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Personality and Group Performance: The Importance of Personality Composition and Work Tasks

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Citation

Personality and group performance: The importance of personality composition and work tasks

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A B S T R A C T

We examine whether group members' Big Five personality composition (variability, minimum, and maximum) affects the group's performance. We employed an experimental design where participants were paid based on their performance in two different group-based experimental tasks: an additive task (where group performance is based on the sum of efforts of all group members) and a conjunctive task (where group performance is based on the performance of the weakest group member). Results indicate that variability in extraversion is positively related to group performance on the additive task but not on the conjunctive task. Conversely, neuroticism maximum score is negatively related to group performance on the conjunctive task but not on the additive task.

1. Introduction

General mental ability (GMA) is one of the strongest predictors of employee job performance ($r = .51$) but using personality inventories, particularly assessments of conscientiousness, may add incremental validity to this prediction ($r = .60$; Schmidt & Hunter, 1998). The use of personality assessments in employee selection is guided by the underlying organizational objective to select high-performing employees (Goffin et al., 2011). Among the different personality inventories, the "Big Five"—conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion—has been widely adopted in research and practice. Research evidence indicates that the Big Five are consistently related to *individual* performance (Barrick & Mount, 1991, 2006). For instance, on average, employees high in conscientiousness demonstrate superior job performance across a range of jobs (Barrick & Mount, 2006).

Yet a key limitation of this body of work is that it has largely been conducted at the individual level of analysis. In organizations, work is increasingly structured in teams, and ensuring effective team performance—beyond simply individual performance—is critical. Concomitantly, there is an increasing need to identify effective strategies to develop groups (Klimoski & Zukin, 1999). These concerns have prompted scholars to question the relevance of findings from individual-level personality research for groups,

and hence they have suggested investigating the role of personality traits at the group-level (LePine, Buckman, Crawford, & Methot, 2011; Prewett, Walvoord, Stilson, Rossi, & Brannick, 2009). The primary emphasis of our study is at this group-level of analysis to understand the role of personality in influencing group performance.

Group performance can be influenced by the group's personality composition (i.e., the similarity or differences of group members' personality traits; i.e., *internal* factors; Bradley, Klotz, Postlethwaite, & Brown, 2013). In addition to the mean (average) level of a personality trait in the group other compositional effects, such as the minimum, maximum, and the variance of personality traits, can also influence group performance. For example, a high level of extraversion will be a predictor of *individual* performance in tasks that require social interaction; however, having a group of employees who are all high on extraversion might be detrimental to group performance because such groups may perform better at brainstorming tasks (where extraverted employees are inherently comfortable in putting forth their ideas) but not as well at tasks that require quick decision making and task focus (Barry & Stewart, 1997). The effect of personality composition on group performance is likely dependent also on task characteristics; i.e., *external factors*. For additive tasks (i.e., tasks where group performance is based on the sum of efforts of all group members; Steiner, 1972), *variability* of personality traits will be related to group performance because different levels of personality traits may be associated with unique skills (Humphrey, Hollenbeck, Meyer, & Ilgen, 2007; LePine et al., 2011). Conversely, in conjunctive tasks (i.e., tasks

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where performance is based on the group's weakest member; Steiner, 1972) the *minimum* score of some personality traits will be related to group performance. Thus, scholars have recommended examining the role of task characteristics (Barrick, Stewart, Neubert, & Mount, 1998; Bell, 2007) to better inform the group personality composition – group performance relationship.

Overall, although existing research has revealed that the personality composition within a group is associated with the group's performance, the specific compositional effects are not well understood (Anderson, 2009; van Vianen & De Dreu, 2001). Drawing on this incomplete examination of internal and external factors, we investigate the relationship between group level personality, task characteristics, and group performance. Our study aims to contribute to both research and practice by investigating whether there is an "effective" combination of personalities in groups, and whether the "effective" personality composition is dependent on the characteristics of the task.

