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# Employee participation, performance metrics, and job performance: A survey study based on self-determination theory

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### ABSTRACT

Suitable and valid operational performance metrics are important means to translate an organization's strategy into action. However, developing high-quality operational metrics is challenging because such metrics need the right degree of context specificity to be meaningful to the managers and employees who will use them. We investigated whether managers consider metrics that have been co-developed with operational employees to be of higher quality and, in turn, whether they use these metrics more—and whether this use is linked to greater employee job performance. On the basis of self-determination theory, we investigated if different uses of performance metrics have different effects. We surveyed 86 pairs of operational employees and their immediate managers in various jobs and industries and tested our hypotheses with structural equation modeling. Results showed that when employees were involved in the development of performance metrics, managers perceived the metrics to be of better quality and employed those metrics more for evaluating and rewarding employees. Moreover, we found employees' performance was only higher when the metrics were used for evaluation purposes. We found no effect for using the metrics for monetary compensation or nonmonetary rewards. In sum, this study demonstrates that employee participation in the development of performance metrics has beneficial effects on the metrics' quality, and shows that the subsequent effect on job performance depends on how these metrics are used. We discuss implications for managers who want to ensure that the effect on employee job performance is positive when they involve employees in the development of operational performance metrics.

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## 1. Introduction

A critical function of contemporary performance measurement systems is the translation of strategies into operational terms (Evans, 2004; Franco-Santos et al., 2007, 2012; Ho et al., 2014; Melnyk et al., 2004). Here, “operational” refers to activities performed by work-floor employees in line positions, such as operators and professionals. These individuals are directly involved in creating the actual products and/or services of the organization, whether they are operators in a factory, on-site construction workers, doctors working with patients, or university professors teaching classes.

Our focus on operational employees and their first-line supervising managers is a distinguishing feature of this study. The work of operational employees is often context-specific (McKinnon and Bruns, 1992), and the peculiarities of the work present challenges to designing performance metrics that are valid, suitable, and meaningful quantified indicators of strategically relevant work activities (Hopp et al., 2009; Jordan and Messner, 2012; Lillis, 2002). High-quality operational performance metrics need to consider key details of the idiosyncratic aspects of how work is carried out, such as links between activities, reasonable standards in a particular context, resources used for the activities, and ways particular events are recorded and generate data (Wouters and Roijmans, 2011).<sup>1</sup>

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<sup>1</sup> For example, in a case study on developing operational performance metrics, Groen et al. (2012) describe how one intricacy for designing a meaningful performance measure of electricity use in a production department was the exclusion of the battery charging station for the forklift trucks, because its electricity use could

Prior research has looked at various approaches companies take to deal with poor representational qualities of operational performance metrics. Some firms use metrics in combination with subjective performance evaluation (Gibbs et al., 2004), while others try to improve their measurement system, for instance by integrating it with other management systems or adding weights to the metrics (Lillis, 2002). Managers may adopt flexible ways of using indicators once they are in place (Jordan and Messner, 2012; Jørgensen and Messner, 2010), and combine these with complementary information (Hall, 2010). Research has shown that performance metrics become more valid and transparent to managers when these metrics include operational knowledge (Englund and Gerdin, 2015), and the current study assumes that operational employees know more operational details than their managers. Therefore, employee participation in the development of performance metrics can help in constructing more valid, suitable, and meaningful representations of operational performance. We investigate whether performance metrics that have been co-developed with employees are related to employee job performance, and whether this relationship is mediated by the quality of the metrics—as judged by the managers—and by managers' subsequent use of those metrics.

Employee participation—in the broadest sense—is a popular research theme in the field of management accounting (e.g., De Baerdemaker and Bruggeman, 2015; Derfuss, 2009; Jansen, 2015; Kruis and Widener, 2014; Webb et al., 2010). This paper focuses on employee participation in the development of performance metrics (*PM participation*), a topic that is increasingly examined in the management accounting literature. Research has shown participation may provide various benefits for individuals and organizations (Abernethy and Bouwens, 2005; De Haas and Algera, 2002; Groen et al., 2012; Hunton and Gibson, 1999; Kleingeld et al., 2004; Li and Tang, 2009; Wouters and Wilderom, 2008). Several studies have specifically focused on the performance effects of *PM participation* and found it can increase performance, sometimes indirectly (Abernethy and Bouwens, 2005; Groen et al., 2012, 2016; Hunton and Gibson, 1999; Kleingeld et al., 2004). However, all of these studies have investigated the relationship between *PM participation* and performance from the perspective of the participating individuals. Thus far, no study has provided insights as to what superiors think about such co-developed PMs and how they could use PMs to stimulate better employee performance.

