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Person–Situation Predictors of Maximum and Typical Performance

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We examined the main and interactive effects of general mental ability (GMA) and perceived organizational support (POS) on typical performance and maximum performance. Data from two field samples (96 programmers and 181 cash vault employees) empirically supported distinguishing between typical performance and maximum performance. GMA was related to maximum performance but not to typical performance, and POS was related to two out of three measures of typical performance. Interactive effects of GMA and POS were detected in both samples for maximum performance outcomes but not found for typical performance outcomes.

Selection researchers have distinguished between maximum and typical performance. Maximum performance reflects capabilities or what workers "can do," whereas typical performance reflects what workers "will do" (e.g., Kanfer & Ackerman, 2005). Researchers conducting empirical work have operationalized maximum performance situations as using instructions to narrowly restrict the range of motivation to the highest of levels and confined their efforts to testing situations (e.g., DuBois, Sackett, Zedeck, & Fogli, 1993). A possible next step in the investigation of maximum and typical performance is to apply the assessment of maximum performance to actual on-the-job behavior that is independent from assessment-only situations.

Perhaps unlike in testing situations, on-the-job, individual differences in motivation may affect the extent to which workers accept instructions to maximize effort over the duration of a task. Consequently, we define maximum performance as

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the expression of work competence (i.e., the maximum potential to perform), which *primarily* reflects what workers "can do." Such behavior may include the application of critical analytical skills to solve problems, effectual multitasking, working independently (i.e., not requiring assistance), and successfully tackling complex issues. On the job, these behaviors may primarily reflect ability, but experienced or perceived differences in situations may lead to different levels of motivation to express work competence (i.e., maximum performance). Similarly, ability may affect the extent to which motivation leads to typical performance. Therefore, to investigate the possibility that variance in maximum and typical performance assessed in terms of on-the-job behavior may reflect not only differences in ability but also perceived differences in the work situation affecting motivation, we investigated the joint effects of general mental ability (GMA) and perceived organizational support (POS) on maximum and typical performance.

GENERAL MENTAL ABILITY

GMA has been the most frequently studied ability construct in the field (e.g., Schmidt, Hunter, & Outerbridge, 1986). Compared to low-GMA workers, high-GMA workers learn more quickly, more efficiently, and more effectively. GMA primarily influences job performance through its effects on job knowledge and therefore is highly relevant for cognitively loaded tasks (Schmidt et al., 1986). Accordingly, we proposed the following:

H1: GMA is positively related to maximum performance.

PERCEIVED ORGANIZATIONAL SUPPORT

An emerging literature suggests that POS effectively captures critical elements of the employee's experience of the work situation and that POS is one of the most important situational motivators of job performance (e.g., Eisenberger, Fasolo, & Davis-LaMastro, 1990). POS refers to employees' beliefs regarding the extent to which their employing organization values and cares about them. Researchers have employed social exchange theory to link POS with performance-related work behavior (e.g., Eisenberger et al., 1990). POS yields a responsibility to recompense the employing organization for its attention to socioemotional and other needs and signals the presence of acceptable effort–outcome expectancies. Accordingly, a high level of POS serves as a motivational trigger by inducing decisions to expend effort at a level necessary to achieve personal goals and compensate the organization as well as to maintain that level of effort until the organization is paid back and/or personal goals are achieved.

Workers reporting high POS are likely to discern that managers care about them, are willing to help them be successful, and are willing to reward them for their efforts. In contrast, a low POS situation may reflect that managers are providing neither sufficient assistance nor rewards, indicating that expression of effort would be of limited utility. In such circumstances, workers are likely to conserve the resources (e.g., time and energy) needed to deploy and sustain effort at a high level over time. Research indicates that POS is related to various aspects of typical performance (e.g., Eisenberger et al., 1990). Hence, we proposed the following:

H2: POS is positively related to typical performance.

