Implemented strategy in the automobile parts supply sector: Direct and indirect effects on performance

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Abstract

Using data from multiple sources regarding corporate strategic choice and its implementation, combined with employee data regarding that implementation and its effects, the effects of training, work design, technology, job feedback, job control, empowerment, job security, and measures of workplace climate on multiple measures (from multiple sources) of relative performance regarding cost and quality are examined. The results suggest that the implementation of strategic choices regarding human resource management practices and technology is complex. The interrelationships, supportive of the configurational approach to HRM, must be carefully managed to exact performance improvements.

Keywords: Implemented strategy, HRM alignment, auto parts

INTRODUCTION

In an Academy of Management Review article, Colbert (2004), while examining complexity, called for research that could address whether the use of Universalistic, Contingency, or Configurational HRM practice was supported by empirical evidence. By using structural equation models, this study finds support for the use of complex, configurational HRM strategies across eight auto parts supplier firms in the same labor market. This support is found in the extensive interaction among both employee affective variables and the objective aspects of the implementation of both HRM and technology programs. Note, however, that because these results are found across all eight firms, the configuration is easily duplicated across firms. The ease of duplication indicates that implemented complex, configurational strategies may not be the source of extensive competitive advantage.

LITERATURE REVIEW

The focus of this paper is on testing whether the aggregated effects of strategy implementation on performance are mutually reinforcing (Doty & Glick, 1994). As Colbert (2004) found, the literature yields mixed results. For example, on one hand, Batt finds a synergistic effect on performance of teams and technology. "Without appropriate training and HR practices, for example, increased discretion alone may have negative performance outcomes." (1999: 554) On the other hand, most studies have examined the isolated effects of various components of implemented strategy (e.g., Koberg, Boss, Senjem, & Goodman, 1999 on empowerment; Chen, Cheng & Lai, 2010 on production rules). One reason for the differing results may be because of the massive data requirements of testing more complex, more fully specified models examining the extent of the interactions and their effects. In order to sort out the complexity of the relationships, the following discussion will present the models tested, beginning with the effects on employees of a variety of aspects of implemented strategy and quickly turn to the effects of those individual components on company performance before returning, at the end, to a discussion of the total effects of implemented strategy on the organization, its culture, and the resulting performance.

It is important to note that, due to the complexity of the relationships and their effects on performance, throughout the following discussion references will be made not only to the independent variable and its relationship to performance, but to the relationships among the independent variables and their combined effects on performance. Examples of the combinations discussed are: two-way interactions: teamwork and classroom training; job rotation and on-the-job training; new equipment and training; training and job security; training and job control; teamwork and empowerment; empowerment and job control; job control and work intensification; teamwork and feedback; job control and fairness; training and empowerment; feedback and empowerment; the three-way interaction between empowerment, job control, and work intensity; the four-way interaction between intensity, control, security, and fairness; and so forth. It is clear from the literature that complexity and configurational approaches are to be expected. By modeling all of these complex interactions, this study attempts to sort out the true, direct effects of these independent variables as well as the total effects of these independent variables in the context of a more fully specified model than has been examined. Once the individual components of

workplace strategic implementation have been discussed, their joint effects on company performance will be examined.

Implemented Strategy

"Technologies must be there to succeed, but without a motivated, educated, and committed work force, long-term success will be a struggle." (quoted in Longenecker, Stansfield, & Dwyer, 1997). This quote puts into context the marriage of technology implementation with supporting HRM programs. Should configurational approaches to strategy implementation preside (as implied in the quote), there will be synergy between the implementation of technology, its supporting HR systems, and company performance. That is, there will be significant indirect effects of implemented strategy on company performance along with the significant direct effects. If universalistic practices preside, the direct effects of technology implementation and HRM programs on company performance will be very close to the magnitude of the total effects of each - showing a distinct lack of synergy. Further, there will be few interactions among the measures of technology and the HRM system.

As shown in Figure 1, the effects on performance of two aspects of implemented strategy are examined: the objective HR and technology choices (work teams, job rotation, training, the newness of equipment, and computer usage) and the (less objectively chosen) resulting workplace culture (fairness and safety). Between the implementation of strategy and the resulting performance, there are intermediate factors of satisfaction with training, feedback, job control, work intensification, empowerment, and security. A potential precursor to performance is the willingness of the employees to do more. As strategic choices of work design involving the HR system and the technology are made first, we begin with them as indicated in table 1 in the appendix.

The Implemented HR System and Its Effects on the Employees

The work design practices of teamwork and job rotation and the associated training are examined here. Teamwork and job rotation are aspects of a flexibility approach to work (MacDuffie, 1995) and indicate increased empowerment, shifting control to the workers (Longenecker, et al., 1997). The underlying work design of teams is assumed to increase the empowerment of the employees and the teams (Carroll, 1997; 1998; Donovan, 1996). For reasons that will become obvious, teamwork, an objective implementation of strategy, and the components of empowerment, a more subjective result of the workplace conditions that do not necessarily involve teamwork, are treated separately.

Teamwork

In team-based work, productivity increases often occur because the team assumes management duties (Carroll, 1997; 1998; Donovan, 1996; Faxen, 1978). In order to effectively assume these duties, both social (team-building) and technological training are

necessary (Carroll, 1997; Faxen, 1978). The training must be delivered properly for the team to be effective (Donovan, 1996; Longenecker, et al., 1997; Valle, Martin, Romero, & Dolan, 2000).

Another aspect of team-based work that improves productivity is that feedback regarding quality is available closer to the decision makers (Carroll, 1997; 1998). Carroll's work found that the both the speed of feedback as well as the informational content were much higher for teams, resulting in a synergistic impact on productivity. Nicholls, Lane, and Brechu (1999) reported that the importance of feedback was stressed by their respondents. These authors linked empowerment to job control. In sum, factors synergistic with teamwork that lead to performance gains are adequate training, both social and technological, feedback, and job control.

However, the implementation of teamwork does not lead only to positive outcomes for employees. As additional duties are shifted to employees (see work intensification below), either through teams or not, employees may find themselves overburdened. Yates, Lewchuck, and Stewart (2001) found that when additional duties were added to teams, without increased employee control over those duties, work was intensified, not empowered. Rinehart, Huxley, and Robertson found that the control systems in the auto plant that they studied could "be more oppressive than having a foreman watching over your shoulder." (1997: 106) Clearly, a complex relationship between empowerment, job control, and work intensity exists. It appears that high levels of intensity and low levels of control may be more acceptable if accompanied by high levels of employment security and fairness. Employees need to trust that they will not be downsized as the team assumes management functions and is more productive. Further, if there is an investment in training, employers must be able to recoup those costs. Thus, job security is necessary to maximize the utility derived from team-based work for employees and employers. In sum, along with teamwork, the effects of work intensification, empowerment, security, and fairness on performance need to be examined.

Job Rotation

The implementation of job rotation is expected to increase the flexibility of the employer's deployment of its human resources (MacDuffie, 1995). Successful implementation requires extensive cross training. Each employee in the rotation must be able to perform every job in the rotation. Cross training is most likely to occur on-the-job. When job rotation is part of the work design, the amount of individual job control available to employees drops. However, regarding performance, Carroll (1998) stressed that the collective ability of team members to solve problems was an important contributor to the gains made. Each employee brings their own unique perspective to each job in the rotation, providing a larger set of alternative solutions to problems. Yet, in the same paragraph, the potential negative effect of peer pressure on performance was made (p. 25). De Leede, Nijhof, and Fisscher (1999), in examining the extent of empowerment in teams, found that coercive control and power limiting by management called into question the fairness of the exchange of increased empowerment for reduced individual discretion. If employees within a job rotation are egalitarian, when a particular job within the rotation is more difficult than the others, sharing that difficulty may be seen as more fair than not sharing. Whether the performance gains made by increasing the flexibility offset the potential

problems from reduced individual discretion, that is, reduced empowerment, needs to be tested.

Training

When teamwork with potential job rotation is implemented, training is essential. Training in team building and interpersonal skills is important to ensure performance gains. This type of training is more likely to occur off-the-job, potentially in a classroom setting. As argued above, if job rotation is implemented, on-the-job training is more likely to be used. Arthur (1994) suggested that high commitment systems require sufficient training to achieve high skill levels. Barron, Berger, and Black (1999), studying on-the-job training, found a large, robust impact of training on productivity growth. Denton (1995) found that manufacturing firms with formal training programs had a 19% greater increase in productivity than firms without formal training. Laschinger, Finegan, and Shamian found that "having the opportunity to learn and grow" (2001: 8) was an important aspect of empowerment. Longenecker and coauthors (1997) found that continuous/cross training was cited by 63% of their respondents as a key practice for improving the organization's performance. MacDuffie (1995) differentiated between on- and off-the-job training. Nicholls and coauthors (1999) reported that executives called for more training in order for workers to be more effective team members.

