

LUTTE CONTRE LES DISCRIMINATIONS :
POLITIQUES ET PRATIQUES

***The Contributions
of Organizational
Justice Theory
to Combating Discrimination***

Dirk D. Steiner and Marilena Bertolino

Laboratoire de psychologie
expérimentale et quantitative (LPEQ),
université de Nice-Sophia Antipolis

RESUME

Après une revue de questions sur les concepts de la justice organisationnelle, nous présentons le modèle de Stone-Romero et Stone (2005) qui fait le lien entre ces concepts et la discrimination. Ensuite, nous passons en revue les travaux montrant la pertinence des concepts de justice organisationnelle pour une compréhension des réactions des candidats face au processus de sélection en mettant l'accent sur les recherches qui comparent les réactions de membres de groupes minoritaires et majoritaires. Nous détaillons des études réalisées aux Etats-Unis aussi bien que des études que nous avons menées afin de comparer des personnes d'origine maghrébine à celles du groupe majoritaire français. Nos résultats montrent que les personnes d'origine maghrébine ont généralement de plus mauvaises perceptions de la justice des procédures de sélection, que les deux groupes ont de meilleures perceptions quand les procédures leur sont expliquées, et que les deux groupes préfèrent des procédures où leur origine ethnique n'est pas saillante.

1. ORGANIZATIONAL JUSTICE:
CONCEPTS AND DEFINITIONS

Fairness or justice is one of our daily preoccupations in many aspects of life,

including our home- and work-lives. Questions of fairness are salient when decisions must be made, particularly regarding limited resources. Thus, when decisions are made regarding allocating money or hiring people for jobs, both decision-makers and the people who are affected by these decisions are concerned with their fairness. Similarly, decisions regarding policy and other changes in organizational functioning also incite us to consider their fairness (Colquitt, Greenberg, & Zapata-Phelan, 2005; Steiner, 1999; Steiner & Rolland, 2006).

Over the years, many perspectives have been used to comment on what is just. There are legal points of view and philosophical points of view, to cite just two disciplines that have devoted attention to justice. In social and organizational psychology, the focus is on the perceptions of the various actors. Thus, rather than prescribing what is just or fair behavior, the social psychological approach focuses on describing what individuals believe to be just and the factors that influence their justice judgments (Colquitt et al., 2005).

1.1. Distributive Justice

Historically, social psychologists were first interested in what has come to be known as distributive justice—the fairness of distributions or allocations of rewards (e.g., Steiner & Rolland, 2006). In general, research on distributive justice has shown that the principle of equity (Adams, 1965) is preferred, both by decision-makers and the persons affected by these decisions. Basically, equity implies that rewards should be proportional to contributions or effort (i.e., merit); and that this proportionality is evaluated by comparing one's own ratio to that constructed for a comparison other. To consider a situation as fair, the ratios must be equivalent. In some situations, other dis-

tributive rules are viewed to be more appropriate to apply than equity (cf. Steiner, Trahan, Haptonstahl, & Fointiat, 2006). Hence, when group harmony is important, distributing resources equally irrespective of members' individual contributions is viewed as fair. And in yet other situations, consideration of special needs is considered fair. Although few studies have compared all three distributive rules, Steiner et al. (2006) showed that people are likely to use several rules together, while emphasizing a particular rule.

1.2. Procedural Justice

It became apparent during the 1970's that the procedures used to determine the distributions influenced justice perceptions beyond the application of one of the distributive rules. Hence, beginning with the work of Thibaut and Walker (1975), a line of research was initiated on what is now known as procedural justice—or the perceived fairness of the procedures used to make decisions. Thibaut and Walker's work was concerned with "voice" or allowing people to participate in decisions that concern them. Voice was considered to give individuals a sense of control over decisions, and two types of voice were initially studied. Decisional control is voice that gives people the possibility of actually participating in making a particular decision. Process control, on the other hand, is voice that allows people to have a say in the way the decision will be made, but not in the actual decision. Studies in various domains have shown that people do find procedures more fair when they have had voice. In addition, these studies showed that they found the decisions themselves more fair, irrespective of their valence, when they had voice. This important impact of procedural fairness on outcome fairness became known as the fair process effect, and has been studied rather completely by van den Bos (2005).

