A theoretical model integrating Schneider’s Attraction Selection Attrition (ASA) framework, group personality composition, and group performance is presented. The proposed model focuses on three operationalizations of group composition based on the Big Five personality traits. This model suggests that for certain types of teams group minimum scores vary more than group mean scores, resulting in more robust predictors of group effectiveness. Results indicate that group minimum agreeableness and conscientiousness correlate positively with supervisor ratings of performance, group average scores correlate positively with performance, and variance of conscientiousness correlate inversely with group performance. Minimum scores for both agreeableness and conscientiousness vary more than mean scores, and teams with increased levels of both agreeableness and conscientiousness receive higher performance ratings than other types of teams. Initial support for the proposed model is presented, practical and research implications are discussed, and future directions for research are suggested.

Keywords: groups; ASA framework; personality

Applications of work teams—interdependent collections of individuals who share responsibility for organizational outcomes (Sundstrom,
DeMeuse, & Futrell, 1990)—in business and industry have increased tremendously in recent years (Lawler, Mohrman, & Ledford, 1998). At the same time, research on work teams has also expanded (Kozlowski & Ilgen, 2006). However, the relationship between group personality composition and work team effectiveness has received relatively less attention, despite suggestions of its potential importance from empirical studies (e.g., Campion, Medsker, & Higgs, 1993; Campion, Papper, & Medsker, 1996) and research reviews (Cohen & Bailey, 1997; Nielsen, Sundstrom, & Halfhill, 2005; Sundstrom, McIntyre, Halfhill, & Richards, 2000).

As recently as 20 years ago, only general advice could be found on group composition. When staffing teams, Hackman and Oldham (1980) suggested to (a) include members who have high levels of task-relevant expertise, (b) staff the team with just the right amount of people, (c) include at least a moderate level of interpersonal skill, and (d) attempt to achieve balance between homogeneity and heterogeneity of membership. They added, “While it is true that individuals differ in energy level and in how hard they typically work on the job, there is not a great deal that anyone can do about people’s personalities” (p. 173). At that time, it was difficult to find evidence supporting or refuting such statements. However, theory and research on personality and group composition have since made considerable progress, and it is now possible to address staffing issues with more comprehensiveness and specificity.

The emergence of the Big Five personality traits (i.e., emotional stability, extraversion, openness, agreeableness, and conscientiousness; Costa & McCrae, 1992; Digman, 1989) has provided a taxonomy with which to examine the relationship between personality and group performance more effectively. The 5-factor model has provided researchers with a common language when addressing personality as a key variable of study (Barrick & Mount, 1991; Hurtz & Donovan, 2000; Tett, Jackson, & Rothstein, 1991). In fact, a review of 90 research studies on work teams published from 1980 to 1999 by Sundstrom and colleagues (2000) identified team members’ conscientiousness as a consistent predictor of group effectiveness (e.g., Neuman, Wagner, & Christiansen, 1999; Neuman & Wright, 1999) highlighting the importance of personality in the prediction of team-level performance. However, this review cited the importance of considering relationships in the context of team type owing to the high degree of task variance across different types of teams.

The classification of different types of work groups aids in understanding team effectiveness in various contexts. Ideally, a taxonomy of work groups uses mutually exclusive and exhaustive categories while maximizing
between-category variance and minimizing within-category variance (Devine, 2002). Some of the first attempts at classification involved differentiating task-oriented groups based on interpersonal relationships (Lundberg, 1940); primary task type (Carter, Haythorn, & Howell, 1950); different variable categories (Roby & Lanzetta, 1958); and group member behavior, required group member behavior, group member ability, and group task characteristics (McGrath & Altman, 1966). Increasing agreement about the major categories of work teams—service, production, project, management, action or performing, and advisory (e.g., Hackman, 1990; Sundstrom et al., 1990)—provides a method for distinguishing team-specific predictors of effectiveness across studies. Cohen and Bailey (1997) concluded from their review that “type of team matters for the determinants of effectiveness” (p. 281). As highlighted by Sundstrom and his colleagues (2000), “One study found autonomy inversely related to performance of project teams (Kim & Lee, 1995), in contrast with studies that found autonomy positively related to performance of service teams (Campion et al., 1993; Cohen et al., 1996; Cohen & Ledford, 1994)” (p. 57). Distinguishing different types of teams helps our understanding of team-specific relationships.