1.1. Group personality composition

Similarity-attraction theory (Byrne, 1971) supports the argument that employees in groups composed of members with similar personality traits are more likely to experience higher well-being because members are attracted to the similarities that they see in each other. However, it is likely that it is not the heterogeneity or homogeneity of the group that matters, but rather the variability of the personality trait in a group and its mean level (Homan et al., 2008). For example, a group that is composed of employees who are all highly conscientious might outperform a group in which all members are very low on the trait of conscientiousness (although both groups will have the same similarity scores). That is, the group's personality composition can result in a supplementary fit, (i.e., higher mean level of a personality trait is associated with higher group performance) or a complementary fit (i.e., group members possessing a specific level of a personality trait may benefit the team by filling a competency gap in the group; Humphrey et al., 2007; LePine et al., 2011). Thus, the operationalization of the group's personality composition is critical for estimating its effect on group performance.

Halfhill, Nielson, Sundstrom, and Weilbaecher (2005) identified three methods to operationalize personality composition in groups. The most common method is to calculate the mean score of the group for a particular personality trait. This operationalization assumes both positivity (i.e., a positive relationship between the trait and organizational outcomes) and additivity (i.e., a greater proportion of employees with higher scores on a trait is generally better than a lower proportion of employees) of the personality trait, which is indicative of a supplementary fit. A second method is to assess the variability (i.e., variance or range) of individual personality traits in the group (Halfhill et al., 2005). An underlying assumption of this operationalization is that the variability in a personality trait is correlated with group performance, which is indicative of a complementary fit. A third method is to focus on minimum and/or maximum scores, which are especially appropriate to assess ceiling (e.g., the "best" performer determines the group's performance) and floor (e.g., the "worst" performer determines the group's performance) effects in groups. These different operationalizations of group personality composition hint at the possibility that the nature of the task itself may dictate the optimal composition of different personality traits in groups (van Vianen & De Dreu, 2001).

1.2. The importance of the task characteristics

We adopt Steiner (1972) classification of group tasks and focus on two distinct types of tasks—additive and conjunctive—that

groups typically work on. In additive tasks, each member shares some knowledge and skills with all group members; however, he or she may also have specific knowledge or skills that might benefit the entire group. In conjunctive tasks (e.g., an assembly line), tasks are interdependent, which influences group performance, and results in the group's weakest member having the largest effect on the group's output (Homan et al., 2008). We posit that the relationship between group personality composition and group performance varies based on the type of the task the group performs and specific personality traits.

For additive tasks, variability in extraversion will result in superior performance because differences in the members' personalities might be associated with unique skills that are required by the task. Highly extraverted employees tend to be friendly and energetic but are also more assertive and dominating (Prewett et al., 2009). If all members are high on extraversion the group is likely to have more problems in dividing up roles and completing specialized tasks and may experience more conflict on leadership issues (Barry & Stewart, 1997; Mohammed & Angell, 2003). Similarly, a group is composed of members who are low in extraversion may tend to be quiet and reserved. Therefore, if the group has both extraverted and introverted members (i.e., high variability), we expect the group's performance to be better because such a group would possess the optimal composition of extraversion for group functioning. Variability of extraversion will not influence group performance on conjunctive tasks because performance on interdependent tasks is unlikely to be related to the variance in extraversion as long as the task requires similar skills from all group members.

1.2.1. Hypothesis 1: variability in group extraversion score is positively related to group performance in additive tasks, but not in conjunctive tasks

In conjunctive tasks, interdependence between group members is brought forth whereby the group's weakest member (in a task-related skill or a personality trait) has a greater effect on the group's performance compared to other group members. Therefore in conjunctive tasks other personality traits (conscientiousness, neuroticism, and agreeableness) might be more critical.