Beyond voice, other rules of procedural fairness were proposed by Leventhal (1976). His six rules, consistency of application of procedures, bias suppression in procedures, accuracy of information used, correctability in case of an error, representativeness of the decision criteria used, and ethicality of procedures, have been studied to various degrees and consistently indicate that procedures which respect these rules are perceived to be fair (cf. Colquitt et al., 2005, Steiner & Roland, 2006).

1.3. Interactional Justice

Approximately 10 years after Leventhal proposed his rules of procedural justice, Bies and Moag (1986) emphasized the role of the interpersonal interactions taking place in exchanges between decision-makers and recipients of these decisions. Some debate still exists in the literature as to whether the interpersonal aspects of justice are part of procedural justice or form a distinct dimension of justice. However, several studies have shown that the two aspects of interactional justice, social sensitivity (treating people with dignity and respect) and informational justice (providing explanations for decisions), each can be identified separately from distributive and procedural justice and each shows specific relations to distinct dependent variables (e.g., Colquitt, 2001; Jouglaard & Steiner, 2005).

A great deal of research has now been conducted taking into consideration these different aspects of organizational justice, and the conclusions are clear: decisions made with respect for organizational justice are unequivocally associated with positive outcomes both for the individuals who are affected by the decisions and for the authorities and the organizations responsible for the decisions (Cohen-

Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Yee, 2001).

2. ORGANIZATIONAL JUSTICE AND DISCRIMINATION

2.1. *The Stone-Romero and Stone Model*

Given its preoccupation with what is perceived to be fair, the framework of organizational justice should be readily applicable to combating discrimination. Notably, at least three of Leventhal's (1976) procedural justice rules appear to address issues of discrimination directly: consistency of application, bias suppression, and ethicality. Yet few direct applications have appeared to date. Stone-Romero and Stone (2005) recently presented a model that examines discrimination both from the standpoint of the decision-maker who discriminates and from the standpoint of the victims of discrimination. First, consider decision-makers. For them, the model blends findings from work on social identity theory (e.g., Tajfel, 1981, 1982) with organizational justice theory to explain discriminatory decisions. Essentially, according to the model, individuals identify with groups to which they belong. Members of one's own group are considered the in-group; people not in the group are the out-group. Thus, discrimination is the result of categorizing individuals according to group membership (e.g., based on their sex or race) and then being influenced by stereotypes the decision-maker has about the group, particularly for out-group members. The decision-maker therefore makes judgments about an individual based on group stereotypes. These stereotypes influence expectations regarding the individual's behavior and causal attributions for the behaviors observed. When decision-makers have unfavorable stereotypes about the group to which a particular individual belongs, they are likely to expect poor performance for the individual

and make unfavorable attributions for behaviors observed, attributing positive behaviors to external causes, and negative behaviors to internal ones (Hewstone & Jaspars, 1982). Given that this process results in less favorable evaluations of out-group members, and particularly in more favorable evaluations of in-group members (Brewer, 1999), when making equitable decisions from a distributive justice standpoint, decision-makers then believe that in-group members are more deserving than out-group members. Stone-Romero and Stone also assert that decision-makers may put in place procedures that favor the in-group to the detriment of the out-group, thus violating procedural justice. Finally, regarding interpersonal justice, in-group members are likely to benefit from better interpersonal treatment than out-group members because of greater affinities among in-group members and the perception that out-group members are less deserving of fair treatment because of the lesser value accorded them by the decision-makers.

Considering the victims' point of view, it is likely that they perceive these diverse forms of treatment by decision-makers as very unfair, but it is also possible that they come to believe that they are not deserving of better treatment. Thus, they may devalue their own contributions to the situation, or even devalue fair treatment in general (Stone-Romero & Stone, 2005).

2.2. *National Surveys*

Other research is supportive of the value of studying discrimination using organizational justice concepts. For example, a survey on discrimination in Europe (Marsh & Sahin-Dikmen, 2003) found that Europeans believed that handicapped individuals, persons over 50 years old, and members of ethnic minorities would likely face discrimination. More

importantly, survey respondents believed that it was very unfair (approximately 82 on a scale where 100 represented always unfair) to discriminate in employment based on origin, religion, handicap, age, or sexual orientation. They also believed that other people think these discriminations are frequently unfair, but to a lesser degree than their own evaluation of unfairness (approximately 70 on the 100 point scale).