The taxonomies of personality and team type just described offer researchers common elements with which to study relationships among group composition and effectiveness.

**Organizing Framework**

**The Attraction–Selection–Attrition (ASA) Framework and Group Personality**

The ASA framework (Schneider, 1987) was proposed nearly two decades ago and is explicitly aimed at organizational effectiveness, not group effectiveness. The ASA framework suggests the homogeneity hypothesis, which states that individuals within the same organization should have personalities more similar than individuals from different organizations. Recent research has examined the ASA framework at multiple levels of analysis (Giberson, Resick, & Dickson, 2005; Ployhart, Weekley, & Baughman, 2006).

Ployhart and colleagues (2006) found that personality composition operates hierarchically such that it emerges more strongly at the individual level of analysis. In addition, they found emotional stability, agreeableness,
conscientiousness, and extraversion (4 of the 5 factors in the 5-factor model) to be significantly related to satisfaction and performance both at the individual and job level. Results from Giberson et al. (2005) demonstrated the homogeneity of personality and values across levels of analysis and the congruence of leadership and organizational personality. The ASA framework offers important insights that seem applicable to further our understanding of the relationship between group personality and performance.

Regarding individual personality and values, the ASA framework proposes that similar types of individuals are attracted or recruited, selected, and dismissed or retained by organizations. Dissimilar individuals who are selected may leave eventually. As described above, this can result in personality homogenization, which is troublesome from an employee selection standpoint considering that most personality measures are not designed to make subtle distinctions among people who are relatively similar to begin with (Schneider, 1987).

If organizations are range restricted for personality variables as Giberson, Ployhart, and their colleagues suggest, the teams within them may represent a similar level of range restriction. That is, similar types of individuals will be attracted or recruited, selected, and retained by work teams. This contention is supported by previous research that has found strong evidence for the homogeneity of personality at higher levels of analysis (Giberson et al., 2005; Ployhart et al., 2006). Range restriction in group mean scores may reduce correlations between mean group personality scores and group performance. Minimum scores may provide more between-group variance than mean scores thus avoiding problems associated with range restriction and regression to the mean. We suggest that minimum scores will likely result in less restricted correlations with group performance. Several studies have included multiple operationalizations of personality while examining the possible impact of group composition.

**Group Minimum and Group Variance Scores**

Barrick, Stewart, Neubert, and Mount (1998) surveyed 51 assembly and fabrication teams from 4 organizations. They operationalized personality as group mean, group variance, minimum, and maximum scores across the Big Five traits. Social cohesion served as a process variable, and group effectiveness criteria included measures of team viability and supervisory ratings of team performance. Although many of the relationships were significant, agreeableness and extraversion were consistently related to group cohesion and conscientiousness to group performance. Among the many novel findings
of this study, the inverse relationship between variance in team member conscientious scores and group performance was particularly interesting. That is, the more variability on this trait, the poorer the group’s performance.

Neuman et al. (1999) studied 82, four-person teams in a large retailing organization with stores located across the United States. The authors use the terms team personality elevation (TPE) and team personality diversity (TPD) to refer to the mean and variance operationalizations of agreeableness and conscientiousness. The final group effectiveness measure was a composite of two ratings of team performance. The first rating was based on the number of customer complaints the teams received over a 1-month period, and the second rating was based on the number of days the teams completed work on time over a 1-month period. Mean scores of agreeableness and conscientiousness were related to performance, whereas variance of extraversion and emotional stability were found to be related to team performance.

Neuman and Wright (1999) studied 79, four-person, human resource work teams from a large wholesale department store organization. These teams were structured to maximize interaction and interdependence. Each team member was responsible for a different phase of the work process but shared the responsibilities of payroll and benefit tasks. A bonus, equivalent to 25% of employees’ salary, could be earned on the basis of team performance. Teams had been together for 3 years at the time of data collection. Agreeableness and conscientiousness were operationalized as the group minimum score. Group effectiveness criteria included archival records of work completed and work accuracy as well as supervisor ratings of group performance. In addition, a peer-rating measure of individual team member effectiveness was factored into two subscales—task performance (overall performance, problem solving, work procedures, and planning) and interpersonal skills (conflict resolution and team communication). Findings indicated that extraversion and emotional stability were not related to accuracy, work completed, or interpersonal skills. Conscientiousness was related to task performance and accuracy, whereas agreeableness was related to task performance, interpersonal skills, and work completed.

