

## ABSTRACT

ELLINGTON, JAMES KEMP. Systematic Sources of Variance in Supervisory Job Performance Ratings: A Multilevel Analysis of Between-Rater and Between-Context Variance. (Under the direction of Mark A. Wilson.)

The appraisal of job performance is critical for both the practice of human resource management and organizational research. Furthermore, the most frequently used method for measuring performance is a supervisory rating. Given the prevalence of this method, it is crucial to understand the factors which influence rater behaviors. Recent research has indicated that a large portion of the variance in ratings is idiosyncratic to the rater (Scullen, Mount, & Goff, 2000). However, the nature of this idiosyncratic variance remains unclear. Previous models of appraisal have focused on either the cognitive processes involved, or more recently, the appraisal context. Although this recent focus on contextual issues has shown promise, the extent to which raters are influenced by the context in which they work is unknown. Therefore, the purpose of this research was to contribute to our understanding of supervisory ratings by incorporating a multilevel analytic approach in order to partition the variance between raters from the variance between contexts. This approach allowed for the investigation of several rater and context-level characteristics, in attempt to explain the variance associated with these two sources. More specifically, a conceptual model was proposed in order to examine rater-level variables including rater tendencies for leniency and halo, along with rater opportunities to observe performance. Contextual factors proposed for study included norms for leniency and halo, opportunities to observe performance at the context-level, and the nature of work/activity itself within various contexts. Moreover, this research incorporated a multidimensional performance criterion, in order to provide a more

thorough investigation of the relationships of interest here. Results suggested that the rating context accounted for significant variance in both task and citizenship performance ratings. Furthermore, the rater tendency for leniency explained significant between-rater variation in both criteria. The rater tendency for halo was also significant, however this finding did not recur when analyzing a replication sample of data. At the context-level, the norm for leniency consistently predicted variance in citizenship performance, but was only a significant predictor of task performance in one sample. Finally, although these relationships were not consistent across samples, the nature of work/activity and the contextual norm for halo explained significant between-context variation in citizenship performance ratings. The interpretation and implications of these results are discussed, along with limitations of this research and suggestions for future research.

**SYSTEMATIC SOURCES OF VARIANCE IN SUPERVISORY JOB  
PERFORMANCE RATINGS: A MULTILEVEL ANALYSIS OF  
BETWEEN-RATER AND BETWEEN-CONTEXT VARIANCE**

by  
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## INTRODUCTION

Systematic Sources of Variance in Supervisory Job Performance Ratings:

A Multilevel Analysis of Between-Rater and Between-Context Variance

Job performance has been referred to as, “Perhaps the most important dependent variable in industrial and organizational psychology” (Borman, 2004, p. 238). The appraisal of performance plays an integral role in both organizational research and the practice of human resource management. Practitioners appraise performance in order to inform administrative decisions, evaluate selection and training programs, and develop employees by providing valuable job-related feedback. Researchers are continually attempting to predict job performance, and often include it as a key construct in numerous theories describing various organizational phenomena. Given the importance of appraising performance for so many critical functions, special attention must be paid to the method by which it is measured. “Although job performance has been measured in many ways (e.g., volume of sales, quantity or quality of items produced, absences, number of promotions), the most frequently used measure is a supervisory performance rating” (Scullen et al., 2000, p. 956). Unfortunately, the subjective nature of ratings renders this form of measurement especially vulnerable to various systematic influences, other than the actual performance of the ratee. Therefore, in order to better understand and improve performance ratings, it is necessary to recognize the factors which impact rater behaviors.

From a measurement standpoint, it would obviously be desirable if ratings were completely, or at least predominantly, a reflection of the ratees’ performance. However, recent research has indicated that the variance in ratings associated with the *rater* can be

quite large. Scullen et al. (2000) examined the latent structure of performance ratings, using two large samples of multisource ratings collected for developmental purposes. The variance in each sample was partitioned into five components: the variance associated with the ratee's general level of performance, performance on a specific dimension, the rater's idiosyncratic rating tendencies, the rater's perspective, and random measurement error (Scullen et al., 2000). Results indicated that, "idiosyncratic variance was the largest component of variance for all combinations of rater perspective and performance dimension" (Scullen et al., 2000, p. 966). With regard to supervisor ratings specifically, 51% of the variance was idiosyncratic to the rater in one sample, and 43% in the second (Scullen et al., 2000). While these results are very informative with regard to the amount of variance in ratings associated with the rater, additional research is needed in order to provide insight into the nature of these idiosyncratic effects.

Consequently, the purpose of this research was to contribute to our understanding of supervisory ratings by decomposing the variance due to specific sources, but also by examining the impact of certain factors likely to explain the variation in supervisor rating behaviors. Numerous models have been proposed regarding performance appraisal (e.g., DeCotiis & Petit, 1978; DeNisi, Cafferty, & Meglino, 1984; Ilgen & Feldman, 1983; Judge & Ferris, 1993; Landy & Farr, 1980; Levy & Williams, 2004; Murphy & Cleveland, 1995; Wherry & Bartlett, 1982), focusing on a variety of characteristics associated with scales, ratees, raters, and situations or contexts. The following review provides a brief summary of some of these models, in addition to a discussion of relevant empirical investigations of the variables under study here. Furthermore, a multidimensional performance criterion will be

recommended based on previous theory and research, to provide a more thorough examination of sources of variance in ratings. Conceptual models are presented, and a multilevel analytical approach is recommended for testing the relationships in the models. Finally, research questions and hypotheses are presented for investigation in a sample of performance ratings collected in a large law enforcement agency.

### *Performance Appraisal Models*

Prior to 1980, the majority of performance appraisal research focused on the psychometric properties of various types of rating scales, in addition to rater training for reducing errors and improving observation (Ilgen, Barnes-Farrell, & McKellin, 1993). However, several models published in the late 1970s and early 1980s shifted the focus to the cognitive processes involved in evaluating performance (DeCotiis & Petit, 1978; Landy & Farr, 1980; Wherry & Bartlett, 1982). Although these models were all unique in their own way, the primary concern in each was the processing of information by raters. For example, Wherry and Bartlett (1982) suggested that accurate ratings are a function of three major factors: performance of the ratee, observation of that performance by the rater, and recall of those observations by the rater. Rater biases were purported to influence both the observation and recall of performance, and to consist of a true component, an “areal” bias component (i.e., associated with particular dimensions of performance), and an overall bias component (i.e., general impression). Moreover, 46 theorems and their corresponding corollaries were proposed, aimed at maximizing the true performance component and minimizing the impact of rater biases, environmental influences (i.e., opportunity biases), and error (Wherry & Bartlett, 1982).

While the initial growth of cognitive research in performance appraisal has been credited to these previous models, much of the later research in this area was stimulated as a result of theories proposed by Ilgen and Feldman (1983) and DeNisi et al. (1984). These authors emphasized the importance of the rater's capacity to evaluate, and focused subsequent research on four major processes, summarized by Murphy and Cleveland (1995) as: information acquisition, encoding and mental representation, storage and retrieval of information, and the integration of different pieces or types of information. Ilgen et al. (1993) reviewed the empirical research conducted on the appraisal process during the 1980s, and noted several major contributions of this approach, such as a greater appreciation for the importance of observation in appraisals, and the correction of the commonly held assumption that rater errors were evidence of rating inaccuracy. However, these authors also noted the limited amount of variance accounted for by cognitive processes, suggesting that "this body of research has reached a point of diminishing returns" (Ilgen et al., 1993, p. 362). Furthermore, Ilgen et al. (1993) went on to recommend a shift in focus toward work group and organizational factors, the design of appraisal systems, and "content" rather than process variables.

Murphy and Cleveland (1991; 1995) also called for a new approach to appraisal research, suggesting that a better understanding of performance appraisal might result from a more explicit consideration of the rating context. The organizational environment or context can influence "the judgment process, the rating process, the evaluation process, and the eventual uses of the rating data" (Murphy & Cleveland, 1995, p. 19). A more holistic model of performance appraisal was proposed, including four broad components: the rating context,

the performance judgment, the performance rating, and the evaluation of the appraisal system (Murphy & Cleveland, 1995). Murphy and Cleveland (1995) referred to context as “a complex set of variables that exist in the immediate and distal environment” (p. 407). Contextual variables suggested to be of influence in appraisal were therefore categorized as either proximal or distal variables. Proximal variables were defined as those that “directly impinge upon or influence the rater,” and distal variables as the “intra- and extraorganizational characteristics that influence judgments, ratings, and assessments indirectly” (Murphy & Cleveland, 1995, p. 20). Examples of proximal variables include the rating purpose, interaction between the supervisor and employee, and the nature of the rated task. Distal variables include characteristics such as the organizational structure, climate, and values, and were proposed to impact rater behaviors indirectly through intervening variables such as performance standards, performance dimensions, and the consequences of high versus low ratings (Murphy & Cleveland, 1995). Figure 1 presents a reproduction of Murphy and Cleveland’s (1995) model depicting the effects of proximal versus distal context factors.

Performance appraisal research has since given increased attention to contextual and situational variables. Levy and Williams (2004) reviewed the appraisal literature published between 1995 and 2003, noting several areas of research that investigated contextual influences in appraisal. Although very little research was conducted regarding distal variables, a much larger portion of the recent research included proximal variables such as rater affect (e.g., Bates, 2002; Robbins & DeNisi, 1998; Strauss, Barrick, & Connerley, 2001), rater motivation (Bernardin, Cooke, & Villanova, 2000), rater accountability (e.g.,

Mero, Motowidlo, & Anna, 2003), appraisal reactions (Keeping & Levy, 2000), feedback culture (London & Smither, 2002), appraisal purpose (e.g., Jawahar & Williams, 1997), rater training (e.g., Noonan & Sulsky, 2001), and numerous other topics. Nonetheless, the extent to which the rating environment influences rater behaviors is unclear. In other words, of the large percentage of variance that seems to be idiosyncratic to raters (Scullen et al., 2000), what proportion is due to contextual influences? Furthermore, what contextual characteristics explain this between-context variation?

#### *Multidimensional Performance Domain*

Job performance is regarded by many researchers as being multidimensional and complex (e.g., Austin & Villanova, 1992; Borman & Motowidlo, 1993; Campbell, 1992). Borman and Motowidlo (1993) suggested that the domain of organizational behavior includes not only task activities, but also contextual or citizenship activities such as volunteering, helping, and endorsing organizational objectives. Citizenship performance is defined as, “behaviors that are not directly related to the main task activities but are important because they support the organizational, social, and psychological context that serves as the critical catalyst for tasks to be accomplished” (Borman, 2004, p. 238). Moreover, research has indicated that supervisor ratings of task and citizenship performance behaviors independently contribute to overall performance judgments, suggesting that performance is viewed as multidimensional by supervisors (Motowidlo & Van Scotter, 1994). However, it is unclear whether the variance in performance ratings associated with the rater differs across these two broad types of criteria. In other words, it is possible that raters vary more when rating task behaviors than citizenship behaviors, or vice versa.