Having discussed the overtly chosen aspects of the implemented HRM strategy, the less overt aspects can be discussed.

Feedback

Carroll (1997; 1998) has argued that one key component leading to improved performance is providing greater feedback to the employees. Greater feedback can either be from management - regarding aggregate performance, or from fellow employees - regarding issues pertaining to the group or work area. Denton found that "team decision makers function more effectively when information is actively exchanged among team members." (1995: 9) Forrester and Drexler contended that "The foundation of trust is the full sharing of important information." (1999: 39) Laschinger and coauthors found that "having access to information" (2001: 8) is an important aspect of empowerment. Longenecker and coauthors (1997) found that the key practice most cited in leading to increased performance is "systematic sharing of operating data". Nicholls and coauthors (1999) reported that executives called for the need to provide feedback in order for workers to be more effective team members. Laschinger and coauthors (2001) found that feedback, job control, and discretion were related to increased commitment. It is important to note that access to information is an important precursor to Spreitzer's four-faceted measure of empowerment (1995; 1996).

Job Control

Properly trained employees with appropriate feedback, whether they are in teams or not, should apply their skills and efforts to maximizing their performance. In order for that to happen, they must be provided with discretion to properly apply those skills and efforts.

Denton (1995) found that more control over the job was an important component of empowerment. Huselid (1995) discussed the contribution of discretionary effort. He contend-ed that increased discretion leads to greater employee willingness to do more. Langbein (2000) found that a trusting environment where employees can exercise discretion without fear of reprisal is an important precursor of effectiveness. Laschinger and coauthors (2001) found that "feelings of autonomy" was an important precursor to effectiveness. Nicholls and coauthors (1999) reported that a result of empowering workgroups is greater control over the job. Busche, Havlovic, and Coetzer found that "empowered team members needed to feel an increase in choicefulness (more control over what they put their effort into) to experience any other kind of empowerment as well." (1996b: 83) These findings lead to an examination of job control (self-determination) separately from the other three facets of empowerment.

Work Intensification

As discussed above, when the work redesign results in work intensification and the shifting of management functions onto the members of the work team, employees report a lower quality of work life and lower job satisfaction. The higher stress levels should lead to reduced willingness to apply discretion to improved performance - Laschinger and coauthors (2001) found that "decreased occupational stress" led to greater effectiveness. Busche and coauthors (1996a) found that empowerment reduced the employees' stress level, and, in linking increased empowerment to reduced stress, attributed the effect to increased job control (1996a; 1996b). Foley, Maxwell, and McGillivray (1999) associated intensification with the use of "hard" HRM systems - those designed to extract the greatest performance out of employees. So, to some extent (see the "intensity and control in exchange for security and fairness" tradeoff discussed above), increased stress through more intensive work may lead to better company performance - a twist on the old "speed-up" argument.

Empowerment

Although a (maybe the) key concept in the quest for improved performance, empowerment, though oft-studied, remains somewhat elusive. Spreitzer, De Janasz, and Quinn expressed concern that "our understanding of the consequences of employee empowerment is limited." (1999: 511) A popular notion (e.g. Carroll, 1997; 1998; Donovan, 1996) is that empowerment is operationalized at work through teams with the intent of improving productivity. Thus, links from empowerment to productivity should be found, particularly where teamwork has been implemented (see Cooke, Meyer, & Huxley, 2005).

To help frame the expected effects of empowerment on performance, a variety of points need to be noted. Appelbaum, Hebert, and Leroux (1999) examined the empowerment gap between managers and employees. They contend that employees may see management's limits on their behavior, by setting the objectives, to be more constraining than the increased autonomy offered. In contrast, Busche and coauthors found a synergistic effect of empowered teams: "A person who experienced empowerment in one facet was

more likely to experience it in other facets as well." (1996b: 82) One manner of resolving this dichotomy is offered by Holden (1999). He pointed out that the perception of increased empowerment is often one of perspective. Management perceives that employees are more empowered, but the employees do not. Thus measuring empowerment at the employee level is important. It could be, perhaps, that the meaning and competence facets of empowerment are unconstrained by management, but that the impact and self-determination (see above) facets, particularly of individuals rather than teams, are much more constrained by management.

Implemented Technology

Here, the strategic technological implementation choices of adding new machines to the work area and the extent of the use of computers by employees in the work area are examined. Zammuto and O'Connor (1992) examined what organizational components must accompany the use of advanced technology to maximize its benefits. In particular, they examined the increased use of computers. As did MacDuffie (1995), they distinguished between control-oriented improvements, which limit employee discretion, and flexibility-oriented design, which, through training and team design, increases employee discretion. Oliner and Sichel (2000) reported that increased computer usage increased productivity. Collins (1995) found that when new tools and machinery were added, performance improved.

The Resulting Workplace Culture

The strategic implementation of HRM practices and technology improvements does not often occur in a vacuum. In non-greenfield workplaces there were prior HRM practices and use of technology that formed a baseline for employee expectations. These, along with interactions with management over time, helped to form a prevailing workplace culture. Marcoulides and Heck (1993: 222), in examining the effects of a variety of culture variables on organizational performance, found support for the human resource management perspective's efforts to positively affect performance. In particular, the organization placing emphasis on safety and the employees' view of "the organization's use of technology and adoption of new ideas" were important. Three components of culture are examined here: security, fairness, and safety.

Security

In addition to the work cited above, other authors also found that security was an important component leading to improved performance. Forrester and Drexler (1999) stressed the importance of guaranteeing the security of employees when moving to a team-based structure. However, Fisher (1997) saw security as an aspect of the "Culture of Complacency" and a hindrance to improved performance. Busche and coauthors (1996b) found that security was important to empowered teams. Huselid (1995) found that improved job security was key to improved performance.

Fairness

As first discussed under Work Intensification, perceived fairness at the work-place is an important precursor to employee willingness to do more for the employer. Busche and coauthors (1996b) found that fairness was important to empowered teams. Blancero, Marron, and Keller (1997), examining high performance work systems, reported increased employee concern with fairness regarding pay and treatment in those systems. Concern for a fair exchange of effort for pay and security may be especially high where there is no formal employment contract to govern the employment relationship. Feedback regarding performance, its linkage to pay and security, and, given that, information as to both referent others and their employment relationship are all necessary for fairness to be perceived.

Safety

Collins (1995), concluding that trust is central to the successful implementation of a gainsharing plan, found that employee perceptions of safety and fairness also improved when trust increased. He found two important components of a trusting relationship that are relevant here. As a first step in the change process, management must be willing to share decision-making power (see Job Control above). Also, increased training and development must accompany the implementation of new machinery (see above). McLain (1995) found that subjective perceptions of risk to health and safety affected work attitudes and performance. The fairness of the risk allocation across employees and jobs was also found to affect performance. Egalitarianism may not just apply to sharing difficult jobs in a rotation, but to all aspects of the workplace exchange.

In sum, the literature has examined various relationships among the independent variables and their combined effects on performance. The complexity and configurational theories of HRM variables and the resulting effects on performance seem to be expected. However, even in these focused studies, multiple interactions were found; two-way (e.g.,teamwork and classroom training); three-way (e.g., empowerment, job control, and work intensity); and four-way (e.g.,intensity, control, security, and fairness) interactions were routinely found. In a more fully specified model, it is possible to examine these complex interactions, sorting out the direct effects on performance of the independent variables as well as the total effects on performance of the independent variables.

IMPLEMENTED HRM AND TECHNOLOGY STRATEGIES, WORKPLACE CULTURE, EMPLOYEE AFFECT OUTCOMES, AND COMPANY PERFORMANCE.

For a variety of reasons, for large companies, performance data are more difficult to come by at the plant level than at the corporate level. When this difficulty is combined with the reluctance of all companies, privately held companies in particular, to provide specific profitability data, it is extremely difficult to obtain appropriate performance data. Combining these difficulties with the need to have multiple sources of subjective data to improve the accuracy of the measures provides additional challenges to researchers.

