campbell, Gasser, & Oswald, 1996; Motowidlo & Schmit, 1999): (1) job-specific task proficiency, (2) non-job-specific task proficiency, (3) written and oral communication proficiency, (4) supervision—in the case of a supervisory or leadership position—and partly (5) management/administration. Each of these factors comprises a number of subfactors which may vary between different jobs. For example, the management/administration factor comprises subdimensions such as (1) planning and organizing, (2) guiding, directing, and motivating subordinates and providing feedback, (3) training, coaching, and developing subordinates, (4) communicating effectively and keeping others informed (Borman & Brush, 1993).

In recent years, researchers paid attention to specific aspects of task performance. For example, innovation and customer-oriented behavior become increasingly important as organizations put greater emphasis on customer service (Anderson & King, 1993; Bowen & Waldman, 1999).

Contextual Performance

Researchers have developed a number of contextual performance concepts. On a very general level, one can differentiate between two types of contextual performance:

behaviors which aim primarily at the smooth functioning of the organization as it is at the present moment, and proactive behaviors which aim at changing and improving work procedures and organizational processes. The 'stabilizing' contextual performance behaviors include organizational citizenship behavior with its five components altruism, conscientiousness, civic virtue, courtesy, and sportsmanship (Organ, 1988), some aspects of organizational spontaneity (e.g., helping coworkers, protecting the organization, George & Brief, 1992) and of prosocial organizational behavior (Brief & Motowidlo, 1986). The more pro-active behaviors include personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Garst, & Fay, 2000; Frese, Kring, Soose, & Zempel, 1996), voice (Van Dyne & LePine, 1998), taking charge (Morrison & Phelps, 1999). Thus, contexual performance is not a single set of uniform behaviors, but is in itself a multidimensional concept (Van Dyne & LePine, 1998).

Relationship between Task and Contextual Performance

Task and contextual performance can be easily distinguished at the conceptual level. There is also increasing evidence that these two concepts can also be separated empirically (e.g., Morrison & Phelps, 1999; Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996; Williams & Anderson, 1991). Additionally, task performance and contextual performance factors such as job dedication and interpersonal facilitation contribute uniquely to overall performance in managerial jobs (Conway, 1999).

Moreover, contextual performance is predicted by other individual variables than is task performance. Abilities and skills tend to predict task performance while personality and related factors tend to predict contextual performance (Borman & Motowidlo, 1997; Hattrup, O'Connell, & Wingate, 1998; Motowidlo & Van Scotter, 1994). However, specific aspects of contextual performance such as personal initiative have been shown to be predicted both by ability and motivational factors (Fay & Frese, 2001).

PERFORMANCE AS A DYNAMIC CONCEPT

Individual performance is not stable over time. Variability in an individual's performance over time reflects (1) learning processes and other long-term changes and (2) temporary changes in performance.

Individual performance changes as a result of learning. Studies showed that performance initially increases with increasing time spent in a specific job and later reaches a plateau (Avolio, Waldman, & McDaniel, 1990; McDaniel, Schmidt, & Hunter, 1988; Quiñones, Ford, & Teachout, 1995). Moreover, the processes underlying performance change over time. During early phases of skill acquisition, performance relies largely on 'controlled processing', the availability of declarative knowledge and the optimal allocation of limited attentional resources, whereas later in the skill acquisition process, performance largely relies on automatic processing, procedural knowledge, and psychomotor abilities (Ackerman, 1988; Kanfer & Ackerman, 1989).

To identify the processes underlying changes of job performance, Murphy (1989) differentiated between a transition and a maintenance stage. The transition stage occurs when individuals are new in a job and when the tasks are novel. The maintenance stage occurs when the knowledge and skills needed to perform the job are learned and

when task accomplishment becomes automatic. For performing during the transition phase, cognitive ability is highly relevant. During the maintenance stage, cognitive ability becomes less important and other dispositional factors (motivation, interests, values) increase in relevance.

Performance changes over time are not invariable across individuals. There is increasing empirical evidence that individuals differ with respect to patterns of intra-individual change (Hofmann, Jacobs, & Gerras, 1992; Ployhard & Hakel, 1998; Zickar & Slaughter, 1999). These findings indicate that there is no uniform pattern of performance development over time.

