Empowerment, Motivation, and Performance: Examining the Impact of Feedback and Incentives on Nonmanagement Employees

Andrea R. Drake  
*University of Cincinnati*

Jeffrey Wong  
*University of Nevada, Reno*

Stephen B. Salter  
*University of Cincinnati*

**ABSTRACT:** Motivated employees play a key role in organization success, and past research indicates a positive association between perceptions of empowerment and motivation. A prominent model put forth by Spreitzer (1995) suggests that two major components of control systems will positively affect employee feelings of empowerment—performance feedback and performance-based reward systems. This experimental study contributes to the behavioral accounting literature by examining how specific types of performance feedback and performance-based rewards affect three psychological dimensions of empowerment. Also, we use a relatively simple context to investigate whether predictions validated on surveys of managers also hold for lower-level workers. Our results suggest that feedback and rewards affect the dimensions of empowerment differently for lower-level workers than they do for managers. Namely, performance feedback was positively associated with only one dimension and performance-based rewards had negative effects on two out of the three dimensions. In addition, overall motivation was not significantly associated with two of the three empowerment dimensions. Implications of this study are that techniques that work to increase manager perceptions of empowerment may not work at lower organizational levels and, even if successful, the related increase in employee motivation may not be significant.

**Keywords:** empowerment; performance measurement; feedback; incentives.

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INTRODUCTION

Highly motivated employees are a critical factor in the long-term success of many organizations. Given this, accountants are becoming increasingly interested in how elements of control systems affect employee motivation at all organizational levels. Employee empowerment has been advocated by management and accounting researchers as a way to increase employee motivation. For example, the balanced scorecard concept, advocated by many management accountants, stresses the importance of empowering employees to increase their motivation, learning, and growth (Kaplan and Norton 1992, 1996). Similarly, management studies have shown employees who feel empowered have higher levels of task motivation, which in turn, has been linked to greater organizational effectiveness and performance (Thomas and Velthouse 1990; Koberg et al. 1999). Although there is a presumed link between empowerment and motivation, little accounting research has examined this relationship or how various aspects of a firm’s control system affect employee empowerment, motivation, and performance.

Many definitions of employee empowerment have been suggested in the accounting, management, and human resources literature (Bandura 1977; Conger and Kanungo 1988; Thomas and Velthouse 1990; Spreitzer 1995, 1996; Spreitzer et al. 1997; Argyris 1998; Yeh-Yun Lin 1998; Herrenkohl et al. 1999; Koberg et al. 1999; Seibert et al. 2004). For this study, we follow the viewpoint of recent research that empowerment is a multidimensional, psychological concept that is affected by both personality and environmental variables (Conger and Kanungo 1988; Thomas and Velthouse 1990; Spreitzer 1995; Seibert et al. 2004). Thus, we define psychological empowerment as the additive effects, or gestalt of three separate dimensions validated by Spreitzer (1995). The dimensions are perceived impact, competence, and self-determination. A detailed description of these dimensions is described in the development of hypotheses. Throughout the paper, empowerment is presumed to refer to these three dimensions unless otherwise noted.

Based on a synthesis of past research, Spreitzer (1995) developed and validated a general model of the antecedents and consequences of psychological empowerment based on a survey of mid-level managers at a large industrial firm. In the model, two important elements of firm-control systems play a prominent role as antecedents to empowerment—feedback and rewards (Spreitzer 1995). In general, the model predicts that providing employees with higher levels of individual performance feedback and performance-based rewards will increase feelings of psychological empowerment. However, the exact type and form of the feedback and reward systems is left largely unexplored. In addition, the model was developed using primarily manager-level data (Spreitzer 1995, 1996). It is suggested that the model will also hold for lower-level, front-line employees but further testing is needed.

We contribute to the behavioral accounting literature by using this model, along with prior research in accounting, to predict how specific types of feedback and reward systems affect the various dimensions of empowerment. In addition, linkages between the dimensions of empowerment, motivation, and individual performance are also investigated. In contrast to Spreitzer (1995), we conduct an experiment and our study uses subjects representative of lower-level employees (i.e., those without managerial experience or duties). Lower-level employees are likely to have more structured and routine tasks than management personnel. We chose to focus on lower-level employees because relatively little research has been devoted to investigating the perceptions of empowerment in this group. As

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1 Several Fortune 500 companies, including Advanced Micro Devices, Motorola, and Metropolitan Life (Kaplan and Norton 1996) have adopted the balanced-scorecard method.
noted by Spreitzer (1995), further research is needed at this level regarding the linkages between contextual variables and the dimensions of empowerment.

Our study employs a three-by-two between-subjects experimental design that manipulates the individual performance feedback and reward system provided to participants. The three levels of performance feedback consist of pay only, pay plus nonfinancial performance feedback, and pay plus nonfinancial and financial performance feedback. The two reward systems used in the study consist of a flat-wage per work period and a performance-based reward system that is based on the profits generated by subject performance on the experimental task. Given that our study is aimed at the level of front-line workers rather than managers, the experimental task is simple, yet involves elements of choice to create an empowered environment.

Feedback and rewards are hypothesized to affect three validated dimensions of employee empowerment noted in the Spreitzer (1995) model—impact on firm profit, task competence, and self-determination as depicted in Figure 1. These three variables are hypothesized to be positively related to an overall measure of task motivation, which in turn is hypothesized to be positively related to performance.