Absent accessible hard data, plant management still should have a reasonably precise and accurate perception of their performance relative to their competitors selling similar

products. Further, cost containment and providing the best (and improving!) quality are the most important performance measures to the companies studied.

To be successful, a company's strategic choice and the resulting implementation (e.g., see Cooke, et al., 2005) must provide the means for improving cost and quality performance. It is proposed that the employees are the primary means by which HRM practices and improved technology improve cost and quality performance. That is, via the strategy implementation, the employees either do more, do better, or both. One manner of measuring successful implementation is to determine whether the employees are willing to do (or are doing) more or not and then determine whether management and the employees are able to translate this increased (decreased) willingness (or action) into better (worse) performance. Following this argument, the following hypotheses are offered:

Hypothesis 1. When employees report a) greater satisfaction with their skill development, b) more feedback regarding their job, c) greater empowerment, d) greater control over their job, e) less intense work, and f) greater job security, they will be more willing to do (or are doing) more at work.

Hypothesis 2. When employees report a) greater satisfaction with their skill development, b) more feedback regarding their job, c) greater empowerment, d) greater control over their job, e) less intense work, and f) greater job security, managers will report improved relative labor costs.

Hypothesis 3. When employees report a) greater satisfaction with their skill development, b) more feedback regarding their job, c) greater empowerment, d) greater control over their job, e) less intense work, and f) greater job security, managers will report better relative product quality.

To backtrack a bit, though employees may perceive the individual impact of each aspect of implemented strategy, they may not differentiate among the individual components of the implementation. That is if management devises a particular level of feedback and provides it, the employees may not differentiate the impact of that on their willingness to do more or on the resulting performance from the particular level of empowerment that was (also) devised and provided. Further, as these choices become joint in nature, dynamic, or synergistic, the total effects should be, respectively, not solely attributed to management implementation, changing, or greater than the sum of the parts.

Focusing on the Universalistic or Configurational effects of HRM and technology strategic choices and their implementation on performance, if the Configurational approach is supported, every aspect of strategic implementation will affect the other, interrelated, choices. Further, the indirect effects will also be significant. However, a cautionary note is necessary. Common affective reasons may also cause these interrelationships. Thus, interrelationships are either an indication that employers carefully choose reinforcing, coordinated strategy implementation, or that general employee affect dominates the employees' responses. Throwing caution to the wind, the following is offered as a test of the Configurational vs. Universalistic approach:

Hypothesis 4. Employee responses to strategy implementation will be global in nature. That is: When employees report any of the following: a) greater satisfaction with their skill development, b) more feedback regarding their job, c) greater empowerment, d) greater control over their job, e) less intense work, or f) greater job security, they will also report more of the others and less intense work.

Having laid the groundwork for a discussion of complexity and the contingency approach to HRM, we now turn to that discussion. If the level of complexity of the implemented strategy is such that it cannot be duplicated across firms, then the present study – using data pooled across eight firms – will yield no results. Colbert (2004), drawing on Kelly (1994: 353), states "Attempts to install highly complex organization, without growing it, inevitably lead to failure." If that is so, then there will be no similar interactive paths among the strategy implementation and worker affect variables across the eight firms in this study, let alone any relationship of those strategic variables to relative company performance. However, these firms were members of a council to promote union-management cooperation to positive effect. Extensive sharing and learning has taken place across these council members. If these complex interactions did have positive effects, and if they are easily duplicated, then it would be expected that they would spread rapidly across council members. That is, while all member firms have some unique aspects of implementing training, HRM programs, and technology, all have chosen the fundamental strategy of attempting to grow a cooperative union-management environment in the same labor market and were willing to share their experiences with each other.

Believing the latter to be more likely to be the source of performance gains, complexity will show across firms in an extensive set of interactions across (for employees) greater satisfaction with their skill development, more feedback regarding their job, greater empowerment, greater control over their job, less intense work, and greater job security (here, the independent or exogenous latent variables), as well as between those variables and the measures of strategy implementation. Not only will there be the direct impact on performance of these variables (discussed in hypotheses 1-3 above), there will be significant indirect effects of the strategy implementation and its effects on the employees' affect to go along with the significant direct effects of the strategy implementation. Those indirect effects will flow through the extensive interactions among the independent (here, both strategy implementation and exogenous latent) variables and the outcome measures of willingness to do more, and labor cost and product quality comparisons.

Hypothesis 5. A) There will be extensive interactions found among: employee reports of: i) greater satisfaction with their skill development, ii) more feedback regarding their job, iii) greater empowerment, iv) greater control over their job, v) less intense work, and vi) greater job security, vii) classroom training, viii) on-the-job training, ix) working in a team, x) rotating jobs, xi) having more new equipment in their work area, xii) more extensively using computers, that the company: xiii) treats them more fairly, and xiv) provides a safer work environment, and reports that they will be more willing to do more at work, as well as managers reporting improved relative labor costs and improved product quality; b) there will be significant indirect effects of the system of variables i-xiv on employee reports that they will be more willing to do more at work, as well as managers reporting improved relative labor costs and improved product quality.

Although finding support for hypotheses 5a and 5b provides support for the configurational theory over the universalistic and contingency theories, finding that effect across eight firms suggests that the installation of such a system is not as difficult as suggested by the literature.

Having discussed the general, total effects of the implemented system on employees and company performance, we can turn to an examination of each specific aspect of the strategy implementation on the employees and company performance.

There are two types of training examined here: classroom and on-the-job. Though classroom training is expected to be associated with the implementation of teamwork, more new machinery, and the increased use of computers, and on-the-job training is expected to be associated with job rotation, testing for these relationships is not the focus of this study. Rather, greater amounts of each type of training are expected to be associated with greater extent of satisfaction with skill development and then to a greater willingness to do more and then on to better performance (see hypotheses 1-3). It is thought that more training will lead to greater effectiveness, though there may be a learning curve in operation which leads to a lower increase in knowledge per hour of training past a certain number of hours. Further, in support of Hypothesis 5a and 5b, we expect to see synergistic indirect effects of satisfaction with training on company performance, either directly through satisfaction with skill development or indirectly through feedback, empowerment, job control, intensity, and security. Thus, the following is offered:

Hypothesis 6. When employees report more hours of a) classroom training, b) on-the-job raining, they will also report 1) greater satisfaction with their skill development, 2) more feedback regarding their job, 3) greater empowerment, 4) greater control over their job, 5) less intense work, and 6) greater job security.

The implementation of teamwork and job rotation, to the extent that they have been well-implemented, that is, to a positive effect, will have more positive affective impact on the employees than if they are poorly implemented. Given the thrust of the literature discussed above, both teamwork and job rotation are expected to be associated with greater skill development satisfaction, feedback, empowerment, and, potentially, greater security. Further, greater intensity is expected to be associated with both teamwork and job rotation, and that teamwork is associated with greater job control, whereas job rotation is associated with less job control. Thus, the following is offered:

Hypothesis 7. When employees report that they: a) work in a team, and/or b) rotate jobs, they will also report 1) greater satisfaction with their skill development, 2) more feedback regarding their job, 3) greater empowerment, a4) greater, b4) lesser control over their job, 5) more intense work, and 6) greater job security.

Matters are a bit more straightforward with technology implementation. The implementation of a greater percentage of newer equipment and/or the more extensive use of computers will have positive affective and performance effects. Thus, the following is offered:

Hypothesis 8. When employees report that they: a) have more new equipment in their work area, and/or b) more extensively use computers, they will also report 1) greater satisfaction with their skill development, 2) more feedback regarding their job, 3) greater empowerment, 4) greater control over their job, 5) less intense work, and 6) greater job security.

The overall climate is a key factor in leading to increased employee willingness to do more as well as (the resulting) improved performance. Here, employee perceptions of the company's provision of a fair and safe work environment are examined. Either leads to better outcomes. The provision of extensive levels of both may have synergistic effects. [See above on the capacity argument – when the allocation of more intense effort is fairly spread over the workforce, the higher level of intensity is more acceptable.] Thus, the following is offered:

Hypothesis 9. When employees report that the company: a) treats them more fairly, and/or b) provides a safer work environment, they will also report 1) greater satisfaction with their skill development, 2) more feedback regarding their job, 3) greater empowerment, 4) greater control over their job, 5) less intense work, and 6) greater job security.