Additionally, there is short-term variability in performance which is due to changes in an individual's psycho-physiological state, including processing capacity across time (Kahneman, 1973). These changes may be caused by long working hours, disturbances of the circadian rhythm, or exposure to stress and may result in fatigue or in a decrease in activity. However, these states do not necessarily result in a performance decrease. Individuals are, for example, able to compensate for fatigue, be it by switching to different strategies or by increasing effort (Hockey, 1997; Van der Linden, Sonnentag, Frese, & Van Dyck, 2001; Sperandio, 1971).

PERSPECTIVES ON PERFORMANCE

Researchers have adopted various perspectives for studying performance. On the most general level one can differentiate between three different perspectives: (1) an individual differences perspective which searches for individual characteristics (e.g., general mental ability, personality) as sources for variation in performance, (2) a situational perspective which focuses on situational aspects as facilitators and impediments for performance, and (3) a performance regulation perspective which describes the performance process. These perspectives are not mutually exclusive but approach the performance phenomenon from different angles which complement one another.

In this section, we will present these three perspectives and the core questions to be addressed by each perspective in detail. We will summarize the major theoretical approaches and findings from empirical research and will describe the practical implications associated with these perspectives. Table 1.1 presents an overview of these three perspectives.

There is a large body of research which showed that motivation is essential for performance. Motivational constructs related to performance can be partly subsumed under the individual differences perspectives (e.g., need for achievement), partly under the situational perspectives (e.g., extrinsic rewards), and partly under the performance regulation perspective (e.g., goal setting). We will refer to some of the most relevant motivational approaches within each perspective. However, a thorough review of the motivational literature is beyond the scope of this chapter. Interested readers may refer to Ambrose and Kulik (1999) and Kanfer (1992) for overviews.

Individual Differences Perspective

The individual differences perspective focuses on performance differences between individuals and seeks to identify the underlying factors. The core question to be answered by this perspective is: Which individuals perform best? The basic idea is that differences in

TABLE 1.1 Overview of perspectives on performance

	Individual differences perspective	Situational perspective	Performance regulation perspective
Core question	Which individuals perform best?	In which situations do individuals perform best?	How does the performance process look like? What is happening when someone is "performing"?
Core assumptions and findings	Cognitive ability Motivation and Personality Professional experience	Job characteristics Role stressors Situational constraints	Action process factors Adequate hierarchical level
Practical implications for performance improvement	Training Personnel selection Exposure to specific experiences	Job design	Goal setting Feedback interventions Behavior modification Improvement of action process Training Job design

performance between individuals can be explained by individual differences in abilities, personality and/or motivation.

Campbell (1990) proposed a general model of individual differences in performance which became very influencial (cf. also Campbell et al., 1993). In his model, Campbell differentiates performance components (e.g., job-specific task proficiency), determinants of job performance components and predictors of these determinants. Campbell describes the performance components as a function of three determinants (1) declarative knowledge, (2) procedural knowledge and skills, and (3) motivation. Declarative knowledge includes knowledge about facts, principles, goals, and the self. It is assumed to be a function of a person's abilities, personality, interests, education, training, experience, and aptitude-treatment interactions. Procedural knowledge and skills include cognitive and psychomotor skills, physical skill, self-management skill, and interpersonal skill. Predictors of procedural knowledge and skills are again abilities, personality, interests, education, training, experience, and aptitude-treatment interactions—and additionally practice. Motivation comprises choice to perform, level of effort, and persistence of effort. Campbell does not make specific assumptions about the predictors of motivation. He assumes that there are interactions between the three types of performance determinants, but does not specify them in detail (cf. Campbell et al., 1996). In his model, Campbell (1990) largely neglects situational variables as predictors of performance (cf. Hesketh & Neal, 1999, for a discussion of this issue). Campbell et al. (1996) summarized studies that identified job knowledge and job skills—as measured by work sample tests—as predictors of individual performance. Moreover, ability and experience were predictors of job knowledge and job skills, but had no direct effect on job performance. Campbell et al. interpret these findings as support for their model with declarative knowledge, procedural knowledge, and motivation acting as the only direct determinants of performance.