In general, the results show that feedback and rewards each affect separate dimensions of empowerment rather than all dimensions as predicted by the Spreitzer (1995) model. For example, under both reward systems, the highest level of feedback is associated with significantly greater levels of perceived impact on profitability. However, contrary to prediction, higher levels of performance feedback are not significantly related to perceived task competence or self-determination.

Additionally, our study found that individual performance-based rewards are not positively related to the three dimensions of empowerment as implied by the Spreitzer (1995) model. There was no significant relationship between performance-based rewards and perceived impact on profitability and a significant but negative relationship with self-determination. Moreover, performance-based rewards are negatively related to perceived task competence after controlling for actual performance. This means that for subjects with equal task performance, those with performance-based rewards viewed themselves as less competent than those with flat-wage rewards.
Our contribution to the behavioral accounting literature is twofold. First, studying which specific control features increase psychological perceptions of empowerment by lower-level workers is important given the strong links between empowerment, motivation, and performance noted for managers in prior literature. Specifically, we examine the effects of certain types of performance feedback and performance-based rewards on three dimensions of empowerment. Second, our study finds that performance feedback and performance-based rewards do not have the same effects on the dimensions of empowerment as found in Spreitzer’s (1995) survey of managers. This implies that control features that empower managers may not empower lower-level employees. Thus, further research is needed on how to increase the psychological feelings of empowerment for these workers.

The remainder of the paper is organized into six sections as follows. The next section contains a review of the research related to the concept of employee empowerment and develops the hypotheses related to feedback and reward systems. The third section provides an overview of the experimental task and procedures, and the fourth section presents the results of the study. The fifth section indicates the limitations of the study and possible directions for future research. The sixth section contains the conclusion.

**LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

While past studies of empowerment have focused mainly on managers (Spreitzer 1995, 1996), our study is aimed specifically at employees working in positions at a lower level in the organization. These workers, who are directly involved with data entry, data processing, customer service, and manufacturing processes are an important population to study. Front-line employees of service-based firms often have significant autonomy and responsibility for providing their firm’s services to clients (Hooks and Higgs 2002). Increased automation of routine tasks, flexible manufacturing practices, just-in-time production methods, and total-quality management have increased front-line worker involvement in all phases of the manufacturing process (Banker and Potter 1993). Motivating these workers is now seen as critical to increasing organizational performance. The present study examines whether empowerment indeed leads to higher levels of employee motivation. The study of factors that lead to increased levels of empowerment can contribute to our understanding of the linkages between these factors and ultimately firm performance.

The balanced scorecard approach to organizational management also provides support for why the study of motivation via empowerment is needed. The balanced scorecard is a multi-dimensional management system predicated upon the premise that motivated and empowered employees are critical to the firms’ success. However, seminal writings on the balanced scorecard concept discuss the antecedents and effects of motivation at a very general level (Kaplan and Norton 1992, 1996). Given the importance of front-line workers to achieving overall organizational objectives, research into factors that affect the motivation of these workers is also warranted. In addition, although empowered employees are a part of the learning and growth perspective of the balanced scorecard (Kaplan and Norton 1996, 127), the specific concept of empowerment has received very little research attention from management accountants. Our study adds to the understanding of how specific antecedents affect empowerment and motivation, and in turn, how motivation affects employee performance and ultimately firm profitability.

Given the relatively little behavioral-accounting research focused on empowerment, it is critical to first define the concept of empowerment. Early studies of employee empowerment in the management and human resources literatures developed various definitions of empowerment based on particular research goals (Tracy 1990; Bardwick 1991; Frey 1993; Jaffe and Scott 1993; Schutz 1994; Mohrman et al. 1995; Herrenkohl et al. 1999).
In an effort to combine and generalize the many study-specific definitions, recent authors have advocated that empowerment is a multi-faceted concept determined by both work-related factors and intrinsic personality traits. For example, Thomas and Velthouse (1990) defined empowerment as increased intrinsic task motivation that results from four cognitions or task assessments, that reflect an individual’s perceptions of his or her work role. These four cognitions, which are modeled as having an additive effect on motivation, are labeled meaningfulness, competence, choice, and impact. Meaningfulness refers to “the intrinsic value of a work task, judged in relation to an individual’s own ideals or standards” (Thomas and Velthouse 1990, 672). Competence is defined as “the degree to which a person can perform task activities skillfully when he or she tries” (Thomas and Velthouse 1990, 672). Choice refers to an individual’s sense of having causal responsibility for his or her own actions. Impact is an employees’ belief that his or her actions make a difference in terms of accomplishing a goal or purpose. Thus, based on the work of Thomas and Velthouse (1990), empowerment is modeled as a second-order construct made up of these four separate dimensions.

Spreitzer (1995) constructed and validated measures of Thomas and Velthouse’s (1990) four dimensions of empowerment with an extensive survey administered to 393 managers of a Fortune 50 industrial organization. In the model, the “choice” cognition was renamed “self-determination” to reflect individuals’ belief that they can choose how they go about their work, such as methods, pace, and effort. In addition, the study developed an initial model of the antecedents and consequences of empowerment. The antecedents to empowerment consisted of two broad classes of measures—intrinsic personality variables and work-environment variables. The personality variables included self-esteem and locus of control, which influence how individuals see themselves in relation to their work contexts. The work-related variables included information and rewards.