Furthermore, the rating context may have a greater influence on ratings of one of these types of performance over the other. Borman (2004) noted that, “Task activities are typically different for different jobs, whereas citizenship activities are similar across jobs” (p. 238). Therefore, it could also be that the importance (i.e., significance for successful job performance) of task behaviors varies across even similar work contexts, but perhaps citizenship performance behaviors are more equally important from context to context. If this were the case one might expect to see greater between-context variance in task performance than citizenship performance. Therefore, in order to better understand appraisal ratings, research investigating sources of variance should examine both types of performance.

#### *Proposed Conceptual Models*

The design of performance appraisal systems which incorporate supervisor ratings are often “nested” designs, where raters evaluate numerous ratees, but do not evaluate the same individuals. This type of data is therefore hierarchical in nature, with ratees being nested within raters. In addition, raters are nested within contexts, creating another level in the hierarchy. The analytical approach utilized in analyzing this type of data should therefore address this hierarchical structure. From a theoretical standpoint this is advantageous if the sources of variance at each level are of particular interest in a study, along with predictors at multiple levels. Additionally, this is also more appropriate from a statistical perspective in that the analytical approach should account for dependencies in the data. For example, the previously reviewed models and empirical research (Scullen et al., 2000) would suggest that an individual’s performance rating is likely to be, at least in part, “dependent” on the

supervisor who produced it, and the context in which it was produced. Analytic approaches that assume observations are independent (e.g., ordinary least squares regression) can lead to erroneous conclusions if there are indeed dependencies in the data. Multilevel models, or hierarchical linear models (HLM), address these issues by explicitly and simultaneously modeling both within and between-group variance (Bryk & Raudenbush, 1992; Hofmann, 1997).

Consequently, this research incorporates a multilevel approach in order to decompose the variance in supervisory task and citizenship performance ratings into two portions: between-rater (within context) and between-context variance. For the purposes of this study, the focus is not on examining between-ratee variance (i.e., ratings were averaged for each supervisor), but rather investigating the relative amounts of variance between raters (level-1) and contexts (level-2), along with the characteristics that explain this variation. The following sections describe proposed conceptual models at each of these two levels of interest. More specifically, a level-1 model presents a set of predictors that are proposed to explain between-rater variance in performance ratings, and a level-2 model suggests predictors of the between-context variance. The variables of interest here are derived from empirical research in addition to the previously reviewed models of performance appraisal, but are not meant to represent all of the possible influential rater and contextual characteristics. It should be noted that, although these conceptual models are depicted separately for ease of presentation, the analysis of the relationships suggested in the models is performed simultaneously (for each set of criterion ratings).

*Between-Rater Model.* Figure 2 presents a graphical depiction of the proposed between-rater model. Several rater-level characteristics are likely to explain variation in performance ratings across raters. First of all, the idiosyncratic tendencies of the individual raters such as leniency and halo are likely sources of variance (Scullen et al., 2000). Leniency refers to “the tendency to give all employees good ratings,” and halo refers to “the failure to discriminate the performance of one individual employee across the different performance dimensions” (Hauenstein, 1998, p. 415). With regard to leniency, Scullen noted that “raters may exhibit a different degree of leniency” (2000, p. 957), thereby introducing an element of variability in “nested” designs. Moreover, raters may also exhibit different degrees of halo. Previous research has indicated that as raters become more familiar with ratees, halo tends to increase (Jacobs & Kozlowski, 1985). Therefore, to the extent that raters vary in familiarity with their respective ratees, raters may correspondingly vary in their tendency for halo. Measures of both leniency and halo have been criticized for their use as criteria indicative of rating *accuracy* (Balzer & Sulsky, 1992; Murphy & Balzer, 1989), however the extent to which these measures serve as predictors of between-rater differences in performance ratings has not been investigated. In other words, rather than viewing leniency and halo as outcomes, it would be useful to have a better understanding of the degree to which “idiosyncratic rater variance” is actually characterized by these widely cited rating tendencies. Furthermore, it would also be informative to examine the relative strength of these tendencies in predicting rater variance in task versus citizenship performance ratings. It is possible that within-rater tendencies for leniency and halo (as commonly

operationalized) will account for differing amounts of between-rater variance in ratings on these two types of criteria.

Another rater-level predictor of interest for the research proposed here concerns the rater's opportunity to observe job performance. The importance of the opportunity to observe pertinent incidents of job behavior has been cited in all of the previously discussed models (DeCotiis & Petit, 1978; DeNisi et al., 1984; Ilgen & Feldman, 1983; Landy & Farr, 1980; Murphy & Cleveland, 1995; Wherry & Bartlett, 1982). Murphy and Cleveland (1995) review several barriers to observation which can inhibit opportunities to observe. For example, demands on supervisors' time, proximity to subordinates, knowledge of the results of behaviors, and relevance of observations can all vary across supervisors within an organization, and therefore create differential opportunities to observe performance. Wherry and Bartlett (1982) proposed that, "Raters will vary in the accuracy of ratings given in direct proportion to the number of previous relevant contacts with the ratee" (p. 532). With regard to empirical evidence, Ilgen et al. (1993) cited two studies indicating positive relationships between measures of rating accuracy and both the amount of time spent observing (Favero & Ilgen, 1989) and the amount of performance observed (Heneman & Wexley, 1983).

Measuring the opportunity to observe performance in field settings can however be difficult. Because it is not easy to determine the actual amount of time spent observing performance (or proximity to ratees, relevance, etc.), a proxy for opportunity to observe is often required. One such proxy can be derived as result of a commonly recommended practice in performance appraisal. More specifically, in order to aid in evaluation, it is frequently suggested that supervisors document specific incidents of performance when

observed (Bernardin & Beatty, 1984; Bernardin & Buckley, 1981; Guion, 1965; Hauenstein, 1998; Wherry & Bartlett, 1982). Raters maintaining behavioral diaries or incident files, as they are often called, have been demonstrated to exhibit lower leniency and halo in ratings, and higher interrater agreement as compared to raters who were not documenting observations (Bernardin & Walter, 1977). Furthermore, raters using structured diary keeping (along with structured recall) have been shown to be better able to discriminate between and within ratees (DeNisi & Peters, 1996). However, it is unclear whether the amount of observations documented influences a rater's behavior. In an organization in which such documentation is a formal aspect of the performance management system, it is reasonable to expect that the number of observations documented reflects the opportunity to observe performance. In other words, raters with greater opportunity, should record a higher number of behavioral observations. If this is the case, one would expect that the average number of behaviors documented for each rater will explain rating variation across raters, for both task and citizenship performance.

*Between-Context Model.* Figure 3 presents a graphical depiction of the proposed between-context model. When referring to the "context of appraisal" several units of analysis may be of influence (Murphy & Cleveland, 1995). Both inter- and intra-organizational contexts such as teams, offices, units, divisions, and departments can impact a variety of outcomes. For example, in large organizations, units or offices are often diverse in location and function. Therefore, when "contexts" represent geographical, functional, or otherwise isolated entities of some kind, the characteristics of these units can create between-context variation. For example, research has demonstrated significant differences between

branch versus main bank offices on job satisfaction, organizational commitment, and job involvement (Clinebell & Shadwick, 2005). In addition, with respect to performance ratings, other research has indicated a strong relationship between unit (i.e., class) climate and student ratings of instructor performance (Murphy et al., 2003). The performance ratings in this study were collected in a large statewide law enforcement organization, broken up into numerous “districts.” Each district, or context, has its own office and is geographically or functionally distinct from the others. Therefore, in this research, the focus is the proportion of variance in supervisor ratings associated with the context in which they work, along with specific characteristics of those contexts.

In addition to the importance of rater tendencies for leniency and halo, these same concepts may be influential at the context level as well. In this case, both leniency and halo may represent norms or standards for evaluating performance in each context. In other words, despite rater training, different norms or standards for “acceptable” performance may develop, creating between-context variation. DeCotiis and Petit (1978) and Murphy and Cleveland (1995) cite the importance of performance standards in evaluation, with the latter referring to standards as intervening variables between distal factors in the environment and rater behaviors (refer again to Figure 1). Even when dealing with a single organization, if units or districts are distinct as is the case here, it is likely that norms determining what behaviors constitute poor, average, or excellent performance will impact the ratings provided by the supervisors working in those contexts. Murphy and Cleveland (1995) review research on norms suggesting that four mechanisms are likely to influence the development of performance standards: direct communication, observation of reference groups, direct

experience, and extension of values, attitudes, and beliefs from other domains. Given the geographical or functional distinction of contexts within a large organization, each of these four may serve to create diverse standards across contexts. With respect to leniency, a greater distance between the average rating and scale midpoint for a given context versus another may be indicative of a different standard. Furthermore, halo (i.e., low variance in ratings) at the context level may represent a norm for letting general impressions guide ratings, and thereby failing to discriminate between dimensions of performance. For example, if leadership in a particular district implicitly or explicitly suggests that “hard workers” get all high ratings, or conversely that “lazy people” get all poor or average ratings (regardless of actual variation in performance across dimensions), a norm of low variance may then develop among supervisors in such a context. Both leniency and halo at the context level could also differentially impact task versus citizenship performance ratings. For example, if standards for one type of performance versus another vary across contexts, then the contextual norm for leniency may vary in its impact on ratings across the two criteria. In addition, the norm for failing to discriminate among more specific dimensions of performance may show a stronger relationship for task or citizenship performance.

The opportunity to observe performance is also likely relevant at the context level as well. The before mentioned barriers to observation (i.e., time, proximity, knowledge of results, and relevance) are likely in many ways due to the context in which the rater works. For instance, the degree to which raters have time to supervise may vary across contexts. For environments in which supervisors are particularly busy, there may be fewer occasions for supervisors to observe their respective ratees performing relevant behaviors, in which case

they may be forced to rely more on the consequences of behaviors (i.e., knowledge of results), or second-hand information. Furthermore, within a large organization, contexts such as offices or units could be expected to differ in the proximity of raters to ratees. In some cases, supervisors work directly with their subordinates, and in others there may be much less direct interaction. Wherry and Bartlett (1982) proposed that supervisors working in close proximity with their employees would provide more accurate ratings. Therefore, as intra-organizational contexts vary in these barriers, they would correspondingly vary in the opportunities for the raters in those contexts to observe their respective ratees performance. In districts with less opportunity, one could expect a fewer number of behavioral observations documented by the supervisors in that district. Consequently, the average number of observations documented within contexts, should predict between-context variance in task and citizenship performance ratings.