Conscientious employees are dependable and responsible (Halfhill et al., 2005)—attributes that are positively related to job performance (Barrick & Mount, 2006). A group with members who are high on conscientiousness is therefore more likely to have higher group performance. Conversely, variability of conscientiousness levels within the group is not likely to contribute to group performance because having employees who are undependable and lazy are likely to negatively affect group performance (Barrick & Mount, 2006). Group performance in interdependent (conjunctive) tasks might be determined by the "weakest link"—the group member with the lowest conscientiousness score—because this member is the least motivated and least dependable. Because of the high interdependency within the group, such a low conscientious group member will drag down the group's performance more than his/ her proportional contribution to the group and adversely affect group performance. Low conscientiousness employees, however, will not influence group performance on additive tasks because of the low levels of interdependence on those tasks.

1.2.2. Hypothesis 2: minimum score in group conscientiousness is positively related to group performance in conjunctive tasks, but not in additive tasks

Neuroticism, the tendency to feel negative emotions such as anxiety and frustration, is related to higher conflict and lower cohesion because highly neurotic employees are likely to be involved in more conflict generating behaviors (Bono, Boles, Judge, & Lauver, 2002; van Vianen & De Dreu, 2001). The adverse effects

of neuroticism on group performance are especially likely when groups perform highly interdependent tasks. For instance, in a group where all members are low on neuroticism even a single group member who is high on neuroticism might refuse to cooperate with other group members, infuse negative emotions in the group, and increase the intensity and frequency of conflict for the entire group (Bono et al., 2002). Therefore, a maximum score of neuroticism is expected to have a greater effect on group performance than the mean score of the group. For additive tasks, the group's performance is less likely to be affected by a single member who has high neuroticism, and so the maximum neuroticism score is unlikely to influence performance in such tasks.

1.2.3. Hypothesis 3: maximum score in group neuroticism is negatively related to group performance in conjunctive tasks, but not in additive tasks

Agreeableness reflects a disposition to display caring, nurturing behavior; conversely, people with low scores on agreeableness tend to be self-centered and indifferent to others (Anderson, 2009). Lower levels of agreeableness at the group level contribute to conflict and higher levels of agreeableness are related to greater group cohesion (Venkataramani & Dalal, 2007). As such, in conjunctive tasks, which by their very nature require group members to "get along", we expect that a minimum score of agreeableness will be positively related to group performance. However, in additive tasks group members will not be affected by a member who is low on agreeableness because the individual nature of the task isolates them from the negative effects of that group member.

1.2.4. Hypothesis 4: minimum score in group agreeableness is positively related to group performance in conjunctive tasks, but not in additive tasks

Openness to experience might be most beneficial in complex problem solving tasks in which unique experiences can contribute to performance. However, both additive and conjunctive tasks can vary in their complexity levels. Given this theoretical uncertainty, we do not offer any hypothesis for the openness to experience – group performance relationship.

2. Method

2.1. Participants and procedure

Students from a large Midwestern university in the United States were recruited using the university's subject pool. Students completed an online background questionnaire a week before participating in the experiment. At the scheduled experimental session participants were randomly assigned to groups of four members to complete the experimental tasks. Overall 184 participants (46 groups of four) completed the experiment. A majority of the participants were female (64%) and Caucasian (55%), and had an average age of about 24 years. Tables 1 and 2 provide the descriptive statistics for the study's variables at the individual and group-level, respectively. Alpha reliabilities are on the diagonal and although they meet conventional standards (>.70) their relatively lower values may underestimate the true relationship between the study's variables in the population.

2.1.1. Conjunctive task

Participants took part in a modified version of the tower building task (Goldberg & Maccoby, 1965), which has been successfully used in group experiments to model interdependence (e.g., Dirks, 1999; Mitchell & Silver, 1990). This task is conjunctive because the weakest group member most significantly affects the performance on the task. For example, if one member is consistently

careless the group's performance will decrease, even if the other group members are performing at their best. The task is also highly interdependent; for instance, a decision to add one more block to the tower might cause the tower to collapse and adversely affect the group's performance.

In the tower building task, participants worked together to build a single tower of blocks. Participants sat on two-sides of a rectangular table behind a line where 16 1-inch square wooden blocks were placed. A black 3×3-inch square was taped in the middle of the table equidistant from each subject. Participants built their team-tower on top of that area. Participants were informed that they would be paid based on their group performance. For each block in the tower the group received $0.08. If the group had at least 14 blocks in the tower, it received a $1.60 bonus. Participants had 10 team trials of tower building and their performance was aggregated across these 10 trials.