Group effectiveness criteria have demonstrated positive correlations with group minimum conscientiousness (Barrick et al., 1998; Neuman & Wright, 1999), agreeableness (Barrick et al., 1998; Neuman & Wright, 1999), and extraversion (Barrick et al., 1998). The group minimum score has also demonstrated positive correlations with group effectiveness criteria across different types of teams, for example, production (Barrick et al., 1998) and service (Neuman & Wright, 1999).
In addition to the empirical support listed above, conceptual and statistical arguments may be made for using the minimum score. Conceptually, group members may hold that minimum levels of a construct are important to maintain within their group, similar to a group norm floor. Statistically, if organizations are range restricted for certain personality traits, group mean scores are likely more range restricted than group minimum scores.

Similar logic can be applied to the variance of group traits. When extended to the group level, the ASA framework would hold that groups are range restricted for certain personality variables, that is, groups homogenize around a core set of personality variables (Ployhart et al., 2006). This homogenization process allows groups to establish and maintain norms that support the accomplishment of essential tasks that are aligned with the strategic goals of the organization.

Integrative Model

Figure 1 represents the integration of the ASA framework applied to groups with the mean, minimum, and variance operationalizations of group personality. Groups develop norms around important behaviors. Poorer performance may result as the variance of important traits or behaviors increases and groups’ minimum scores deviate from the group mean. Average group scores should drive potential performance, and group variance and minimum scores should drive the groups’ potential for process losses.

The Present Study

This study focuses on two key personality variables: agreeableness and conscientiousness in military (action or performing) teams. Agreeableness and conscientiousness are believed to be important traits related to group effectiveness, in part because of their task and interpersonal connotations (Halfhill, Nielsen, Sundstrom, & Weilbaecher, 2005). The notion of a task and interpersonal dichotomy in group functioning is well established in the group performance literature (Bales, 1955, 1958; Hollander, 1958, 1961) as well as the group norms literature (Feldman, 1984). Working in a group setting involves the personal interaction of team members and puts a premium on their interpersonal skill. However, we do not equate the interpersonal nature of team work with the interdependence of a group’s task. Task interdependence may vary from task to task, but the interpersonal nature of teamwork remains relatively constant. We contend that effective team
members possess the interpersonal skills necessary to get along with other team members over time and the requisite task orientation to accomplish the group’s work. The personality traits of agreeableness and conscientiousness represent the interpersonal and task orientations necessary for effective group performance in action or performing teams.

Studies involving group personality and effectiveness (e.g., Barrick et al., 1998; Neuman et al., 1999; Neuman & Wright, 1999) indicate that relationships exist between mean and minimum levels of personality and group effectiveness. The relationships were found almost exclusively in service and production teams. We hypothesize that the findings generalize to action or performing teams.

**Hypothesis 1:** Group performance correlates positively with group average and minimum levels of group agreeableness.

**Hypothesis 2:** Group performance correlates positively with group average and minimum levels of group conscientiousness.

A recent review of the group personality composition literature (Halfhill, Sundstrom, Lahner, Calderone, & Nielsen, 2005) found that
group variance in personality traits often correlated negatively with group outcomes, such as cohesion and performance (see Barrick et al., 1998). It is possible that the traits an organization is most range restricted for are the same traits that will correlate negatively with group performance when group variance is high. However, variance in personality traits does not always correlate negatively with group performance. Perhaps traits not deemed as essential for accomplishing group tasks do not correlate negatively with group performance. Pronounced individual differences in nonessential traits might be annoying, but group outcomes are not likely to be affected.

For the infantry teams in this sample, conscientiousness is perhaps the most important trait (attention to detail, dependability, and reliability). Although agreeableness likely aids in the prediction of group performance, it may not be considered essential by group members or supervisors, especially if there is a high degree of task specialization, as is the case with the teams included in this study. Thus, we predict that variance in group conscientiousness will negatively influence group performance, whereas variance in group agreeableness will not.

**Hypothesis 3:** Variability in conscientiousness is more negatively related to group performance compared to variability in agreeableness.

Standard measures of personality are designed to make meaningful distinctions among individuals within the population at large. They are not designed to make distinctions among groups of individuals clustered at any given point in a distribution. The ASA process may result in range-restricted mean scores and thus reduce correlations between mean group personality scores and group performance. The group minimum score may provide more between-group variance than the mean score. Thus, group minimum scores provide more variance than group mean scores.