The final predictor of interest at the context level concerns the nature of the work or activity itself across contexts. Even in a single organization, with individuals holding the same basic job title, the importance of the various behaviors required to perform one's job is likely to vary from one context to the next. Both environmental factors along with the function of a particular unit or district influence the significance of the specific dimensions of performance required in that district. For example, in the law enforcement organization under study here, some work contexts are highly populated areas with major interstates, and others are much less densely populated with only smaller state roads and highways. Hence, the importance of a task performance dimension such as "preventive patrol" (i.e., observing roads for violations, responding to requests for assistance, assisting with incidents, etc.) may

vary across these contexts due to these environmental factors. Furthermore, the significance of various behaviors would also be different in a unit whose function is training, versus a unit in special operations. The nature of work across contexts may also differentially impact task and citizenship performance. As mentioned previously, task activities are expected to differ across jobs, while citizenship behaviors should be more similar (Borman, 2004). However, even when individuals hold the same basic job, contextual variation in the requirement for certain behaviors should also lead to differences in task performance across contexts, whereas citizenship performance should be more constant. In the organization of interest here, three contextual variables in particular were expected to differ across districts: number of accidents investigated, number of cases made (i.e., the number of cases brought to court), and the number of calls for service. These three contextual variables reflect not only the population density and presence of a major interstate (or lack thereof), but also the function of each district. Therefore, it is expected that within context variation in these three variables will predict between-context variation in ratings.

In summary, although previous empirical research has demonstrated that a large portion of variance in performance ratings is idiosyncratic to the rater (Scullen et al., 2000), the factors which explain this variation are unclear. Widely cited rater tendencies (i.e., leniency and halo) have been studied extensively as outcomes, however have not been examined as predictors of between-rater variance in ratings in order to determine the extent to which these tendencies are actually “driving” rater differences. Furthermore, previous models (e.g., DeCotiis & Petit, 1978; DeNisi et al., 1984; Ilgen & Feldman, 1983; Landy & Farr, 1980; Wherry & Bartlett, 1982) and research (e.g., Favero & Ilgen, 1989; Heneman &

Wexley, 1983) have stressed the importance of the opportunity to observe performance, but the degree to which rater observation opportunities explain between-rater differences in ratings is unknown. Recent models (Murphy & Cleveland, 1995) and calls for research (Levy & Williams, 2004) have appealed for a more explicit incorporation of appraisal context in research, nevertheless the extent to which context is impacting idiosyncratic rater variance also remains to be investigated. Partitioning this variance due to context then allows for an analysis of contextual characteristics likely to explain between-context differences in ratings. Given the importance of performance standards or norms (DeCotiis & Petit, 1978; Murphy & Cleveland, 1995), it would be informative to examine context-level leniency and halo in their prediction of variance across work contexts. In addition, it would also be useful to know the extent to which opportunities to observe performance and the nature of work explain rating differences from context to context. Finally, all the aforementioned relationships should be investigated with respect to the multidimensional nature of job performance. Both theory (Borman & Motowidlo, 1993) and research (Motowidlo & Van Scotter, 1994) suggest that task and citizenship performance are distinct, therefore studying both of these broad types of job behavior should provide a more thorough investigation of the relationships of interest here.

### *Research Questions and Hypotheses*

With these issues in mind, the purpose of this research was to explore the relationships depicted in Figures 2 and 3, in a sample from a large law enforcement agency. A multilevel analytical approach was employed in order to address research questions and hypotheses regarding both between-rater and between-context variation on two different

performance criteria. Ratee task and citizenship performance ratings (operationalization described in Method section) were averaged for each rater, as ratee level performance was not the focus of this study. Staged multilevel analyses were conducted on each set of criterion scores, in order to address the following questions and hypotheses. First, what proportion of the variance in task and citizenship performance resides between raters (within contexts), and what proportion resides between-contexts? Although no prediction was made with respect to the relative amounts of variance, it was predicted that a statistically significant amount of variance would reside between-contexts for both task (*H1*) and citizenship performance (*H2*).

Second, what rater-level characteristics are predictive of the between-rater variance in task and citizenship performance? It was predicted that the rater tendency for leniency would explain a significant amount of between-rater variance in both task (*H3*) and citizenship performance (*H4*). In addition, the rater tendency for halo was predicted to explain a significant amount of between-rater variance in task (*H5*) and citizenship performance (*H6*). The final rater-level variable included was the rater opportunity to observe performance, which was also expected to explain a significant amount of between-rater variance in task (*H7*) and citizenship performance (*H8*).

Based on confirmation of the initial hypotheses regarding between-context variation (i.e., *H1* and *H2*), analyses also examined the context-level model depicted in Figure 3 in order to address the final research question: what context-level characteristics are predictive of the between-context variance in task and citizenship performance? It was predicted that the contextual norm for leniency would explain a significant amount of between-context

variance in both task (*H9*) and citizenship performance (*H10*). Furthermore, the contextual norm for halo was predicted to explain a significant amount of between-context variance in task (*H11*) and citizenship performance (*H12*). The opportunity to observe performance at the context-level was also expected to explain a significant amount of between-context variance in task (*H13*) and citizenship performance (*H14*). Finally, the nature of work/activity in each context was predicted to explain a significant amount of between-context variance in both task (*H15*) and citizenship performance (*H16*).

## METHOD

### *Participants*

Ratings collected from sworn members of a large southeastern state law enforcement agency served as data for this research. Data collected as part of the agency's annual performance management process provided both a primary and replication sample. In the primary sample (data collected in 2003 and 2004), 153 supervisors from 58 districts (i.e., contexts) evaluated the performance of 1,078 subordinates. After removing cases with missing data (i.e., criterion data could not be derived unless an individual was rated on all 14 performance dimensions), a final primary sample of 138 supervisors from 56 districts was retained for analysis. The number of ratees per supervisor ranged from 1 to 21 ( $M = 7.00$ ,  $SD = 3.57$ ), and the number of supervisors per district ranged from 1 to 11 ( $M = 2.68$ ,  $SD = 1.44$ ). In the majority of cases the supervisor held the rank of Sergeant (78%) or First Sergeant (20%), however in a few cases ratings were provided by a Lieutenant (1%) or Captain (1%). Furthermore, of the supervisors in the primary sample, 83% were Caucasian, 17% were African American, and 100% were male.

In the replication sample (data collected in 2004 and 2005), 166 supervisors from 58 districts evaluated the performance of 1,089 subordinates. After removing cases with missing data, a final replication sample of 138 supervisors from 56 districts was retained for analysis. The number of ratees per supervisor ranged from 1 to 22 ( $M = 7.00$ ,  $SD = 3.56$ ), and the number of supervisors per district ranged from 1 to 6 ( $M = 2.46$ ,  $SD = 0.97$ ). In the majority of cases the supervisor held the rank of Sergeant (83%) or First Sergeant (12%), with a smaller number of ratings being provided by Lieutenants (5%). Similar to the primary sample, the supervisors in the replication sample were 86% Caucasian, 14% African American, 98% male, and 2% female.

#### *Operationalization of Study Variables*

*Job performance.* A job analysis conducted in the agency of interest identified 14 dimensions of job performance relevant for the rank of Trooper (see Table 1). These 14 dimensions are incorporated into the performance management process, with supervisors documenting behavioral observations on these dimensions of performance, and providing ratings in the organization's annual evaluation process. Performance dimensions are rated on a scale ranging from 1 = excellent, to 7 = well below average, which was reverse coded in order to ease the interpretation of results. See Appendix A for a copy of the organization's performance appraisal form. In order to operationalize task and citizenship performance, the ratings on these 14 dimensions were subject to exploratory factor analysis (described further in *Analyses* section), in order to derive factor scores describing each ratee's standing on these latent performance dimensions. In the primary sample, the 2004 performance ratings were used as criteria, and in the replication sample the 2005 ratings were used.

*Tendency for leniency.* Leniency was measured by first calculating the distance between the average rating (across dimensions) and scale midpoint (i.e., “4”) for each rater (Barrett, 1966; Bernardin, 1977). Therefore, larger values are suggested to indicate greater leniency. These values were then averaged for each rater to represent the rater-level distributional tendency for leniency. At the context-level, leniency values were calculated in a similar manner (i.e., leniency values were averaged for each context), however the previous year’s performance ratings were used to operationalize contextual norms for leniency. In other words, in the primary sample rater-level leniency was calculated using the 2004 ratings, and context-level leniency was calculated using the 2003 ratings. In the replication sample, rater-level leniency was calculated using the 2005 ratings, and context-level leniency was calculated using the 2004 ratings. Using the previous year’s data at the context level allowed for an alternate operationalization at this level, rather than simply aggregating the rater-level leniency values using the same year’s data (i.e., 2004 in the primary sample). Furthermore, the use of the previous year’s data is consistent with the concept of leniency at the context-level being a norm or standard of performance. Murphy and Cleveland (1995) reviewed several studies indicating that norms are very resistant to change over time, even after group members who generated the norm have left the group (Jacobs & Campbell, 1961; Sherif & Sherif, 1969). Therefore, it is reasonable to expect that if the tendency for leniency at the context-level is a norm, it should be fairly consistent across the two-year spans in the ratings analyzed here (i.e., 2003-2004 in the primary sample, and 2004-2005 in the replication sample).

*Tendency for halo.* Halo was operationalized as the variance in the ratings across performance dimensions for each ratee (Bernardin, 1977; Bernardin & Pence, 1980; Borman, 1975). Therefore, smaller values are suggested to be indicative of greater halo. These values were then averaged for each rater to represent the rater tendency for halo. Although all of the common operationalizations of halo have been criticized as being insufficient measures (Balzer & Sulsky, 1992), the variance measure employed here was chosen because it has been frequently used (Murphy & Cleveland, 1995), but more importantly because it was deemed the most well suited to the data being analyzed in this research. More specifically, other common measures of halo (e.g., intercorrelations among dimension ratings, percentage of variance accounted for by the first principal component, etc.) would require a larger number of ratees per rater to calculate. In the data analyzed here, some supervisors only rated a small number of ratees. Furthermore, previous research has shown the variance measure of halo incorporated here to be consistent over time with the three other most common measures (Jacobs & Kozlowski, 1985). The context-level norm for halo was calculated in a similar manner (i.e., halo values were averaged for each context), however the previous year's performance ratings were used to operationalize contextual halo. In the primary sample rater-level halo was calculated using the 2004 ratings, and context-level halo was calculated using the 2003 ratings. In the replication sample, rater-level halo was calculated using the 2005 ratings, and context-level halo was calculated using the 2004 ratings. Following the same logic as explained previously, this allowed for an alternate operationalization at the context-level, and is consistent with the concept of norms.