2.3. Applicant Reactions Research

Another related body of research is that which studied the perceived fairness of selection procedures by job applicants (see Hausknecht, Day, & Thomas, 2004, and Truxillo, Steiner, & Gilliland, 2004 for reviews). This research uses organizational justice for its theoretical foundation, and frequently addresses reactions of different groups that are potentially the targets of discrimination. This research shows that applicant perceptions during the selection process are associated with important individual and organizational consequences, such as selection procedure performance (e.g., Chan, 1997; Chan & Schmitt, 1997), test-taking motivation (e.g., Chan, Schmitt, DeShon, Clause & Delbridge, 1997), self-efficacy (e.g., Bauer, Truxillo, Sanchez, Craig, Ferrara, & Campion, 2001; Gilliland, 1994), organizational attractiveness (e.g., Bauer, Maertz, Dolen, & Campion, 1998; Ployhart, Ryan, & Bennet, 1999), and job offer acceptance intentions (e.g., Macan, Avedon, Paese, & Smith, 1994; Truxillo, Bauer, Campion, & Paronto, 2002). General conclusions from these studies are that when people believe the selection methods and procedures are unfair, they are less motivated to perform well during selection evaluation and have reduced self-esteem. In addition, perceptions of unfairness are associated with lower per-

formance on selection measures, and may therefore reduce selection test validity. Finally, with regard to the current discussion, people who perceive the selection procedures to be unfair are more likely to file legal complaints for discrimination.

The research by Chan and his colleagues (e.g., Chan, 1997; Chan & Schmitt, 1997; Chan et al., 1997) in the United States is particularly relevant for understanding the links between organizational justice concepts and discrimination. Their studies focused on Black and White individuals and found support for the hypothesis that Black study participants believed selection tests to be less fair than White participants, and that this lowered their motivation to succeed on these tests, which in turn was partly responsible for their lower test scores. As a consequence, lower test performance for the minority group is in part explained by attitudes during the selection process. Indeed, according to Smither, Reilly, Millsap, Pearlman, and Stoffey's (1993) review, racial group differences in test reactions could have important organizationally and socio-politically relevant consequences when tests are used to select applicants. For example, less favorable test reactions can influence applicants' pursuit and acceptance of job offers. Further, to the extent that test reactions can influence test performance, and therefore who is hired, they can indirectly lead to increased adverse impact and to an underrepresentation of minority group members in the organization and decreased diversity of the work force.

2.4. Research in France

We have been involved in research extending Chan et al.'s work to the French context (Bertolino, 2004). Indeed, in France, research concerning minority and majority populations in the work context is quite sparse, even if it is known that at

least one ethnic minority group (individuals of North African origin) has greater difficulty in integrating the job market (see Fauroux, 2005). Therefore, studying this group's test performance and attitudes towards employment testing may reveal important causes and consequences of this adverse impact. The limited French research that does exist has found that stereotype threat is one mechanism that operates for this minority group (e.g., Croizet, Désert, Dutrévis, & Leyens, 2003; Dambrun & Guimond, 2001) in a similar way as for Blacks in the United States (e.g., Steele & Aronson, 1995). But this question remains otherwise largely unexplored, and the applicability of the American research to minority and discrimination issues in France needs to be examined. In our studies, persons of North African origin are compared to those of French origin.

2.4.1. *Perceptions of Test Fairness*

In one of our studies, 120 (64 French and 56 North African origin) university students participated and took tests typically used in employment settings. They were asked to imagine they were candidates for a job in the telecommunications sector. The experimental session began with a written description of the cognitive ability (Wonderlic Personnel Test, Wonderlic, 1999) and personality tests (Global Personality Inventory, Schmit, Kihm, & Robie, 2000), illustrated with representative example items. Participants then completed several pre-test measures for each test, including justice perceptions, test-taking motivation, and self-efficacy. Then, they completed the cognitive ability test before responding to questions concerning performance perceptions. Next, the experimenter provided them with one of three types of bogus feedback, indicating success, failure, or no performance information. Following the feedback,