2.1.2. Additive task

In additive tasks the group's success depends on the sum of individual members' outputs even though the task itself is not interdependent (e.g., Bass, 1980; Steiner, 1972). A jigsaw puzzle represents a classic additive task in that group members' individual performance can be aggregated to create a measure of group performance. Accordingly, we used a children's jigsaw puzzle of 100 pieces (see Buehler, Messervey, & Griffin, 2005 for a similar task). For the jigsaw puzzle task, participants were given 5 min to complete as many pieces of the jigsaw puzzle as possible. Only pieces that were connected to at least 2 other pieces were counted. For each connected piece, the group received $0.10. Before beginning the task participants were given 30 s to plan.

2.2. Measures

2.2.1. Dependent variables
2.2.1.1. Group performance. Performance on the conjunctive task was calculated as the total number of blocks the group contributed over the ten trials. On average, groups built 127 blocks across the ten trials. Performance on the additive task was calculated as the total number of connected puzzle pieces completed by the group. On average, groups connected 40 pieces.

2.2.2. Independent variables
2.2.2.1. Personality measures. Participants completed the revised NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The NEO-FFI includes 60 items, 12 for each personality trait. Alpha reliabilities for each trait are noted in Table 1. We used the variance of extraversion at the group level as an indicator of variability of group extraversion. Minimum (maximum) score was calculated as the lowest (highest) score within the group for each personality trait (see Neuman, Wagner, & Christiansen, 1999 for a similar approach).

2.2.3. Control variables
We included the demographic variables of sex (female = 1), race (non-white = 1), and age. We also used the Wonderlic Cognitive Ability Test (Wonderlic, 1999) to control for cognitive ability because it is considered as one of the best predictors of performance across a range of jobs (Hunter & Hunter, 1984; Morgeson et al., 2007; Schmidt & Hunter, 1998; Tracey, Sturman, & Tews, 2007). The Wonderlic Cognitive Ability Test has been widely used in numerous studies and is a validated measure of cognitive ability (e.g., Bell, Matthews, Lassiter, & Leverett, 2002).

Table 1
Descriptive statistics and correlations of the study's variables, individual-level ($N = 184$).

		Mean	SD	1	2	3	4	5	6	7	8	9
1	Female	.64	.48	–								
2	Non-white	.45	.50	−.14†	–							
3	Age	24.11	8.13	−.02	−.13†	–						
4	Cognitive ability	28.89	5.82	.10	−.26**	−.01	–					
5	Agreeableness	3.61	.52	.33**	−.13†	.22**	.04	**.77**				
6	Openness to experience	3.49	.56	.01	−.16*	.08	.06	.14†	**.75**			
7	Extraversion	3.50	.55	.04	−.15*	−.08	−.03	.32**	.12	**.81**		
8	Conscientiousness	3.76	.53	.10	−.15*	.08	−.01	.17*	−.14†	.24**	**.82**	
9	Neuroticism	2.64	.66	.16*	.18*	−.13†	−.10	−.15*	.06	−.37**	−.45**	**.79**

Alpha reliabilities in diagonal; Female = 1, Male = 0; Non-white = 1, white = 0.

* $p < .05$.
** $p < .01$.
† $p < .10$.

Table 2
Descriptive statistics and correlations of the study's variables, group-level ($N = 46$).

		Mean	SD	1	2	3	4	5
1	Performance conjunctive task	126.98	19.41	–				
2	Performance additive task	39.67	11.89	−.04	–			
3	Variance extraversion	.30	.23	−.00	.30*	–		
4	Minimum agreeableness	3.00	.42	−.09	−.03	.07	–	
5	Minimum conscientiousness	3.18	.38	−.32*	−.14	−.18	.08	–
6	Maximum neuroticism	4.02	.37	−.35*	−.00	.15	−.08	.28†

* $p < .05$.
† $p < .10$.