*Opportunity to observe performance.* Each supervisor documented behavioral observations of performance for each of his/her respective rates. The opportunity to observe job performance at the rater-level was operationalized as the average number of these behavioral observations documented by each rater. Therefore, larger numbers are suggested to be indicative of greater opportunities to observe performance. The contextual opportunity to observe performance was measured by averaging the number of observations documented for each context. However, at the context-level the previous year's documented behavioral observations were used. In the primary sample, rater-level opportunity to observe performance was calculated using the 2004 ratings, and context-level opportunity to observe was calculated using the 2003 ratings. In the replication sample, rater-level opportunity to observe was calculated using the 2005 ratings, and context-level opportunity to observe was calculated using the 2004 ratings. This allowed for an alternate operationalization at this level, rather than simply aggregating the rater-level values using the same year's data (i.e., 2004 in the primary sample). In further support of this context-level measure, a subject matter expert from the organization under study indicated that there should not be significant changes in the opportunities to observe performance in the various districts across the two-year spans in the data analyzed here. In other words, the barriers to observation (i.e., time, proximity, etc.) in each context should be relatively consistent over these periods of time.

*Nature of work/activity.* The nature of work or activity was operationalized based on each district's (i.e., context) standing on three variables: the number of accidents investigated, the number of cases made, and the number of calls for service. Context-level datasets (i.e., rows were contexts) were subject to principal component analyses for data

reduction purposes, and to compute component scores describing each context's standing on the three work/activity variables (described further in *Analyses* section). The nature of work/activity in the primary sample was calculated based on district data from 2004, with 2005 district data serving as the replication sample.

### *Procedure*

The organization's performance management process stipulates that supervisors provide performance ratings annually for all of their respective subordinates (see Appendix A for a copy of the performance appraisal form). Furthermore, policy dictates that supervisors document behavioral observations of their subordinate's performance, throughout the course of each performance cycle (i.e., one year). All supervisors are provided rater training on how to record these observations, in addition to frame-of-reference training, and training on psychometric error in performance ratings. Furthermore, refresher training is provided annually to all supervisors. Previous performance records are stored in both paper and electronic form for at least three years, providing the source for the performance data under study here. More specifically, performance ratings from the 2003 and 2004 performance cycles served as the primary sample, with 2004 and 2005 data serving as the replication sample. The organization also maintains ongoing records regarding the number of accidents investigated, the number of cases made, and the number of calls for service by year and district. These records provided the source for the context-level nature of work/activity data.

In any given year, approximately 10% of the Troopers participate in the organization's annual promotion process. For those participants, the performance ratings can be seen as having an administrative impact, while the ratings for the majority are

developmental. Furthermore, it should be noted that the administrative impact of the performance ratings in the promotion process changed in 2005. Previously, ratings carried a point value in the promotion process, but in 2005 ratings served as a “qualifier” only. In other words, promotional participants had to achieve at least an average performance rating on 5 specific performance dimensions in order to be allowed to participate in the promotion process. Therefore, performance ratings were administrative for promotional participants in both samples, however the administrative role of the ratings was different. Although previous research has indicated that administrative ratings tend to be more lenient than those provided for developmental purposes (Jawahar & Williams, 1997), it was unknown as to what impact this change in the promotion process would have for ratings across these samples. In addition, the organization had a significant change in leadership during this period of time, with a new Colonel being appointed who favored decentralization. Again, it is unclear as to what impact this change may have had on the performance ratings collected during this period of time. Although it may have been more desirable to compare two samples without the changes in the promotion process and organizational leadership, at the time of this research these were the only samples available for comparison.

### *Analyses*

Four types of analyses were performed in conducting this research: descriptive statistics, exploratory factor analyses (EFA), principal component analyses, and multilevel modeling. Means, standard deviations, and zero-order correlations were computed for all rater-level and context-level variables, in order to provide basic descriptive information regarding the data under study. EFA was used in analyzing the performance rating data, as

the purpose was identifying latent performance dimensions and deriving factor scores (Hatcher, 1994). Principal component analyses were used in examining the contextual work/activity data, as the purpose was strictly data reduction and the derivation of component scores (Hatcher, 1994). Finally, multilevel regression models were performed in order to address the research questions and hypotheses of this study.

*Exploratory factor analyses.* In order to derive factor scores for task and citizenship performance in both the primary and replication samples, the 14 dimensions of job performance relevant for the rank of Trooper (see Table 1) were subject to EFA using SAS version 9.1 (SAS Institute, 2003). The principal axis method was used to extract the factors, with squared multiple correlations as prior communality estimates. Based on the eigenvalues, scree plots, and percentages of variance explained, the number of factors were chosen to subsequently rotate using orthogonal rotation. These factors were then interpreted and named. Finally, factor scores were derived to indicate each ratee's standing on the latent factors. These scores represent linear composites of the optimally-weighted observed performance ratings (Hatcher, 1994). Finally, in order to determine if the factors derived in the primary and replication samples were sufficiently similar, cross-sample factorial comparisons were carried out by computation of coefficients of congruence (Harman, 1967; Tucker, 1951). These coefficients range from -1.00 representing perfect negative similarity, through 0 (complete dissimilarity), to 1.00 representing perfect similarity (Rummel, 1970).

*Principal component analyses.* In order to derive component scores describing the contextual nature of work/activity in both the primary and replication samples, the number of accidents investigated, number of cases made, and number of calls for service in each district

were subject to a principal component analysis using SAS version 9.1 (SAS Institute, 2003). The principal axis method was used to extract the components, with ones as prior communality estimates. Given only three manifest indicators, and the likely high covariance among these indicators, it was expected that only one component would be responsible for this covariance. Therefore, subsequent rotation was not necessary. Finally, component scores were derived indicating each context's standing on the nature of work/activity component. These scores represent linear composites of the optimally-weighted observed work/activity variables (Hatcher, 1994).

*Multilevel modeling.* As discussed previously, multilevel models allow for the simultaneous modeling of both within and between-group variance (Bryk & Raudenbush, 1992; Hofmann, 1997). In the data under study here, ratee level data was averaged for each rater, as between-ratee variance was not the focus of this research. Therefore raters comprised level-1 in the hierarchy, and contexts (i.e., districts) comprised level-2. All of the multilevel modeling was conducted using HLM 6 software (Raudenbush, Bryk, Cheong, & Congdon, 2004). For each set of criterion ratings (and for both the primary and replication samples), model testing followed a staged multilevel approach (Bryk & Raudenbush, 1992). The first stage consisted of the estimation of “null models” (conceptually equivalent to one-way analyses of variance) in order provide the initial partitioning of variance in each set of criteria. For example, in order to partition the variance in task performance ratings, the following equations were estimated:

$$\text{Level-1: Task Performance}_{ij} = \beta_{0j} + \epsilon_{ij} \quad (1)$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + U_{0j} \quad (2)$$

Where,  $\beta_{0j}$  represents the mean task performance for context  $j$ ,  $\gamma_{00}$  represents the grand mean,  $r_{ij}$  represents the within-group variance (i.e.,  $\sigma_2$ ) in task performance, and  $U_{0j}$  represents the between-group variance (i.e.,  $\tau_{00}$ ). Null model results therefore indicate the amount of variance residing within and between groups, and allow the computation of an intra-class correlation (ICC; ratio of between group variance to the total variance) which indicates the percentage of the total variance residing between groups (Hofmann, 1997). Results also provide a chi-square test indicating whether the between-group variance is significant and, therefore, whether a multilevel approach is warranted (i.e., if there is not significant between-group variance, then an ordinary least squares approach is sufficient). Null model results therefore address *H1* and *H2*. In other words, a finding of significant between-context variance in the null models would support *H1* and *H2*.

Given significant between group variance, the second stage of the analyses then introduced rater-level independent variables in random-coefficient regression models (level-1 analyses). All level-1 predictors were group mean centered (i.e., scaled by subtracting the relevant group mean of the level-1 predictors from each case). Therefore, the level-1 intercept variance was equal to the between group variance in the criterion scores, allowing the estimation of separate within and between group models (Hofmann & Gavin, 1998). The intercept consequently represents the expected performance rating (i.e., task or citizenship depending on the model) for a rater with his/her context's average tendency for leniency, halo, and opportunity to observe. The random-coefficient regression models perform analyses within groups (i.e., contexts), thus generating separate regression lines for each group allowing a significance test of the pooled level-1 slopes (test of *H3-H8*), as well as

testing for significant between group variance in the pooled level-1 intercepts (necessary condition for testing *H9-H16*) and slopes. For example, the following random-coefficient regression equations were estimated for task performance:

$$\begin{aligned} \text{Level-1: Task Performance}_{ij} = & \beta_{0j} + \beta_{1j}(\text{Leniency}_{ij} - \overline{\text{Leniency}}_{.j}) \\ & + \beta_{2j}(\text{Halo}_{ij} - \overline{\text{Halo}}_{.j}) \\ & + \beta_{3j}(\text{Observe}_{ij} - \overline{\text{Observe}}_{.j}) + r_{ij} \end{aligned} \quad (3)$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + U_{0j} \quad (4)$$

$$\beta_{1j} = \gamma_{10} + U_{1j} \quad (5)$$

$$\beta_{2j} = \gamma_{20} + U_{2j} \quad (6)$$

$$\beta_{3j} = \gamma_{30} + U_{3j} \quad (7)$$

Where,  $\gamma_{00}$  represents the mean of the intercepts across contexts;  $\gamma_{10}$ ,  $\gamma_{20}$ , and  $\gamma_{30}$  represent the means of the slopes across contexts for leniency, halo, and the opportunity to observe, respectively;  $r_{ij}$  represents the level-1 residual variance;  $U_{0j}$  represents the variance in the intercepts (i.e.,  $\tau_{00}$ ); and  $U_{1j}$ ,  $U_{2j}$ , and  $U_{3j}$  represent the variance in the slopes. Significant pooled level-1 slopes for the rater tendency for leniency would support *H3* and *H4*, significant pooled slopes for the rater tendency for halo would support *H5* and *H6*, and significant pooled slopes for the opportunity to observe performance would support *H7* and *H8*. The results of the random-coefficient regression models also indicate the percentage of level-1 variance (within-group) explained by the rater-level predictors ( $R^2$ ).

