Employees' Reaction to Enterprise Resource Planning: The Influence of Procedural Justice

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TJP

Organizations adopt enterprise resource planning (ERP) systems, a software program integrating core business functions, to enhance organizational performance. However, ERP systems often run into implementation problems and thus have not lived up to all the promises suggested by advocates. Implementation problems may be traceable to lack of input from employees and delegation of ERP functionality to vendors and consultants. This study investigates the impact of procedural justice, perceived organizational support, and ERP leadership during the ERP implementation process on employee involvement with, and commitment to, ERP systems.

Enterprise resource planning (ERP) systems are commercial software packages used by organizations and institutions to integrate business processes across organizational functions and locations (Aladwani, 2001; Dong, 2001). Organizations implement these systems for measuring individual and organizational performance, preventing internal theft, enforcing laws and workplace rules, and integrating production, inventory control, scheduling, purchasing, and cost accounting. The basic function of ERP systems is to handle data: getting, storing, and making the data available enterprisewide in modules of functionality (Markus, Petrie, & Axline, 2000).

ERP systems incorporate graphical interfaces and can be multi-lingual to accommodate sites in foreign countries. These systems support best practices, such as Business Process Redesign (BPR) across several core business functions. BPR is a preplanning stage for ERP, a key "mapping" concept for aligning business strategies with information technology (Biazzo, 1998; Scheer & Habermann, 2000; Siriginidi, 2000; Schniederjans & Kim, 2003).

Hammer and Champy (1993) defined BPR as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance" (p. 31). ERP is a specific strategy for using information technology to institutionalize BPR's process changes (Biazzo, 1998; Keller & Teufel, 1998; Scott & Vessey, 2000; Taylor, 1998). However, the new organizational procedures emerging from BPR, and institutionalized in ERP, often pay little attention to human and social issues (Al-Mashari & Al-Mudimigh, 2003; Morgan, 1997; Taylor, 1998). Thus, BPR and ERP often preclude employees' concerns, and both are systems stressing hierarchy—top-down approaches for BPR (Biazzo, 1998; Willmott, 1995) and profiles consisting of different authorization levels for ERP users (Little & Best, 2003), as well as employee control (mySAP™ ERP, 2003), which can lead to silo domains. For instance, when employees and departments do not have equal access to information stored in the

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ERP database due to separation of duties (see Little & Best); they often wait for the appropriate ERP authority level to unlock the information. Waiting on information that is readily available often causes employee frustration and a sense of lack of trust.

According to Ashforth and Mael (1998), informational systems (IS), such as ERP, impart organizational identity, seminal goals and values, prevailing beliefs and assumptions, and behavioral norms. In other words, IS can be a form of normative or cultural control. Normative control is an attempt by organizations and institutions to control employees' behaviors, by inducing organizational members to remake themselves into the image of the desired organizational or institutional member (Ashforth & Mael; Kunda, 1992). Kunda defined normative control as "the attempt to elicit and direct the required efforts of members by controlling the underlying experiences, thoughts, and feelings that guide their actions . . . a sort of creeping annexation of workers' selves" (pp. 11-12). Often, however, the process of normative control does not represent the interest of employees and undermines the perception of fairness.

Mohrman, Tenkasi, and Mohrman (2003) indicated that organizations intentionally change structures, work practices, technology, and human-resource practices to introduce new behaviors that may lead to improved competencies and competitiveness in the marketplace (K.J. Klein, Conn, & Sorra, 2001). ERP systems, however, have not performed as well as expected. Chen (2001) indicated that only a few companies such as Cisco Systems, Eastman Kodak, and Tektronix have reaped the expected benefits of ERP systems. Moreover, others such as FoxMeyer Drug, a $5 billion pharmaceutical company, claimed that their failed ERP system created excess shipments resulting from incorrect orders and costing; as a result, they filed for bankruptcy. Chen cited other ERP failures such as Dell Computer, Boeing, Dow Chemical, Mobil Europe, Applied Materials, Hershey, and Kellogg's. Nonetheless, Repenning (2002) indicated that compelling evidence suggests that if innovations, such as ERP systems, were implemented appropriately, organizations would benefit significantly. Failure appears to reside in the implementation process, rather than in the ERP innovation (K. J. Klein et al., 2001).