THE JOINT EFFECTS OF GMA AND POS

Other things being equal, high GMA is likely to yield high levels of maximum performance, and high POS is likely to yield high levels of typical performance. However, other things are not always equal. We anticipated that the joint effects of GMA and POS are interactive rather than additive. POS may be a situational cue that contributes to the determination of the level of effort underlying the expression of work competence (i.e., maximum performance). Thus, POS may be a moderator of the GMA–maximum performance relationship, such that the GMA–maximum performance relationship is stronger among workers reporting high than low levels of support. We explain our expectation in terms of the combinations of GMA and POS.

Low GMA and Low POS

Low-GMA workers reporting low POS possess neither the ability to develop high levels of workplace competence nor the motivation to express it. Hence, they are likely to manifest low levels of maximum performance.

High GMA and High POS

High-GMA workers reporting high POS possess both the ability to develop high levels of workplace competence and the motivation to express it. Hence, these individuals are likely to manifest high levels of maximum performance.

Low GMA and High POS

Kanfer and Ackerman (2005) pointed out that even with "good organizational support" (p. 347), demonstrating high levels of work competence is only possible among workers with high levels of ability. Low-GMA workers are comparatively incapable of developing high levels of workplace competence and thus are likely to manifest low levels of maximum performance even if highly motivated (i.e., high POS).

High GMA and Low POS

High-GMA workers have the ability to develop high levels of work competence but are unlikely to express it if they are not motivated to exert effort on behalf of the organization. As an example of individuals not exerting effort due to low motivation, Kanfer and Ackerman (2005) cited bank tellers and grocery store cashiers working in groups antagonistic to "rate busting." High-GMA workers in such situations might be encouraged to demonstrate levels of maximum performance consistent with other employees. Consequently, they may "hold back" effort to avoid an accurate expression of their true level of competence so as to avoid social sanction. Another reason that high-GMA individuals working in unsupportive work environments may explicitly make the decision to withhold effort is to avoid unwanted additional work opportunities—those that they may view as representing an undesirable exchange of effort for reward.

H3: POS moderates the relationship between GMA and maximum performance. GMA is more strongly positively related to maximum performance among workers reporting high than low levels of organizational support.

We anticipated that the POS × GMA interaction just described is also characteristic of their joint effects on typical performance. However, we suggest that GMA acts as the moderator of the POS–typical performance relationship. Low-GMA workers reporting low POS lack both the motivation and ability to perform tasks at expected levels consistently over time. At low levels of POS, ability is unlikely to positively affect typical performance because the situational trigger to reciprocate and perform is absent. In situations of high POS, workers may possess the motivation to exert effort. However, for their effort to impact typical performance, they also need high levels of GMA. Thus, POS is most likely to affect typical performance among high-GMA workers. Accordingly, we proposed the following:

H4: GMA moderates the relationship between POS and typical performance. POS is more strongly positive related to typical performance among workers high than low in GMA.

METHOD

Participants and Procedure

Employees of two organizations contributed data to projects conducted for both applied and research purposes. Data collected from both Sample 1 (Ferris, Witt, & Hochwarter, 2001) and Sample 2 (Hochwarter, Witt, & Kacmar, 2000) were reported previously.

Sample 1. Memoranda were sent to managers of 356 nonsupervisory computer programmers in a systems development organization, requesting that they ask their subordinates to participate in our study later in the week. We were unable to ascertain how many employees received notification of the opportunity to participate. A total of 126 workers attended one of six small-group meetings in which they completed questionnaires. We provided potential participants with information about the study, allowed them to ask questions, and gave them opportunities to excuse themselves from involvement in the project. At approximately the same time, we asked supervisors to complete performance ratings on their subordinates. We did not receive complete supervisor ratings on all of the participating employees, and some of the employees did not thoroughly complete the survey. Hence, we collected complete data on only 96 programmers (27% of the total population and 76% of the employees who attended one of the small-group meetings; 29% women, 15% minorities; *M* age = 39.91 years; *M* tenure = 5.33 years). The sample closely resembled the population in terms of demographic characteristics (33% women, 12% minorities; *M* age = 39.09 years; *M* tenure = 5.16 years).