This study contributes to the existing literature by investigating how employee job performance can be improved by involving operational employees in developing their own performance metrics. We focus on a different level in the organization: operational employees and their managers (i.e., first-line supervisors) rather than managers and the next higher level managers. Moreover, we focus on different roles: the reactions of the supervising managers rather than the reactions of participating individuals to involvement in the development of operational performance metrics. Investigation of the reactions of the supervising managers is important because eventually management makes decisions about giving employees the opportunity to participate in developing

performance metrics, and about using the metrics to incentivize employees. The present research could help managers make better decisions in that regard. It investigates operational performance measurement through a behavioral lens and focuses on participation, different uses of the metrics, and employee job performance. Thereby it heeds the call to include behavioral theories in accounting research (Merchant et al., 2003), and builds upon recent insights that the impact of performance metrics depends upon how the metrics are used (e.g., Franco-Santos et al., 2012; Marginson et al., 2014; Van Veen-Dirks, 2010). This paper reports on whether involving employees in metrics development can increase managers' perceptions of the quality of performance metrics (*PM quality*), and how these metrics can be best used to increase employee job performance. We argue that managers should integrate the job-specific knowledge of operational employees into the performance metrics through employee participation. Such participation may lead to metrics that more aptly reflect the job performance of operational employees and, when used by managers in an appropriate way, may boost employees' job performance. We test three types of uses of these performance metrics as mediators in the relationship between *PM participation* and *employee job performance*.

Besides the overall contribution outlined above, the model tested in this study also aims to make two other contributions. First, the model focuses on *PM participation* as an antecedent of the perceived quality of the metrics. We acknowledge that managers could be concerned that participation may create difficulties (it may, for example, lead to disagreement and conflict, and may also consume much time) and that employees might use their knowledge to construct metrics that are more advantageous to themselves. We develop a nuanced argument as to why, nevertheless, both employees and managers may want to adopt *PM participation* to improve the validity of the operational performance metrics and to increase their sensitivity, precision, and verifiability. Therefore, in our model these measurement properties are not exogenously given, but are shaped in the development of the performance metrics. We test the theoretical model with survey data from pairs of managers and their subordinates from various operational types of jobs, organizations, and industries, and in line with the prediction, we find that *PM participation* of employees improves measurement properties as perceived by managers. Also, as expected, we find that managers make more use of the performance metrics to reward and evaluate employees when they perceive the metrics to be of better quality.

For the second additional contribution, we investigate consequences of perceived quality of performance metrics in more detail by examining three types of use of PMs by managers and, in turn, their differential effects on job performance. These types of use concern the importance of PMs for monetary compensation, non-monetary rewards, and evaluation purposes. For this, we draw on the distinction between tangible rewards and verbal rewards that is central in research using self-determination theory (Cameron and Pierce, 1994; Deci et al., 1999a). Tangible rewards are concrete and explicit incentives that “are frequently offered to people as an inducement to engage in a behavior in which they might not otherwise engage” (Deci et al., 2001a, p. 4). We distinguish two different types of tangible rewards, and so our model includes the *use of PMs for monetary compensation* (such as salary increases or bonuses) and the *use of PMs for nonmonetary rewards* (such as increasing the chances of promotion). Using PMs in relation to verbal rewards means that PMs are brought up in expressions of appreciation and provide employees with information that helps them in their work. We include in our model the *use of PMs for evaluation purposes*, which refers to their use in performance evaluations, official performance ratings, and periodic discussions. The *use of PMs for evaluation purposes* focuses on substantive discussion about what has been driving performance and which actions could be taken, whereby PMs inform this process: “In the periodic evaluation, the

not be influenced by the employees. As another example, a performance measure for on-time grading of examinations in a university context could be complicated by many operational peculiarities that would have to be incorporated in the metrics, such as: What does on-time mean and how can it be measured if, for a given course, an individual student's final grade can only be determined and reported after that student has handed in a final assignment, but the deadline for that assignment has been set several weeks after students have taken the written examination for that course? What counts as the compliance date—the date on which grades are unofficially published on-line by the lecturer? Or is it the date on which the lecturer sends the grades to Dean's office, or the date on which that office is able to enter those grades into the official system?

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