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P.-A. Touze

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PERSONALITY AND PREDICTION
OF PERFORMANCE IN THE WORKPLACE

by P.-A. TOUZÉ*

RÉSUMÉ

LA PERSONNALITÉ ET LA PRÉDICTION DE PERFORMANCE AU TRAVAIL

Cette dernière décennie a vu se révéler de nombreuses recherches concernant l'utilisation de dimensions de personnalité dans la sélection du personnel. Elles ont concerné principalement (1) la définition des construits de personnalité nécessaire à une étude scientifique de leur capacité prédictive pour les évaluations professionnelles, (2) l'élaboration d'outils valides de mesures de la personnalité plus adaptés au domaine des organisations, (3) l'étude des différentes méthodes de sélection du personnel et le rôle de la personnalité au sein de ces méthodes et, enfin, (4) de nouvelles perspectives d'évaluation de la performance au travail.

Ces recherches ont donné lieu à de récentes méta-analyses ayant contribué à une meilleure synthèse de la littérature et montrent, entre autres, un effort désormais bien engagé sur la définition d'un paradigme solide de la personnalité qui puisse s'appliquer au monde du travail. La confirmation des cinq grands facteurs (extraversion, conscience, stabilité émotionnelle, ouverture d'esprit, accommodement) a largement participé à ce point. En effet, il a contribué à ce que l'étude de la validité prédictive de la personnalité s'élabore de façon plus rigoureuse.

Aujourd'hui, l'utilisation de la personnalité peut s'avérer pertinente pour prédire la performance au travail dans la mesure où la dimension de personnalité et le critère de performance sont tous deux définis dans un cadre théorique similaire. L'étude des sous-dimensions de personnalité peut donner des informations plus pertinentes à la prédiction de la performance dans la mesure où elle peut faire apparaître des relations opposées entre une même dimension de personnalité et deux critères de performance distincts.

Notre époque a vu apparaître également des changements concernant la définition même de performance au travail. Le besoin de prendre en compte des activités périphériques mais nécessaires à l'efficacité dans un poste de travail a fait apparaître la notion de performance contextuelle. Cette approche plus novatrice permet aujourd'hui d'alimenter le questionnement relatif à l'utilisation de la personnalité dans l'évaluation de l'individu au sein de l'organisation, dans la mesure où la personnalité semble être plus prédictive de performance contextuelle que de performance spécifique.

Après une revue des travaux antérieurs et un état des lieux de l'utilisation de la personnalité dans la prédiction de la performance, nous suggérons que les recherches doivent se prolonger dans des voies distinctes mais complémentaires telles qu'une plus fine définition des dimensions de personnalité, de modèle de performance, leur correspondance à des critères de performance spécifiques, une méthode plus systématique d'analyse de validité prédictive et un approfondissement de recherches sur certaines dimensions de personnalité ayant été moins l'objet d'attention ces dernières années.

Mots-clés: Personnalité, Performance, Cinq Grands Facteurs (Big Five), Analyse de poste, Performance contextuelle, Performance à la tâche.

* Pôle universitaire Saint-Jean d'Angély, Laboratoire de psychologie expérimentale et quantitative (LPEQ), 24, avenue des Diablos-Bleus, 06357 Nice Cedex 4. E-mail : touze@unice.fr

I. INTRODUCTION

In the past decade, important advances have taken place in the study of the role of personality in predicting work performance. First, the accumulation of research on personality contributed to the development of a taxonomy, the Big Five, which makes essential personality characteristics more clear. Second, psychometrically sound tools for assessing personality in the work place and for analysing jobs in terms of necessary personality traits have been developed. In parallel, a more systematic consideration of work requirements and a better understanding of factors important for work performance have allowed for a clearer definition of the potential roles for personality in this context.

In addition, some major changes have appeared in the world of work in recent years, resulting in an increased role for personnel psychology and an emphasis on human resources for organizational productivity (Lévy-Leboyer, Huteau, Louche, & Rolland, 2001). One aspect of this role concerns organizational performance and productivity improvement that depends largely on individual employee performance (Ilgen & Pulakos, 1999). Further, personnel selection methods have an important role in assuring high levels of employee performance. Schmidt and Hunter (1998) showed that depending on the selection methods used, there could be considerable gaps in levels of performances for all levels of qualification. These differences increased with the level of qualification. Thus, making good selection decisions is linked directly to this demand for productivity. Indeed, the predictive validity of selection techniques impacts utility, which is the economic value obtained by the use of a particular method (Schmidt & Hunter, 1998). In order to make good selection decisions, it is important to know which method of selection to use and whether personality testing can contribute to improvements in selection.