Motowidlo et al. (1997) built on the work of Campbell et al. They agree that cognitive ability variables have an effect on task knowledge, task skills, and task habits. However,

personality variables are assumed to have an effect on contextual knowledge, contextual skill, contextual habits and, additionally, task habits. Task knowledge, task skills, and task habits in turn are seen as predictors of task performance; contextual knowledge, contextual skill, and contextual habits are regarded as predictors of contextual performance. This implies that task performance is predominantly a function of cognitive ability and contextual performance is predominantly a function of personality. However, according to this model cognitive ability has a minor effect on contextual performance—mediated by contextual knowledge—and personality has a minor effect on task performance—mediated by task habits. Motowidlo and Van Scotter (1994) largely supported this model.

There is a large body of research which addresses individual performance within the individual differences perspective. Empirical studies in this area are not always explicitly linked to the models proposed by Campbell (1990) or Motowidlo et al. (1997). Nevertheless, virtually all studies on individual predictors of job performance can be subsumed under the individual differences perspective. More specifically, this research addresses cognitive ability, personality, motivational factors, and experience as predictors of job performance.

Meta-analytic evidence speaks for a strong relationship between cognitive ability and job performance. Individuals with high cognitive abilities perform better than individuals with low cognitive abilities across a broad range of different jobs (Bobko, Roth, & Potosky, 1999; Hunter & Hunter, 1984; Schmidt & Hunter, 1998). Most authors assume an underlying mechanism of cognitive ability helping to acquire job knowledge and job skills which in turn have a positive impact on job performance (Schmidt, Hunter, Outerbride, & Goff, 1988; Schmidt, Hunter, & Outerbridge, 1986).

Researchers also addressed the question whether personality accounts for performance differences across individuals. Meta-analyses showed that the general relationships between personality factors and job performance are relatively small; the strongest relationships emerged for neuroticism/emotional stability and conscientiousness (Barrick & Mount, 1991; Tett, Jackson, & Rothstein, 1991). However, the relevance of specific personality factors for performance varies between different jobs (cf. Vinchur, Schippmann, Switzer, & Roth, 1998) (for a more detailed discussion on personality and job performance, cf. Kanfer & Kantrowitz in this volume).

Individual differences in motivation may be caused by differences in motivational traits and differences in motivational skills (Kanfer & Heggestad, 1997). Motivational traits are closely related to personality constructs, but they are more narrow and more relevant for motivational processes, i.e., the intensity and persistence of an action. Kanfer and Heggestad (1997) described achievement and anxiety as two basic work-relevant motivational traits. Vinchur et al.'s meta-analysis provides evidence for the need for achievement to be related to job performance (Vinchur et al., 1998). Motivational skills refer to self-regulatory strategies pursued during goal striving. In contrast to motivational traits, motivational skills are assumed to be more domain-specific and influenced by situational factors as well as learning and training experiences. Motivational skills comprise emotional control and motivation control (Kanfer & Heggestad, 1997; Kuhl, 1985).

Self-efficacy—the belief that one can execute an action well—is another construct in the motivational domain which is highly relevant for performance (Bandura, 1997; Stajkovic & Luthans, 1998). More specifically, self-efficacy has been shown to be related both to task performance, such as business success in small business owners (Baum, Locke, & Smith, in press), as well as to contextual performance, such as personal initiative

(Speier & Frese, 1997) and developing ideas and suggestions within an organizational suggestion system (Frese, Teng, & Wijnen, 1999). Additionally, self-efficacy has been of particular importance in the learning process. For example, in a careful process analysis, Mitchell, Hopper, Daniels, and George-Falvy (1994) have looked at the effects of self-efficacy on learning. In the beginning of the learning process, self-efficacy is a better predictor of performance than goals, while this relationship is reversed at a later stage.

Moreover, professional experience shows a positive, although small relationship with job performance (Quiñones et al., 1995). Additionally, there are interactions between predictors from several areas. For example, high achievement motivation was found to enhance the effects of high cognitive ability (O'Reilly & Chatman, 1994).

Some practical implications follow from this individual differences perspective. Above all, the individual differences perspective suggests a focus on personnel selection. For ensuring high individual performance, organizations need to select individuals on the basis of their abilities, experiences, and personality. The individual differences perspective also suggests that training programs should be implemented which aim at improving individual prerequisites for high performance. More specifically, training should address knowledge and skills relevant for task accomplishment. Furthermore, exposing individuals to specific experiences such as traineeships and mentoring programs are assumed to have a beneficial effect on individuals' job performance.