participants completed post-test measures of justice perceptions. The same process was used for the personality test. In general, we found that members of the North African minority group perceived the selection methods to be less fair than those of the majority group, and that they also were less optimistic about the possibility of getting a job. Further, we found that the persons of North African origin in comparison to the French majority group members had less favorable fairness perceptions of cognitive ability tests, and to a lesser extent, personality tests, before taking them. In addition, these tests were viewed as less fair by both groups after taking them. Results also indicated that the relationship between group membership and test performance is mediated by justice perceptions, providing evidence that some portion of the minority-majority group difference in test performance may be explained through differences in justice perceptions. Moreover, test self-efficacy is shown to have the same mediating role as justice perceptions. One of the important implications of these results is that the potential value of selection tests is not clear to participants. Such findings illustrate partially the justice dilemma described by Cropanzano (1994): These tests have demonstrated predictive validity (cf. Schmidt & Hunter, 1998), but are not perceived as being particularly fair.

In other research, we tested two potential ways for increasing justice perceptions during personnel selection. We informed participants of the relevance of the tests used, by explaining that the tests allow them to show that they have the abilities necessary for the job. This type of information is conceptually related to the "voice" concept in procedural justice. In the selection context, being able to show what one can do, having the "opportunity to perform," is a way of participating in the process, having some control

over the decision (Gilliland, 1993). The sample for this study was composed of 58 male job seekers (29 of French origin and 29 of North-African origin) enrolled in a job-training center. We provided a written description of a mechanical reasoning test (Differential Aptitude Tests, ECPA, 1974), illustrated with example items. Participants then completed several pre-test measures, including justice perceptions of the test, test-taking motivation, and self-efficacy. Depending on the experimental condition (presence vs. absence of information) the experimenter provided written information or not about how taking the test provided the opportunity to perform. Results showed that when people are provided with this information, they have more favorable perceptions of the tests after taking them; without the information, their post-test perceptions are less favorable.

2.4.2. Anonymity of Selection Procedures

Some of our results indicated that minority group members could have had more positive attitudes toward methods that made their group membership less obvious. To test this possibility more directly, we tested the influence of procedures that made the group identity more or less anonymous. The sample consisted of 63 job seekers enrolled at various agencies of the national employment office. The job applicants (of North African origin or members of the French majority group) were placed in a simulated hiring situation, and their identity was either made salient or not, particularly with regard to their ethnic origin. The participants then responded to a simulated selection interview and took a cognitive ability test. Results showed that applicants from both ethnic groups tended to find the selection procedures more fair when their group identity was not salient. Our findings

therefore are consistent with the widely-discussed idea in France of making CV's anonymous. From the applicants', we would predict favorable reactions to this practice.

3. CONCLUSIONS

The theoretical links between organizational justice concepts and the battle against discrimination are clear. Research has begun to show the relevance of justice concepts for understanding decision-makers' actions leading to discrimination and victims' reactions when faced with discrimination. Our studies show that the concepts used and results found in research conducted in North American contexts can be usefully applied to the French context. More specifically, our studies show that providing relevant information to applicants and keeping procedures anonymous means that justice perceptions are more likely to be positive and have a positive influence on several individual and organizational outcomes. On a practical level, these studies could be useful in order to improve test performance during selection procedures. Thus, better test performance could enhance the possibility that members of minority populations succeed in greater numbers in integrating the job market.