With significant between-group variance in the level-1 intercepts, the final stage of analyses included level-2 predictors in intercepts-as-outcomes models. In other words, these models included context-level predictors of the level-1 intercepts. Because the level-1

predictors were group mean centered, the level-2 regression coefficients therefore represent the context-level relationship between the level-2 predictors and the performance criteria (Hofmann & Gavin, 1998). For example, the following equations were estimated for task performance:

$$\begin{aligned} \text{Level-1: Task Performance}_{ij} = & \beta_{0j} + \beta_{1j}(\text{Leniency}_{ij} - \overline{\text{Leniency}}_j) \\ & + \beta_{2j}(\text{Halo}_{ij} - \overline{\text{Halo}}_j) \\ & + \beta_{3j}(\text{Observe}_{ij} - \overline{\text{Observe}}_j) + r_{ij} \end{aligned} \quad (8)$$

$$\begin{aligned} \text{Level-2: } \beta_{0j} = & \gamma_{00} + \gamma_{01}(\text{Norm for Leniency}_j) + \gamma_{02}(\text{Norm for Halo}_j) + \gamma_{03}(\text{Observe}_j) \\ & + \gamma_{04}(\text{Nature of Work}_j) + U_{0j} \end{aligned} \quad (9)$$

$$\beta_{1j} = \gamma_{10} + U_{1j} \quad (10)$$

$$\beta_{2j} = \gamma_{20} + U_{2j} \quad (11)$$

$$\beta_{3j} = \gamma_{30} + U_{3j} \quad (12)$$

Where,  $\gamma_{00}$  represents the level-2 intercept;  $\gamma_{01}$ ,  $\gamma_{02}$ ,  $\gamma_{03}$ , and  $\gamma_{04}$  represent the level-2 slopes for the norm for leniency, norm for halo, opportunity to observe, and the nature of work, respectively;  $\gamma_{10}$ ,  $\gamma_{20}$ , and  $\gamma_{30}$  again represent the means of the slopes across contexts for the level-1 predictors;  $r_{ij}$  represents the level-1 residual variance;  $U_{0j}$  represents the residual intercept variance (i.e.,  $\tau_{00}$ ); and  $U_{1j}$ ,  $U_{2j}$ , and  $U_{3j}$  represent the variance in the level-1 slopes. These final models therefore address *H9-H16*, and also indicate the percentage of level-2 variance (between-group) explained by the context-level predictors ( $R^2$ ). Significant level-2 slopes for the contextual norm for leniency would support *H9* and *H10*, significant slopes for the contextual norm for halo would support *H11* and *H12*, significant slopes for the opportunity to observe performance would support *H13* and *H14*, and significant slopes for

the nature of work/activity would support *H15* and *H16*. Finally, all of the before mentioned relationships were examined in both the primary (i.e., 2003 and 2004 data) and replication samples (i.e., 2004 and 2005 data), in order to determine if the findings could be replicated in an alternate set of data.

## RESULTS

Table 2 presents descriptive statistics and zero-order correlations for all rater and context-level variables, for both the primary and replication samples. Although the strength and direction of the majority of the relationships between the variables remained consistent across samples, there were several exceptions. For example the rater-level tendency for leniency was not significantly correlated with the opportunity to observe performance in the primary sample ( $r = .16, p > .05$ ), however this relationship was significant in the replication sample ( $r = .19, p < .05$ ). The rater tendency for halo was significantly related to the opportunity to observe performance in the primary sample ( $r = .19, p < .05$ ), but was not in the replication sample ( $r = .07, p > .05$ ). Furthermore, the tendency for leniency was not significantly correlated with the tendency for halo at the rater ( $r = -.08, p > .05$ ) or context-level ( $r = -.22, p > .05$ ) in the primary sample, however in the replication sample these correlations were significant at both the rater ( $r = -.25, p < .01$ ) and context levels ( $r = -.45, p < .01$ ). Finally, at the context-level the norm for halo was not significantly related to the nature of work/activity in the primary sample ( $r = -.07, p > .05$ ), but was significant in the replication sample ( $r = -.41, p < .01$ ).

*Exploratory factor analyses.* Supervisor ratings on the 14 dimensions of performance were subject to EFA, in both the primary and replication samples. In the primary sample, an

examination of the eigenvalues, scree plots, and percentages of variance explained suggested that two factors should be retained for rotation. More specifically, the first factor explained 93% of the common variance, and the second factor explained 13%. Two factors were therefore rotated using orthogonal rotation. Table 3 presents the rotated factor pattern for the primary sample. An examination of the rotated factor pattern suggested a task and citizenship performance interpretation of the factors. Performance dimensions loading highest on the task factor were dimensions which would typically be characterized as task performance (e.g., Arrest Procedures, Knowledge and Application of Laws, and Preparing Cases for Court), as they contribute to the “technical core” (Borman & Motowidlo, 1993) for the job of Trooper. Dimensions loading highest on the citizenship factor were correspondingly dimensions which would be characterized as citizenship performance (e.g., Community Relations, Communication, Special Duties, and Citizenship), as they include behaviors such as demonstrating cooperation and teamwork, endorsing and supporting organizational objectives, applying extra effort, maintaining good relations with local agencies, receiving calls at home, attending organization functions, and volunteering for special assignments. All of these behaviors can be seen as supporting “the organizational, social, and psychological context that serves as the critical catalyst for tasks to be accomplished” (Borman, 2004, p. 238). It should be noted that three dimensions of performance cross-loaded on both factors (i.e., factor loadings greater than .35 on each factor). More specifically, the dimensions of Evidence Collection and Maintenance, Forms and Reports, and Accident Investigation had factor loadings above .35 on both factors. However, rather than removing these dimensions in attempt to achieve more simple structure,

they were retained so that potentially valuable information would not be lost. Furthermore, each of the derived factor scores represent linear composites of *all* 14 dimensional ratings, therefore these cross-loading dimensions (like all of the other dimensions) make a contribution to both factors.

EFA results from the replication sample were similar to those obtained in the primary sample. An examination of the eigenvalues, scree plots, and percentages of variance explained suggested that two factors should be retained for rotation. The first factor explained 93% of the common variance, and the second factor explained 12%. Therefore, two factors were rotated using orthogonal rotation. Table 4 presents the rotated factor pattern for the replication sample. The factor pattern again suggested a task and citizenship performance interpretation of the factors. The task factor was characterized by performance dimensions which would typically be characterized as task performance (e.g., Arrest Procedures, Preventive Patrol, and Knowledge and Application of Laws). The citizenship factor also included performance dimensions that would be characterized as citizenship performance (e.g., Citizenship, Community Relations, Communication, and Special Duties). However, in the replication sample two of the dimensions that cross-loaded in the primary sample, and that would be considered task performance dimensions (i.e., Forms and Reports and Accident Investigation) loaded only on the citizenship performance factor. However, cross-sample factorial comparisons revealed congruence coefficients of .99 for the task performance factor, and .99 for the citizenship factor, suggesting high similarity in the factor structures across samples. Therefore, the two-factor (i.e., task and citizenship performance)

solution based on all 14 dimensions was retained for the replication sample, and factor scores were subsequently derived based on this solution.

*Principal component analyses.* District work/activity data on the number of accidents investigated, number of cases made, and number of calls for service in each district were subject to principal component analysis, in both the primary and replication samples. Given only three observed variables, and only one component with an eigenvalue greater than one (Kaiser, 1960), a one-component solution was deemed acceptable. This first component explained 91% of the total variance. Component scores were subsequently derived, indicating each district's standing on this linear composite of the three work/activity measures.

*Multilevel modeling.* In addressing the first research question and corresponding hypotheses (i.e., *H1* and *H2*), staged multilevel modeling began with the estimation of null models in order to partition the variance in each set of criteria. Null model results for task performance in the primary sample suggested that there was significant between-context variance in this criterion ( $\tau_{00} = .09$ ,  $df = 55$ ,  $\chi^2 = 103.26$ ,  $p < .01$ ). Moreover, results yielded an ICC of .26, indicating that 26% of the variance in task performance resides between contexts, and hence 74% can be seen as between-rater (within-context) variance. Null model results for task performance in the replication sample also suggested significant between-context variance in this criterion ( $\tau_{00} = .14$ ,  $df = 55$ ,  $\chi^2 = 162.49$ ,  $p < .01$ ). Replication sample results yielded an ICC of .42, indicating that 42% of the task performance variance in the replication sample resides between contexts, and thus 58% resides between raters (within

contexts). Therefore, null model results for task performance in both the primary and replication samples provide support for *H1*.

Null model results for citizenship performance in the primary sample suggested that there was not significant between-context variance in this criterion ( $\tau_{00} = .05$ ,  $df = 55$ ,  $\chi^2 = 71.05$ ,  $p > .05$ ), however the significance value was approaching the .05 threshold ( $p = .07$ ). Results yielded an ICC of .14, indicating that 14% of the variance in citizenship performance resides between contexts, and hence 86% can be seen as between-rater (within-context) variance. Null model results for citizenship performance in the replication sample did however suggest significant between-context variance in this criterion ( $\tau_{00} = .11$ ,  $df = 55$ ,  $\chi^2 = 121.39$ ,  $p < .01$ ). Replication sample results yielded an ICC of .32, indicating that 32% of the citizenship performance variance in the replication sample resides between contexts, and thus 68% resides between raters (within contexts). Therefore, null model results provide partial support for *H2*, in that results were approaching significance in the primary sample, and indicated a fairly large percentage of between-context variance (i.e., 14%). Furthermore, the finding of significant between-context variance in citizenship performance in the replication sample also suggests support for *H2*.

In order to address *H3-H8*, the second stage of modeling introduced level-1 (i.e., rater) predictors in random-coefficient regression models. Table 5 presents the results of these models for both task and citizenship performance, and for both the primary and replication samples. For task performance in the primary sample, both the rater tendencies for leniency ( $\gamma_{20} = 1.345$ ,  $p < .01$ ) and halo ( $\gamma_{30} = -1.404$ ,  $p < .01$ ) explained significant amounts of between-rater variance in task performance. More specifically, increases in the

tendency to be lenient and increases in the tendency for halo (smaller values were indicative of greater halo) were associated with increases in task performance ratings. Rater opportunity to observe performance however was not a significant predictor. The level-1 predictors explained 84% of the within-context variance in task performance. In the replication sample, the rater tendency for leniency explained a significant amount of between-rater variance in task performance ( $\gamma_{20} = 1.475, p < .01$ ), however neither the tendency for halo or opportunity to observe performance were significant predictors. The level-1 predictors explained 70% of the within-context variance in the replication sample. These results therefore provide support for *H3*, in that the rater tendency for leniency was a significant predictor of the between-rater variance in task performance, in both the primary and replication samples. With regard to *H5*, the results were inconclusive, since the significant prediction due to the tendency for halo was not replicated. Finally, no support was found for *H7* in that the number of rater opportunities to observe performance did not explain significant variance in task performance ratings in either sample.