**Hypothesis 4:** Group minimum conscientiousness scores vary more than group mean conscientiousness scores.

**Hypothesis 5:** Group minimum agreeableness scores vary more than group mean agreeableness scores.

Furthermore, because both the task (conscientiousness) and interpersonal (agreeableness) traits associated with group work are expected to correlate positively with group effectiveness, we hypothesize that groups high in both agreeableness and conscientiousness will receive higher performance ratings than other types of groups. In other words, agreeableness and
conscientiousness will interact such that the relationship between agreeableness and team performance will increase with higher levels of conscientiousness. This has been described in previous research as a synergy hypothesis (Halfhill et al., 2005). That is, complementary, group-level traits interact to promote group synergy.

**Hypothesis 6:** Groups high in both agreeableness and conscientiousness (group mean score) receive higher performance ratings than other types of groups.

**Hypothesis 7:** Groups high in both agreeableness and conscientiousness (group minimum score) receive higher performance ratings than other types of groups.

The present study seeks to add to the literature on group personality composition and group effectiveness in three ways. First, we introduce group minimum and variance scores into a framework linking personality composition with group effectiveness (see Table 1). Second, we attempt to integrate Schneider’s (1987) ASA framework into a model of group personality composition and effectiveness. Finally, we conduct a field study with action or performing teams, attempting to replicate and extend current findings regarding group personality composition and group performance.

**Method**

**Setting and Participants**

The research setting was an Army National Guard base in the northeastern United States, where two mechanized infantry battalions were conducting 2-week annual training exercises. The organization included more than 700 soldiers who were 98% male, 10% full-time, and 90% enlisted personnel. They were members of infantry teams (action or performing teams) that ranged in size from 3 to 13 soldiers, with an average of 4.35 members each (SD = 2.13).

These teams conduct basic battlefield operations. They are frontline soldiers who are deployed to hostile territory to engage the enemy and conduct related military tasks. Fundamentally, they train as a group to close with and destroy the enemy. As a group, they must be able to target and identify potential threats, neutralize, or destroy enemy combatants and armored vehicles and also perform reconnaissance missions. As a group, they must be trained and become proficient in more than 150 different mission specific tasks.
Survey and rating forms were distributed to approximately 500 individual team members. The research team had a limited window of opportunity for data collection that included access to approximately 65 of the 90 teams in the organization. Three hundred eighty-four surveys and 304 rating forms were returned for response rates of approximately 77% and 61%, respectively. Of these, 166 were matched with an appropriate supervisor rating form to qualify for inclusion in the study, resulting in usable data from 31 teams. Surveys could not be matched for several reasons. Some supervisors did not return performance rating forms. Some teams had

Table 1
Model of Group Personality Composition and Group Effectiveness

<table>
<thead>
<tr>
<th>Personality Variable</th>
<th>Service</th>
<th>Production</th>
<th>Action/Performing</th>
<th>Management</th>
<th>Project</th>
<th>Quality/Parallel</th>
</tr>
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<tbody>
<tr>
<td>Emotional Stability</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>+</td>
<td>N</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>N</td>
</tr>
<tr>
<td>Minimum</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N</td>
</tr>
<tr>
<td>Variance</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Extraversion</td>
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<td></td>
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<tr>
<td>Mean</td>
<td>+</td>
<td>N</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Minimum</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Variance</td>
<td>–</td>
<td>–</td>
<td>N</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Openness</td>
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<tr>
<td>Mean</td>
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<td>N</td>
<td>N</td>
<td>+</td>
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<tr>
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<td>N</td>
<td>N</td>
<td>+</td>
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<tr>
<td>Variance</td>
<td>N</td>
<td>N</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Agreeableness</td>
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<tr>
<td>Mean</td>
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<td>N</td>
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<tr>
<td>Minimum</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N</td>
</tr>
<tr>
<td>Variance</td>
<td>–</td>
<td>–</td>
<td>N</td>
<td>N</td>
<td>–</td>
<td>N</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td></td>
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<tr>
<td>Mean</td>
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<tr>
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<td>Variance</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N</td>
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</tbody>
</table>

Note: + = Increasing collective levels (mean, minimum, or variance) of this trait are associated with increased group performance. – = Increasing collective levels (mean, minimum, or variance) of this trait are associated with decreased group performance. N = Increasing collective levels (mean, minimum, or variance) of this trait are not associated with group performance.