Based on the work of Lawler (1992), Spreitzer (1995) posited that two specific types of information are critical antecedents to empowerment. The first consists of information regarding an organization’s mission, and the second consists of information related to performance. Information on an organization’s mission helps create a sense of purpose and indicates to employees how to act in accordance with the organization’s goals (Conger and Kanungo 1988; Lawler 1992). Information regarding individual performance is important because it reinforces feelings of competence and impact and can provide direction on how to maintain or improve performance.

Rewards based on individual performance are also hypothesized to be an important antecedent of empowerment (Spreitzer 1995). As noted by Lawler (1992), group- or organization-based rewards can be effective but often, individual employees do not see a clear link between their actions, performance at higher levels, and their subsequent reward. Strengthening the link between individual performance and rewards can lead to increased feelings of empowerment by reinforcing feelings of competence and “providing individuals with incentives for participating in and affecting decision-making processes at work” (Spreitzer 1995, 1448).

Consistent with Spreitzer’s (1995) model, the current study focuses on information and rewards as antecedents to three dimensions of empowerment. Specifically, we apply the Spreitzer (1995) model and examine whether and how different types of reward systems and individual performance feedback affect perceptions of impact, competence, and self-determination2 in an experimental setting. Information regarding mission is effectively held

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2 Due to the simple nature of the task employed and the short duration of the experiment, the dimension of meaning was not examined.
constant as all subjects are told that the goal of the firm is to make as high a profit as possible. Given the overall goal of firm profitability, we measure impact as how strongly subjects believed their work could affect firm profitability. Competence is measured by whether subjects believed they were “good” at the task and could do it correctly. Last, self-determination is measured by subject perceptions that they could choose which tasks to work on as well as their effort level.

Three distinct levels of information regarding individual performance are examined. Under the lowest level, subjects are not given any information related to how well they did on any specific task. They are only informed of their pay at the end of each work period. Under the second, intermediary level, subjects are informed of their pay at the end of each work period, and they are given information detailing how many task items they got correct and incorrect. Under the third level, subjects receive information on not only their pay and how many items they got correct and incorrect, but also how much revenue, cost, and profit they generated for the firm. Based on Spreitzer’s (1995) model, higher levels of performance information are hypothesized to be associated with higher levels of perceived impact, competence, and self-determination. These predictions are combined into the following hypotheses and shown in Figure 2.

**H1a:** Higher levels of feedback regarding individual performance will result in greater perceived impact than will lower levels of performance feedback.

**H1b:** Higher levels of feedback regarding individual performance will result in greater perceived competence than will lower levels of performance feedback.

**H1c:** Higher levels of feedback regarding individual performance will result in greater perceived self-determination than will lower levels of performance feedback.

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**FIGURE 2**

Hypothesized Model

[Diagram of the hypothesized model showing the relationships between feedback, impact, competence, self-determination, motivation, and performance.]

All paths are hypothesized to be positive, except H2c. Self-Esteem and Locus of Control are also tested for positive association with each of the three empowerment dimensions.
Two types of reward systems are examined—flat-wage and performance-based pay. Under the flat-wage scheme, subjects receive a fixed amount of money for working on the task for a given amount of time, regardless of performance. Under the performance-based scheme, subjects receive a fixed percentage of the profit they generated for the firm from working on the task for a given amount of time. Consistent with Spreitzer’s (1995) model, performance-based rewards are predicted to have a positive effect on perceived competence and impact. However, based on the two reward schemes employed and past research on incentives (Kohn 1993; Bonner et al. 2000; Sprinkle 2000; Bonner and Sprinkle 2002), we predict that the performance-based reward system will be negatively associated with self-determination, as compared to a flat-wage system. Under a flat-wage system, subjects are expected to feel free to choose the amount of effort they put into the task and the pace at which they work. In contrast, under a performance-based reward system, subjects are expected to feel compelled to expend greater effort and work at a high pace, since their pay will be dependent on it.

The set of predictions related to reward systems is summarized in the following hypotheses and shown in Figure 2.3

H2a: A performance-based reward system will result in greater perceived impact than will a nonperformance-based reward system.

H2b: A performance-based reward system will result in greater perceived competence than will a nonperformance-based reward system.

H2c: A performance-based reward system will result in lower levels of perceived self-determination than will a nonperformance-based reward system.

Given the pervasive linkage between empowerment and task motivation in past research (Thomas and Velthouse 1990; Spreitzer 1995, 1996), we also hypothesize that perceived impact, competence, and self-determination will be positively associated with task motivation. These predictions are summarized in the following hypotheses and shown in Figure 2.

H3a: Higher levels of perceived impact are associated with higher levels of task motivation.

H3b: Higher levels of perceived competence are associated with higher levels of task motivation.

H3c: Higher levels of perceived self-determination are associated with higher levels of task motivation.