REFERENCES

- ADAMS, J. S. (1965), "Inequity in social exchange," in L. BERKOWITZ (Ed.), *Advances in experimental social psychology*, 2, New York, Academic Press, pp. 267-299.
- BAUER, T. N., MAERTZ, C. P. JR., DOLEN, M. R., & CAMPION, M. A. (1998), "Longitudinal assessment of applicant reactions to employment testing and test outcome feedback," *Journal of Applied Psychology*, 83, pp. 892-903.
- BAUER, T. N., TRUXILLO, D. M., SANCHEZ, R. J., CRAIG, J., FERRARA, P., & CAMPION, M. A. (2001), "Applicant reactions to selection: Development of the selection procedural justice scale (SPJS)," *Personnel Psychology*, 54, pp. 387-419.
- BERTOLINO, M. (2004), « Les perceptions de justice de la population minoritaire maghrébine et de la population majoritaire française, en position de demandeurs d'emploi », Thèse de doctorat, Université de Nice-Sophia Antipolis.
- BIES, R. J., & MOAG, J. F. (1986), "Interactional justice: Communication criteria of fairness," in R. J. LEWICKI, B. H. SHEPPARD, & M. H. BAZERMAN (Eds.), *Research on negotiations in organizations*, 1, Greenwich, CT, JAI Press, pp. 43-55.
- BREWER, M. B. (1999), "The psychology of prejudice: Ingroup love or outgroup hate," *Journal of Social Issues*, 55, pp. 429-444.
- CHAN, D. (1997), "Racial subgroup differences in predictive validity perceptions on personality and cognitive ability test," *Journal of Applied Psychology*, 82, pp. 311-320.
- CHAN, D., & SCHMITT, N. (1997), "Video-based versus paper-and-pencil method of assessment in situational judgment tests: Subgroup differences in test performance and face validity perceptions," *Journal of Applied Psychology*, 82, pp. 143-159.
- CHAN, D., SCHMITT, N., DESHON, R. P., CLAUSE, C. S., & DELBRIDGE, K. (1997), "Reactions to cognitive ability tests: The relationships between race, test performance, face validity perceptions, and test-taking motivation," *Journal of Applied Psychology*, 82, pp. 300-310.
- CHAN, D., SCHMITT, N., SACCO, J. M., & DESHON, R. P. (1998), "Understanding pretest and posttest reactions to cognitive ability and personality tests," *Journal of Applied Psychology*, 83, pp. 471-485.
- COHEN-CHARASH, Y., & SPECTOR, P. E. (2001), "The role of justice in organizations: A meta-analysis," *Organizational Behavior and Human Decision Processes*, 86, pp. 278-321.
- COLQUITT, J. A. (2001) "On the dimensionality of organizational justice: A construct validation of a measure," *Journal of Applied Psychology*, 86, pp. 386-400.
- COLQUITT, J. A., CONLON, D. E., WESSON, M. J., PORTER, C. O., & YEE, N. K. (2001), "Justice at the millennium: A meta-analytic review of 25 years of organizational justice research," *Journal of Applied Psychology*, 86, pp. 425-445.
- COLQUITT, J. A., GREENBERG, J., & ZAPATA-PHELAN, C. P. (2005), "What is organizational justice? A historical overview," in J. GREENBERG & J. A. COLQUITT (Eds.), *Handbook of Organizational Justice*, Mahwah, NJ, Erlbaum (pp. 3-56).
- CROIZET, J. C., DESERT, M., DUTREVIS, M. & LEYENS, J.-P. (2003), « L'impact des réputations d'infériorité sur les performances intellectuelles », *Revue Internationale de Psychologie Sociale*, 1, pp. 97-124.
- CROPANZANO, R. (1994), "The justice dilemma in employee selection: Some reflections on the trade-off between fairness and validity," *The Industrial-Organizational Psychologist*, 31(3), pp. 90-93.
- DAMBRUN, M., & GUIMOND, S. (2001), « La théorie de la privation relative et l'hostilité envers les Nord-Africains », *Revue Internationale de Psychologie Sociale*, 1, pp. 57-89.
- FAUROUX, R. (2005), « La lutte contre les discriminations ethniques dans le domaine de l'emploi », La Documentation Française, <http://lesrapports.ladocumentationfrancaise.fr/BRP/054000466/0000.pdf>, 10/10/2005.
- GILLILAND, S. W. (1993), "The perceived fairness of selection systems: An organizational justice perspective," *Academy of Management Journal*, 18, pp. 694-734.
- GILLILAND, S. W. (1994), "Effects of procedural and distributive justice on reactions to a selection system," *Journal of Applied Psychology*, 79, pp. 691-701.