II. METHODS OF SELECTION

Today, a vast literature exists allowing us to know the validities of various personnel selection methods (*e.g.*, Borman, Hanson, & Hedge, 1997; Bruchon-Schweitzer, 2001; Salgado, 1999, 2001; Schmidt & Hunter, 1998). On the other hand, all methods have not received the same degree of research interest (Schmidt & Hunter, 1998), for example the use of intelligence testing (GMA: General Mental Ability) as a predictor of performance incited a large body of research during the last century, whereas somewhat fewer studies were conducted on the structured interview (Marchese & Munchinsky, 1993; Salgado & Moscoso, 1996). Further, Schmidt and Hunter (1998) showed that various selection methods vary greatly in their validities for predicting performance at work. For example, interest inventories or the number of

years of education have an average validity of $r = .10$. Others, like graphology have no validity at all ($r = .02$) resulting in a performance prediction very close to chance (Bruchon-Schweitzer, 2001; Schmidt & Hunter, 1998). On the other hand, good validities have been demonstrated for work samples or intelligence testing ($r = .54$ and $r = .51$, respectively). Schmidt and Hunter also analysed the validities obtained by combining various methods, particularly the association of an alternative method with a test of intelligence or GMA. By adding a second method, one can increase the predictive validity of the overall selection procedure. The gain or incremental validity is larger when the combined constructs are not highly correlated, as is the case with personality and intelligence. Recent reviews of the validity of selection methods in France (Bruchon-Schweitzer, 2001) confirm globally the results presented by Schmidt and Hunter (1998), although noteworthy differences are found in terms of the frequency of use of the different methods (Bruchon-Schweitzer & Ferrieux, 1991; Ryan, McFarland, Baron, & Page, 1999) and, to some extent, the perception of these methods (Steiner & Gilliland, 2001). Salgado's (1997, 1999) review of the literature on personnel selection from 1991 to 1997 indicated a trend toward showing the theoretical bases for the validity of predictors of performance. Also, progress in methodology and statistical analysis, such as the use of meta-analysis or utility analysis, has revitalized the research. Finally, personality has incited a renewal of interest among researchers, and appears to be a valid predictor of performance in the workplace when valid instruments are used and when the links among constructs are systematized. We will look at some of the research in personality that applies to predicting performance.

III. RESEARCH ON PERSONALITY AND PERFORMANCE

In their review, Schmidt and Hunter (1998) showed that personality inventories have rather good validities in the prediction of performance, especially when performance is operationalized in terms of measures of theft, absenteeism or counter-productive behaviours in stressful situations. In fact, integrity tests show an average validity of $r = .41$ whereas those measuring conscientiousness have an average validity of $r = .31$, results partially due to the fact that a large amount of the literature focused on specific aspects of personality involved in higher level jobs (managers, executives, salesmen, etc.) and jobs in high risk occupations (army, police force, aviation). Finally, these measures of personality add substantial incremental validity to other methods such as tests of GMA, leading to validities near $r = .65$ (Schmidt & Hunter, 1998).

This more positive view of the role of personality testing in personnel selection is in contrast to a more negative view that prevailed in the 1960's and in the 1970's. The current positive view is due in part to the application of the Big Five (Digman, 1990). Even if some disagreements exist concerning the number of factors or their lexical definitions (Block,