Given that the overall goal of motivating employees is to increase firm performance, our final hypothesis links motivation to performance. In our experimental setting, performance is measured as profit, and the hypothesis is as follows:

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3 We have elected to use the three separate dimensions of empowerment rather than a combined second-order construct for two reasons. First, recent authors such as Seibert et al. (2004) suggest that since the multidimensionality of empowerment has been established, investigation of the individual dimensions is now warranted. Second, given that we predict performance-based rewards will have a negative effect on self-determination and positive effects on impact and competence, using a combined measure would result in the appearance of a weak (or nonexistent) effect of performance-based rewards. The positive and negative effects on the individual dimensions would tend to cancel each other out in an overall measure, negating any true correlations.
H4: Higher levels of task motivation are associated with higher performance.

Figure 2 contains the overall path model initially tested. As noted earlier, past studies of empowerment (Spreitzer 1995, 1996) have found significant evidence that the intrinsic personality variables of self-esteem and locus of control are related to empowerment. Consistent with these findings, the current study measures these two variables with a set of questionnaire items. However, since they are not of primary interest to the study, they are used only as control variables and included in the final model only when found to be significantly associated with particular factors.

RESEARCH METHOD

The task used in the experiment was a simple decoding exercise designed to reflect work that lower-level personnel would perform. At the beginning of each work period, subjects were given a decoding key and a packet of codes to solve. The codes consisted of a series of letters that had to be transformed into corresponding numbers based on the key. Once all letters were decoded into their proper numbers, the codes were “solved” by summing the numbers.

To create a setting in which subjects had some degree of choice as to what task(s) to work on, each packet contained a mix of two types of codes. Subjects were told they had complete freedom in deciding which codes to solve. “A Codes” consisted of a set of four letters that corresponded to two-digit numbers. To solve an A code, subjects had to add up four two-digit numbers. “Z Codes” were more difficult and consisted of a set of five letters corresponding to four-digit numbers. Thus, to solve a Z code subjects had to sum five four-digit numbers. As an illustration of the task, Appendix A contains a sample set of codes, the corresponding key, and sample solutions.

The study employed a three-by-two between subjects design with the manipulated variables being the reward system subjects faced and the type of feedback they received after each work period. The two reward systems consisted of either a flat-wage or a performance-based scheme. Under the flat-wage scheme, subjects received a constant $2.50 wage for each work period completed. Under the performance-based scheme, subjects were paid one percent of the profit they generated for the firm each work period. Subjects generated profit by earning $20 ($60) in revenue for each correct A (Z) code and incurring a cost of $5 ($25) for each incorrect A (Z) code.

At the end of each work period, subjects received one of three types of Feedback. The first type included only information on their wages for the period. Those under the flat-wage pay scheme learned whether they had successfully earned the $2.50 flat-wage amount, and those under the performance-based scheme learned how much they had earned based on their profit for the period. The second type of feedback included the pay information (as above) as well as the number of each type of code (i.e., A or Z) they got correct and incorrect. The third type of feedback included their pay for the period, the number of each code, and the number of correct and incorrect codes for each type of code.

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4 Subjects were not allowed to use calculators during the exercise.
5 To earn the $2.50, subjects needed to show that they attempted the task during the work period (i.e., they would not earn the $2.50 if they just sat and did nothing during the period).
6 The task is an adaptation of tasks employed in Chow (1983), Fatseas and Hirst (1992), and Lee et al. (1997). A simple decoding task with an arithmetic element was chosen because all subjects would have the skills to do it but would still have to exert mental effort. Using A and Z codes (although essentially the same task) was employed to give subjects’ choice in how they went about completing each work period. The Z codes were made more difficult to represent a lower-level worker doing essentially the same job but “going the extra mile.”
type of code they got correct and incorrect, and also information regarding the specific amounts of revenues and costs they generated for the firm as a result of correct and incorrect codes.

One hundred twenty-five undergraduate students participated in the study and were randomly assigned to one of the six experimental conditions. Subjects were recruited primarily from sophomore- and junior-level business classes at a large midwestern university. This particular subject pool was chosen because they were likely to have little management experience and to be employed in noncomplex front-line positions, such as basic customer service. Before receiving any specific task instructions, subjects were asked to complete a brief questionnaire that contained various demographic questions and items meant to measure the intrinsic constructs of self-esteem and locus of control. After all questionnaires were collected, subjects received condition-specific training according to prepared scripts. They were shown how to use the decoding keys to solve each type of code and were allowed to practice one problem of each type on their own. During this time, any questions on how to solve the codes were answered. They were informed that each work period would be six minutes long with a 30-second warning near the end. Finally, they were told what feedback they would receive after each period and how they would be paid.

Subjects then completed six periods of performing the decoding task and receiving feedback. After receiving their feedback for the sixth period, they were informed that the work periods were over, and that they had only to complete a final questionnaire. Once subjects turned in their final questionnaire, they were paid the sum of their wages for the six work periods. On average, the experiment took between 90 and 105 minutes to complete, and subjects were paid an average of $16 for participating.

RESULTS

Demographics and Control Variables

The pre-questionnaire collected several demographic items as well as measures of self-esteem and locus of control. Although subjects were randomly assigned to experimental conditions, three demographic variables (gender, age, and class level) differed significantly across conditions and were therefore used as covariates in the analyses to partial out their effects on the dependent variables. The inclusion of these variables did not have a material affect on the results reported.