The random-coefficient regression model results for citizenship performance in the primary sample followed a similar pattern as with task performance. More specifically, both the rater tendencies for leniency ( $\gamma_{20} = 1.729, p < .01$ ) and halo ( $\gamma_{30} = 1.030, p < .01$ ) explained significant amounts of between-rater variance in citizenship performance. Increases in the tendency to be lenient were associated with increases in citizenship performance ratings. However, in this case decreases in the tendency for halo were associated with increases in citizenship ratings. No significant relationship was found for the rater opportunity to observe performance. The level-1 predictors explained 85% of the

within-context variance in citizenship performance. In the replication sample, the rater tendency for leniency explained a significant amount of between-rater variance in citizenship performance ( $\gamma_{20} = 1.682, p < .01$ ), however neither the tendency for halo or opportunity to observe performance were significant predictors. The level-1 predictors explained 72% of the within-context variance in the replication sample. These findings support *H4* since the rater tendency for leniency was a significant predictor in both the primary and replication samples. The results are however inconclusive regarding *H6*, as the tendency for halo was not a significant predictor in both samples. Similar to the results for task performance, no support was found for *H8* in that rater opportunity to observe performance was not significantly associated with citizenship performance ratings in either sample.

The final stage of modeling was intended to address *H9-H16* by including level-2 (i.e., context) predictors in intercepts-as-outcomes models. Table 6 presents the results of these models for both task and citizenship performance, and for both the primary and replication samples. With regard to task performance in the primary sample, the contextual norm for leniency ( $\gamma_{03} = .679, p < .01$ ) explained a significant amount of the between-context variance. Increases in the contextual tendency to be lenient were associated with increases in task performance ratings. However, none of the other context-level variables were significant predictors (i.e., nature of work/activity, contextual opportunity to observe performance, and contextual norm for halo). The level-2 predictors explained 29% of the between-context variance in task performance. However, in the replication sample none of the context-level variables were significant predictors. Therefore, the results are inconclusive with regard to *H9*, as the significant predictive ability of the contextual norm for

leniency was not replicated. Furthermore, the findings provide no support for *H11* (i.e., contextual norm for halo), *H13* (i.e., contextual opportunity to observe performance), or *H15* (i.e., nature of work/activity), since these context-level predictors were insignificant in both samples.

The intercepts-as-outcomes model results for citizenship performance in the primary sample indicated that the contextual norm for leniency ( $\gamma_{03} = .627, p < .01$ ) explained a significant amount of between-context variance. None of the other context-level variables were significant predictors (i.e., nature of work/activity, contextual opportunity to observe performance, and contextual norm for halo). The level-2 predictors explained 33% of the between-context variance in citizenship performance. In the replication sample several level-2 predictors were significant, including the nature of work/activity ( $\gamma_{01} = -.121, p = .05$ ), the contextual norm for leniency ( $\gamma_{03} = .483, p = .05$ ), and the contextual norm for halo ( $\gamma_{04} = 1.029, p < .05$ ). More specifically, decreases in the number of accidents investigated, number of cases made, and number of calls for service (i.e., nature of work/activity) were associated with increases in citizenship performance ratings. Increases in the contextual tendency to be lenient were associated with increases in citizenship performance ratings. Furthermore, decreases in the contextual tendency for halo were associated with increases in citizenship performance ratings. The contextual opportunity to observe performance was not a significant predictor. The level-2 predictors explained 17% of the between-context variance in the replication sample. These findings provide support for *H10*, since the contextual norm for leniency was a significant predictor in both samples. The results are however inconclusive with respect to *H12* (i.e., contextual norm for halo) and *H16* (i.e., nature of

work/activity), as these variables were significant in the replication sample, but not in the primary sample. Finally, no support was found for *H14* since the contextual opportunity to observe performance was insignificant in both samples.

## DISCUSSION

### *Main Findings*

The appraisal of job performance via supervisor ratings is unfortunately often influenced by factors other than the actual performance of the ratee, as evidenced by the often large portion of variance associated with the rater (Scullen et al., 2000). The purpose of this research was consequently to contribute to our understanding of ratings as a form of performance measurement, by identifying sources that explain this variation in rater behaviors. In addition to characteristics or tendencies of the rater, it has been suggested that the rating context is influential in impacting ratings (e.g., Ilgen et al., 1993; Murphy & Cleveland, 1995). Therefore, this research sought to address the initial research question: what proportion of the variance in task and citizenship performance resides between raters (within contexts), and what proportion resides between-contexts? Overall, the results here support the claim that context matters, in that fairly large portions of variance in performance ratings were associated with the rating context. This means that of the percentage of variance in ratings identified in previous research as idiosyncratic to the rater (i.e., 43% to 51%, Scullen et al., 2000), a potentially large portion of that variation may be due to contextual factors. Furthermore, in this study the magnitude of contextual influence varied based on the type of performance being analyzed. More specifically, the between-context variance ranged from 26% to 42% for task performance, and from 14% to 32% for citizenship

performance. Therefore, just as “Task activities are typically different for different jobs, whereas citizenship activities are similar across jobs” (Borman, 2004, p. 238), the findings here would suggest that this may also be the case for the same job across different contexts.

This study also sought to identify rater characteristics that explain the variation in performance ratings between raters. In discussing potential sources of rater variance, Scullen et al. (2000) cited two of the most widely researched rater tendencies (i.e., leniency and halo) as possible sources. With regard to rater leniency, the results here suggested that this tendency explained significant rater variation in both task and citizenship performance ratings. Variation in the raters’ tendencies to rate above the scale midpoint therefore explained variability in the ratings they tended to provide on the observed performance variables comprising both of the two latent dimensions. Furthermore, the tendency for halo was also a significant predictor of between-rater variance in both task and citizenship performance, although this finding failed to replicate. Interestingly however, in both samples, as the tendency for halo increased, task performance tended to increase, while increases in halo were associated with decreases in citizenship performance. In other words, raters who tended to discriminate less among all 14 of the observed performance dimensions also tended to provide higher ratings on the dimensions which predominantly characterized task performance, but lower ratings on the dimensions that comprised citizenship performance. Finally, results indicated no relationship between the number of rater opportunities to observe performance and either task or citizenship performance. While the rater-level model results are potentially encouraging in terms of providing a better understanding of the factors which are driving rater differences, these results must

unfortunately be interpreted cautiously as the operationalizations of all three of these predictors may have been poor measures (discussed further in *Limitations*).

The final research question focused on identifying contextual characteristics that explain the variation in performance between contexts. More specifically, the tendencies for leniency and halo at the context-level were purported to represent norms or standards for evaluating performance. It is important to note that operationalizations of these tendencies or norms at the context-level were based on performance ratings provided in each context the previous year. While the contextual norm for leniency significantly predicted the between-context variance in task performance in the primary sample, this finding was not replicated. Therefore the results can be seen as inconclusive with respect to the contextual norm for leniency and task performance. However, this norm was a consistent significant predictor of citizenship performance. In other words, the degree to which ratings tended to exceed the scale midpoint in the previous year in each district, explained a significant amount of between-context variance in citizenship performance ratings the following year. This finding lends support to the notion that norms may be operating in each rating context, influencing the rating behaviors of the supervisors. The contextual norm for halo was not a significant predictor of task performance in either sample. This tendency did however explain significant contextual variation in citizenship performance in the replication sample, although not in the primary sample. Therefore the relationship between context-level halo and citizenship performance is unclear. Similar to the rater-level, contextual opportunities to observe performance did not explain the between-context variance in either criterion. Finally, the nature of work/activity in the various contexts did not explain variance in task

performance. Although this variable also was insignificant for citizenship performance in the primary sample, it did however explain significant variation in the replication sample. It is interesting to note that increases in the number of accidents investigated, number of cases made, and number of calls for service were associated with decreases in citizenship performance ratings.

### *Limitations*

There are several limitations of this research that should be called to attention. First, the fact that many of the relationships failed to replicate across the two samples used for comparison in this study may not have been a function of the instability of those relationships, but rather a function of the previously mentioned differences across the two samples. More specifically, the administrative impact of the ratings for participants in the organization's annual promotion process was different in the primary versus replication samples. Although these were the only samples available for comparison, and only 10% of the rates were promotional participants in either sample, this change may have created systematic differences across the two samples which altered the relationships under study. Furthermore, the organizational change in leadership during this time period may have also somehow distorted the relationships between the variables of interest across the two samples. Because of these potential limitations, it is difficult to interpret the results that failed to replicate across the samples.

In addition, as mentioned previously, the operationalization of several predictors may explain some of the study's results. Both the rater-level tendency for leniency (i.e., distance between average rating and scale midpoint ) and halo (i.e., variance across the dimensional

ratings) were calculated based on derivations of the 14 dimensional performance ratings provided to each ratee, and so were the factor scores employed as criteria (i.e., optimally weighted linear composites of the 14 dimensional ratings). Although each derivation was unique, the fact that the source was the same in all three cases may have confounded the results. Therefore the large percentages of within-context variance explained by the level-1 predictors (i.e., 70% - 84% for task performance; 72% - 85% for citizenship performance) may have been predominantly due to the manner in which these predictors were measured, rather than the degree to which these tendencies are driving rater differences in reality. In retrospect, the rater level-tendencies for leniency and halo may have been better operationalized by using a measure similar to that used for the context-level tendencies. For example, rater-level leniency and halo could be operationalized using the ratings provided by each rater in previous performance cycles<sup>1</sup>. Unfortunately, it is unclear given the measures used here just how much between-rater variance is actually due to these idiosyncratic rater tendencies. Finally, the proxy measure used for the opportunity to observe performance at both the rater and context levels may not have been measuring what was intended. Although it seems reasonable to expect that supervisors with greater opportunity to observe performance would document a greater number of behavioral observations, other factors may be systematically impacting the number of observations recorded. For example, rater motivation or beliefs about the importance of documenting performance may have more to do with the number of observations recorded, than actual opportunity to observe performance. At the context-level, the number of observations documented may be

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<sup>1</sup> A post hoc inspection of the data revealed that using the previous year's ratings to operationalize rater leniency and halo would have reduced the sample size to an unmanageable number. Therefore, with the data used in this study, this measure could not be employed.

influenced by norms for minimal or acceptable numbers of observations to document for each ratee, rather than contextual opportunities to observe behavior. Therefore, the results here can be seen as *conclusive* with respect to the number of documented observations (i.e., insignificant predictor of between-rater and between-context variance), but *inconclusive* with regard to rater opportunities to observe performance.