1995; Eysenck, 1972) there is today a general consensus among researchers on the validity of this taxonomy as a solid framework for elaborating hypotheses. The Big Five are defined as follow: (1) emotional stability (calm, non-anxious), (2) extraversion (sociability, assertion, ambition, activity), (3) openness (imagination, artistic orientation, intellect), (4) agreeableness (good nature, cooperation, trusting) and (5) conscientiousness (responsibility, organization, accomplishment). The use of the Big Five framework resulted in numerous publications after a period marked by the absence of research on personality and performance following the publication of a review by Guion and Gottier (1965). Their very influential review of the research published in the *Journal of Applied Psychology* and in *Personnel Psychology* from 1952 to 1963, concluded with the pessimistic assertion that personality could not be considered as a valid predictor of performance at work. Today, we can explain this conclusion by understanding that at the time, the instruments available to measure personality were highly varied (including personality inventories, interest inventories, and projective tests) and not necessarily valid. Further, the instruments often had clinical diagnosis purposes and so were very hard to translate to the framework of performance at work (e.g., Rorschach, Minnesota Multiphasic Personality Inventory). Also, according to Barrick, Mount, and Judge (2001), there were imprecisions in the definition of personality traits, with certain researchers using the same denomination to talk about essentially different traits and others using different terms to talk about the same thing. Finally, Guion and Gottier (1965) examined studies in which the number of subjects was often very small, which led to problems in interpreting statistics and in exploiting the data. This was a problem also present in the research in France, where practitioners and psychologists had to respond rapidly to organizational demands. At the time, very little distinction was made between skills, personality traits and their possible links to job performance. As noted by Faverge (1954), methods of job analysis (i.e., emphasizing skills, using an arbitrary decomposition of tasks) were not efficient enough in describing work and specifically the human aspect of job performance. Other authors at the time (Pacaud, 1954) showed that most studies on job analysis or performance evaluation were conducted by practitioners in various fields (physiologists, sociologists, technicians, etc.) who used (1) their own background only and (2) psychotechnical applications directly without having enough concern for statistical procedures and generalization of results. However, some authors like Bonnardel (1949) were already concerned about the use of correlational studies and factorial analysis in describing and explaining job performance. In a sense, by criticizing too simplistic a relation between skills and performance, they contributed to broadening the perspective toward a better understanding of the role of individual differences in the workplace.

We will look now at some of the studies that brought personality as a predictor of performance back into the limelight. One of the first studies involved in this change and going against the pessimism concerning the use of personality as a predictor of performances was conducted by Day and

Silverman (1989). Their study considered personality traits and specific criteria of performance in a sample ($N = 43$) of accountants. Taking into account cognitive scores, they calculated the correlation between six personality traits and seven professional performance criteria. A main interest of this study is that the results show that scores on personality scales were directly related to performance criteria on the job. For example, interpersonal orientation was shown to bring incremental validity in the prediction of performance. Personality can thus be considered as relevant to performance especially when personality traits and performance criteria have a common theoretical base (*i.e.*, inter-personal orientation and an evaluation of cooperation). More specifically, the trait interpersonal relations correlated with relations with customers ($r = .35$), cooperation ($r = .42$) and a global evaluation ($r = .36$). Another important result of this study is that personality showed better correlations than cognitive abilities. In some cases, for example, the score for GPA (Grade Point Average – a measure of university grading) correlated with the global evaluation ($r = .26$) but working orientation had a slightly better correlation ($r = .29$). Dominance showed strong negative correlations with several criteria of performance such as potential for success ($r = -.38$), cooperation ($r = -.32$), work ethics ($r = -.26$) and finally global evaluation ($r = -.31$). The essential idea to retain is that personality measures should be studied in a meticulous way, in correspondence with specific performances and in different working environments in order to bring satisfactory results in terms of predictability.

Another study by Cortina, Doherty, Schmitt, Kaufman, and Smith (1992) examined the correlations between the Big Five and some performance criteria in a police force by using two types of measures of personality: the Inwald Personality Inventory (IPI) and the Minnesota Multiphasic Personality Inventory (MMPI). One of the interests of this study was the comparison of these two types of measures of personality in terms of construct validity and predictive validity for police officers' specific performances. Indeed, the IPI was conceived specifically for a use with the police force, using concrete work situations, whereas the MMPI was developed for clinical purposes. Taking into account a population ($N = 314$) of new recruits entering police academies, the authors used six criteria: (1) measure of GPA, (2) turnover, (3) a work evaluation, (4) a peer evaluation, (5) a final evaluation after six months of training, and finally, (6) some evaluations resulting from counselling sessions (*i.e.* integrity, motivation, maturity, leadership). Results show that after an analysis of various constructs measured by both inventories (IPI and MMPI), the conclusions tend to demonstrate the necessity of using tools developed specifically in the framework of the Big Five Factors and for professional purposes. Results concerning the predictive validity of personality (measured by the IPI) for performance show first of all agreeableness ($r = .30$) as having the best predictive validity on the measure of GPA, and then conscientiousness ($r = .19$ to $r = .22$) and emotional stability ($r = .15$ to $.25$) as being the two best predictors across various performance criteria.