Lastly, in order to provide a direct test of complexity, three different, nested models are examined. As seen in Figure 1, all of the paths labeled 'b' and 'c' are also found in the model containing paths labeled 'a'. Path 'c', the least complex, contains direct effects of employee affect outcomes on product quality and labor cost comparisons, but does not contain the intermediate outcome of employee intention. Nor does model 'c' contain a path from product quality comparisons to labor cost comparisons – the path added in model 'b'. Model 'c' adds the indirect paths through employee intention to the outcomes of product quality and labor cost comparisons. The theory underlying these models is that employee affect outcomes will have direct effects on product quality and labor cost comparisons (model 'c'); that improvements in product quality comparisons will be used to improve labor cost comparisons (model 'b'); and that employee willingness to do more (or their doing more) will lead to improved product quality and labor cost comparisons (model 'a').

As described by Kelloway (1998), nested models and their fit to particular data can be tested by examining the difference in the χ^2 reduction for the degrees of freedom used. If the use of a degree of freedom leads to a significant drop in the χ^2, the data provide a better fit to the model. Hence,

Hypothesis 10. More complex models ('b' and 'c') will provide a better fit to the data than less complex models ('a' and 'b', respectively).

Sample

The data were drawn from part of a larger project funded by the Russell Sage and Rockefeller Foundations. The employee responses to a questionnaire surveying their perceptions are used here. The surveys were conducted on location, during work time, across all shifts as needed, at eight unionized firms located in SE Michigan during 2000-2001. A member of the research team was present at all times during the survey. Response

rates ranged from 55% to 86% across the eight firms, with an overall response rate of 69%, yielding a total of 888 observations.

These employee data were then paired with data drawn from questionnaire data obtained from the HRM manager and the operations manager at each location. For these facilities, the managers were asked to evaluate the relative performance of their company against "other manufacturers that produce similar components."

Measures

The employee affective and climate measures were measured using seven point Likert scales ranging from strongly disagree (1) to strongly agree (7). Teamwork was measured with a yes or no question. Job rotation was measured with a "not at all", "some", or "a lot" choice, as were the newness of equipment (in the last 5 years, using "none"), and computer usage (also using "none"). These were coded 0, 1, 2. Training hours were measured with the following question format:

Roughly, how many hours of classroom [on-the-job] training have you received from the company since you started working here? ___ hours

Due to the need to use certain questions as metrics, the outcome measures are discussed below where the latent variables are discussed. More information on the measures used is found in Table 1 (Appendix).

INITIAL RESULTS: STRATEGY IMPLEMENTATION AND THE MEASUREMENT MODELS

Table 2 shows the simple first order correlations among the strategy implementation measures. Hours of classroom training are positively correlated with use of computers and hours of on-the-job training. Hours of on-the-job training are positively correlated with use of computers and greater reported fairness. Being in a work team is positively correlated with job rotation, use of computers, and greater reported fairness and safety. Job rotation is positively correlated with more new equipment and greater reported fairness. More new equipment is positively correlated with increased computer usage. Increased computer usage is positively correlated with greater reported fairness and safety. And, finally, greater fairness is positively correlated with greater safety. These results are not surprising, nor are they terribly insightful. Note that hours of classroom training are not correlated with being in a work team, and that hours of on-the-job training are not correlated with job rotation. Determining the effects of these strategic implementations on company performance will be shown to be complex as indicated in table 2 in the appendix.

The results of the measurement models for the LISREL model are shown in Tables 3 and 4. All coefficients reported in this study are drawn from the most complex model - labeled 'a' in Figure 1. Table 3 shows that all of the outcome measures are significantly associated with the appropriate outcome latent variables. The latent variable "Employee willingness to do more (DoesMore)", metrically established by "My company inspires me to do my best in performing my job", contains four measures and has a coefficient α of .600. The latent variable "Relative labor cost comparison (LabCost)", metrically established by

the Operations Manager's response to the question "In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. c. unit labor costs", contains two components and has a coefficient α of .940. The other component is the Human Resource Manager's response to the same question. Last, the latent variable "Relative quality performance (QualPerf)", metrically established by the Operations Manager's response to the question "In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. d. product quality", contains two components and has a coefficient α of .537. The other component is the Human Resource Manager's response to the same question. Every measure associated with the appropriate latent outcome variable achieves a high significance level.

Table 4 shows all of the coefficients of the measurement variables associated with the employee affect outcome variables - the unmeasured exogenous latent independent variables, as well as the coefficients of the strategy implementation variables on those employee affect variables. All of these variables are employee level responses to questions on a questionnaire (See Table 1). The latent variable "Skill Development Satisfaction (SklDevSa)" contains seven measures and has a coefficient α of .815. The latent variable "Feedback" contains three measures and has a coefficient α of .544. The latent variable "Job Control (JobCont)" (one facet of empowerment) contains three measures and has a coefficient α of .705. The latent variable "Work Intensity (Intensit)" contains three measures and has a coefficient α of .656. The latent variable "Empowerment (Empowerm)" (representing the other three facets of empowerment) contains nine measures and has a coefficient α of .742. The latent variable "Employment Security (Security)" contains eight measures and has a coefficient α of .543. In sum, all of the latent variables exhibit acceptable coefficient alphas. Further, all measures attain high levels of significance for their loadings on the associated latent variables. Only the reverse coded "Not Mastered Skill" falls short of the .001 level.

Also shown in Table 4 are the implementation variables and their coefficients of association with the latent variables. As these results affect the tests of the hypotheses, these coefficients will be discussed in the next section and are summarized in tables 3 and 4 in the appendix.

RESULTS

Figure 2 shows one part of the results of the LISREL estimation - the impact of various employee responses to strategy implementation on employee affect outcomes and those outcomes' effects on the three outcome variables (model 'a' in Figure 1). The results presented in Figure 2 are also presented in Table 5. Note that only one model (model 'a') is reported here. The results are broken into two figures for clarity. The significant results are: When employees report greater satisfaction with their skill development, they are willing to do (or are doing) more (Hypothesis 1a) and managers report decreased relative product quality (counter to Hypothesis 3a). Hypothesis 2a is not supported. When employees report that they receive more feedback, they are willing to do (or are doing) more (Hypothesis 1b), managers report poorer labor cost comparisons (counter to Hypothesis 2b), and managers report increased relative product quality (Hypothesis 3b). When employees report greater job control, they are less willing to do more (counter to Hypothesis 1d, significant in a one-tailed test), managers report improved labor cost comparisons

(Hypothesis 2d) and decreased relative product quality (counter to Hypothesis 3d). When employees report greater work intensity, they are willing to do (or are doing) more (counter to Hypothesis 1e), and managers report poorer labor cost comparisons (Hypothesis 2e) and increased relative product quality (counter to Hypothesis 3e). When employees report greater (three faceted) empowerment, managers report poorer labor cost comparisons (counter to Hypothesis 2c, significant in a one-tailed test). Hypotheses 1c and 3c are not supported. When employees report greater job security, they are willing to do (or are doing) more (Hypothesis 1f) and managers report poorer labor cost comparisons (counter to Hypothesis 2f). Hypothesis 3f is not supported. In sum, of the 18 hypotheses offered, 6 receive support, 8 are counter indicated, and 4 are not supported. These complex, conflicting results will be discussed further in the next section and are summarized in figure 2 and tables 5, 6 and 7 in the appendix.

Two other results shown in Figure 2 are important. Of greatest importance is the high magnitude, negative, significant relationship between managerial reports of relative labor cost comparisons and relative product quality. These plant managers report that improved labor costs (lower relative to the others) are associated with improved quality. Of lower magnitude, but important, is the low magnitude, significant, negative relationship between employee willingness to do more and reports of relative labor cost comparisons. When employees are willing to do (or are doing) more, management reports that they are able to achieve improved relative labor costs. These results are also found in Table 7. Note the high R^2's for willingness to do more and labor cost comparisons. The impact of the implemented strategies and employee affective responses explain quite a bit of the variance in employee willingness to do more and labor cost comparisons. Hence, the strategic implementation variables examined here seem to be used by management to improve their labor costs - a significant finding. Though the results reported above are conflicting regarding the path, the results regarding the outcomes are clear and significant: the strategy implemented provides improved outcomes in these eight facilities. The discussion will provide some clarification regarding the path by which these outcomes are achieved.

A supporting point to the above is the complexity and interrelatedness of strategic choices and their implementation, shown in Table 6. All of the endogenous latent variables are significantly related to each other, with high magnitudes. All exhibit the signs expected: intensity is negatively related to all the others, which have positive relationships. Hypotheses 4a-f are supported.