The final limitations worth noting concern both the sample and certain methodological decisions made regarding the modeling approach. In both the primary and replication samples, the numbers of raters per context were considerably low (i.e.,  $M = 2.68$  for the primary sample;  $M = 2.46$  for the replication sample). It would obviously have been desirable to have a greater number of supervisors from each district. However, small cluster sizes pose a much greater limitation in terms of power for testing random slope variances (which was not the focus in this research), and much less so on testing for fixed effects (Snijders, 2005). Therefore, given that this study was primarily focused on the proportion of variance across levels, and the fixed effects associated with the predictors of interest, the impact of this limitation would seem minimal. Finally, original conceptions of the multilevel models used in this research were three-level models, with ratees representing level-1, raters at level-2, and contexts at level-3. However, because the focus of this research was not on explaining between-ratee differences in performance, and because it required the estimation of one less random intercept, the decision was made to aggregate the ratee data up to the rater-level (i.e., ratee data was averaged for each rater). In hindsight, this may have been a poor decision. More specifically, in the aggregated models tested here, raters who evaluated only a few ratees were given equal weight to raters who evaluated a larger number of ratees.

The three-level model would have allowed for a weighted level-2 model, so that raters with more precise level-1 estimates (i.e., raters who evaluated more ratees) would have received more weight in the level-2 regression equation (Hofmann, 1997). Although more complex, this model may have provided a better test of the relationships of interest in this research.

### *Implications*

In light of the previously discussed limitations, the practical implications of the results identified in this study are somewhat restricted. However, several of the more interpretable findings are informative. More specifically, the results indicate that a significant percentage of variance in task and citizenship performance resides between contexts. This was the case in an organization in which supervisors are provided frame-of-reference and rater error training, along with annual refresher training. Therefore, in order to maximize the rating variance that is a reflection of actual ratee performance, the organization may for example focus efforts on reducing the variance due to the context. The tendency or norm to rate leniently between contexts explained significant variation in task performance in the primary sample, and in citizenship performance in both samples. Therefore, attempting to inhibit or perhaps shape the development of norms and standards in the various contexts may be of benefit. As mentioned previously, in reviewing the research on norms, Murphy and Cleveland (1995) cite four mechanisms which are influential in the development of performance standards: direct communication, observation of reference groups, direct experience, and extension of values, attitudes, and beliefs from other domains. Direct communication in the form of performance feedback can change individual's evaluation standards (Taylor, Fisher, & Ilgen, 1984), therefore this mechanism may also be useful for

reducing between-context differences in standards. The leadership in each context could be provided with annual feedback describing the ratings provided in their context, as compared to other organizational contexts. If this context-level performance rating feedback is communicated effectively, this strategy may also serve to broaden the reference group of the supervisors in the various contexts. Murphy and Cleveland (1995) review reference group research which “suggests that a judge will adopt standards that are similar to those he or she believes are held by the appropriate reference groups” (p. 164). Therefore, consistent context-level feedback may broaden reference groups from the immediate surrounding rating context (i.e., district), to the more expansive organization as a whole.

#### *Future Research*

Given the finding here of significant between-context variation in task and citizenship performance, future research should seek to identify other contextual characteristics that explain this variation. The results here implied that the tendency for leniency from context to context may in some cases be driving contextual differences. However, there are likely many other potential factors of influence. For example, in describing the social context of performance appraisal, Levy and Williams (2004) cited distal variables such as culture and climate, economic conditions, workforce composition, and the legal climate, all of which may also be driving contextual variation. Furthermore, with regard to rater differences, future research should re-examine the rater-level variables incorporated here (i.e., leniency, halo, and opportunity to observe), and attempt to identify different methods for measuring these factors. As mentioned previously, it may be beneficial to operationalize rating tendencies using source data other than that used in deriving the criteria. Furthermore, given

the difficulty of measuring the opportunity to observe performance in field settings, a well designed lab study may therefore provide insight into the degree to which this variable creates variation across raters. There are also numerous other rater-level factors that need to be investigated, such as rater goals and motivation, rater personality and cognitive ability, and the rater's own performance level, especially on dimensions pertaining to supervision and evaluation. Finally, despite the somewhat limiting requirement for larger sample sizes, future research should continue to examine sources of variance in performance ratings from a multilevel approach when appropriate. Ultimately, if the data were available, a more comprehensive three-level model could be estimated, allowing the simultaneous examination of ratee characteristics at level-1 (e.g., conscientiousness, cognitive ability, and appraisal purpose), along with the previously mentioned rater and context-level variables.

### *Summary*

“What is being rated should account for more variance than does who is doing the rating” (Scullen et al., 2000, p. 966). Furthermore, ideally, “where” a rating is done should not account for significant variation in ratings. However, this research indicates that the context in which ratings are produced also accounts for significant variance. Furthermore, the results imply that norms may be operating at the context level, as previous tendencies for leniency in each context predicted subsequent ratings (in some cases). Although many of the relationships examined in this study remain unclear because of potential limitations, this line of research shows promise for better understanding and hence improving ratings as a form of performance measurement. Given the continued prevalence of this method of appraising

performance, and the critical role played in so many organizational functions, research should continue to examine these sources of variance.

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Table 1. *Dimensions of job performance for the rank of Trooper*

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Performance Dimension
1. Officer & Public Safety
2. Accident Investigation
3. Citizenship
4. Knowledge & Application of Laws
5. Community Relations
6. Preventive Patrol
7. Communication
8. Arrest Procedures
9. Preparing Cases for Court
10. Extraordinary Vehicle Operation
11. Forms & Reports
12. Evidence Collection & Maintenance
13. Equipment Use & Maintenance
14. Special Duties and Critical Incident Activities

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Table 2. *Descriptive statistics and zero-order correlations for all variables*

Rater-Level Variables (N = 138)	Primary Sample						
	M	SD	1	2	3	4	5
1. Task Performance	-.03	.58	–				
2. Citizenship Performance	.06	.61	.31**	–			
3. Tendency for Leniency	1.21	.31	.77**	.82**	–		
4. Tendency for Halo	.40	.18	-.29**	.14	-.08	–	
5. Opportunity to Observe Performance	16.11	4.30	.03	.20*	.16	.19*	–
Context-Level Variables (N = 56)	M	SD	1	2	3	4	
1. Tendency for Leniency	1.12	.32	–				
2. Tendency for Halo	.41	.11	-.22	–			
3. Opportunity to Observe Performance	16.54	4.97	.11	.19	–		
4. Nature of Work/Activity	.40	.82	-.22	-.07	-.01	–	
Rater-Level Variables (N = 138)	Replication Sample						
	M	SD	1	2	3	4	5
1. Task Performance	-.01	.58	–				
2. Citizenship Performance	.01	.58	.48**	–			
3. Tendency for Leniency	1.00	.31	.86**	.85**	–		
4. Tendency for Halo	.40	.14	-.30**	-.13	-.25**	–	
5. Opportunity to Observe Performance	16.32	4.05	.14	.19*	.19*	.07	–
Context-Level Variables (N = 56)	M	SD	1	2	3	4	
1. Tendency for Leniency	1.19	.23	–				
2. Tendency for Halo	.40	.13	-.45**	–			
3. Opportunity to Observe Performance	15.89	3.74	-.01	.09	–		
4. Nature of Work/Activity	.42	.79	-.07	-.41**	.20	–	

Note. \* =  $p \leq .05$ , \*\* =  $p \leq .01$

Table 3. *Rotated factor pattern for exploratory factor analysis of the primary sample*

Performance Dimension	Factor 1	Factor 2
1. Officer & Public Safety	.58	.22
2. Accident Investigation	.37	.46
3. Citizenship	.26	.62
4. Knowledge & Application of Laws	.62	.35
5. Community Relations	.16	.67
6. Preventive Patrol	.56	.12
7. Communication	.29	.64
8. Arrest Procedures	.66	.18
9. Preparing Cases for Court	.61	.35
10. Extraordinary Vehicle Operation	.44	.34
11. Forms & Reports	.35	.51
12. Evidence Collection & Maintenance	.48	.38
13. Equipment Use & Maintenance	.38	.29
14. Special Duties and Critical Incident Activities	.21	.63

Note. Factor 1 interpreted as “Task Performance,” and Factor 2 as “Citizenship Performance”

Table 4. *Rotated factor pattern for exploratory factor analysis of the replication sample*

Performance Dimension	Factor 1	Factor 2
1. Officer & Public Safety	.52	.32
2. Accident Investigation	.29	.55
3. Citizenship	.26	.55
4. Knowledge & Application of Laws	.55	.35
5. Community Relations	.13	.55
6. Preventive Patrol	.59	.10
7. Communication	.38	.53
8. Arrest Procedures	.65	.19
9. Preparing Cases for Court	.52	.35
10. Extraordinary Vehicle Operation	.40	.25
11. Forms & Reports	.26	.56
12. Evidence Collection & Maintenance	.48	.31
13. Equipment Use & Maintenance	.42	.33
14. Special Duties and Critical Incident Activities	.21	.51

Note. Factor 1 interpreted as “Task Performance,” and Factor 2 as “Citizenship Performance”

Table 5. *Random-coefficient regression model results for task/citizenship performance*

Fixed Effects	Task Performance			Citizenship Performance		
	Coefficient	<i>SE</i>	<i>t</i> Ratio	Coefficient	<i>SE</i>	<i>t</i> Ratio
Primary Sample						
Intercept, $\beta_0$						
Intercept, $\gamma_{00}$	-.010	.059	-.171	.049	.049	1.003
Rater Opportunity to Observe Performance, $\beta_1$						
Intercept, $\gamma_{10}$	-.002	.009	-.217	-.006	.010	-.616
Rater Tendency for Leniency, $\beta_2$						
Intercept, $\gamma_{20}$	1.345**	.149	8.998	1.729**	.117	14.747
Rater Tendency for Halo, $\beta_3$						
Intercept, $\gamma_{30}$	-1.404**	.368	-3.818	1.030**	.283	3.645
Replication Sample						
Intercept, $\beta_0$						
Intercept, $\gamma_{00}$	.005	.061	.088	.026	.058	.448
Rater Opportunity to Observe Performance, $\beta_1$						
Intercept, $\gamma_{10}$	.005	.012	.389	.001	.012	.058
Rater Tendency for Leniency, $\beta_2$						
Intercept, $\gamma_{20}$	1.475**	.093	15.835	1.682**	.100	16.758
Rater Tendency for Halo, $\beta_3$						
Intercept, $\gamma_{30}$	-.285	.221	-1.290	.046	.283	.164