As a first conclusion, we can see the value of using tools elaborated from a specific personality framework, the Big Five Factors, and which

take into account professional situations and in direct relation with the professional environment –the IPI had been explicitly elaborated for the police officer context. Finally, two traits (conscientiousness and emotional stability) are clearly identified as relevant for performance, while agreeableness seems also to be predictive of learning abilities.

Judge, Martocchio, and Thoresen (1997), analysed the predictive validity of the Big Five Factors measured with the NEO PI-R (Costa & McCrae, 1992) for absenteeism at work. They used different non-teaching university staff ($N = 89$). Results show interesting correlations notably between extraversion and absenteeism ($r = .31$) and negative correlation between conscientiousness and absenteeism ($r = -.24$). In spite of the limits of the study (measure and nature of absenteeism), this research is interesting because it shows that personality traits can have opposing relations with performance at work. So, we could conclude that extraversion would be correlated with performance on certain jobs (Barrick & Mount, 1991), but also was shown as a predictor of absenteeism (and thus of anti-productive performance) in this field study. It is thus advisable to be extremely careful in the interpretation of predictive validity and evaluate the specific needs of the job. Good understanding of a construct (for example extraversion) requires attention to the different facets and sub-dimensions of that construct.

Sackett, Gruyss, and Ellingson (1998) used data in their study from a selection procedure for the American Army –Project A Classification, a classification elaborated by Campbell (1990) taking into account an impressive number of subjects ($N = 8,274$) dispatched in 19 occupations. The predictors included the Armed Service Vocational Aptitude Battery (ASVAB) which is a test measuring abilities in four domains, and in addition, two dimensions of personality (need for achievement and reliability) measured by an Assessment of Background and Life Experience. Performance criteria were (1) knowledge and competence on technical aspects of the job, (2) effort to carry out a task, (3) efficiency on the job independent of technical aspects, (4) discipline, and (5) physical condition and presentation. Rather good predictive validities appeared notably between the measures of abilities and competence on the job ($r = .43$) and between the dimension need for achievement and effort to carry out a task ($r = .29$), and also between reliability and the disciplinary measure ($r = .28$).

Another theoretical perspective makes researchers to define possible interactions between personality factors and abilities for performance at work. We know that personality can bring incremental validity to the use of intelligence testing, but recent research shows that personality and intelligence can relate differently to performance. Indeed, Lepine, Colquit, and Erez (2000) used cognitive abilities, measured with the Wonderlic Personnel Test Form 2 (Wonderlic & Associates, 1983) and two personality factors, conscientiousness and openness, measured by the NEO Personality Inventory –NEO-PI-R (Costa & McCrae, 1992). They wanted to find out if those measures could predict performance in decision-making. They asked students ($N = 73$) to make decisions following certain precise procedures. Afterwards, they were subjected to

two unexpected contextual changes that challenged the rules and procedures to follow. Results showed primarily that the general effects of individual differences (abilities and personality) on performance are more important after the changes of context. Cognitive abilities were best predictors related to performance before contextual changes ($r = .23$), whereas conscientiousness ($r = -.10$) and openness ($r = .01$) showed only non-significant correlations. The authors concluded first that on a task of simple respect for procedures, the cognitive aspects played a more important role in decision-making. On the other hand, when the context changed, the predictive effect of cognitive abilities increased ($r = .43$) but conscientiousness ($r = -.29$) and the openness ($r = .35$) also became significant. This study conducted in a laboratory setting shows that personality can have incremental validity in the prediction of performance, especially when the job can undergo some changes. In other words the subject must adapt to new context by re-processing prior data.

Summarizing the results, we note that personality is more relevant for predicting performance when the predictor (personality) and the criteria (performance) are both defined in the same theoretical frame (*i.e.* interpersonal orientation and cooperation). Further personality constructs have better predictive validities when they are elaborated in a specific personality framework (*i.e.*, Big Five) and then take into account a specific work situation. In addition, the study of a lower-order construct can give more relevant information for the prediction of specific behaviour. Personality factors, when measured in a valid way can be negatively correlated to certain criteria of performance and positively to others, which shows the need for conducting a rigorous job analysis and taking into account the study of various facets of personality in their relationship to performance.