The effects of strategy implementation on worker affective outcome variables are exhibited in Figure 3. Only the significant linkages are shown. These results are also found in Table 4. As expected, the two types of training are positively and significantly associated with skill development satisfaction (Hypotheses 6a1 and 6b1). Also, as expected, more hours of classroom training are associated with increased job control (Hypothesis 6a4) and more on-the-job training hours are associated with reduced intensity (Hypothesis 6b5, significant in a one-tailed test). Unexpected results are that greater amounts of both types of training are associated with lower security (counter to Hypotheses 6a6 and 6b6 [significant in a one-tailed test]) and more hours of classroom training are associated with decreased feedback (counter to Hypothesis 6a2). Hypotheses 6a3, 6a5, 6b2, 6b3, and 6b4 are not supported.

Being in a work team is, as expected, positively and significantly associated with feedback (Hypothesis 7a2), and negatively and significantly associated with job control

(Hypothesis 7a4). Rotating jobs, correlated with being in a work team, is positively and significantly associated with skill development satisfaction, feedback, and intensity (Hypotheses 7b1, 7b2, and 7b5 [significant in a one-tailed test]), and negatively and significantly associated with job control and security (supporting Hypothesis 7b4, and counter to Hypothesis 7b6). Hypotheses 7a1, 7a3, 7a5, 7a6, and 7b3 are not supported.

Newer equipment, associated with greater classroom training, is positively and significantly associated with skill development satisfaction, feedback, and intensity (supporting Hypotheses 8a1 and 8a2, and counter to Hypothesis 8a4), and negatively and significantly associated with security (counter to Hypothesis 8a6). Greater use of computers, correlated with greater classroom and on-the-job training, is positively and significantly associated with skill development satisfaction, job control, and empowerment (Hypotheses 8b1, 8b3, and 8b5), and negatively and significantly associated with feedback and security (counter to Hypotheses 8b2 and 8b6). Hypotheses 8a3, 8a5, and 8b4 are not supported.

Of the more global measures of workplace culture, fairness and safety, each has significant effects on five of the employee affect outcome variables. Fairness is positively and significantly associated with skill development satisfaction, feedback, and security (Hypotheses 9a1, 9a2, and 9a6), and negatively and significantly associated with intensity and empowerment (supporting Hypothesis 9a5 and counter to Hypothesis 9a3 [significant in a one-tailed test]). Safety is positively and significantly associated with feedback, empowerment, and security (Hypotheses 9b2, 9b3 [significant in a one-tailed test], and 9b6), and negatively and significantly associated with job control and intensity (counter to Hypothesis 9b4, supporting Hypothesis 9b5 [significant in a one-tailed test]). Hypotheses 9a4 and 9b1 are not supported.

In sum of these 48 hypotheses relating specific aspects of strategy implementation on employee affect, 23 are supported, 10 are counterindicated, and 15 are not supported. These results further support the complexity of the situation as indicated in figure 3 and in tables 8 and 9 in the appendix.

Turning to the direct test of complexity, Hypothesis 10, three different, nested models were examined. The least complex of the three models, path 'c' in Figure 1, resulted in a χ^2 of 4800.01 with 888 degrees of freedom. The next most complex of the three models, paths 'b' in Figure 1, resulted in a χ^2 of 4664.52 with 887 degrees of freedom, a reduction in the χ^2 of more than 135 using one degree of freedom - highly significant. The most complex of the three models, paths 'a' in Figure 1, resulted in a χ^2 of 4223.06 with 1102 degrees of freedom, a reduction in the χ^2 of more than 341 using 215 more degrees of freedom - a significant improvement. Hypothesis 10 is supported.

This brings us to the test of Hypotheses 5a and 5b. Given that complexity is supported, it should not be surprising that there are multiple paths by which the strategy implementation variables affect the independent latent variables (Table 4 and Figure 3) and that the independent latent variables all affect each other (Table 6) as well as having extensive effects on the outcome variables (Figure 2 and Tables 5 and 8). In a test of hypothesis 5a, of the 81 potential interactions among the 8 strategy implementation variables, the 6 latent exogenous (independent) variables, and the 3 (ordered) endogenous (outcome) variables, 62 achieve some level of significance (77%). If (three faceted) empowerment is excluded, 58 of 70 achieve significance (83%). Given that complexity is supported (paths 'a' in Figure 1), the only indirect effects left in the model are those affecting

labor cost reduction. Five of the six indirect paths have significant impact on labor cost reduction (see Table 8). Only (three faceted) empowerment does not have a significant indirect effect. Indeed the direct effect of three faceted empowerment is only marginally significant. All other latent variables exhibit significant and extensive indirect and direct effects on the outcome variables. In fact, 70% of the variance in labor cost reduction is explained by this model. Lest this be attributed to the common method variance, or (more likely) common perceptions, of the eight operations and eight HR managers, note that 72% of the variance in "DoesMore" is also explained. There are 888 different perceptions of "DoesMore".

To bring some sense of impact to these results, Table 9 presents the standardized magnitudes of the impact of the strategic implementation measures on the latent exogenous variables - the employee affect outcomes. An examination of these magnitudes provides a sense of the complexity of the full model and the extent of the interactions involved. For example, the variables with the largest magnitude effects on labor cost comparisons are feedback and job control (direct, see Table 5), skill development satisfaction (indirect, see Table 8), and security (direct and indirect). The strategy implementation variables affecting labor cost comparisons (through these four variables) are: 1) hours of classroom training, hours of on-the-job training, job rotation, the newness of equipment, use of computers, and fair treatment - all through skill development satisfaction; 2) hours of classroom training, hours of on-the-job training, work team, job rotation, the newness of equipment, use of computers, fair treatment, and safety - all through feedback; 3) hours of classroom training, work team, job rotation, use of computers, and safety - all through job control; and 4) hours of classroom training, hours of on-the-job training, job rotation, the newness of equipment, use of computers, fair treatment, and safety - all through security. Though it appears that everything affects everything (that's the complexity) we can be much more precise - some things do not affect other things - for example, empowerment has only a marginal effect on labor cost reduction (through use of computers). Further, the effect of a certain strategic implementation variable, even taken on its own, has complex effects. For example, the use of job rotation is positively associated with skill development satisfaction and feedback, but negatively associated with job control and security, all of which have significant effects on labor cost reduction.

Although we would expect the extensive interactions shown among the latent variables to be due to common method variance due to the questionnaire methodology, we would not expect to see the extensive interactive effects of the implemented strategic variables, which are objectively measured, on the latent variables. This supports the configurational perspective on HRM strategy. Note that none of these complex results could have been inferred from the correlations found in Table 2.

DISCUSSION

The greatest limitation of this study, that there are only eight cases examined, also leads to a significant finding: these eight companies exhibit extremely similar sets of relationships in their implementation of strategy and the resulting performance. This is particularly striking given the support for complexity over simplicity. These eight council members, all willing to share with each other their experiences in choosing and implementing technology and HR systems, reached convergence as to the effects of those

implementations. Many other factors may be at work here: their choice to be a council member, their willingness to be studied by outside researchers, etc. Even though these companies might be "poster children" for sharing their secrets of competitive advantage - or, at least, improving cost and quality, apparently the ability of other firms to duplicate the complex implementation and yield positive performance results needs further examination. If technology and HRM systems do not provide lasting or sustainable competitive advantage, companies need to look elsewhere for competitive advantage, sustainable or not. It could be that in this age of hypercompetition simple survival may be sufficient for many companies.

The results provide support for complexity as a manner of explaining the phenomena of implementation of strategic choices and the resulting impact on company performance. The more complex the model estimated against the data, the better the fit. This result brings back to the fore the issue of underspecification of models. Because of study or data limitations, many studies have limited the scope of the issues studied. It could be that the results of such studies are misleading future work, at best. Note here, that when the job control aspects of empowerment are examined on their own, the other three facets of empowerment do not have as great of an effect.

By attempting to explore the "black box" of strategy implementation, even in this limited setting, a much greater understanding of the effect of particular strategic levers on company performance results. The closest thing to a "universally" prescriptive suggestion evident here is to achieve fairness. Even so, fairness is negatively associated with empowerment. Even something as seemingly simple as safety (the other climate variable) does not have only positive effects on company performance - it is negatively associated with job control - and job control has the largest direct effect in improving labor cost comparisons.