Procedure

Survey and rating forms were distributed to approximately 500 individual team members. The research team had a limited window of opportunity for data collection that included access to approximately 65 of the 90 teams in the organization. Three hundred eighty-four surveys and 304 rating forms were returned for response rates of approximately 77% and 61%, respectively. Of these, 166 were matched with an appropriate supervisor rating form to qualify for inclusion in the study, resulting in usable data from 31 teams. Surveys could not be matched for several reasons. Some supervisors did not return performance rating forms. Some teams had
limited response rates, rendering many surveys useless, and three supervisors failed to identify the team they were rating.

In exchange for a written report of the results, the organization’s leadership agreed to participate in the present study. A member of the leadership team for each battalion was appointed as a project liaison. Researchers and liaisons distributed survey packets to participants, who completed surveys immediately following a training session unrelated to this study. Instructions to supervisors as well as survey instructions stated that participation was voluntary. To maintain confidentiality, participants returned the completed surveys and rating forms either to the liaison or directly to the researcher. Participants were informed that consent was implicit through participation. Participants were told that the purpose of the study was to gain insight into the link between team personality composition and team performance and that the organization’s leadership would benefit by having a better understanding of how to organize military teams in the future. Researchers then matched inventories by name and department with a supervisor rating form for each individual.

**Measures**

*Conscientiousness.* The conscientiousness scale consisted of 12 items. Participants responded to scale items with a 5-point Likert-type format (1 = disagree strongly, 5 = agree strongly). Due to time constraints imposed by the unit leadership, subsets of scales from the NEO-PIR, 16 PF, and Jackson PI-R were included (Cattell & Cattell, 1995; Costa & McCrae,

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Table 2

<table>
<thead>
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<th>1</th>
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<td>6. Minimum conscientiousness</td>
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<td>.82</td>
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<td>7. Minimum agreeableness</td>
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<td>.28</td>
<td>-.25</td>
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<td>.50</td>
<td>.59</td>
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<td>8. Variance conscientiousness</td>
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<td>-.03</td>
<td>.10</td>
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<td>-.21</td>
<td>-.69</td>
<td>-.38</td>
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<tr>
<td>9. Variance agreeableness</td>
<td>-.24</td>
<td>.26</td>
<td>.26</td>
<td>-.05</td>
<td>-.05</td>
<td>-.32</td>
<td>-.78</td>
<td>.36</td>
<td></td>
</tr>
</tbody>
</table>

Note: \(N = 31\) teams.

*p < .05. **p < .01.
Table 3

Group-Level Personality and Performance Correlations.