IV. THE META-ANALYSES

Another advance occurred during the 1990s with the use of statistical procedures (*i.e.*, meta-analyses) allowing to synthesize data of several studies from a similar domain. These procedures addressed criticisms concerning the often small number of subjects in the studies, a problem often encountered in field studies. It is important to note today that it brought precious information concerning personality (in particular within the framework of the Big Five) to the prediction of performance at work. Eleven meta-analyses on personality have been conducted since the beginning of the 1990s, but three of them were particularly useful in guiding future research.

Barrick and Mount (1991) conducted a meta-analysis including 117 studies representing studies of correlations with personality and performance at work. They took into account three types of performance at work: (1) a measure of productivity (*i.e.*, numbers of sales), (2) the evaluation of success in training, and (3) data concerning staff status, the

number of years spent in the company and the number of promotions. They also differentiated different levels of qualification. These measures of performance in relation to various types of job allowed Barrick and Mount (1991) to examine if the Big Five could predict performance independently of the job, the type of performance, and the measure of performance. The results show that conscientiousness seems to be the most predictive of all factors for performance, regardless of the type of measure and the level of qualification in the job. They also found that extraversion is a valid predictor of performance for managers and salesmen, as well as for success in training. Openness is also presented as a predictor of success in training. One can explain this by the fact that in a training situation, one is often in social interactions and being open and sociable is an important aspect of success in this context. Emotional stability did not show sufficiently high correlations with different measures of performance in this meta-analysis, the authors concluding that individuals having severe emotional problems are “naturally” selected out of the workforce, and so out of professional situations. It is important to remember that conscientiousness seems to show predictive validities for any type of job and measure of performance, a relatively logical conclusion when we understand that a conscientious and persevering person will be perceived in a favorable way by co-workers and will give the maximum to reach work objectives. Indeed, recently a study on the effects of personality similarity on peer ratings of contextual behaviours demonstrated that rater-ratee similarity on conscientiousness (but not other dimensions) is positively associated with peer ratings (Antonioni & Heejoon, 2001). However, one of the questions remaining is to know how this result allows us to distinguish the specific characteristics of a job in terms of personality, as the studies used by Barrick and Mount (1991) did not identify beforehand the personality factors important for the job. This question was more clearly addressed in the meta-analysis presented next.

Tett, Jackson, and Rothstein (1991) analysed 86 studies selected from a list of 494 studies reporting correlations between the Big Five Factors and work performance. Contrary to Barrick and Mount (1991), Tett *et al.* (1991) dissociated the studies in which personality measures were selected on the basis of a job analysis. Tett *et al.* (1991) analysed four variables in different populations: (1) the new hire or the experienced worker, (2) age, (3) longevity in the job, and (4) comparison between civilian and military population. Results showed that agreeableness is the strongest predictor of global performance in the work ($r = .33$), followed by openness ($r = .27$), emotional stability ($r = .22$), conscientiousness ($r = .18$), and finally extraversion ($r = .16$). If we take into account all factors of the Big Five, stronger correlations resulted when studies used job analysis with an average correlation of $r = .29$ instead of $r = .12$ when job analyses was not used. Interestingly, Tett *et al.* (1991) expected that new recruits would try to fake the answers on personality questionnaires (social desirability) which, according to Hough, Eaton, Dunnette, Kamp, and McCloy (1990) would bias validities. Contrary to expectations, better predictive validities resulted for new recruits than for current employees.

The authors concluded that social desirability did not depress the validity of personality measures, a phenomenon well demonstrated since then, notably in a meta-analysis concerning the role of social desirability in hiring situations (Ones, Viswesvaran, & Reiss, 1996). However, some bias in evaluation of performance and personality can occur, as other current studies showed that one should consider the relation rater-ratee and particularly by identifying the role of internality and/or consistency of the ratees in the perception of their performances (Louche, Pansu, & Papet, 2001) or making sure that personality inventories are used in a more valid way (Gangloff, 2001) by studying their reliability and validity and their relevance to work situations. Even if the latter is not the subject of our concern here, it shows the need to differentiate between constructs and concepts involved in the evaluation process, and therefore motivates researchers to study each aspect of the evaluation process in an incremental way for a better understanding of performance at work. In spite of those criticisms and particularly the one from Ones, Mount, Barrick, and Hunter (1994), the Tett *et al.* (1991) meta-analysis is interesting for our purpose because it highlights the value of confirmatory studies in the use of personality for predicting performance.