Therefore it is important to examine the effect of procedural justice on the implementation of ERP systems. Researchers have not applied procedural justice to the implementation of ERP systems; rather they have sought to highlight critical success factors (CSF). Such exclusion is an important gap in the procedural justice literature. Understanding this gap is likely to enhance the implementation of ERP innovations.

The premise of this study, depicted in Figure 1, is that employees' reaction to the implementation of an effective ERP system, measured by employees' involvement and commitment, is a function of procedural justice, and that perceived organizational support (POS) mediates and ERP leadership moderate the effects of procedural justice. That is, employees' perception of procedural justice affects perceived organizational support (POS), and POS affects employees' commitment and involvement with ERP. Additionally, the study proposes that the strength of the relationship between procedural justice and ERP commitment and involvement depends on the level of ERP leadership. In

essence, if employees' evaluation of procedural justice, POS, and ERP leadership is low, trust in the organization will be weak. Lack of trust will lower employees' motivation and hence involvement and commitment towards the ERP innovation.
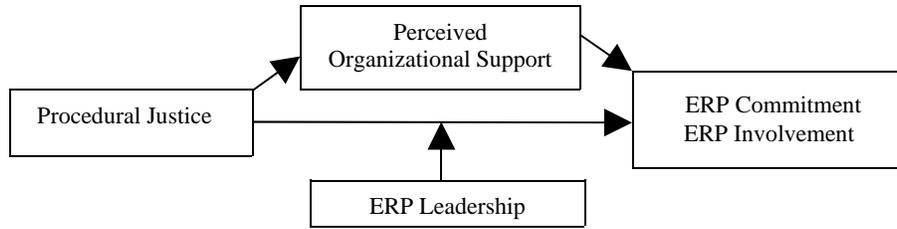
Figure 1. Procedural justice influence on ERP commitment and ERP involvement

Literature Review and Hypotheses

ERP System Implementation

The adoption and implementation of an ERP system is often not a participatory endeavor. Management adopts and implements the system under the direction of an ERP vendor or consultants (Markus et al., 2000) with limited employee participation. Additionally, because most ERP systems are a set of contingency tables of decisions and actions applicable to any type of industry, vendors are reluctant to change the template of ideal information. Therefore, most organizations modify their existing structure and processes to fit the functionality of the ERP software, instead of reconfiguring the ERP modules and screens. As a result, the software is often less optimal than originally forecasted and requires more resources than the system that it is replacing (Saxena & Fox, 1999; Taylor, 1998). However, one of the selling features of ERP is that adopting organizations gain the ability to do more with fewer employees. Hence, to justify the acquisition of ERP, many managers downsize the workforce although the new system requires more resources to function adequately. Downsizing to justify the acquisition of an ERP system often leads to a fearful and cynical workforce (Taylor). Additionally, since structure follows strategy (Chandler, 1962) the new structure will reflect the vendor's strategy codified in the software, which may not be compatible with the organization.

When resources provided by the organization are less than required for the new ERP system to function properly and managers are under pressure to reduce labor overhead, the ERP implementation increases employees' adoption costs (efforts) and threatens their jobs (Aladwani, 2001). Inadequate resources lead to overworked employees and the perception that the implementation process is unfair. The perception of unfair ERP outcomes often lowers employee involvement and commitment towards its success.

The employee's view of how ERP fits his or her enduring personal beliefs and the criteria by which the employee decides his or her modes of conduct are important aspects

in the process of organizational change (Christensen, 2001; K. J. Klein & Sorra, 1996). K. J. Klein and Sorra, noted that employees often share certain values due to common work experiences. Therefore, if organizational members believe that ERP is a good fit with organizational needs, their belief is likely to affect their commitment, involvement, and hence use of the system. Good fit results from proper up-front definition requirements, specific to the organization and its members. Employee participation in the definition requirements stage is likely to ensure a good fit. Participation provides employees with the opportunity to review and improve software functionality, such as pre-testing the screens of the ERP system to ascertain that the software modules are adequate (Saxena & Fox, 1999). Lack of participation in the definition requirements stage may lead to a sub-optimal ERP system that is incongruent with employees' values (Aladwani, 2001; K. J. Klein & Sorra).