<table>
<thead>
<tr>
<th>Operationalization</th>
<th>Mean</th>
<th>Minimum</th>
<th>Variance</th>
<th>Mean</th>
<th>Minimum</th>
<th>Variance</th>
<th>Agreeableness × Conscientiousness</th>
<th>Agreeableness × Conscientiousness</th>
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<td><strong>Performance Category</strong></td>
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<tr>
<td>Aggregate performance(^a)</td>
<td>.32*</td>
<td>.40*</td>
<td>−.24</td>
<td>.27</td>
<td>.39*</td>
<td>−.44**</td>
<td>.36*</td>
<td>.45**</td>
</tr>
<tr>
<td>Ability to learn new skills</td>
<td>.35*</td>
<td>.38*</td>
<td>−.19</td>
<td>.28</td>
<td>.43**</td>
<td>−.44**</td>
<td>.39*</td>
<td>.47**</td>
</tr>
<tr>
<td>Openness to new learning</td>
<td>.28</td>
<td>.37*</td>
<td>−.21</td>
<td>.34*</td>
<td>.46**</td>
<td>−.48**</td>
<td>.40*</td>
<td>.43**</td>
</tr>
<tr>
<td>Flexibility</td>
<td>.26</td>
<td>.30*</td>
<td>−.15</td>
<td>.24</td>
<td>.31*</td>
<td>−.34*</td>
<td>.31*</td>
<td>.36*</td>
</tr>
<tr>
<td>Productivity</td>
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<td>.34*</td>
<td>−.24</td>
<td>.21</td>
<td>.33*</td>
<td>−.41*</td>
<td>.26</td>
<td>.37*</td>
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<td>.37*</td>
<td>.40*</td>
<td>−.21</td>
<td>.24</td>
<td>.35*</td>
<td>−.38*</td>
<td>.37*</td>
<td>.42**</td>
</tr>
<tr>
<td>Quality of work</td>
<td>.34*</td>
<td>.46**</td>
<td>−.30</td>
<td>.24</td>
<td>.38*</td>
<td>−.45**</td>
<td>.36*</td>
<td>.47**</td>
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<tr>
<td>Safety</td>
<td>.33*</td>
<td>.36*</td>
<td>−.15</td>
<td>.26</td>
<td>.38*</td>
<td>−.38*</td>
<td>.36*</td>
<td>.42**</td>
</tr>
<tr>
<td>Teamwork</td>
<td>.32*</td>
<td>.37*</td>
<td>−.24</td>
<td>.20</td>
<td>.32*</td>
<td>−.39*</td>
<td>.31*</td>
<td>.39*</td>
</tr>
<tr>
<td>Relationships with peers</td>
<td>.29</td>
<td>.33*</td>
<td>−.20</td>
<td>.16</td>
<td>.33*</td>
<td>−.41*</td>
<td>.27</td>
<td>.37*</td>
</tr>
<tr>
<td>Performs extra-role duties</td>
<td>.32*</td>
<td>.36*</td>
<td>−.23</td>
<td>.24</td>
<td>.36*</td>
<td>−.44**</td>
<td>.35*</td>
<td>.40*</td>
</tr>
<tr>
<td>Relationships with management</td>
<td>.33*</td>
<td>.45**</td>
<td>−.30</td>
<td>.28</td>
<td>.42**</td>
<td>−.45**</td>
<td>.37*</td>
<td>.49**</td>
</tr>
<tr>
<td>Dependability and reliability</td>
<td>.27</td>
<td>.37*</td>
<td>−.28</td>
<td>.22</td>
<td>.33*</td>
<td>−.41*</td>
<td>.31*</td>
<td>.39*</td>
</tr>
<tr>
<td>Punctuality</td>
<td>.36*</td>
<td>.40*</td>
<td>−.25</td>
<td>.28</td>
<td>.36*</td>
<td>−.36*</td>
<td>.39*</td>
<td>.43**</td>
</tr>
<tr>
<td>Function under stress</td>
<td>.28</td>
<td>.42*</td>
<td>−.25</td>
<td>.32*</td>
<td>.42**</td>
<td>−.45**</td>
<td>.39*</td>
<td>.48**</td>
</tr>
</tbody>
</table>

\(^a\) Sum of all individual performance items aggregated to group level.

\(^*p<.05\). **\(^p<.01\).
1992; Jackson, 1971). The 12-scale items were summed to constitute the conscientiousness variable with a coefficient alpha of .79.

Agreeableness. The agreeableness scale consisted of 10 items. Participants responded to scale items with a 5-point Likert-type format (1 = disagree strongly, 5 = agree strongly). Subsets of scales from the NEO-PIR and 16 PF were modified to reflect an appropriate military context (Cattell & Cattell, 1995; Costa & McCrae, 1992). The 10-scale items were summed to create the agreeableness variable with a coefficient alpha of .70.

Performance. We chose to aggregate individual performance ratings to the group level in this study for four reasons. First, based on previous research with this unit we found that supervisors had difficulty differentiating between high and low performing teams. Most teams, if not all, seemed to meet minimum requirements and were therefore rated as good. Second, because of the voluntary nature of the study, we were not always able to secure surveys from every team member requiring us to eliminate some data. Thus, we felt it important to specifically match performance ratings to only those team members from whom we had personality data. Third, the requisite level of task interdependence is high for these teams. It is impossible for a team to perform well without all of its members cooperating, making an aggregate performance index appropriate for this study. Finally, our hypotheses require a minimum and average group score, necessitating the use of individual performance scores to test hypotheses.

Interviews with members of the organization’s leadership revealed that the organization’s performance rating form did not adequately discriminate individuals’ performance. Because this would limit the findings of the research, it was necessary to develop a rating form that revealed finer differences between soldiers’ performance. Based on structured informational interviews with battalion commanders and staff members, a performance rating form was developed for the purposes of the study.