Moving from the climate and objective strategy implementation variables to employee affect variables - complexity reigns. Providing more feedback, for example, is associated with greater employee willingness to do more (or their doing more), and better relative quality performance, but it is also associated with worse relative labor cost performance. However, since greater willingness to do more and better relative quality performance (taking into account the effects of the other variables) are associated with better relative labor cost performance, the total effect (direct and indirect) of feedback on relative labor cost comparisons is that more feedback improves labor costs. If the complex relationship were not carefully examined, it is possible that the opposite conclusion might be reached.

That said, there are a number of prescriptions that are more simply stated. Improved quality performance is associated with improved labor cost performance. Employee willingness to do more, or their doing more, is associated with improved labor cost performance. Improved skill development satisfaction is associated with increased willingness to do more (or doing more) though it has negative direct effects on improved labor cost and quality performance. Note that the implementation of training did not follow the theoretical path of providing classroom training for the employees in teams and on-the-job training for employees who rotate jobs. Perhaps these eight companies were not as careful concerning the implementation of their strategy as they could have been. Increased feedback is associated with improved labor cost performance indirectly through greater employee willingness to do more and improved quality performance, though its direct

association is negative. Providing improved security is associated with greater willingness to do more, but its total effect on labor cost performance (given the other variables and their effects) is negligible. The facets of empowerment aside from job control are not associated with improvements in labor cost or quality in this sample.

CONCLUSIONS

This study provides support for the notion that strategy implementation and its effects on company performance is complex. For HRM systems, particularly when allied with technological changes, the configurational approach is supported over the contingency and universal approaches. Great care must be taken to fully specify any model tested that involves HRM practices and technology used.

Complexity notwithstanding, the expected advantages of implementing a complex system of training, work teams, job rotation, new equipment, and computer usage, along with the fairness and safety of the work climate, are much more easily duplicated than expected. Eight companies in the same labor market, all members of a council established to disseminate experience with union-management cooperation, were able to yield convergent, positive performance results. Whether non-union employers, those who do not willingly share strategic choice, implementation, and resulting performance information with others, or those who do not have sufficient labor market pressure to improve, can achieve the same performance improvements is unknown.

Thus we arrive at the major limitations of this study. The results may not represent the strategic implementation and resulting performance effects of non-union employers, more secretive employers, or employers outside of a heavily unionized labor market. These factors could be those that cause the model to be complex and the HRM approach to be configurational. It is well documented that unions change the flexibility of employers in the choice and implementation of strategy (Cooke, 2001). However, it is also well documented that being unionized has particular performance advantages over non-union competition (Meyer & Cooke, 1993).

Thus the reader should be cautious in expecting other non-union, non-manufacturing employers to exhibit complex, configurational approaches to HRM implementation. This is particularly true if there is not labor market pressure to seek performance improvements. Until future research provides insight into the existence of complex, configurational systems of strategy implementation in other industries and other labor markets, the results of this study should be considered speculative.

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APPENDIX

Table 1

Variables: Construct Items, Names, and Cronbach Alphas
(1-7 scale, strongly disagree to strongly agree)

I. Skill Development Satisfaction (Cronbach's Alpha: .815)

1. Did you attend a job orientation meeting when you were hired? If yes, Orient equals 1.
2. I am satisfied with the training I have received from this company. (TrainSat)
3. My company provides good opportunities to get more training. (GoodOppT)
4. I have good opportunities to improve my skills here. (GoodOppS)
5. I expect that I will receive more training in the near future. (MorT)
6. My opportunities to get a better job in the near future are better today than they were 5 years ago. (OppBtrJb)
7. The opportunities to improve my skills are better today than they were 5 years ago. (OppImpSk)

II. Feedback (Cronbach's Alpha: .544)

1. I get meaningful feedback on how well I am doing as I am working. (MnFdbck)
2. I know whether I am performing well or poorly. (PerfKnow)
3. I can find out how well I am doing. (HowWell)

III. Job Control (Self-Determination) (Cronbach's Alpha: .705)
1. I get to decide how best to do my job. (DecBest)
2. I have considerable opportunity for independence and freedom in how I do my job. (IndepFre)
3. I can decide on my own how to go about doing my work. (DecWrk)

IV. Work Intensity (Cronbach's Alpha: .656)
1. I am often tense and wound-up at the end of my shift. (Tense)
2. I often experience some pain from my work. (Pain)
3. I often feel exhausted at the end of my shift. (Exhaust)

V. Empowerment (Cronbach's Alpha: .742)
1. The work I do is important to me. (WrkImp) (Meaning)
2. I am confident about my ability to do my main job. (ConfJb) (Competence)
3. How well I do my job is important to my work area. (JbImpWA) (Impact)
4. My main job tasks are personally meaningful to me. (JbPersMe) (Meaning)
5. I am capable of performing all of my various job tasks. (CapPerf) (Competence)
6. The work I do is personally rewarding. (WrkPersR) (Meaning)
7. It is important to the success of my work area that I do my job well. (SuccWAJb) (Impact)
8. I have not mastered the skills necessary for my job. (NotMastS) (Competence, reversed)
9. I have a significant influence on the success of our work area. (SigInfSu) (Impact)

VI. Employment Security (Cronbach's Alpha: .543)

1. I talk up this company as a good place to work. (CoGood)
2. I do not enjoy working here. (NotEnjoy)
3. I have a good chance of getting a higher paying job here. (HgrPay)
4. I expect to stay in my present job classification for a long time. (JbLT)
5. I don't expect to get laid off in the near future. (NoLayOff)
6. I expect to work here for a long-time. (WrkLT)
7. My company does its best to keep employees working full time. (CoBstFE)
8. I have a good future in this company. (GoodFut)

VII. Willingness to Put in More Effort (Cronbach's Alpha: .600)

1. I put in more effort than what is normally expected. (MorEff)
2. My company inspires me to do my best in performing my job. (CoInsp)
3. I am willing to put in more effort than I am now. (MorEff1)
4. I am willing to put in more effort today in doing my best on the job than I was 5 years ago. (MorEff51)

VIII. Labor Cost (Cronbach's Alpha: .940)

Question 1 came from the Human Resource manager's questionnaire, Question 2 came from the Operation's Manager's questionnaire. (1-5 scale, much lower to much higher)

1. In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. c. unit labor costs (HUniLabor)
2. In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. c. unit labor costs (OUniLabor)

VIII. Product Quality (Chronbach's Alpha: .537)

Question 1 came from the Human Resource manager's questionnaire, Question 2 came from the Operation's Manager's questionnaire. (1-5 scale, much lower to much higher)

1. In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. d. product quality (HProdQua)
2. In comparison to other manufacturers that produce similar components, how does your company perform regarding ……. d. product quality (OProdQua)

<u>Strategic Implementation Measures</u>

Roughly, how many hours of classroom training have you received from this company since you started working here? _____ hours (Hrs Class Training)

Roughly, how many hours of on-the-job training have you received from supervisors and co-workers in learning your jobs since you started working here? _____ hours (OTJTrnHrs)

Do you work in a work team, quality circle or other kind of employee involvement group? (Yes or No) (WrkTeam)

Do you rotate between jobs in your work area? (Not at all, some, a lot) (Rotate)

Has any new production equiptment or machinery been installed in your work area over the last 5 years? (None, some, a lot) (NewEquip)

Do you use a computer in your current job? (No, some, a lot) (Computer)

I am treated fairly (1-7 scale, strongly disagree to strongly agree) (FairTrt)

My company provides a healthy and safe place to work (1-7 scale, strongly disagree to strongly agree) (Safe)

Table 2
Means, Standard Deviations, and Correlations of the Strategy Implementation Measures

Measure	Mean	Std. Dev.	HrsClass	OTJTrnHrs	WrkTeam	Rotate	NewEquip	Computer	FairTrt
HrsClass	45.25	129.72							
OTJTrnHrs	62.13	210.58	.142***						
WrkTeam	.488	.513	.062	.049					
Rotate	.994	.705	-.031	.022	.140***				
NewEquip	.936	.697	.022	.012	.044	.108***			
Computer	.531	.696	.103***	.151***	.095***	.027	.090***		
FairTrt	4.263	1.952	-.004	.089***	.128***	.073**	.034	.098***	
Safe	4.317	1.839	-.057	.050	.145***	.037	.022	.074*	.390***

*** - p < .01
** - p < .05

Table 3
Coefficients of Measures on Endogenous Latent Variables
(std. errors in parentheses)