User Involvement

  Researchers highlight two types of user engagement in information systems: behavioral and psychological (Barki & Hartwick, 1989; Kappelman, 1995; Kappelman & McLean, 1994; McKeen, Guimaraes, & Wetherbe, 1994). The term "participation" refers to users' behavioral involvement in the system development process, whereas the term "involvement" refers to users' subjective psychological involvement (Barki & Hartwick; Kappelman). Kappelman noted that behaviors are visible and psychological states are not. The psychological state of involvement results from the user's assessment of the importance, significance, and relevance of the ERP system (Barki & Hartwick; Kappelman, O'Keefe, 1990; McKeen et al.). Kappelman indicated that there is empirical evidence that participation and involvement are important for the success of information systems. On the other hand, Ives and Olson (1984) argued that user participation is necessary only when information required to design the system can only be obtained from users.

        The advantage of user participation in ERP systems has been widely recognized in the literature (Barki & Hartwick, 1994; McKeen et al., 1994). However, research evidence on the advantage has been inconclusive and contradictory (Barki & Hartwick; McKeen et al.; Ives & Olsen, 1984). McKeen et al. believed that the flaws are due to shortcomings in research design, omission of contextual variables, and confusion between various constructs (user involvement, participation, and influence). For example, Barki and Hartwick indicated, "In IS the terms 'user participation and 'user involvement' have been used to mean the same thing" (p. 59). They also noted that participation has a variable scope; it includes a variety of behaviors carried out by users and system developers. McKeen et al. reviewed several studies (Alter, 1978; Gallagher, 1974; Oppelland & Kolf, 1980) and found that user participation in system design led to a higher valuation of the final product as compared to non-participants. Additionally, using regression analysis, they found significant relationships between user participation and user satisfaction. Bemmels and Reshef (1991) reported similar findings in Canadian plants. They found that informing

employees of changes after making a decision resulted in less employee support than when employees had a voice in the process.

The literature on user involvement also indicates inconsistencies between the linkage of involvement and outcome, such as performance (Barki & Hartwick, 1989; Ives & Olsen, 1984; Wright & Bonett, 2000). However, these studies also viewed involvement as behavioral activities performed by users in different stages of the system development process, rather than the individual subjective psychological state (Barki & Hartwick). The inconsistency, here too, maybe due to model misspecification (Barki & Hartwick; Ives & Olson). Barki and Hartwick (1989, 1994) differentiated the construct of involvement from other psychological states, particularly attitude. They argued that attitude is an affective or evaluative judgment of an object (where an object encompasses persons, events, products, policies, institutions, and so on). Thus, they distinguish between the psychological state by which the employee evaluates the new system and the psychological state by which the employee believes that the new system is personally relevant and important. Furthermore, they argued that involvement measurement should exclude the user evaluative component. Nonetheless, they believed that the two concepts, user involvement, and user attitude are related. ERP systems that are important and personally relevant to employees are bound to engender positive evaluative feelings. Thus, they recommended the attitudinal approach suggested by Swanson (1974), "that user involvement leads to positive attitudes concerning the systems" (p. 60).

User Commitment

Commitment, an attitudinal or behavioral orientation, is loyalty to a social unit, whether an organization, a subsystem or an occupation (Price, 1997). Attitudinal commitment is the employee identification with goals of multiple constituencies within the organization and willingness to work for them; thus, commitment has multiple local foci (Becker & Eveleth, 1995; Reichers, 1985). Behavioral commitment binds the employee to behavioral actions, such as the extent to which an employee plans to continue with the organization or learn the ERP system. Employees demonstrate behavioral commitment to ERP implementation by the amount of time they spend learning the system. Mowday, Porter, and Steers, (1982) argued that attitudinal commitment leads to behavioral commitment and vice versa. Commitment, here, is the employee identification or internalization with the organization's conceptualization of the ERP system and his or her willingness to provide extra effort on behalf of the initiative
(Brockner, Tyler, & Cooper-Schneider 1992; Cook & Wall, 1980; Mowday, Steers, & Porter, 1979; Yukl, 1998). Identification is present when employees adopt behavior to satisfy others; it is the perceived oneness with a person, group, or organization (Ashforth & Mael, 1989; Becker & Eveleth, 1995; O'Reilly & Chatman, 1986; Yukl).