Considering that most studies were conducted in the United States and in Canada, Salgado (1997) undertook a meta-analysis taking into account research done within the European community and concerning personality and performance at work. From the 36 studies identified for the meta-analysis, Salgado (1997) noted differences in the representation of each of the five factors in the studies (a problem also present in both previous meta-analyses). For example, emotional stability and extraversion were the most represented factors whereas openness was the least. Salgado (1997) suggested that these results are somewhat logical because, before a consensus on the Big Five Factors model could be reached, extraversion and emotional stability were two factors studied very early by theoreticians. Furthermore, Salgado (1999) remarks that instruments used to identify these two factors have a longer history of study and validation than the others. Knowing that, Salgado performed his analysis by taking into account the Big Five, two criteria of performance (evaluation of staff, abilities in training) as well as five various types of jobs: (1) employee, (2) police force, (3) manager, (4) salesman, and (5) skilled worker. Conscientiousness and emotional stability both produced acceptable predictive validities for the various criteria of performance and types of jobs. Agreeableness was a valid predictor for the criteria of learning ($r = .31$). Emotional stability also had an acceptable predictive validity on all jobs (except salesman).

The work presented in numerous meta-analyses produces the following conclusions: (1) the use of the Big Five contributed to the study of the predictive validity of personality in a more coherent and rigorous way, (2) the use of meta-analytical methods contributed to a better synthesis and analysis of data, allowing a better understanding of the links between personality and criteria of performance, (3) there is a general consistency between the different meta-analyses, and (4) the validities, although always useful in terms of prediction, present relatively weak coefficients

(less than .30). For this last point, Barrick *et al.* (2001) suggest that progress relative to tools measuring personality in terms of the Big Five and taking into account specific working situations should improve the validities.

Economic changes and new types of employments in recent years have pushed researchers to become interested in individuals' abilities to adapt to changes in the work context. They have also become interested in organizational contexts facilitating success at work. A relatively new approach to performance in organizations makes a distinction between two types of performance. Borman and Motowidlo (1997) elaborated a theory of task performance and contextual performance. We shall see in the next section the implications of this approach for research on personality and performance at work.

V. TASK AND CONTEXTUAL PERFORMANCE

Over the last decade, researchers have worked on the distinction between task performance and contextual performance (Borman & Motowidlo, 1997; Motowidlo, Borman, & Schmidt, 1997; Organ, 1997). On the one hand, thanks to progress on evaluation processes and job analysis, task performance is a relatively well-known concept. On the other hand, research today tends to show the importance of contextual performance on organizational efficacy (Conway, 1996). At this point, it is important to clarify the difference between the concept of *contextual performance* and the notion of *contextual effect*, which is the effect of the environment on the workers and their abilities to change and adapt to the working situation. In this article, we will look at *contextual performance* because both types of performance (task and contextual) are complementary and have a common primary definition that is the degree to which an individual helps the company reach its objectives (Campbell, 1990). In a brief summary of the definition of performance, Borman and Motowidlo (1997) identify four important points: (1) performance is a behavioural construct, (2) performance is occasional, (3) behaviour related to performance is evaluative (the theory assumes that behaviour can have different degrees of positive or negative influence on organizational objectives), and (4) performance is multidimensional showing distinct groups of homogeneous behaviour related to performance. If we look first at the notion of task performance, Borman *et al.* (1997) note that it should be relative to activities contributing to the technical and central aspects of the organization. This type of performance seems to be connected to the knowledge of the individual as well as to his abilities (Campbell, 1990).