This variable was assessed using an individual performance rating scale that has demonstrated high coefficient alphas (e.g., > .80) in previous research (Nielsen & Halfhill, 2002). This measure was based on 14 categories, including (a) ability to learn new skills, (b) openness to new learning, (c) flexibility, (d) productivity, (e) motivation, (f) quality of work, (g) safety, (h) teamwork, (i) relationships with peers, (j) extra-role duties performance, (k) relationships with management, (l) dependability and reliability, (m) punctuality, and (n) function under stress. Raters were given behavioral examples for each
category and then asked to rate team members using an 8-point scale. The 8-point response format included, 1 = Performance does not meet, or rarely meets, minimum job standards, 2 = Performance is less than satisfactory in many respects, 3 = Performance is satisfactory in most respects but not all, 4 = Performance is satisfactory in all respects, 5 = Performance is above average but not superior, 6 = Performance is superior in almost all respects, 7 = Performance is definitely superior in all respects, and 8 = Single best performance I have ever observed or even hope to observe. Coefficient alpha for this performance measure was .99, which indicated that the dimensions were not discriminated by raters.

Results

Group-level correlations are reported in Tables 2 and 3. Hypothesis 1 proposed that group performance correlates positively with average and minimum levels of agreeableness. This hypothesis was supported as mean (r = .32, p < .05) and minimum (r = .40, p < .05) levels of agreeableness correlated positively with aggregate performance. Hypothesis 2 stated that group performance correlates positively with mean and minimum levels of conscientiousness. Partial support was found for this hypothesis as mean levels of group conscientiousness did not correlate with group performance but minimum levels did (r = .39, p < .05).

Hypothesis 3 postulated that the variance of group conscientiousness is negatively related to group effectiveness. This hypothesis was supported as group variance correlated negatively with aggregate performance (r = –.44, p < .01). We assumed that the variance of agreeableness would not be related to group performance in this study owing to the type of teams involved. Interestingly, support was found for this assumption. However, a test of the significance of difference between two dependent correlations (Williams, 1959) revealed no significant differences (R = .42, t_{crit} = 2.02).

Hypothesis 4 predicted that group minimum conscientiousness scores would vary more than group mean conscientiousness scores. This hypothesis was supported; the variance of the group mean score was 12.72, whereas the variance of the minimum conscientiousness score was 37.78. A test of the significance of difference between the variances of the two variables (Guilford, 1965) was significant, t(30) = 9.11, p < .001. More between-group variance exists for minimum scores than for mean scores.

Similar to Hypothesis 4, Hypothesis 5 postulated that group minimum agreeableness scores would vary more than group mean agreeableness
scores. This hypothesis was also supported. The variance of the minimum agreeableness score was 15.46, and the variance of the mean agreeableness score was 3.79. The variances differed significantly, \( t(30) = 4.65, p < .001 \).

Hypothesis 6 maintained that groups high in both average agreeableness and conscientiousness would receive higher performance ratings than other types of groups. We tested this hypothesis using moderated hierarchical regression analyses (Aiken & West, 1991). We centered our primary predictors prior to creating the cross-product interaction term. For performance as an outcome variable, we entered agreeableness in Step 1, conscientiousness in Step 2, and the interaction term in Step 3. We failed to find support for this hypothesis as the change in \( R^2 \) was not significant \( (p = .24) \).

Hypothesis 7 proposed that groups with higher levels of minimum agreeableness and conscientiousness scores would receive higher performance ratings than other types of groups. Similar to Hypothesis 6, we tested this hypothesis using moderated hierarchical regression (Aiken & West, 1991). We failed to find support for this hypothesis as the change in \( R^2 \) was not significant \( (p = .18) \).

**Discussion**

Results of this study demonstrated strong support for the majority of hypothesized relationships. Mean and minimum levels of agreeableness were positively related to group performance. Minimum levels of conscientiousness were related to group performance. Minimum scores varied more than mean scores for both agreeableness and conscientiousness.