J. A. Klein (1994) indicated that the sources of commitment stem from organizational loyalty, work relationships (managers and peers), and the work itself. She also stated that employees' loyalty is a result of their perceptions (evaluations) of

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organizational reciprocity; they trust, based on past positive experiences, that their companies will provide them with a better job if they eliminate their current work activities. Thus, some researchers view commitment as a psychological bond that employees form with their employers (Becker, Billings, Eveleth, & Gilbert, 1996; J.A. Klein; Pratt, 1998; Staw, 1977). Consequently, employees' commitment to their jobs and continuous organizational improvements is based on their perceived psychological contract towards work. The psychological contract is the employee's belief in a mutual obligation, an exchange relationship, between the employee and the organization (Kickul, 2001; J. A. Klein). J. A. Klein noted that organizational leaders in the United States equate commitment with a sense of employee ownership over workplace decisions, which leads to the paradox between vendor-based generic innovations (standards) and employee empowerment (representation) over workplace decisions. Vendor-based innovations, such as ERP, require acceptance and conformance to prescribed vendors' assumptions of generic best practices (Dong, 2001). It precludes employees' representation
(empowerment) in the pre-planning and definition requirements stages. Furthermore, it forces organizations towards full generic integration that limits organizational and individual flexibility. Lack of representation dispels any sense of ownership and adversely affects employees' commitment. Moreover, organizations seldom empower employees to modify ERP functionality.

Procedural Justice

Procedural justice is the fairness of the decision-making process, it involves adherence to several rules of fairness: consistency, bias suppression, accuracy, representation, correctability, and ethicality (Colquitt et al., 2002; Leventhal, 1980). ERP systems often fail the rules of fairness. For instance, ERP leaders are seldom unbiased, the modules often do not fit organizational structures (inaccurate information/integration and migration issues), there is not a viable process to amend the system (lack of correctability), and employee representation in the development and implementation is less than desirable.

Process control, which differs from decision control, is essential to judgments of procedural justice (Douthitt & Aiello, 2001; Thibaut & Walker, 1975). The latter involves influence over outcomes; the former controls elements that determine outcomes. Lack of process control in the development and implementation of ERP systems creates employee dissatisfaction and may lead to the perception of lack of organizational support. Research studies link procedural justice to job satisfaction, organizational commitment, citizenship behavior, and job performance (Colquitt et al., 2002). Thus, procedural justice shapes employees' affective reactions towards the organization (global context) and affects their views of the ERP implementation. Martin and Bennett (1996) noted that procedural impropriety affects employees' commitment, even when employees are satisfied with pay and benefits. They highlighted findings from Tyler, Rasinski, and McGraw (1985), which indicated that when individuals were asked to place trust in, or endorse, organizations, procedural fairness was significant in explaining their views. Shapiro and Kirkman (1999)

found that global perception of procedural justice moderated employees' resistance and commitment to self-managed work teams (SMWT). However, Folger and Konovsky (1989) found that only procedures used to determine pay raises contributed to organizational commitment.

Participation provides employees with the opportunity to influence the functionality of the ERP system. It enhances ERP values fit; that is, the extent to which employees perceive that the ERP innovation is congruent with their values (Douthitt & Aiello, 2001; J. A. Klein & Sorra, 1996; Lind, Tyler, & Huo, 1997). Thus, participation has a positive effect on perceptions of procedural justice, as well as on employees' judgments on the legitimacy of authority, support for social and political institutions, obedience to laws and agreements (Folger & Konovsky, 1989); it enhances perceived organizational support (Eisenberger et al., 1986).

Lind et al. (1997) noted that the relational issues that employees consider when making procedural judgments are the motivation of the organization and its willingness to consider the employees' needs. Additionally, for many employees, attempts by the organization to make fair decisions, based on full, open, and accurate assessment of the facts imply that the organization treats them with dignity and respect. Thus, they expect ERP leaders to adopt effective innovations based on a full, open, and accurate diagnosis of organizational problems and challenges that cause dissatisfaction with internal and external constituents (Harrison & Shirom, 1999). Therefore, constituency representation is necessary for positive justice perceptions.