As to gender, 59.2 percent of subjects were male and 40.8 percent were female, with significantly more females being assigned to the profit-based pay conditions. The average age of subjects was 21.4 years, with slightly older students occurring under the flat-wage condition. The majority of subjects (85.6 percent) were from the U.S. or Canada, 8.0 percent were from an Asian nation, while the remaining 6.4 percent were from Europe, Latin America, or other nations. Sophomore- and junior-level students made up 79.2 percent of the sample; 6.4 percent were freshman, and 14.4 percent were seniors or masters-level students. Somewhat higher-level students were in the nonfinancial-performance-information condition. A variety of business majors were represented in the sample, with the largest percentages being information systems, finance, and accounting, with 23.2 percent, 16 percent, and 15.2 percent respectively. The average self-reported grade-point average was 3.05. There were no significant differences in nationality, major, or GPA across experimental conditions.

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7 To avoid end-game strategies in the final period, subjects were not informed of how many periods they were going to complete.
Overview of Data Analysis

The results were analyzed using the following process. First, the measurement model linking observed responses to latent factors was tested and refined. Once satisfactory sets of measurement items were determined for each factor, the items were summed to form corresponding scales. Second, the overall path model shown in Figure 2 was tested using the scales identified in step one. Specific links were then examined for significance to test the individual hypotheses. In addition, Wald tests were used to identify paths that could potentially be eliminated and Lagrange Multiplier (LM) tests were used to identify paths that should be added. The resulting final model of employee empowerment and motivation is shown in Figure 3. The following paragraphs highlight the findings of this process.

Measurement Model

The pre- and post-questionnaire items were examined for convergent and discriminant validity using confirmatory factor analysis with EQS (Byrne 1994). Several items were eliminated due to low-internal consistency with other hypothesized scale items, or a lack of discriminant validity as shown through excessive cross-loadings on more than one factor. The final sets of items measuring each factor are contained in Appendix B. An examination of the correlation matrix between all included items indicated convergent and discriminant validity, as each item was highly correlated with other items predicted to measure the same factor and not with other items. A confirmatory-factor analysis of the items contained in Appendix B yielded a Comparative Fit Index (CFI) of .90 with a Root Mean Squared Error of Approximation (RMSEA) of .06, providing support for the overall measurement model (Byrne 1994). Table 1 contains the correlations of each factor with its respective measurement items (i.e., factor loadings).

After the reliability and validity of the measures was determined, the items measuring each dependent variable (as well as self-esteem and locus of control) were summed to form

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**FIGURE 3**

Employee Empowerment and Motivation Model

![Diagram of Employee Empowerment and Motivation Model]

All paths shown are significant at the .05 level.
CFI = .96; RMSEA = .04.
### TABLE 1
Confirmatory Factor-Analysis Results—Factor Loadings

<table>
<thead>
<tr>
<th>Factor Measurement Item</th>
<th>Impact</th>
<th>Competence</th>
<th>Self-Determination</th>
<th>Motivation</th>
<th>Self-Esteem</th>
<th>Locus of Control</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>.90</td>
<td>.70</td>
<td>.73</td>
<td>.58</td>
<td>.53</td>
<td>.57</td>
<td>.61</td>
</tr>
<tr>
<td>2.</td>
<td>.64</td>
<td>.58</td>
<td>.42</td>
<td>.61</td>
<td>.83</td>
<td>.63</td>
<td>.90</td>
</tr>
<tr>
<td>3.</td>
<td>.68</td>
<td>.65</td>
<td>.76</td>
<td>.58</td>
<td>.71</td>
<td>.79</td>
<td>.75</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td>.74</td>
<td></td>
<td>.69</td>
<td>.47</td>
<td>.74</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td>.71</td>
<td></td>
<td>.55</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td></td>
<td></td>
<td>.60</td>
<td></td>
<td>.71</td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
<td>.64</td>
<td></td>
<td>.51</td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
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<td></td>
<td>.39</td>
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<td>.69</td>
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<tr>
<td>9.</td>
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<tr>
<td>10.</td>
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</tr>
</tbody>
</table>

Each table entry represents the correlation between the column factor and the measurement item listed in Appendix B. For example, the entry self-determination—measurement item 1 (.73) corresponds to the correlation between the factor self-determination and its measurement item number 1 listed in Appendix B (i.e., I felt free to choose the amount of effort I spent on the decoding task). Each of the measurement items listed in Appendix B were correlated most highly with their predicted factor (convergent validity) and not significantly correlated with other factors (discriminant validity).

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### TABLE 2
Factor Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>S.D.</th>
<th>alpha</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Determination</td>
<td>18.6</td>
<td>2.9</td>
<td>.65</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Competence</td>
<td>17.0</td>
<td>3.4</td>
<td>.66</td>
<td>.27*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Impact</td>
<td>13.7</td>
<td>4.8</td>
<td>.77</td>
<td>.04</td>
<td>.25*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Task Motivation</td>
<td>47.1</td>
<td>11.3</td>
<td>.81</td>
<td>.06</td>
<td>.09</td>
<td>.23*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5. Performance</td>
<td>1,149</td>
<td>311</td>
<td>.83</td>
<td>.12</td>
<td>.23*</td>
<td>.15</td>
<td>.23*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Self-Esteem</td>
<td>36.4</td>
<td>4.5</td>
<td>.86</td>
<td>.17</td>
<td>.29*</td>
<td>.12</td>
<td>-.02</td>
<td>-.04</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Locus of Control</td>
<td>17.6</td>
<td>4.0</td>
<td>.71</td>
<td>-.05</td>
<td>.03</td>
<td>.03</td>
<td>-.01</td>
<td>.00</td>
<td>.10</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Manipulated Variables**

| 8. Feedback                   | NA   | NA   | NA   | -.04 | .04  | .26* | .15  | .10  | -.01 | -.01 | 1.00 |      |
| 9. Reward Scheme              | NA   | NA   | NA   | -.25*| -.19*| .11  | .41* | .15  | -.15 | -.06 | .02  | 1.00 |

* Significant at the .05 level.