Sample 2. Memoranda requesting participation in the study were sent to the 310 workers in a cash vault; 254 (81.9%) volunteered. During the same week, supervisors were asked to complete performance ratings on their subordinates. Again, we did not receive complete supervisor ratings on all of the participating employees, and some of the employees did not thoroughly complete the survey. Overall, we collected complete data for only 181 workers (58% of the total population and 71% of the employees who volunteered; 77% women, 62% minorities; *M* age = 32.21 years; *M* tenure = 4.06 years). The sample closely resembled the population in terms of demographic characteristics (76% women, 64% minorities; *M* age = 31.66 years; *M* tenure = 3.73 years).

Measures

POS. We assessed POS using the nine-item short form version of the Survey of Perceptions of Organizational Support (Eisenberger et al., 1990). Employees in Sample 1 responded to the items on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and in Sample 2 on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

GMA. The Wonderlic Personnel Test assessed GMA (*Wonderlic Personnel Test Manual*, 1992).

Maximum performance. Based on results of job analyses and in consultation with line managers and human resources officials, we developed measures or applied existing measures of performance-related work behavior relevant to each

organization. Items assessing maximum performance in Sample 1 focused on the expression of ability aspects of competence in a technical environment. The five items used in Sample 1 were (a) "[Employee name] proposes superior technical solutions to accomplish business objectives," (b) "[Employee name] applies the highest levels of technical skill in completing work requirements," (c) "[Employee name] effectively handles many details and multiple tasks simultaneously," (d) "[Employee name] finds resourceful and creative solutions to complex technical problems," and (e) "[Employee name] uses analytic skills to understand issues at the systems level." Items assessing maximum performance in Sample 2 focused on the ability of workers to quickly, independently, and effectively function in an environment in which their process knowledge and ability to address equipment breakdown and process deviations were critical to performance. The five items used in Sample 2 were (a) "[Employee name] produces the right level of quality given volume and time constraints", (b) "[Employee name] works through problems independently whenever possible", (c) "[Employee name] uses critical thinking skills to analyze problems", (d) "[Employee name] has a solid understanding of the business", (e) "[Employee name] was quick to reach the necessary standard of performance." The employees' supervisors completed the items using the following scale: (a) "weak or bottom 10%," (b) "fair or next 20%," (c) "good or next 40%," (d) "very good or next 20%," or (e) "best or top 10%." These responses were scored as 1, 2, 3, 4, and 5, respectively.

Typical performance. In Sample 1, we assessed typical performance using Williams and Anderson's (1991) 7-item (e.g., "Employee fulfills responsibilities specified in her job description") measure of task-related behavior and 7 items of their 13-item (e.g., "Employee helps others who have heavy workloads") measure of organizational citizenship behavior (OCB). Note that we excluded items that pertained to noncompliance with rules and regulations, because those were less reflective of typical performance than behaviors geared toward task completion and active helping behaviors. Items completed by the employees' supervisors were presented on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In Sample 2, we focused on the "getting along with others" aspect of typical performance. We used these five items: (a) "[Employee name] shows maturity by controlling anger and extreme emotions," (b) "[Employee name] maintains a sense of control and poise with demanding customers," (c) "[Employee name] maintains positive attitudes in dealing with difficult co-workers," (d) "[Employee name] avoids unproductive complaints that may affect others negatively," and (e) "[Employee name] accepts instruction from supervisors without resentment." Supervisors responded to the items using a 5-point Likert-type scale: (a) "weak or bottom 10%," (b) "fair or next 20%," (c) "good or next 40%," (d) "very good or next 20%," or (e) "best or top 10%." These responses were scored as 1, 2, 3, 4, and 5, respectively.

RESULTS

We conducted confirmatory factor analyses to test whether calculating scale scores for the a-priori-identified performance factors was appropriate.[1] In Sample 1, the expected three-factor model consisting of the maximum performance, task-related typical behavior, and OCB items were of superior fit (comparative fit index [CFI] = .91) to a two-factor solution for maximum performance and typical performance (CFI = .75) and to a one-factor solution (CFI = .62). In Sample 2, we compared two two-factor models (one allowing factors to correlate) consisting of maximum performance and typical performance items and a one-factor model. The two-factor model in which the two latent factors were allowed to correlate best fit the data (CFI = .94, CFI = .89 for the model with two uncorrelated latent factors, CFI = .70 for the one-factor model).