Mean and minimum levels of agreeableness correlated positively with group performance. This supports previous research by Barrick and his colleagues (1998) who operationalized group personality using mean, variance, minimum, and maximum scores and found strong relationships between multiple operationalizations of group agreeableness and group performance. Our findings also support the work of Neuman and his colleagues (1999), who studied a large retail organization and found significant relationships among group agreeableness and performance. Our work extends the literature in this area by confirming previously established relationship with action teams whose primary duties are far different when compared with the retail, fabrication, and human resource teams studied by Neuman et al., Barrick et al., and Neuman and Wright (1999), respectively. However, further research is needed to further examine relationships among traits that are predictive at the group level. One trend seems apparent:
Agreeableness appears to facilitate group processes with respect to the collaborative nature of group work and is often related to group performance. We expected group mean levels of conscientiousness to be related to group performance but they were not. Several studies have also found mean levels of group conscientiousness unrelated to group performance (e.g., Halflhill, Sundstrom, & Nielsen, 2001). Conceivably, the homogeneity of personality espoused by the ASA framework and confirmed by several very recent research studies (i.e., Hofman & Jones, 2005; Ployhart et al., 2006) was restrictive enough to prohibit our ability to identify a relationship. Although the impact of the ASA process on work teams has received more attention recently, we agree with suggestions of Ployhart and his colleagues (2006) that researchers and practitioners should be cautious of simply assuming that the effects generalize across organizational levels.

Our finding that group minimum levels of conscientiousness correlate positively to group performance generates tentative support for the model proposed in this study. Conscientiousness is an important trait for these teams, and at the group level the mean was range restricted. The group minimum score was less restricted and provided more between-group variance. As a result, the minimum group conscientious score was a more robust predictor of group effectiveness than the group mean score.

Variance of group conscientiousness scores correlated negatively with group performance. This result supports previous research (e.g., Barrick et al., 1998) and extends the finding to action or performing teams. Because this personality trait is highly job relevant in this sample, we proposed that group members might expect other team members to possess minimally acceptable levels of job performance, similar to a norm floor. If the range of scores within a group grows too large, task conflict may arise, negatively influencing group performance. Future research should explore the moderating effects of task and interpersonal conflict on conscientiousness variance and group performance. We were unable to explore this variable owing to time constraints imposed by organizational leadership.

For both agreeableness and conscientiousness, minimum levels were more variable than mean levels. These findings support our model and provide initial support for the idea that group minimum scores are more robust predictors of group effectiveness than group mean scores, for military action teams. These results seem to align with recent findings indicating that organizations are homogeneous on certain personality variables. The $t$ value associated with the variance differences was much higher for conscientiousness than it was for agreeableness indicating a higher level of range restriction or homogeneity for conscientiousness than for agreeableness.
Group levels of agreeableness are important for these teams and related to group performance. It is likely that groups have norms concerning the interpersonal behavior among group members and that agreeableness is essential for that aspect of group functioning. However, where the group’s output is concerned, the norms dealing directly with the group product will be most range restricted. So even in this study where agreeableness does not appear to be an essential trait, it does affect processes and effectiveness, and minimum group levels likely drive the potential for process loss. That is, as the minimum agreeableness score within the group increases, it becomes more likely that the group will avoid a potential process loss because of increased task or interpersonal conflict.

**Limitations**

There are several limitations of this study that deserve mention. First, the small number of teams could be considered a limitation but is relatively common in research conducted at the group level. The size of our sample was consistent with much of the research that has included the examination of work teams. Second, we focused exclusively on military teams comprising primarily of men, which limits the generalizability of our results. For example, our results should not be generalized to project teams working in the pharmaceutical industry or service teams in the retail industry. However, our exclusive focus on military action teams may also contribute to the relevance of our results for teams operating in a military context with the majority of team members being male. Third, we assume a causal direction although the cross-sectional nature of our data prevented us from testing this assumption empirically. It is possible that the opposite of what we predicted is true—high levels of performance influence the development of group conscientiousness and agreeableness. Future research should certainly make attempts to test assumptions of order, at a minimum, by collecting data longitudinally.

The results of this study provide support for the integrative model outlined earlier. Group mean conscientious scores were range restricted, and the minimum score was a more robust predictor of group performance. Group variance scores for conscientious were negatively related to group performance. For group agreeableness and conscientiousness, minimum scores demonstrated significantly more variance than mean scores.

This study contributes several unique findings to the group personality composition literature. First, the ASA model of organizational effectiveness (Schneider, 1987) addresses the impact of personality at the individual and organizational levels. This is one of the first attempts to integrate the ASA
framework with group effectiveness. Second, we extend previous research indicating positive relationships between group personality and performance (e.g., Barrick et al., 1998; Neuman et al., 1999; Neuman & Wright, 1999) to action teams. Third, we contribute to the literature on group composition by focusing on teams in a military context. Although this feature of our study limits generalizability to teams working in nonmilitary contexts, it may be particularly relevant during a time when a number of military teams are actively engaged in ongoing operations around the world.

References


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