*Please see Appendix B for a list of items that make up each factor.

alpha = Cronbach’s reliability coefficient alpha.
TABLE 3
Descriptive Statistics by Experimental Condition a

<table>
<thead>
<tr>
<th></th>
<th>Flat-Wage Reward System b</th>
<th>Performance-Based Reward System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pay only</td>
<td>Nonfinancial</td>
</tr>
<tr>
<td>Perceived Impact c</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>(6.4)</td>
<td>(4.9)</td>
</tr>
<tr>
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<td>n = 21</td>
<td>n = 21</td>
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<tr>
<td>Perceived Competence</td>
<td>16.6</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>(4.2)</td>
<td>(2.7)</td>
</tr>
<tr>
<td>n = 21</td>
<td>n = 21</td>
<td>n = 21</td>
</tr>
<tr>
<td>Perceived Self-Determination</td>
<td>19.7</td>
<td>19.4</td>
</tr>
<tr>
<td></td>
<td>(1.7)</td>
<td>(1.8)</td>
</tr>
<tr>
<td>n = 21</td>
<td>n = 21</td>
<td>n = 21</td>
</tr>
<tr>
<td>Task Motivation</td>
<td>37.2</td>
<td>44.8</td>
</tr>
<tr>
<td></td>
<td>(11.1)</td>
<td>(9.4)</td>
</tr>
<tr>
<td>n = 21</td>
<td>n = 21</td>
<td>n = 21</td>
</tr>
<tr>
<td>Performance</td>
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<td>1,056</td>
</tr>
<tr>
<td></td>
<td>(281)</td>
<td>(333)</td>
</tr>
<tr>
<td>n = 21</td>
<td>n = 21</td>
<td>n = 21</td>
</tr>
</tbody>
</table>

a Cells contain Mean (Standard Deviation) and number of subjects; n = 124.
b Flat-Wage reward system subjects were paid a fixed amount for each work period. Performance-based reward system subjects were paid based on the profit they generated each work period. Pay-Only subjects received information on only their pay for the work period. Nonfinancial subjects received information regarding how many of each type of code they got correct and incorrect (plus their pay information). Financial subjects received information on how many codes they got correct and incorrect translated into revenues and costs, respectively, for the firm (plus their pay information).
c Please see Appendix B for the items that make up perceived impact, perceived competence, perceived self-determination, motivation, and performance.

Hypotheses 1a–1c

Hypotheses 1a–1c predicted that higher levels of Feedback would be associated with greater perceived impact, competence, and self-determination. Table 2 shows that feedback level is significantly correlated with only impact (r = .26). There is no significant correlation between feedback level and competence (r = .04) or feedback level and self-determination (r = -.04). An examination of the results of testing the path model in Figure 2 indicated that the path from feedback to impact was significant (standardized path coefficient = .24; p < .05), providing support for H1a. However, contrary to H1b and H1c, the paths between feedback and both competence and self-determination were insignificant. In addition, Wald tests revealed that these two links could be eliminated without significantly affecting model fit. Thus, given the overall lack of support for these links, they were removed from the model as shown in Figure 3. However, consistent with prior literature (Bandura 1977; Spreitzer 1995), a significant correlation and path coefficient were found between competence and the control variable, self-esteem (r = .29; path coefficient = .24; p < .05). Thus, this link remains in the final model.

Regarding H1a, an examination of the means contained in Table 3 show a substantially higher level of perceived impact on profits under the highest level of feedback (financial). Under flat-wage, there is equally low perceived impact under both the pay only information
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and nonfinancial information conditions. Under profit-based pay, there is an insignificant decrease in perceived impact between the pay only condition and the nonfinancial information conditions (13.9 versus 12.6; t = 1.0). A significant increase in perceived impact occurs only under the financial information condition, as compared to the nonfinancial information condition, for both the flat-wage (12.0 versus 15.6; t = 2.6) and profit-based pay (12.6 versus 16.4; t = 2.8). Thus, although there is support for H1a, the results should be interpreted carefully. Specifically, a significant increase in perceived impact on profitability occurs only when financial information is added that ties task performance to profits. Simply basing rewards on profitability without providing this type of feedback was not enough to induce an increase in perceived impact on profits, relative to a flat-wage.

Regarding H1b, perceived competence was found to be significantly correlated with the control variable, self-esteem (r = .29), but not with feedback (r = .04). The high correlation between competence and self-esteem is consistent with prior literature (Bandura 1977; Spreitzer 1995).