Contextual performance includes more peripheral activities, activities that are moreover not always explicit in a job analysis. It does not contribute to the central aspect of production but maintains rather the social, psychological environment, in which the technical one takes place. Therefore conceptually, personality seems to be more related to contextual performance than to task performance. In the early 1990s, one

of the first construct studies of contextual performance used the concept of organizational citizenship behaviours (OCB). A review by Organ and Ryan (1995) considered the relationship between four personality traits (*i.e.*, conscientiousness, agreeableness, positive affectivity and negative affectivity) and OCB and found that conscientiousness was the best predictor, with correlations ranging from .21 to .30 (Hattrup, O'Connell, & Wingate, 1998; Midili, 1996; Motowidlo & Van Scotter, 1994). Later, Borman, and Motowidlo (1997) proposed a taxonomy in five dimensions: (1) persist with enthusiasm and extra effort as necessary to complete one's own task activities successfully, (2) volunteering to carry out tasks activities that are not formally part of one's job, (3) helping and cooperating with others, (4) following organizational rules and procedures, and finally (5) endorsing, supporting and defending organizational objectives. Today, this taxonomy offers a consensus to researchers in the elaboration of instruments measuring contextual performance.

A recent review concerning the links between personality predictors and contextual performance (Borman, Penner, Allen, & Motowidlo, 2001) gives a summary of the state of the research, and identifies other studies that considered the Borman and Motowidlo (1997) taxonomy of contextual performance. Their conclusion was that in all studies conscientiousness showed higher correlations for contextual performance (up to .42) compared to task performance (*e.g.*, Barrick & Mount, 1991). The authors further noted that when personality predictors, especially conscientiousness, are correlated in a same study with both task and contextual performance, the correlation between personality and contextual performance is always stronger than for task performance. Implications for future research are defined notably in terms of pursuing further the definition of criterion constructs and the relation between individual differences in personality and performance.

In that direction, a recent study from Lepine and VanDyne (2001) shows that a contradictory relationship exists between personality characteristics (*i.e.*, agreeableness and conscientiousness) and performance dimensions (*i.e.*, voice behaviour and cooperation behaviour). Another study discusses the implication of full-time or part-time job status in engaging in different types of contextual behaviour (Stamper & VanDyne, 2001), explaining why part-time employees could engage in less helping behaviour in the organization. Other research tends to examine the combination of various individual differences (*i.e.*, ability, experience and personality) and their prediction for contextual performance showing primarily that agreeableness combined with experience predicts contextual performance (Mohammed, Mathieu, & Bartlett, 2002). Finally, one recent study tends to demonstrate the influence of socially-constructed gender roles and stereotypes on perceptions of contextual performance behaviours, implying that its importance is relative to the role-expectation (Kidder & McLean-Parks, 2001).

VI. APPLICATIONS AND RESEARCH DIRECTIONS

Clearly, several routes could be taken to improve research on personality as a predictor of performance at work. First of all, we have just seen that personality could be a more valid predictor for contextual performance than for task performance. However, it is necessary to use the construct definitions of contextual performance (*i.e.*, Borman and Motowidlo's taxonomy) to elaborate specific hypotheses about particular personality factors which will predict theoretically relevant performance criteria. For example, one needs to examine more specific sub-dimensions of agreeableness or conscientiousness and their hypothetical relations to performance criteria like helping and cooperating with others or endorsing organizational objectives. Also, efforts are needed to refine the five criterion taxonomy of Borman and Motowidlo (1997) as it is still too broad to apply to all organizations. Also it needs to be distinguished from or else include contemporary views on organizational performance such as emotional labour (Rafaeli & Sutton, 1987; Fisher & Ashkanasy, 2000), which takes into consideration emotional expression in the organization. We think that links could be made between emotional labour and the cooperative aspect of contextual performance. Lastly, organizational applications should consider understanding the economic value (*i.e.*, utility) to be gained in trying to predict contextual performance in selection practices.

Second, research will benefit from the use of valid and reliable personality questionnaires and by taking into account international issues. Cross-culturally developed measures of personality should be useful to researchers (and organizations) in understanding the links between personality and performance in different countries. One example is the Global Personality Inventory (GPI) developed by Schmit, Kihm, and Robie (2000) using an emic approach (within a country) to elaborate their dimensions. The GPI uses a "hierarchical taxonomy" of personality within the Big Five, having respective categories of sub-dimensions. This conception of personality measures seems necessary to improve our understanding of lower-order constructs of personality and their potential relation to specific performance criteria. For example, a study conducted by Hough, Ones, and Viswesvaran (1998) showed that the orientation towards success (a facet of conscientiousness measured with the NEO-PI) is predictive of the number of promotions in an organization, but dutifulness (another facet of conscientiousness) is not. Future research should take into consideration this hierarchical taxonomy in elaborating the performance evaluation procedures. Indeed, appropriate measures in terms of corresponding performance criteria are often far from a specific taxonomy, many of the criteria used in the literature still being very quantitative (*i.e.*, number of sales).