Note. *SE* = robust standard error; \* =  $p \leq .05$ , \*\* =  $p \leq .01$

Table 6. *Intercepts-as-outcomes model results for task/citizenship performance*

Fixed Effects	Task Performance			Citizenship Performance		
	Coefficient	SE	t Ratio	Coefficient	SE	t Ratio
<b>Primary Sample</b>						
Intercept, $\beta_0$						
Intercept, $\gamma_{00}$	-.417	.296	-1.407	-.725**	.227	-3.189
Nature of Work/Activity, $\gamma_{01}$	.041	.057	.715	-.055	.055	-.992
Contextual Opportunity to Observe Performance, $\gamma_{02}$	-.004	.012	-.371	-.002	.006	-.428
Contextual Tendency for Leniency, $\gamma_{03}$	.679**	.146	4.649	.627**	.104	6.054
Contextual Tendency for Halo, $\gamma_{04}$	-.732	.447	-1.637	.336	.318	1.058
Rater Opportunity to Observe Performance, $\beta_1$						
Intercept, $\gamma_{10}$	-.001	.009	-.066	-.004	.010	-.426
Rater Tendency for Leniency, $\beta_2$						
Intercept, $\gamma_{20}$	1.315**	.150	8.743	1.686**	.117	14.415
Rater Tendency for Halo, $\beta_3$						
Intercept, $\gamma_{30}$	-1.384**	.370	-3.746	.946**	.272	3.476
<b>Replication Sample</b>						
Intercept, $\beta_0$						
Intercept, $\gamma_{00}$	-.246	.508	-.484	-.847	.433	-1.957
Nature of Work/Activity, $\gamma_{01}$	-.105	.076	-1.381	-.121*	.061	-1.971
Contextual Opportunity to Observe Performance, $\gamma_{02}$	.006	.017	.377	-.004	.012	-.301
Contextual Tendency for Leniency, $\gamma_{03}$	.275	.248	1.108	.483*	.244	1.983
Contextual Tendency for Halo, $\gamma_{04}$	-.336	.628	-.534	1.029*	.493	2.086
Rater Opportunity to Observe Performance, $\beta_1$						
Intercept, $\gamma_{10}$	.004	.012	.359	.003	.012	.234
Rater Tendency for Leniency, $\beta_2$						
Intercept, $\gamma_{20}$	1.470**	.103	14.255	1.693**	.101	16.755
Rater Tendency for Halo, $\beta_3$						
Intercept, $\gamma_{30}$	-.262	.215	-1.221	-.000	.254	-.001

Note. *SE* = robust standard error; \* =  $p \leq .05$ , \*\* =  $p \leq .01$

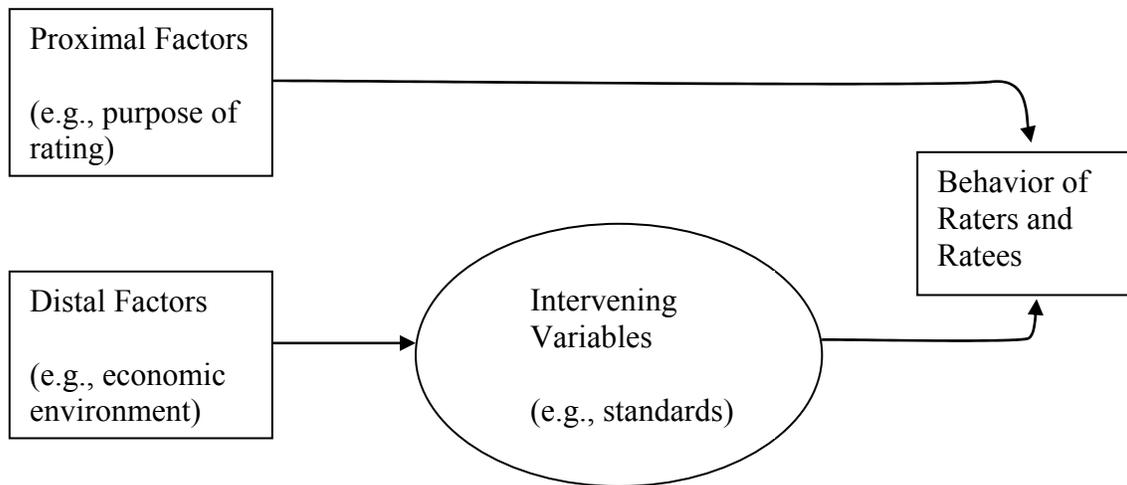


Figure 1. *Murphy and Cleveland's (1995) effects of proximal versus distal context factors*

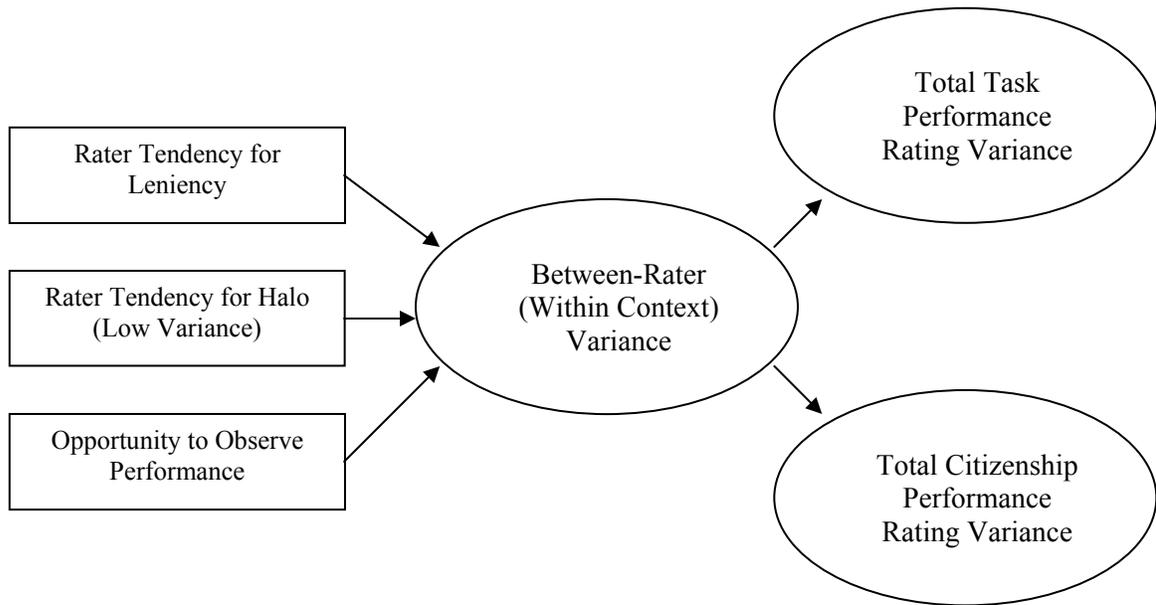


Figure 2. *Proposed conceptual model of between-rater variance*

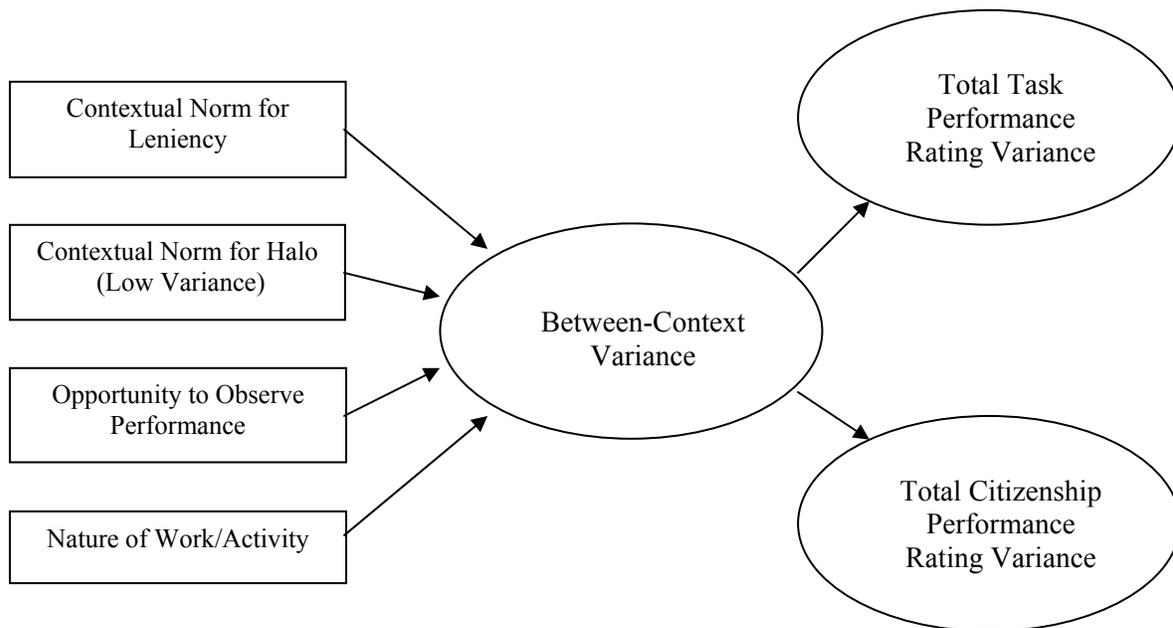


Figure 3. *Proposed conceptual model of between-context variance*

APPENDICES

Appendix A

*Performance appraisal form*

### Overall Performance Rating Sheet

Transfer the number of Performance Records completed for each Performance Area and the Performance Area Rating to this sheet.

Total # of Records Completed for Performance Area	Performance Area	Performance Area Rating						
		Excellent	Good			Below Average	Poor	
_____	Officer and Public Safety	1	2	3	4	5	6	7
_____	Collision Investigation	1	2	3	4	5	6	7
_____	Citizenship	1	2	3	4	5	6	7
_____	Knowledge and Application of Policy and Laws	1	2	3	4	5	6	7
_____	Community Relations	1	2	3	4	5	6	7
_____	Preventive Patrol	1	2	3	4	5	6	7
_____	Communication	1	2	3	4	5	6	7
_____	Arrest Procedures	1	2	3	4	5	6	7
_____	Preparing Cases for Court	1	2	3	4	5	6	7
_____	Extraordinary Vehicle Operations	1	2	3	4	5	6	7
_____	Forms and Reports	1	2	3	4	5	6	7
_____	Evidence Collection and Maintenance	1	2	3	4	5	6	7
_____	Equipment Use and Maintenance	1	2	3	4	5	6	7
_____	Special Duties and Critical Incident Activities	1	2	3	4	5	6	7
_____	Total Number of Records Completed							

Based on the ratings for each performance area, rate the member's Overall Performance. Performance areas are listed in order of importance for evaluating performance from the Officer Evaluation Survey.

	Excellent	Good			Below Average	Poor	
Overall Performance	1	2	3	4	5	6	7
Supervisor's Name: _____							
Supervisor's Signature: _____							
Supervisor's Date: _____							
Member's Name: _____							
Member's Signature: _____							
Member's Date: _____							
Troop Commander's / Section Director's Signature: _____							
Troop Commander's / Section Director's Date: _____							