Situational Perspective

The situational perspective refers to factors in the individuals' environment which stimulate and support or hinder performance. The core question to be answered is: In which situations do individuals perform best? The situational perspective encompasses approaches which focus on workplace factors but also specific motivational approaches which follow for example from expectancy theory (Vroom, 1964) or approaches which aim at improving performance by reward systems or by establishing perceptions of equity and fairness (Adams, 1963; Greenberg, 1990). Most of the existing leadership research can be subsumed under this perspective. Because of space constraints, we will concentrate on workplace factors as major situational predictors of individual performance. Interested readers may refer to Folger and Cropanzano (1998), Lawler (2000) and Van Eerde and Thierry (1996) for specific motivational approaches, or to Yukl (1998) for research within the leadership domain.

With respect to workplace factors and their relationship to individual performance two major approaches can be differentiated: (1) those that focus on situational factors which enhance and facilitate performance and (2) those that attend to situational factors which impede performance.

A prominent approach within the first category is the job characteristics model (Hackman & Oldham, 1976). In this model, Hackman and Oldham assumed that job characteristics (i.e., skill variety, task identity, task significance, autonomy, feedback) have an effect on critical psychological states (i.e., experienced meaningfulness, experienced responsibility for work outcomes, knowledge of the results of the work activities) which in turn have an effect on personal and work outcomes, including job performance. Additionally, they expected an interaction effect with employee growth need strength. In essense, the job characteristics model is a motivational model on job performance

(for an alternative interpretation, cf. Wall & Jackson, 1995). Meta-analytic findings suggest that there is a small, but positive relationship between job characteristics and job performance (Fried, 1991; Fried & Ferris, 1987). Guzzo, Jette, and Katzell (1985) also reported positive effects of work redesign interventions on performance. The cross-sectional nature of many studies does not allow for a causal interpretation. For example, it might be that individuals who show high performance get the better jobs. However, intervention studies showed that job design suggested by a job characteristics model has a positive effect on performance (Griffin, 1991; Wall & Clegg, 1981).

Sociotechnical systems theory (Trist & Bamforth, 1951) also falls in this first category of job design approaches which specify workplace factors that enhance performance. Basically, sociotechnical systems theory describes work systems as composed of social and technical subsystems and suggests that performance improvement can only follow from the joint optimization of both subsystems. In more detail, sociotechnical systems theory suggests a number of job design principles such as the compatibility between the design process and its objectives, a minimal specification of tasks, methods, and task allocations, and the control of problems and unforeseen events as near as to their origins as possible (for a fuller description cf. Cherns, 1976; Clegg, 2000).

As Parker and Turner (this volume) pointed out, sociotechnical systems theory is more concerned with group performance than with individual performance. However, one can assume that work situations designed on the basis of this approach have also positive effects on individual performance.

Approaches in the second category focus on factors that have a detrimental effect on performance. Within role theory (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), role ambiguity and role conflict are conceptualized as stressors that impede performance. However, empirical support for the assumed negative effects of role ambiguity and role conflict is weak (Jackson & Schuler, 1985). In a recent meta-analysis Tubbs and Collins (2000) found a negative relationship between role ambiguity and performance in professional, technical, and managerial jobs. Additionally, they found a negative relationship between role ambiguity and self-ratings of performance. However, the 90% credibility interval of all other effect sizes included zero. Similarly, neither Jackson and Schuler (1985) nor Tubbs and Collins (2000) found a significant relationship between role conflict and job performance.

Situational constraints include stressors such as lack of necessary information, problems with machines and supplies as well as stressors within the work environment. Situational constraints are assumed to impair job performance directly. For example, when a machine breaks down one cannot continue to accomplish the task and therefore performance will suffer immediately. Moreover, situational constraints, as other stressors, can have an indirect effect on performance by requiring additional regulation capacity (Greiner & Leitner, 1989). Additional regulation capacity over and above the one needed for accomplishing the task is required for dealing with the constraints. Because human regulatory capacity is limited, less capacity is available for accomplishing the task and, as a consequence, performance decreases. However, empirical support for the assumed detrimental effect of situational constraints and other stressors on performance is mixed (Jex, 1998). Recently, Fay and Sonnentag (2002) have shown that stressors can even have a positive effect on personal initiative, i.e., one aspect of contextual performance.