3. Results

[Table 3](#) presents the results of the ordinary least squares regression. Given that group members would be exposed to the same experimental manipulation, we accounted for heterogeneous error terms within groups and independent error terms between groups through clustered robust standard errors (Everitt, Landau, Leese, & Stahl, 2011). For each model both performance measures were regressed on the control variables (Model 1) and the relevant personality composition measure (Model 2). Supporting Hypothesis 1, an increase of one standard deviation of the group extraversion was related to an increase of 15.57 ($p < .01$) jigsaw puzzle pieces connected (Model 2, [Table 3](#)). The variance explained by the model increased significantly by 8.7% ($p < .01$). For the conjunctive task, no significant effect was observed for variability in extraversion (Model 2, [Table 3](#)). Collectively, the results support the hypothesis that variability in extraversion is positively related to performance of groups performing additive tasks, but not that of groups performing conjunctive tasks.

We did not find support for Hypothesis 2. On the contrary, we found that a minimum score in conscientious was negatively related to group performance in the conjunctive task (Model 3, [Table 3](#)). As expected conscientiousness minimum score was not related to group performance in the additive task.

Supporting Hypothesis 3, an increase of one unit of the neuroticism maximum score was related to a decrease of 17.50 blocks in the group tower ($p < .05$). The variance explained by the model increased by 10.1% ($p < .01$; Model 4, [Table 3](#)). For the additive task, we did not observe any significant effect for the neuroticism maximum score. Collectively, the results support the hypothesis that maximum score of neuroticism is negatively related to performance of groups working on conjunctive tasks, but not that of groups working on additive tasks. Finally, although we did not find support for Hypothesis 4, as expected, agreeableness minimum score was not related to group performance in the additive task (Model 5, [Table 3](#)).

4. Discussion

Organizational performance is increasingly contingent upon the teams within it as well as team members' collective effort to perform tasks. However, knowledge pertaining to the strategic development of teams whose composition maximizes performance in particular tasks is limited. Therefore, the primary theoretical contribution of this study is that it delineates the interplay of group personality composition and task characteristics of interdependence and additivity in influencing group performance. Our findings inform the growing body of research that attempts to theoretically understand the optimal personality composition of a group (e.g., Perry, Dubin, & Witt, 2010). Our results indicate that in tasks requiring different skills and low interdependence between group members, variance in extraversion will be related to better group performance, whereas in tasks that are characterized by high level of interdependence maximum level of neuroticism will be related to lower group performance.

Another contribution of the current study is its design and the use of monetary incentives. Notably, our findings are based on an experimental design that included monetary incentives for group performance. This is pertinent because Bell (2007) meta-analytic results showed that personality composition effects on performance were much stronger in field studies than in experimental studies. Our results provide an explanation for this intriguing finding: in the absence of performance incentives it is possible that personality composition effects are dampened because the need to let one's "true personality" come forth is weakened. Thus, the use of two distinct tasks coupled with monetary incentives for performance enhances internal validity of this study, and also facilitates external validity.

The study's theoretical contributions also raise opportunity for practical application. For example, managers assessing personality composition may find it useful to also assess the kind of task they are requesting of their team(s). Managers can, then, choose to take one of two routes. First, they can assign tasks to teams based on the

Table 3
Ordinary Least Squares Regression results for group performance.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Additive task	Conjunctive task	Additive task	Conjunctive task	Additive task	Conjunctive task	Additive task	Conjunctive task	Additive task	Conjunctive task
Female	.88	4.03	.47	4.07	.93	4.20	.74	1.32	.98	4.70
Non-white	−3.21	5.71[*]	−3.71[†]	5.77[*]	−3.17	5.86[*]	−3.35	2.93	−3.16	6.00[*]
Age	−.11	.02	−.10	.02	−.09	.14	−.11	.03	−.11	.05
Cognitive ability	.19	.23	.11	.23	.19	.21	.19	.24	.19	.22
Variance extraversion			15.57[**]	−1.71						
Minimum conscientiousness					−4.17	−17.18[*]				
Maximum neuroticism							−.90	−17.50[*]		
Minimum agreeableness									−.74	−5.11
Constant	37.86[**]	114.78[**]	35.37[**]	115.05	50.50[**]	166.95[**]	36.20[**]	82.69[**]	39.92[**]	129.05[**]
R-squared	.041	.028	.128[**]	.029	.058	.136[**]	.041	.129[**]	.041	.040
ΔR-Squared[a]	–	–	.087[**]	.001	.017	.108[**]	.000	.101[**]	.000	.012