- HAUSKNECHT, J. P., DAY, D. V., & THOMAS, S. C. (2004), "Applicant reactions to selection procedures: An updated model and meta-analysis," *Personnel Psychology*, 57, pp. 639-683.
- HEWSTONE, M., & JASPARS, J. M. F. (1982), "Intergroup relations and attribution processes," in H. TAJFEL (Ed.), *Social identity and intergroup relations*, Cambridge, England, Cambridge University Press, (pp. 99-133).
- JOUGLARD-TRITSCHLER, D., & STEINER, D. D. (2005, avril), "Validation of the four-factor model of organizational justice in France," Communication présentée au congrès annuel de la Society for Industrial/Organizational Psychology, Los Angeles.
- LEVENTHAL, G. S. (1976), "The distribution of rewards and resources in groups and organisations," in L. BERKOWITZ & W. WALSTER (Eds.), *Advances in experimental social psychology*, 9, New York, Academic Press, pp. 91-131.
- MACAN, T. H., AVEDON, M. J., PAESE, M., & SMITH, D. E. (1994), "The effects of applicants' reactions to cognitive ability tests and assessment center," *Personnel Psychology*, 47, pp. 715-738.
- MARSH, A., & SAHIN-DIKMEN, M. (2003), "La discrimination en Europe - Eurobaromètre 57.0 - présentation synthétique des résultats," http://europa.eu.int/comm/employment_social/publications/2003/cev403001_fr.pdf, 01/12/2005.
- PLOYHART, R. E., RYAN, A. M., & BENNETT, M. (1999), "Explanations for selection decisions: Applicants' reactions to informational and sensitivity features of explanations," *Journal of Applied Psychology*, 84, pp. 87-106.
- SCHMIDT, F. L., & HUNTER, J. E. (1998), "The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings," *Psychological Bulletin*, 124, pp. 262-274.
- SCHMIT, M. J., KIHM, J.A., & ROBIE, C. (2000), "Development of a global measure of personality," *Personnel Psychology*, 53, pp. 153-193.
- SMITHER, J. W., REILLY, R. R., MILLSAP, R. E., PEARLMAN, K., & STOFFEY, R. W. (1993), "Applicant reactions to selection procedures," *Personnel Psychology*, 46, pp. 49-77.
- STEELE, C. M., & ARONSON, J. (1995), "Stereotype threat and the intellectual test performance of African-Americans," *Journal of Personality and Social Psychology*, 69, pp. 797-811.
- STEINER, D. D. (1999), « Qu'est-ce qui est juste? Une introduction à la psychologie de la justice distributive et procédurale », in J. L. BEAUVOIS, N. DUBOIS, et W. DOISE (Eds.), *La Psychologie Sociale, Volume 4: La construction sociale de la personne*, Grenoble, Presses Universitaires de Grenoble, pp. 87-102.
- STEINER, D. D., & ROLLAND, F. (2006), « Comment réussir l'introduction de changements: les apports de la justice organisationnelle », in C. LEVY-LEBOYER, C. LOUCHE, et J. P. ROLLAND (Eds), *RH: Les Apports de la Psychologie du Travail. 2. Management des Organisations*, Paris, Editions d'organisation, pp. 53-69.
- STEINER, D. D., TRAHAN, W. A., HAPTONSTAHL, D. E., & FOINTIAT, V. (2006), "The justice of equity, equality, and need in reward distributions: A comparison of French and American respondents," *Revue Internationale de Psychologie Sociale/International Review of Social Psychology*, 19, pp. 49-74.
- STONE-ROMERO, E. F., & STONE, D. L. (2005), "How do organizational justice concepts relate to discrimination and prejudice?" in J. GREENBERG & J. A. COLQUITT (Eds.), *Handbook of Organizational Justice*, Mahwah, NJ, Erlbaum, pp. 439-467.
- TAJFEL, H. (1981), *Human groups and social categories*, Cambridge, Cambridge University Press.
- TAJFEL, H. (Ed.), (1982), *Social identity and intergroup relations*, Cambridge, Cambridge University Press.
- THIBAUT, J., & WALKER, L. (1975), *Procedural justice: A psychological analysis*, Hillsdale, NJ, Erlbaum.
- TRUXILLO, D.M., BAUER, T. N., CAMPION, M. A., & PARONTO, M. E. (2002), "Selection fairness information

- and applicant reactions: A longitudinal field study," *Journal of Applied Psychology*, 87, pp. 1020-1031.
- TRUXILLO, D. M., STEINER, D. D., & GILLILAND, S. W. (2004), "The importance of organizational justice in personnel selection: defining when selection fairness really matters," *International Journal of Selection and Assessment*. Vol. 12, Issue 1 2, pp. 39-55.
- VAN DEN BOS, K. (2005), "What is responsible for the fair process effect ?" in J. GREENBERG & J. A. COLQUITT (Eds.), *Handbook of Organizational Justice*, Mahwah, NJ, Erlbaum, pp. 273-300.
- WONDERLIC, E. F. (1999), *Wonderlic Personnel Test manual*, Northfield, IL, Wonderlic & Associates.