H1: Perceptions of greater procedural justice in adopting and implementing an ERP system would lead to greater POS and a higher level of employee involvement and commitment towards the ERP system.

Perceived Organizational Support

Procedural justice alone is unlikely to drive employees' reactions (Naumann et al., 1998). Perceived organizational support (POS) may mediate the relationship between employees' perception of organizational justice and employees' involvement and commitment to ERP systems. A mediator variable is a mechanism (third variable), through which the independent variable influences the dependent variable; it accounts for the relationship between both variables (Baron & Kenny, 1986). According to Baron and Kenny, a variable functions as a mediator if, (a) variations in the independent variable significantly account for variations in the mediator, (b) variations in the mediator significantly account for variations in the dependent variable, and (c) when (a) and (b) are controlled, the relationship between the independent and dependent variables are no longer significant.

Procedural justice deals with fairness in the workplace. Therefore, it influences employees' perception of organizational support and POS is an antecedent for organizational commitment (Eisenberger et al., 1986). When employees believe that the

organization treats them fairly, they are more likely to hold positive attitudes about their work, work outcomes, and their supervisors (Moorman, 1991). Similarly, when they perceive organizational support, they often reciprocate by becoming more involved and committed to their work and the introduction of innovations, such as ERP. POS is an important component of the exchange relationship that leads to employee commitment (Bishop, Goldsby, & Neck, 2002; Shore & Tetrick, 1991). Bishop et al. also stated that social exchange theory (Blau, 1964) and norm reciprocity (Gouldner, 1960) hypothesize a relationship between POS and organizational commitment. Thus, POS has been consistently linked to organizational commitment (Eisenberger et al.; Fuller, Barnett, Hester, & Relyea, 2003). Likewise, O'Driscoll and Randall (1999) found that organizations that care about their employees and value their contributions were associated with a higher level of job involvement by employees. A positive perception of organizational support strengthens employees' involvement as well as their emotional bond with the organization (Cardona, Lawrence, & Bentler, 2004).

POS is the global beliefs of employees concerning the extent that the organization values their contributions and cares about their welfare (Eisenberger, Fasolo, & LaMastro, 1990; Eisenberger et al., 1986; Naumann et al., 1998). It is the organization's commitment to the employees (Eisenberger et al., 1986). Eisenberger et al. (1986) believed that the way organizations treat employees influences their perception of organizational support. POS creates trust in managers and the organization. It reaffirms the implicit psychological contract, the employee's beliefs of the exchange relationship with the organization (Kickul, 2001). For instance, employees expect a certain level of support from organizations, such as reaction to illnesses, mistakes, superior performance, and the organization's desire to provide fair remuneration (Eisenberger et al., 1986). Kickul noted that breach of the psychological contract could adversely affect employees' justice perception and may lead employees to reduce their efforts towards the ERP implementation.

> *H2: POS mediates the effects of procedural justice on involvement and commitment to the implementation of ERP systems.*

ERP Leadership

ERP implementation leadership is a set of role behaviors that influences and coordinates the activities of group members to achieve a successful ERP implementation and use (Kanungo, 1998). It moderates employees' perception of organizational justice. A moderator variable affects the direction and/or strength of the relation between the independent variable and the dependent variable (Baron & Kenny, 1986). Barron and Kenny noted that the moderator hypothesis is supported if the product of the independent and moderator variables is significant in determining causal relationships. Additionally, the correlation between the moderator and the independent and dependent variables should be insignificant.

Top executives create the context (role behaviors) that influences the diffusion of strategic choices, such as ERP (Finkelstein & Hambrick, 1996; Kanungo, 1998). The context, in theory, involves ensuring appropriate system fit, trust, staffing, measurement systems, and rewards. ERP leadership is often "top-down" leadership, centralized, and relies on perceived power to enforce participation. Thus, upper-level executives have a predominant influence on the adoption and diffusion of an ERP system throughout the entire organization.

According to Yukl (1998), strategic leadership involves a variety of stakeholders in the decision-making process. For Kanungo (1998), leadership is both relational and an attributional phenomenon, it is the employees' perception of the leader's behavior, their acceptance of the leader's influence, and attribution of status to the leader that gives rise to his or her leadership. He noted that responses from employees make leadership operational. Thus, to understand ERP leadership, we must understand the relationships between ERP leaders-ERP users, ERP leaders-ERP system, and ERP users-ERP system.