Third, the predictive validity of personality can be analysed in a systematic way. Using the Big Five as a framework for job analysis in term of personality dimensions (Personality-related Position Require-

ments Form –PPRF; Raymark, Schmit, & Guion, 1997), a recent study shows that different experts (managers, professionals, trainees) in organizations can discriminate behaviour (for a job of nurse's aid) in terms of job pertinence and identify relevant dimensions of personality hypothetically necessary for effective job performance (Touzé & Steiner, 2002). In that way, and using this type of job analysis, (1) the raters did agree on the importance of the behavior's clusters for a job, and (2) the theory behind it linked the behaviors to personality traits (see Raymark *et al.* (1997) or Touzé & Steiner (2002) for more details on the procedure). The results showed agreeableness as a potentially relevant and hypothetical predictor of performance on the job. Subsequent results demonstrated that agreeableness was indeed a valid ($r = .34$) predictor of performance on this particular job (Touzé, 2001), with certain sub-dimensions of agreeableness (*i.e.*, manipulation) reaching validities as high as .45. Thus, these initial results suggest that working in a systematic way, and using confirmatory approach, one can identify potentially necessary personality dimensions and validate the predictive validity of those dimensions in longitudinal studies. In hiring situations in organizations, this should help raise the validity coefficients for personality to a stronger and more “interesting” level of prediction, closer to those for intelligence testing or work samples. Also, supplementary research using the PPRF (Raymark *et al.*, 1997) or its French adaptation (Touzé & Steiner, 2002) for a same job but in different work environments could bring valuable information on the predictive validity of personality as a function of work context.

Finally, even if the Big Five gives a solid framework to the study of personality and its predictability of performance at work, certain factors from the Big Five seem not to have received sufficient attention in the literature. For example, when compared to extraversion (introversion) or emotional stability (neuroticism), the factor agreeableness is less documented in terms of predictive data in performance in the workplace. To explain that, Graziano and Eisenberg (1997) reported that agreeableness has undergone many changes in its lexical definition, starting with conformity (Fiske, 1949), then friendly conformity, or hostile non-conformity (Digman & Takemoto-Chock, 1981). Also recently, Jonhson and Ostendorf (1993) reported that the factor agreeableness could be, depending on the type of factor analysis used in a lexical study, closer to the dimension of “conforming to others' wishes” or “possessing a pleasant disposition”. Clearly, this factor needs to mobilize attention in its definition (and expression) within a culture, and its impact on performance in organizations.

In conclusion, we have summarized some of the current knowledge on personality and prediction of performance in the workplace. As we have seen, most of our understanding comes from meta-analytic studies that brought answers to previous questions but also pose new ones. As Barrick, Mount, and Judge (2001) suggest, the number (and quality) of meta-analyses concerning studies about personality and performance being sufficient for the time being, it would be advisable to engage in new types of studies. However, among the many points developed in those meta-

analytic studies, one crucial one was that it helped validate the use of the Big Five as a solid framework for researchers and practitioners. New questions concerning measures of personality with lower-order constructs, global (international) definitions, and more attention to the construct and measurement of performance in organizations will refine our knowledge on the “right” use of personality in the workplace.

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SUMMARY

Concerning the use of personality in personnel selection and evaluation, the last decade has seen important advances made in several domains. An important one was the development of the Big Five as a valid framework within which researchers and organizations can pursue their research and applications. The Big Five combined with meta-analytic methods allowed researchers to answer many of the questions left unaddressed for many years. Today, confidence in personality and its measures give a new dynamic both to theory development and applications. Further research will need to show the benefits of linking specific, lower-level facets of the Big Five to specific, lower-level criteria of performance. This paper gives an overview of the use of personality in the prediction of performance and suggests directions for future research.

Key words: *Personality, Performance, Big Five, Five Factor Model, Job Analyses, Contextual Performance, Task Performance.*

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