These findings suggest that within a situational perspective, the performance-enhancing factors (e.g., control at work, meaningful tasks) play a more important role

than stressors. Framed differently, the lack of positive features in the work situation such as control at work threatens performance more than the presence of some stressors (cf. Karasek & Theorell, 1990, for a related argument). In terms of practical implications, the situational perspective suggests that individual performance can be improved by job design interventions. For example, empirical job design studies have shown that performance increases when employees are given more control over the work process (Wall, Corbett, Martin, Clegg, & Jackson, 1990; Wall, Jackson, & Davids, 1992).

Performance Regulation Perspective

The performance regulation perspective takes a different look at individual performance and is less interested in person or situational predictors of performance. Rather, this perspective focuses on the performance process itself and conceptualizes it as an action process. It addresses as its core questions: "How does the performance process look like?" and "What is happening when someone is 'performing'?" Typical examples for the performance regulation perspective include the expert research approach within cognitive psychology (Ericsson & Lehmann, 1996) and the action theory approach of performance (Frese & Sonnentag, 2000; Frese & Zapf, 1994; Hacker, 1973; Hacker, 1998). Most of these approaches focus on regulatory forces within the individual.

Research on expertise and excellence has a long tradition within cognitive psychology (Ericsson & Smith, 1991) and is increasingly referred to within work and organizational psychology (Sonnentag, 2000). It is one of the main goals of expertise research to identify what distinguishes individuals at different performance levels (Ericsson & Smith, 1991). More specifically, expertise research focuses on process characteristics of the task accomplishment process. It aims at a description of the differences between high and moderate performers while working on a task. Crucial findings within this field are that high performers differ from moderate performers in the way they approach their tasks and how they arrive at solutions (for an overview, cf. Sonnentag, 2000). For example, during problem comprehension, high performers focus on abstract and general information, they proceed from general to specific information, and apply a 'relational strategy' in which they combine and integrate various aspects of the task and the solution process (Isenberg, 1986; Koubek & Salvendy, 1991; Shaft & Vessey, 1998). Moreover, high performers focus more on long-range goals and show more planning in complex and ill-structured tasks, but not in well-structured tasks (Leithwood & Steinbach, 1995; Sujan, Weitz, & Kumar, 1994).

The action theory approach (Frese & Zapf, 1994) describes the performance process—as any other action—from both a process and a structural point of view. The process point of view focuses on the sequential aspects of an action, while the structural point of view refers to its hierarchical organization.

From the process point of view, goal development, information search, planning, execution of the action and its monitoring, and feedback processing can be distinguished (Frese & Zapf, 1994; Hacker, 1998). Performance depends on high goals, a good mental model, detailed planning, and good feedback processes. Frese and Sonnentag (2000) derived propositions about the relationship between these various action process phases and performance. For example, with respect to information search they hypothesized that processing of action-relevant, important—but parsimonious—and realistic information

is crucial for high performance. A study in the domain of software design showed that excellent and moderate performers differed with respect to problem comprehension, planning, feedback processing, and task focus (Sonnentag, 1998).

Roe (1999) suggested a very broad approach to performance regulation, in which he incorporated the action theory approach as one of five perspectives. The other four components of performance regulation are: energetic regulation, emotional regulation, vitality regulation, and self-image regulation. Roe assumes that all these five types of regulation are involved in performance regulation.

The process regulation perspective is closely linked to specific performance improvement interventions. The most prominent interventions are goal setting (Locke & Latham, 1990) and feedback interventions (Ilgen, Fisher, & Taylor, 1979). The basic idea of goal setting as a performance improvement intervention is that setting specific and difficult goals results in better performance than no or 'do-your-best' goals (Locke & Latham, 1990). Goal-setting theory assumes that goals affect performance via four mediating mechanisms: effort, persistence, direction, and task strategies. The benefits of goal setting on performance have been shown in virtually hundreds of empirical studies (Locke & Latham, 1990; Latham, Locke, & Fassina, this volume). Meta-analyses showed that goal setting belongs to one of the most powerful work-related intervention programs (e.g., Guzzo et al., 1985). The performance regulation perspective suggests that an improvement of the action process itself improves performance. For example, individual should be encouraged to set long-range goals and to engage in appropriate planning, feedback seeking, and feedback processing. This perspective assumes that training interventions can be useful in achieving such changes. Additionally, job design interventions can help to improve the action process (Wall & Jackson, 1995).