Hypotheses 2a–2c

Hypotheses 2a–2b predicted that a performance-based reward system would be associated with greater perceived impact and competence. Contrary to these predictions, Table 2 shows there is no significant correlation between performance-based rewards and impact (r = .11), and a significant negative correlation between performance-based rewards and competence (r = −.19). Hypothesis 2c predicted that a performance-based reward system would be associated with lower perceived self-determination, and Table 2 shows a significant and negative correlation between these factors (r = −.25). Analyzing the path model in Figure 2 provided results consistent with the correlation analysis. Significant negative paths between performance-based rewards and both competence (path coefficient = −.19; p < .05) and self-determination (path coefficient = −.25; p < .05) were retained, while the link to impact was removed.

Given the finding of a negative relationship between competence and performance-based rewards, further analysis on competence was conducted. A limitation of the study is that although perceived competence is modeled as affecting performance, it is likely that performance affected perceived competence. Data limitations do not allow for a test of this reciprocal relationship. However, an ANCOVA was run using both performance and self-esteem as covariates. Even after controlling for these two variables, the negative relationship between performance-based pay and competence is significant (F = 5.01; p = .03). This finding indicates that for subjects of equal self-esteem and performance, a performance-based reward system resulted in lower overall levels of perceived competence than did a flat-wage system. A potential explanation for this finding is that subjects focused more on the negative aspects of their performance (i.e., number of items incorrect, costs of incorrect items) under a performance-based reward scheme than under the flat-wage scheme. The penalty in terms of decreased pay for incorrect items may have been more salient than the gains for correct items. This result would be consistent with findings in Luft (1994), but further research is needed.

Hypotheses 3a–3c

Hypotheses 3a–3c predicted that perceived impact, competence, and self-determination would be positively related to overall task motivation. An examination of the correlations

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8 A study conducted by Locke et al. (1984) showed that self-efficacy, which is analogous to our measure of competence, was positively related to performance even after controlling for past performance.
shown in Table 2 indicate only a significant correlation between motivation and perceived impact \((r = .23)\). Similarly, an analysis of the path model in Figure 2 indicates a significant link between these two factors (path coefficient = .66; \(p < .05\)). Insignificant paths between motivation and both competence and self-determination, as well as the results of Wald tests, prompted the removal of these links from the final model shown in Figure 3. In addition, LM tests strongly suggested that a direct link between performance-based rewards and motivation was needed. Given the well-documented effect of performance-based rewards on overall task motivation (i.e., see Bonner et al. [2000] for review), this link was added to the final model. The resultant path coefficient of .39 was significant \((p < .05)\).

**Hypothesis 4**

Hypothesis 4 predicts a positive link between overall task motivation and performance.\(^9\) Consistent with this prediction, Table 2 shows a positive and significant correlation between these two factors \((r = .23)\). Additionally, the path coefficient in the overall model shown in Figures 2 and 3 was significant (path coefficient = .22; \(p < .05\)). Thus, there is support for H4.

**Path Analysis of Overall Model**

Given the relatively small sample size and the categorical nature of the main independent variables, full structural equation modeling was not feasible (Bollen 1989; Dunn et al. 1993; Byrne 1994; Bentler 1995). Therefore, path analysis was used to test the model as a whole once scales for the factors had been determined. Tests of an initial model corresponding to Figure 2 showed a very poor fit to the data. Results of LM tests, combined with the results for the individual hypotheses described above, suggested the model shown in Figure 3.\(^{10}\) This model resulted in a significant increase in fit, yielding a Comparative Fit Index (CFI) of .96 and a root mean squared error of approximation (RMSEA) of .04. All hypothesized parameters were significant at the .05 level and LM tests revealed that no other significant paths between factors existed.\(^{11}\) In addition, Wald tests revealed that no other paths could be eliminated without a significant decrease in model fit.

The model in Figure 3 illustrates two main results that are contrary to those found in Spreitzer’s (1995, 1996) survey of managers. First, we find that performance feedback and performance-based rewards are not significantly and positively associated with each dimension of empowerment. Performance feedback is positively associated with only the impact dimension, while performance-based rewards are negatively associated with competence and self-determination. Thus, for firms seeking to increase perceptions of empowerment among lower-level workers, performance feedback would be warranted. However, performance-based rewards would likely decrease overall perceptions of empowerment.

Second, we find that motivation is only affected by the impact dimension of empowerment; competence and self-determination are inconsequential. This implies that firms that expend effort or resources toward increasing employee perceptions of self-determination

\(^9\) To allow for initial learning of the task, periods one and two were eliminated from the analysis. Thus, the performance variable includes periods three through six.

\(^{10}\) We tested a model without the empowerment dimensions and found similar results (CFI = .93; RMSEA = .05; standardized path coefficient between motivation and performance = .24; standardized path coefficient between feedback and motivation = .05; standardized path coefficient between pay plan and motivation = .17). Only the path coefficient between motivation and performance was significant.

\(^{11}\) The factor locus of control was not found to be significant in any of the analyses performed. Thus, it does not appear in the final model.
and competence may not see a desired increase in overall task motivation. However, providing performance feedback is likely to result in greater motivation by increasing employee perceptions of their impact on firm outcomes.