	Latent Variable		
Measure	DoesMore	LabCost	QualPerf
Moreff	0.25*** (0.06)		
CoInsp	1.00		
MoreEff51	0.61*** (0.06)		
MoreEff1	0.58*** (0.05)		
OUnitLab		1.00	
HUnitLab		0.90*** (0.02)	
OProdQua			1.00
HProdQua			0.95*** (0.08)

*** - p < .01

Table 4
Strategy Implementation Variables and Their Association with Employee Affect Outcome Variables
Coefficients of Measures on Exogenous Latent Variables
(std. errors in parentheses)

	Latent Variable					
Measure	SklDevSa	Feedback	JobCont	Intensit	Empowerm	Security
Orient	0.06***					
	(0.02)					
TrainSat	1.08***					
	(0.07)					
GoodOppT	1.58***					
	(0.06)					
GoodOppS	1.60***					
	(0.06)					
MorT	1.47***					
	(0.07)					
OppBtrJb	0.85***					
	(0.07)					
OppImpSk	0.87***					
	(0.07)					
MnFdbck		1.28***				
		(0.08)				
PerfKnow		0.46***				
		(0.06)				
HowWell		1.19***				
		(0.07)				
DecBest			1.32***			
			(0.07)			
IndepFre			1.34***			
			(0.07)			
DecWrk			1.02***			
			(0.07)			
Tense				1.36***		
				(0.09)		
Pain				1.05***		
				(0.08)		
Exhaust				1.18***		
				(0.08)		
WrkImp					0.96***	
					(0.05)	
ConfJb					0.47***	
					(0.03)	
JbImpWA					0.74***	
					(0.04)	
JbPersMe					1.05***	
					(0.06)	
CapPerf					0.46***	
					(0.04)	
WrkPersR					1.12***	
					(0.07)	
SuccWAJb					0.83***	

						(0.04)
NotMastS						-0.10*
						(0.08)
SigInfSu						0.75***
						(0.06)
CoGood						1.36***
						(0.06)
NotEnjoy						-1.06***
						(0.07)
HgrPay						1.13***
						(0.07)
JbLT						0.51***
						(0.08)
NoLayOff						0.39***
						(0.07)
WrkLT						1.14***
						(0.07)
CoBstFE						0.68***
						(0.06)
GoodFut						1.39***
						(0.06)
HrsClass	44.60***	-52.84***	36.94***	-3.27	-	-15.72*
	(5.04)	(13.25)	(10.40)	(6.81)		(8.44)
EeOJTHrs	15.16***	-7.59	3.75	-6.52#	-	-6.79#
	(3.26)	(7.94)	(6.23)	(4.20)		(5.20)
WrkTeam	0.03	0.12**	-0.09**	0.03	0.01	0.02
	(0.03)	(0.05)	(0.04)	(0.03)	(0.02)	(0.03)
Rotate	0.13***	0.18***	-0.18***	0.05#	0.00	-0.06#
	(0.04)	(0.07)	(0.05)	(0.04)	(0.03)	(0.05)
NewEquip	0.09**	0.12*	-0.03	0.08**	0.00	-0.10**
	(0.04)	(0.06)	(0.05)	(0.03)	(0.03)	(0.04)
Computer	0.14***	-0.17***	0.16***	-0.03	0.06*	-0.06#
	(0.04)	(0.06)	(0.05)	(0.03)	(0.03)	(0.04)
FairTrt	0.16#	1.01***	0.00	-0.33***	-0.13#	0.45***
	(0.12)	(0.17)	(0.13)	(0.09)	(0.09)	(0.11)
Safe	-0.09	0.68***	-0.46***	-0.12#	0.13#	0.75***
	(0.11)	(0.16)	(0.13)	(0.08)	(0.08)	(0.11)

_____

*** - p < .01
** - p < .05
* - p < .10
# - p < .10, one tailed test

Table 5
Coefficients of Exogenous Latent Variables on Endogenous Latent Variables
(std. errors in parentheses)

	Exogenous Latent Variable					
Endogenous LV	SklDevSa	Feedback	JobCont	Intensit	Empowerm	Security
DoesMore	0.32***	0.51***	-0.17#	0.15**	0.08	0.66***
	(0.09)	(0.14)	(0.11)	(0.07)	(0.07)	(0.09)
LabCost	0.05	0.26***	-0.23***	0.09**	0.04#	0.15**
	(0.05)	(0.10)	(0.06)	(0.04)	(0.03)	(0.06)
QualPerf	-0.23***	0.42***	-0.23***	0.07*	0.00	0.09
	(0.06)	(0.10)	(0.06)	(0.04)	(0.04)	(0.07)

*** - p < .01
** - p < .05
* - p < .10
# - p < .10, one-tailed test

Table 6
Coefficients of Exogenous Latent Variables on Exogenous Latent Variables
(std. errors in parentheses)

	Latent Variable					
Measure	SklDevSa	Feedback	JobCont	Intensit	Empowerm	Security
SklDevSA	1					
Feedback	0.61***	1				
	(0.04)					
JobCont	0.34***	0.71***	1			
(0.04)		(0.04)				
Intensit	-0.26***	-0.30***	-0.22***	1		
	(0.04)	(0.05)	(0.05)			
Empowerm	0.29***	0.44***	0.40***	-0.09*	1	
	(0.04)	(0.04)	(0.04)	(0.05)		
Security	0.62***	0.55***	0.41***	-0.35***	0.43***	1
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	

*** - p < .01
* - p < .10

Table 7
Coefficients of Endogenous Latent Variables on Endogenous Latent Variables
(std. errors in parentheses)

	Endogenous Latent Variable		
Endogenous LV	DoesMore	LabCost	QualPerf
DoesMore	-		
LabCost	-0.14**	-	-1.15***
	(0.05)		(0.09)
QualPerf	-0.06	-	-
	(0.06)		

*** - p < .01
** - p < .05

R^2 - DoesMore 0.72, LabCost 0.70, QualPerf 0.15

Table 8
Indirect Effects of Exogenous Latent Variables on Outcome Measures
(std. errors in parentheses)

	Latent Variable					
Measure	SklDevSa	Feedback	JobCont	Intensit	Empowerm	Security
LabCost	0.25***	-0.52***	0.28***	-0.09*	0.00	-0.14**
	(0.07)	(0.11)	(0.08)	(0.05)	(0.04)	(0.07)
QualPerf	-0.02	-0.03	0.01	-0.01	-0.01	-0.04
	(0.02)	(0.04)	(0.01)	(0.01)	(0.01)	(0.05)

*** - p < .01
** - p < .05

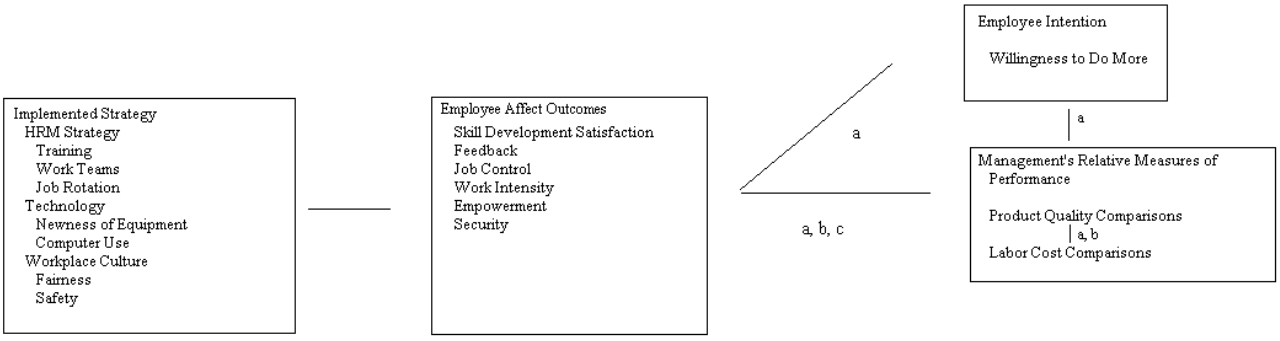
Note: All effects on DoesMore are direct, QualPerf has a direct effect on LabCost

Table 9
Standardized Effects of Strategy Implementation on Exogenous Latent Variables