There is a long tradition within psychology which assumes that feedback has a positive effect on performance (for a critical evaluation, cf. Kluger & DeNisi, 1996). Indeed, there is broad evidence that feedback enhances performance if the feedback is task-related. Feedback which refers primarily to self-related processes, however has no or at least a detrimental effect on performance—even if it is 'positive' feedback (Kluger & DeNisi, 1996). Moreover, a combination of a goal-setting intervention with a feedback intervention results in better performance than a goal-setting intervention alone (Neubert, 1998). A specific intervention approach which draws on the benefits of goal setting and feedback is the Productivity Measurement and Enhancement System (ProMES; Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1989). ProMES suggests a procedure of how organizational units can improve their productivity by identifying their products, developing indicators, establishing contingencies, and finally putting the system together as a feedback system (for details see Van Tuijl et al., this volume).

A rather different approach to performance regulation is the behavior modification perspective. Based on reinforcement theory (Luthans & Kreitner, 1975) this approach is not primarily interested in the processes within the individual which regulate performance but in regulative interventions from outside the individual, particularly positive reinforcement. Such reinforcements can comprise financial interventions, non-financial interventions such as performance feedback, social rewards such as attention and recognition, or a combination of all these types of reinforcements. Meta-analytic findings suggest that such behavior modification interventions have a positive effect on task performance, both in the manufacturing and in the service sector (Stajkovic & Luthans, 1997).

Relationships Among the Various Perspectives

The three perspectives represent different approaches to the performance phenomenon and our description stresses the differences between these perspectives. However, researchers often combine two or more approaches when explaining performance. For example, there are combinations between the individual differences and the situational perspective (e.g., Barrick & Mount, 1993; Colarelli, Dean, & Konstans, 1987). In essence, the job characteristic model assumes that a combination of situational factors (i.e., job characteristics) and individual differences factors (i.e., growth need strength) is crucial for individual performance (Hackman & Oldham, 1976). Similarly, Waldman (1994) suggested a model of performance in which he integrated the individual differences perspective with the situational perspective. He assumes that both person factors (i.e., individual difference variables) and system factors (i.e., situational variables) have an effect on job performance. In addition, he assumes that system factors moderate the effects of the person factors.

Mitchell (1997) proposed a model on job performance in which he explicitly combined the individual differences and situational perspective. He postulated that both 'individual inputs' (i.e., individual difference variables) and 'job context' (i.e., situational variables) have a direct effect on motivated behavior by providing necessary skills in the case of individual inputs, and by enabling vs. limiting behavior in the case of the job context. Motivated behavior in turn affects performance. Mitchell assumes that individual differences and job context additionally affect motivated behavior via motivational processes such as arousal, attention, direction, intensity, and persistence.

Despite these efforts, a comprehensive model which integrates all the various performance perspectives is still missing. Particularly, it is largely unclear how individual and situational variables come into play within the performance process. We suggest that it would be particularly helpful to develop a model which combines the individual differences and situational perspective with the performance regulation perspective. Such a model should specify how cognitive ability and motivational factors—probably in interaction with situational variables—translate into the performance process, i.e., how they effect the setting of goals, problem comprehension, planning and feedback processing, as well as the 'choice' of the appropriate hierarchical level of action regulation.

PERFORMANCE IN A CHANGING WORLD OF WORK

At present, organizations and work as a whole are undergoing dramatic changes (Cooper & Jackson, 1997; Howard, 1995) which have implications for conceptualizing and understanding performance (Ilgen & Pulakos, 1999). In this section we focus on five major trends: the importance of continuous learning, the relevance of proactivity, increase in teamwork, globalization, and technology. With the description of these trends we illustrate possible and necessary avenues for future research on individual performance.

Continuous Learning

Because of technological innovations and changes in organizational structures and processes, individual work requirements are quickly changing. As a consequence, continuous

learning and competence development become increasingly important. Individuals need to be willing and able to engage in continuous learning processes in order to accomplish their present and future tasks successfully. This development has implications for our theorizing on performance. Campbell (1999), Hesketh and Neal (1999) and London and Mone (1999) proposed to incorporate learning into the performance concept. Similarly, Pulakos, Arad, Donovan, and Plamondon (2000) recently suggested 'adaptive performance' as a new performance concept in which 'learning' constitutes a major performance dimension.