Estimates based on robust standard errors.

[a] Change in R-squared compared to Model 1.

[*] $p < .05$.

[**] $p < .01$.

[†] $p < .10$.

type of task and the composition of existing teams. Second, given the increasingly dynamic nature of organizations, managers might find that re-arranging teams to match the task is more effective.

Nevertheless, the study's experimental design presents a limitation because findings do not directly generalize to organizational settings. Future research can explore the role of group personality composition through field studies where employees' work tasks are not limited in their time and scope. More specifically, a longitudinal investigation would offer interesting insights into how time plays a role in the relationship between organizational teams' performance and personality composition. This is relevant because important factors of the team (e.g. team learning, behavioral integration, and transactive memory) allow for the team to evolve over time (Mathieu, Maynard, Rapp, & Gilson, 2008). These factors, in turn, can influence the group personality composition – team performance relationship.

Additionally, the conjunctive task may be best suited for teams of three members and not four members, which may also explain the negative relationship between minimum conscientiousness score and group performance. Perhaps teams with a member with a very low conscientiousness score (i.e., a participant who did not actively engage in the task) performed better because coordination between the three members of the group was more effective than coordination in four-member groups where all individuals participated in the task. Furthermore, the cognitive ability of the workgroup and its interaction with group-personality in influencing group-performance also deserves investigation. Collectively, the interplay of group size, group personality, group cognitive ability, and task characteristics constitute important questions for future research.

References

Anderson, M. H. (2009). The role of group personality composition in the emergence of task and relationship conflict within groups. *Journal of Management and Organization, 15*, 82–96.

Barrick, M. R., & Mount, M. K. (2006). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1–26.

Barrick, M. R., Stewart, G. L., Neubert, M. J., & Mount, M. K. (1998). Relating member ability and personality to work-team processes and team effectiveness. *Journal of Applied Psychology, 83*, 377–391.

Barry, B., & Stewart, G. L. (1997). Composition, process, and performance in self-managed groups: The role of personality. *Journal of Applied Psychology, 82*, 62–78.

Bass, B. M. (1980). Team productivity and individual member competence. *Small Group Research, 11*, 431–504.

Bell, S. (2007). Deep-level composition variables as predictors of team performance: A meta-analysis. *Journal of Applied Psychology, 92*, 595–615.

Bell, N. L., Matthews, T. D., Lassiter, K. S., & Leverett, J. P. (2002). Validity of the wonderlic personnel test as a measure of fluid or crystallized intelligence: Implications for career assessment. *North American Journal of Psychology, 4*, 113–120.

Bono, J. E., Boles, T. L., Judge, T. A., & Lauver, K. J. (2002). The role of personality in task and relationship conflict. *Journal of Personality, 70*, 311–344.

Bradley, B. H., Klotz, A. C., Postlethwaite, B. E., & Brown, K. G. (2013). Ready to rumble: How team personality composition and task conflict interact to improve performance. *Journal of Applied Psychology, 98*, 385–392.

Buehler, R., Messervey, D., & Griffin, D. (2005). Collaborative planning and prediction: Does group discussion affect optimistic biases in time estimation? *Organizational Behavior and Human Decision Processes, 97*, 47–63.

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Costa, P. T., Jr., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences, 13*, 653–665.

Dirks, K. T. (1999). The effects of interpersonal trust on work group performance. *Journal of Applied Psychology, 84*, 445–455.