	Latent Variable					
Measure	SklDevSa	Feedback	JobCont	Intensit	Empowerm	Security
HrsClass	0.32	-0.38	0.27	-0.02	-	-0.11
EeOJTHrs	0.17	-0.08	0.04	-0.07	-	-0.08
WrkTeam	0.06	0.22	-0.16	0.05	0.03	0.03
Rotate	0.17	0.24	-0.24	0.06	0.00	-0.08
NewEquip	0.12	0.16	-0.04	0.11	0.00	-0.14
Computer	0.21	-0.25	0.24	-0.05	0.09	-0.09
FairTrt	0.08	0.49	0.00	-0.16	-0.06	0.22
Safe	0.05	0.35	-0.24	-0.06	0.07	0.39

Figure 1

The Relationship of Implemented Strategy to Company Performance



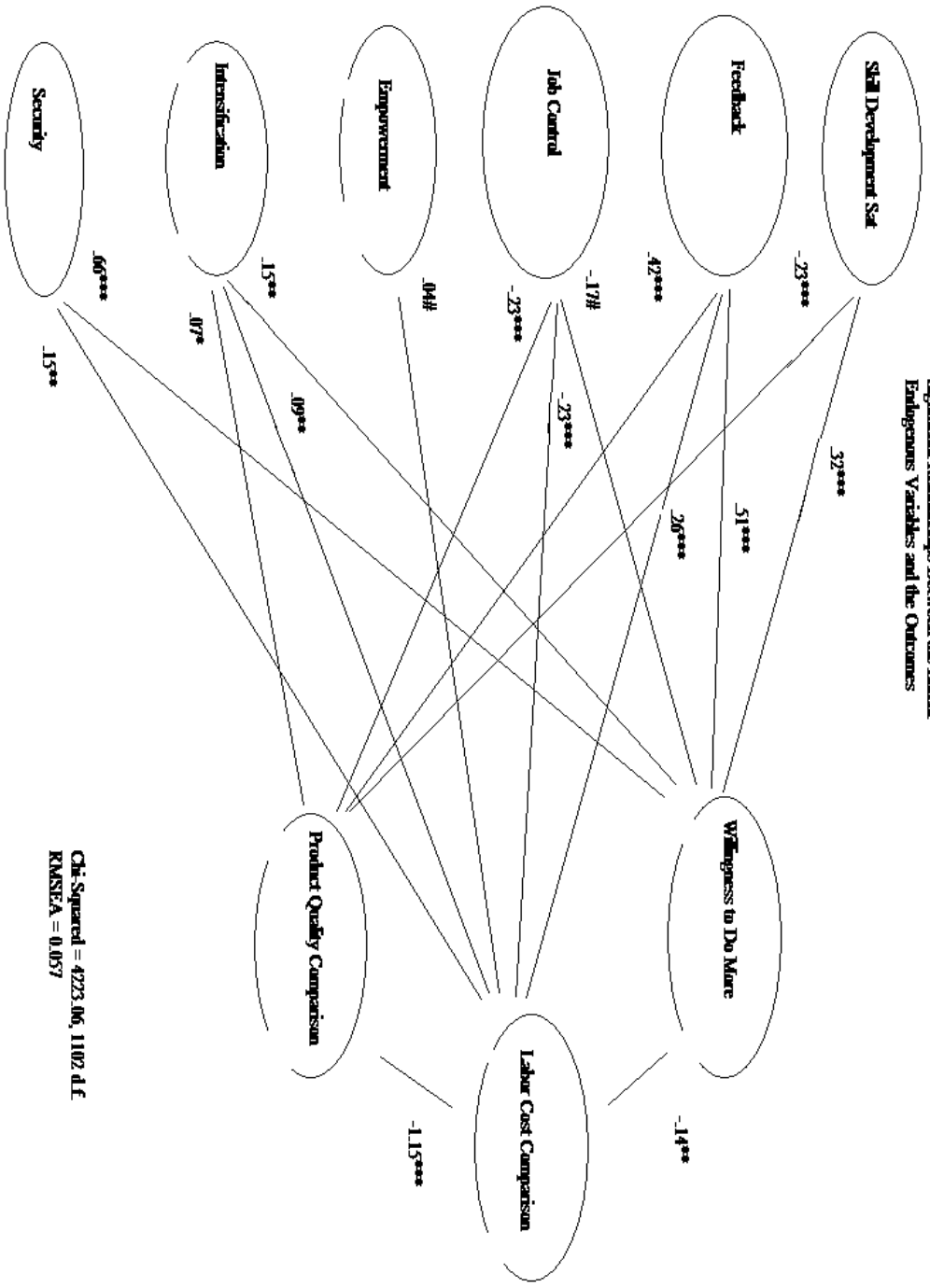


Figure 2
Significant Relationships Between the Latent Endogenous Variables and the Outcomes

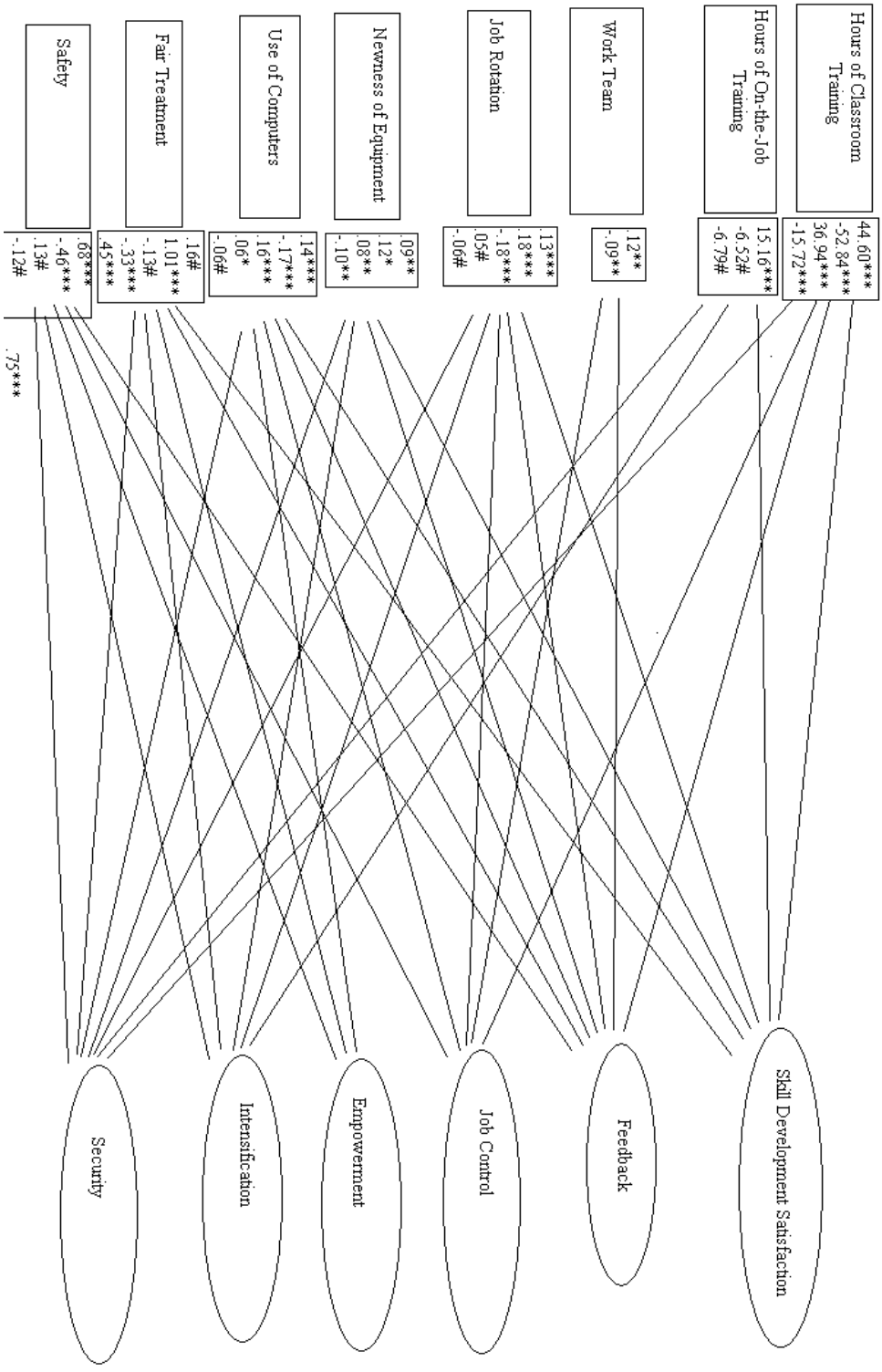


Figure 3
The Effects of Strategy Implementation on Worker Affect (Endogenous Latent) Variables