This development is a profound departure from past conceptualizations in which learning was seen as a prerequisite for performance, i.e., learning mattered mostly with respect to future performance in which the newly acquired skills or knowledge were needed. Now, learning itself is seen as part of the performance concept, which should be measured and rewarded as a performance component (London & Smither, 1999).

One might question whether it makes sense to include learning into the core of the performance concept. For example, one might argue that what ultimately counts for an organization is the individuals' performance and not their learning—although learning might help to perform well. This line of reasoning stresses that learning is a highly relevant predictor of performance but is not performance itself.

Nevertheless, even if we do not want to go so far as to conceptualize learning as part of performance, permanently changing work requirements and associated demands for learning have an effect on our theorizing about performance. Research on skill acquisition has shown that the predictors of performance differ across the various phases of skill acquisition (Ackerman, 1988; Murphy, 1989). When learning becomes a continuous necessity, the duration and occurrence of the traditional skill acquisition versus maintenance stage changes. Then, skill acquisition is no longer a single event which is completed before the maintenance stage starts. Rather, individuals will go back and forth between the skill acquisition and the maintenance phase. This implies that ability (i.e., general mental ability) becomes increasingly important because it is needed during the skill acquisition phase (Murphy, 1989).

Proactivity

In today's work environments proactivity becomes increasingly important. To perform well it is no longer sufficient to comply with prescribed job requirements but to go beyond what is formally requested (Frese, 1997; Parker, Wall, & Jackson, 1997). This development has consequences for conceptualizing performance and for specifying performance predictors. With respect to the performance concept, proactive behaviors such as personal initiative become an essential part of contextual performance (Frese et al., 1996, 1997). Moreover, personal initiative has been shown to be related to company performance, particularly in entrepreneurial businesses (Koop, De Reu, & Frese, 2000). One can assume that the relevance of personal initiative and similar behaviors (cf. Morrison & Phelps, 1999) increases further when environmental and global changes become even more dynamic.

In addition, this development implies that proactivity might become an important predictor of task performance. For example, research has shown that a proactive personality is related to job performance in real estate agents (Crant, 1995). Other variables such as role breadth self-efficacy plays a similar role (Parker, 1998).

Working in Teams

Organizations are increasingly implementing teamwork and other group work arrangements (Ilgen, 1999; West, Borrill, & Unsworth, 1998). Therefore, one might argue that organizations become more interested in team performance than in individual performance. However, because teams are composed of individuals, team processes and team performance cannot be completely understood and improved without taking individual performance into account. From the perspective of individual performance, three interrelated aspects are important here. First, which individual difference variables predict individual performance within a teamwork setting? Second, which aspects of individual performance are relevant for team performance? Third, how does individual performance translate into team performance?

As an answer to the first question, researchers have suggested that task-related skills and knowledge are not sufficient when accomplishing tasks in a team-work setting. Additionally, interpersonal and self-management skills and knowledge are regarded to be essential for performing well in a team-work setting (Stevens & Campion, 1994). With respect to the second question, individual task performance is necessary for high team performance. Moreover, for a team to accomplish its often interrelated tasks, this will not be sufficient. One can assume that specific facets of contextual performance, particularly helping and altruistic behavior, are highly relevant here. For example, Podsakoff, Ahearne, and MacKenzie (1997) have shown that helping was positively related to both quantity and quality aspects of group performance in a production setting.

The third question of how individual performance translates into team performance refers to the discussion on multiple levels within organizational research (Kozlowski & Klein, 2000; Rousseau, 1985). The question might sound trivial and the answer straightforward when the tasks to be accomplished are additive and team performance is just the sum of team members' individual performance, e.g., when all team members assemble a product independently from one another—however, then one might question whether this group is a team at all. In many teamwork settings in which tasks are disjunctive and in which members are mutually dependent on one another, the combination of individual performances into team performance is much more complex (Sonnentag, 1999).