Everitt, B. S., Landau, S., Leese, M., & Stahl, D. (2011). *Cluster analysis*. Chichester: Wiley.

Goffin, R. D., Rothstein, M. G., Rieder, M. J., Poole, A., Krajewski, H. T., & Powell, D. M. (2011). Choosing job-related personality traits: Developing valid personality-oriented job analysis. *Personality and Individual Differences, 51*(5), 646–651.

Goldberg, M. H., & Maccoby, E. E. (1965). Children's acquisition of skill in performing a group task under two conditions of group formation. *Journal of Personality and Social Psychology, 2*, 898–902.

Halfhill, T. R., Nielson, T. M., Sundstrom, E., & Weilbaecher, A. (2005). Group personality composition and performance in military service teams. *Military Psychology, 17*, 41–54.

Homan, A. C., Hollenbeck, J. R., Humphrey, S. E., Van Knippenberg, D., Ilgen, D. R., & Van Kleef, G. A. (2008). Facing differences with an open mind: Openness to experience, salience of intragroup differences, and performance of diverse work groups. *Academy of Management Journal, 51*, 1204–1222.

Humphrey, S. E., Hollenbeck, J. R., Meyer, C. J., & Ilgen, D. R. (2007). Trait configurations in self-managed teams: A conceptual examination of the use of seeding for maximizing and minimizing trait variance in teams. *Journal of Applied Psychology, 92*, 885–892.

Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin, 96*, 72–98.

Klimoski, R. J., & Zukin, L. B. (1999). *Selection and staffing for team effectiveness. Supporting work team effectiveness*. San-Francisco: Jossey-Bass (pp. 63–94). San-Francisco: Jossey-Bass.

LePine, J. A., Buckman, B. R., Crawford, E. R., & Methot, J. R. (2011). A review of research on personality in teams: Accounting for pathways spanning levels of theory and analysis. *Human Resource Management Review, 21*, 311–330.

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997–2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*(3), 410–476.

Mitchell, T. R., & Silver, W. W. (1990). Individual and group goals when workers are interdependent: Effects on task strategies and performance. *Journal of Applied Psychology, 75*, 185–193.

Mohammed, S., & Angell, L. C. (2003). Personality heterogeneity in teams: Which differences make a difference for team performance? *Small Group Research, 34*, 651–677.

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K., & Schmitt, N. (2007). Reconsidering the use of personality tests in personnel selection contexts. *Personnel Psychology, 60*, 683–729.

Neuman, G. A., Wagner, S. H., & Christiansen, N. D. (1999). The relationship between work-team personality composition and the job performance of teams. *Group and Organization Management, 24*, 28–46.

Perry, S. J., Dubin, D. F., & Witt, L. A. (2010). The interactive effect of extraversion and extraversion dissimilarity on exhaustion in customer-service employees: A test of asymmetry hypothesis. *Personality and Individual Differences, 48*, 534–639.

Prewett, M. S., Walvoord, A. A. G., Stilson, F. R. B., Rossi, M. E., & Brannick, M. T. (2009). The team personality – team performance relationship revisited: The impact of criterion choice, pattern of workflow, and method of aggregation. *Human Performance, 22*, 273–296.

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*, 262–274.

Steiner, I. (1972). *Group processes and productivity*. New York: Academic Press.

Tracey, J. B., Sturman, M. C., & Tews, M. J. (2007). Ability versus personality factors that predict employee job performance. *Cornell Hotel and Restaurant Administration Quarterly, 48*, 313–322.

van Vianen, A. E. M., & De Dreu, C. K. W. (2001). Personality in teams: Its relationship to social cohesion, task cohesion, and team performance. *European Journal of Work and Organizational Psychology, 10*, 97–120.

Venkataramani, V., & Dalal, R. S. (2007). Who helps and harms whom? Relational antecedents of interpersonal helping and harming in organizations. *Journal of Applied Psychology, 92*, 952–966.

Wonderlic (1999). *Wonderlic personnel test and scholastic level exam user's manual*. Libertyville, IL: Author.