Table 1 presents the descriptive statistics, reliability estimates, and correlation matrices. As shown there and consistent with Hypothesis 1, GMA was positively related to maximum performance (Sample 1: $r = .17$, $p < .10$; Sample 2: $r = .20$, $p < .01$). Providing mixed support for Hypothesis 2, POS was positively related to only two of the three measures of typical performance (Sample 1, task-related: $r = .12$, *ns*; Sample 1, OCB: $r = .21$, $p < .05$; Sample 2: $r = .26$, $p < .001$). GMA was unrelated to typical performance (Sample 1, task-related: $r = .09$, *ns*; Sample 1, OCB: $r = –.08$, *ns*; Sample 2: $r = .04$, *ns*), and POS was unrelated to maximum performance (Sample 1: $r = .09$, *ns*; Sample 2: $r = .11$, *ns*).

Table 2 presents the results of the hierarchical moderated multiple regression analyses. We centered the predictors and then entered GMA and POS scores at Step 1 and the GMA × POS cross-product term at Step 2. As shown in Table 2, the addition of the GMA × POS cross-product terms added significant variance only to the explanation of maximum performance ratings (Sample 1: Total $R^2 = .09$, $p < .05$; $\Delta R^2 = .05$, $p < .05$; Sample 2: Total $R^2 = .07$, $p < .05$; $\Delta R^2 = .02$, $p < .05$). Thus, the results provide support for GMA × POS interaction proposed in Hypothesis 3 (maximum performance) but not in Hypothesis 4 (typical performance).

We plotted the equations of the significant interactions at the 1, 0, and –1 standard deviations from the mean of POS. We present Figure 1 as an example, which is the plot from the Sample 2 data. As shown in Figure 1, the plots indicated a positive GMA–maximum performance relationship at high levels of POS but none at low levels of POS. The slopes of the regression lines of the employees reporting high levels of POS were significantly different from zero in both samples (Sample 1: $t = 2.49$, $p < .05$; Sample 2: $t = 2.43$, $p < .05$). The slopes of the regression lines of the employees reporting low levels of POS were not significantly different from

[1]For detailed results of the confirmatory factor analyses, including multiple fit indexes, please contact the authors. Note that in Sample 1, one item substantially lowered internal reliability and was therefore dropped from further analyses.

TABLE 1
Descriptive Statistics, Reliability Estimates, and Correlation Matrices

	Sample 1			*Sample 2*								
Variables	*M*	*SD*	α	*M*	*SD*	α	*1*	*2*	*3*	*4*	*5*	*6*
1. POS	4.78	1.04	.92	3.30	.83	.91	—	.01	.11	—	—	.26***
2. GMA	26.28	6.17	—	16.35	6.77	—	–.20*	—	.20**	—	—	.04
3. Maximum performance	3.37	.96	.93	3.20	.88	.90	.09	.17†	—	—	—	.58***
4. Task-related typical	6.21	.74	.93	—	—	—	.12	.09	.70***	—	—	—
5. OCB typical	4.88	1.02	.90	—	—	—	.21*	–.08	.32**	.56***	—	—
6. Typical performance	—	—	—	3.15	.95	.93	—	—	—	—	—	—

Note. Sample 1 correlations are below the diagonal, and Sample 2 correlations are above the diagonal. POS = perceived organizational support; GMA = general mental ability; OCB = organizational citizenship behavior.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 2
Multiple Regression Results