Globalization

'Globalization' has become a catchword when describing today's business world. Globalization comprises two major developments: first, production and services are produced for a global market and they compete world wide; second, companies' workforces become increasingly global, i.e., 'culturally diverse'. With respect to the delivery of global products and services, the consequences of globalizations are most obvious within direct employee–customer interactions. What is regarded as good individual performance in these interactions varies largely between different cultures. When companies ignore these differences and implement globally the identical selection, training, and performance evaluation procedures, they might miss those feature and behaviors which are perceived as the most appropriate in a specific culture, i.e., those which constitute high individual performance.

Also the fact that many companies employ a globally composed workforce is linked to issues of individual performance. For example, individuals in culturally diverse teams and

expatriates are faced with very specific requirements. Individual performance in these settings is predicted by a complex set of specific variables (Ones & Viswesvaran, 1997). This specific set of variable, however, might be less predictive for individual performance in mono-cultural settings. Moreover, performance appraisal issues differ largely across cultures (Cox & Tung, 1997). Thus, globally operating companies are faced with great challenges when trying to implement an identical performance appraisal system world wide.

TECHNOLOGY

Technology, particularly computer and information systems, play an important role in most work processes. In many jobs, individual work behavior, thus performance, is very closely linked to the use of technology-based systems. For example, it is nearly impossible to imagine the work of a CNC machine operator without reference to the CNC machine. This development has implications for conceptualizing and measuring performance. As Hesketh and Neal (1999) have pointed out, the widespread use of technology in work processes threatens traditional views of performance in which performance is conceptualized as behavior which is completely under the control of the individual (Campbell, 1990). Practically, it becomes very difficult to separate the technology's and the individual's contribution to individual performance. Hesketh and Neal introduced a person by technology (P $\times$ T) interaction perspective on performance and suggested that the way an individual uses the technology is an important performance component. Moreover, with the increased implementation of well-designed user interfaces of technically highly sophisticated devices, the relevance of specific skills and knowledge needed in previous work systems decreases while other skills and knowledge become more important in the performance process (for a broader debate, cf. Wall & Davids, 1992).

CONCLUSION

In this chapter we described individual performance as an individual's measurable behavior which is relevant for organizational goals. We characterized performance as multi-dimensional and dynamic in nature. We proposed three major perspectives within performance-related research, namely an individual differences perspective, a situational perspective, and a performance regulation perspective. Each of these perspectives is associated with specific performance enhancement interventions. Our review of the literature suggests that an integration of the three different perspectives on performance is needed. Particularly, linking the individual differences and the situational perspective to the performance relation perspective seems to be promising. Such an integration is necessary for understanding *why* specific individual characteristics and situational factors result in high individual performance.

Our analysis of meta-analyses on individual performance showed that most of the previous research conceptualized individual performance as the dependent variable. This makes perfect sense when aiming at the explaination of performance and developing practical interventions. At the same time, this finding implies that individual performance was only seldom conceptualized as the independent variable. Here, clearly more research is needed which addresses the possible consequences of high versus low individual performance.

The ongoing changes in the today's organizations have implications for our conceptualizations and research endeavors on performance. More specifically, future performance-related research must pay more attention to learning and proactivity issues. Further theory development is needed with respect to the interface between individual and team level performance. This comprises questions such as the translation of individual into team level performance and the role of team process variables in enhancing individual performance. Globalization of work processes and the increased use of complex technological systems suggest that individual performance cannot be fully understood without reference to the context in which it is accomplished.

NOTES

1. We scanned the volumes published between 1980 and 1999 of the following journals: *Academy of Management Journal*; *Academy of Management Review*; *Administrative Science Quarterly*; *Applied Psychology*; *An International Review*; *Human Performance*; *Journal of Applied Psychology*; *Journal of Management*; *Journal of Occupational (and Organizational) Psychology*; *Journal of Organizational Behavior*; *Journal of Vocational Behavior*; *Organizational Behavior and Human Performance/Organizational Behavior and Human Decision Processes*; *Personnel Psychology*.
2. One might argue that this figure is an overestimation of the acutal use of individual performance measures and concepts in meta-analyses because two of the journals are particularly devoted to performance issues (*Human Performance*, *Organizational Behavior and Human Performance/Organizational Behavior and Human Decision Processes*). However, when excluding these two journals from our analysis, the overall picture remains the same: 51.5% of all meta-analyses published in the remaining ten journals refer to individual performance as a core concept.

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