LIMITATIONS AND FUTURE RESEARCH
The study is limited in that only a subset of possible feedback and reward conditions were examined. For example, the performance feedback given to subjects was limited to their own outcomes. The results may not generalize to situations where employees are given feedback regarding the performance of other employees or to general performance feedback that relates to a larger workgroup rather than their own individual performance. Similarly, alternative reward schemes, such as bonuses based on group outcomes or goal-based compensation may affect the dimensions of empowerment differently than the reward schemes used in this study. In addition, the task employed was relatively simple. The results may not generalize to tasks that are more inherently interesting or complex.

Future research could examine the effects of other control systems or manufacturing practices that may affect employee perceptions of empowerment. For example, as noted by Hooks and Higgs (2002), the process of participative budgeting could be considered empowering in that it involves employees in the setting of goals and budget targets. Similarly, manufacturing practices that increase the involvement of employees, such as the use of manufacturing cells and total-quality management, may affect the various dimensions of empowerment.

CONCLUSION
Relatively little behavioral accounting research has focused on the psychological construct of empowerment despite hypothesized links to accounting-related variables such as performance feedback. The majority of research to date has occurred within the fields of management and human resources. The results of this past research suggests that two key aspects of a firm’s control system, namely performance feedback and reward systems, can have a significant impact on perceived employee empowerment, task motivation, and performance. The current study contributes to this literature by examining how three specific types of feedback and two alternative reward schemes affect the various dimensions of empowerment. The study also contributes to the breadth of this literature by focusing on lower-level workers that have received relatively little research attention.

Overall, the study contributes to both the management and accounting literatures. First, to the management literature, we expand on and explore in greater detail the accounting-related elements contained in the Spreitzer (1995) model. Second, to the accounting literature we examine how feedback and rewards affect perceptions of empowerment, a relatively little-researched area of the balanced scorecard approach.

The results show that feedback and rewards affect different dimensions of empowerment. Namely, financial feedback has a significant and positive effect on perceived impact, while performance-based rewards have significant and negative effects on self-determination and perceived competence. Additionally, only greater levels of perceived impact were associated with greater motivation. The implication is that firms should consider carefully the techniques they employ to try to increase feelings of empowerment among nonmanagement employees.
APPENDIX A
SAMPLE EXPERIMENTAL TASK

<table>
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<th>Key</th>
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<th>Key to Codes Beginning with the Letter “Z”</th>
<th>A—LNVS</th>
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<td>Letter</td>
<td>Number</td>
</tr>
<tr>
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</tr>
<tr>
<td>B</td>
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<tr>
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</table>

Summary Total: 203

Z—OIUAS

| O | 2986 |
| I | 5126 |
| U | 5114 |
| A | 5461 |
| S | 8365 |

Sum = 27052

Summary Total: 27052

A—KDNC

Summary Total:

Z—LMBYU

Summary Total:
APPENDIX B
FACTOR MEASUREMENT ITEMS\textsuperscript{a,b}

A. Impact (adapted from items contained in Spreitzer [1995])
   1. I knew exactly what impact my job performance had on the profitability of Gamma.
   2. I knew how to go about my job so as to maximize the profits earned by Gamma.
   3. I don’t know how my job performance affected Gamma’s profits (reverse scored).

B. Competence (adapted from items contained in Spreitzer [1995])
   1. I’m confident I was doing the decoding task correctly.
   2. I am not sure how good I was at the decoding task (reverse scored).
   3. I am not sure whether I was doing the decoding task correctly (reverse scored).

C. Self-Determination (adapted from items contained in Spreitzer [1995])
   1. I felt free to choose the amount of effort I spent on the decoding task.
   2. I knew I could decode items in any order I chose.
   3. I believed I could choose the pace at which I worked on the decoding task.

D. Task Motivation
   1. I enjoyed doing the decoding task itself.
   2. I would have liked to participate in more work periods.
   3. I thought the decoding task was boring (reverse scored).
   4. I used the feedback I got after each period to figure out how to do better during the next period.
   5. The feedback I got after each period affected how I went about the task during the next period.
   6. The feedback given after each work period was important to me.
   7. The way I was paid made me think about how to do my job better.
   8. I felt I was fairly compensated for the work I did.
   9. I liked how the pay scheme was set up.
   10. The way I was paid motivated me to work hard.

E. Self-Esteem (Adapted from items contained in Rotter [1966] and Rosenberg [1968])
   1. On the whole, I am satisfied with myself.
   2. I feel that I have a number of good qualities.
   3. I am able to do things as well as most other people.
   4. I feel I have a lot to be proud of.
   5. I feel that I am a person of worth, at least on an equal plane with others.
   6. I take a positive attitude toward myself.

F. Internal Locus of Control (Adapted from items contained in Hock [1999])
   1. Many of the unhappy things in people’s lives are partly due to bad luck (reverse scored).
   2. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
   3. Most people don’t realize the extent to which their lives are controlled by accidental happenings (reverse scored).
   4. There is really no such thing as “luck.”
G. Performance

1. Profit generated in Period 3
2. Profit generated in Period 4
3. Profit generated in Period 5
4. Profit generated in Period 6

a All items, except those for performance, are measured with a seven-point Likert scale with 1 representing “strongly disagree” and 7 representing “strongly agree.”

b The performance items are the actual profits generated in the period noted, regardless of the level of performance feedback provided.

REFERENCES


Behavioral Research in Accounting, 2007