	Sample 1: Maximum Performance		*Sample 1: Task-Related Typical*		*Sample 1: OCB Typical Performance*		*Sample 2: Maximum Performance*		*Sample 2: Typical Performance*	
Predictors	*Step 1*	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*
Step 1										
POS	.13	.10	.15	.13	.21*	.24*	.11	.12†	.26**	.26**
GMA	.18†	.20*	.11	.12	–.01	–.02	.20**	.17*	.04	.03
Step 2										
GMA × POS		.23*		.13		–.16		.16*		.10
Total R^2	.04	.09*	.02	.04	.04	.06†	.05**	.07**	.07**	.07**
ΔR^2		.05*		.02		.02		.02*		.00

Note. Standardized coefficients are presented.
†$p < .10$. *$p < .05$. **$p < .01$.

zero in either sample (Sample 1: $t = -1.88$, *ns*; Sample 2: $t = -1.80$, *ns*). The slopes of the regression lines of the employees reporting mean levels of POS were significantly different from zero in Sample 2 ($t = 2.31$, $p < .05$) but not in Sample 1 ($t = 1.93$, *ns*).

DISCUSSION

Previous comparisons of maximum and typical performance have been confined to testing situations. Seeking to extend the literature by investigating these constructs in actual work settings in terms of supervisor-observed on-the-job behavior, we defined maximum performance as the expression of work competence (i.e., the maximum potential to perform), which primarily reflects what workers can do. We operationalized maximum performance using cognitively loaded items describing observed behaviors that primarily reflect worker capability and typical performance using items that primarily reflect motivation. Our efforts to extend the performance literature also included a focus on POS—a variable that captures situational aspects of motivation in terms of social exchange. This may be the first study to consider the joint effects of GMA and POS on performance. Consistent with previous work, GMA predicted maximum performance, and POS predicted two out of three indicators of typical performance. Their joint effects were interactive only on maximum performance: The GMA–maximum performance relationship was stronger among employees reporting higher POS than lower POS. Motivation may be likely to affect the extent to which actual job behaviors reflect potential to perform.

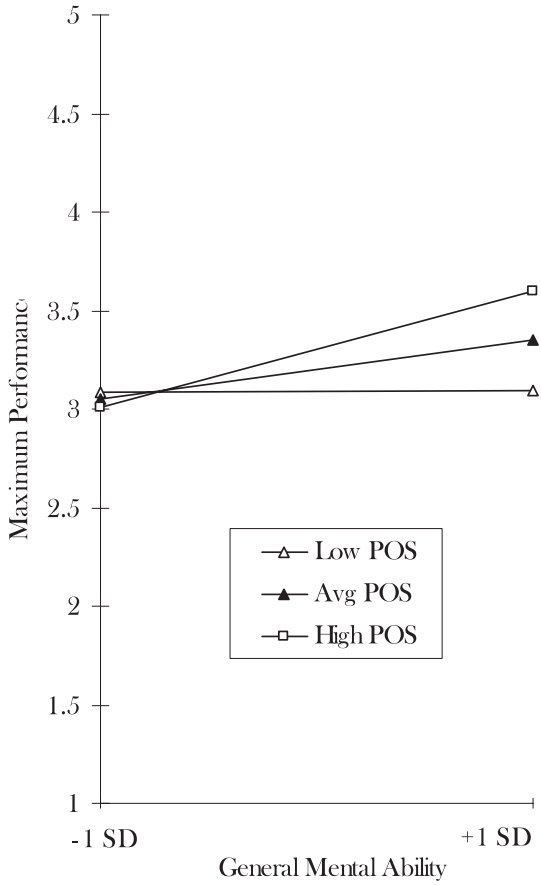

FIGURE 1 Maximum performance regressed on general mental ability: Low, average, and high levels of perceived organizational support (POS) groups in Sample 2.

We emphasize that we only reported data from two samples, that the uncorrected validity coefficients of GMA were weaker than expected, and that the ratio of sample size to parameters estimated in our confirmatory factor analyses of Sample 1 was less than ideal. Considering these weaknesses of the study, we invite readers to consider that providing organizational support may be important for organizations seeking to reap benefits from hiring high GMA employees, particularly when the expression of competence (i.e., potential to perform) is critical to overall performance. Moreover, we encourage performance researchers to consider contextual variables, not only POS but others, such as organizational justice.

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