Intellectually stimulating leaders frequently articulate realistic visions that they share with employees, and they pay attention to differences among employees (Yammarino & Bass, 1990). Additionally, they provide employees with challenging new ideas that stimulate new approaches to old tasks (den Hartog et al., 1997). Effective ERP leadership requires explicit and tacit information technology (IT) knowledge (Rockart, Earl, & Ross, 1996). Explicit knowledge is a usable body of facts and concepts for a particular job, which permits managers to communicate effectively with IT specialists and potential users. Tacit knowledge is the ability to perform well. That is, strategic ERP leadership requires an understanding of the sources of ineffectiveness that ERP will resolve and what problems if any, it may create. Leadership is a convergence of top-down and bottom-up alignments (Kanter et al., 1992). Leadership endowed with intellectual stimulation ensures broad organizational consensus on the value of adopting an ERP system. Moreover, it strengthens emotional bonds between employees and leaders. Employees' emotional bond to the leader demonstrates their acceptance of her or his leadership (Kanungo, 1998).

The relationship between organizational leadership and employees is often transactional, as exemplified by performance reviews that require employees to perform pre-specified tasks in exchange for unspecified rewards (Yammarino & Bass, 1990). Transactional leadership exchanges reward with subordinates for services rendered (Bass & Avolio, 1993; Yammarino & Bass). Yammarino and Bass argued that transactional exchanges limit the effort coming from subordinates. The relationship between ERP leaders and the implementation team is largely an exchange relationship. For instance, ERP leaders expect team members to frame their decisions and actions based on what is acceptable to the ERP system (Bass & Avolio). Thus, they constrain the implementation team efforts to the existing ERP logic, which may prevent the team from highlighting ERP logic that may be incongruent with organizational processes.

Transformational leaders empower users to achieve the organizational shared vision or goals (Yukl, 1998). According to Yukl, empowerment implies that leaders

delegate authority for deciding how to do the work to individuals and teams. For instance, in terms of ERP, employees would determine the best way to configure and implement the system. Avolio, Bass, and Jung (1999) identified four distinct components of transformational leadership. They identified idealized influence (followers identify with and want to emulate their leaders), inspirational motivation (leaders encourage followers to envision attractive future states), intellectual stimulation (leaders solicit new ideas and creative solutions from followers, and include followers in the process of addressing problems and finding solutions), and individual consideration (leaders pay attention to each individual's needs). Of these four components, only intellectual stimulation influences ERP implementation by addressing problems and solutions in the definition requirements phase.

> *H3: Intellectually stimulating ERP leadership moderates the relationship between procedural justice and employee involvement and commitment towards ERP implementation so that procedural justice will have a larger effect on the involvement and commitment of employees who experience more intellectually stimulating ERP leadership.*

Method Sample

The sample for this study consisted of 148 ERP users from government and educational institutions that have "gone live" with an ERP system for no more than 24 months before the survey (K. J. Klein et al., 2001). Table 1 depicts selected frequency distributions for the control variables. Approximately 50% of the respondents were males, 65% were white, 72% were salaried, 28% were union members, 78% were college graduates, and 39% were from the government. Additionally, 75% of respondents reported a modified ERP system; consultants and company personnel implemented 85% of ERP systems, and PeopleSoft and SAP accounted for 39 and 22% of implementations, respectively. However, approximately 30% of respondents did not report a supplier; some indicated that they were not aware of who supplied the ERP software. The average age of the respondent was 47, with a standard deviation of 8.94; the average number of years with the organization was 14, with a standard deviation of 9.65; and the average number of years in the current position was 7.16, with a standard deviation of 6.38 (see Table 2).

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Table 1 - Selected Frequency Distribution

Variable	Frequency	Percent
Gender		
Male	73	49.32
Female	73	49.32
Missing	2	1.35
Total	148	100.00
Race		
White	96	64.86
Black	38	25.68
Asian	4	2.70
Hispanic	3	2.03
Other	4	2.70
Missing	3	2.03
Total	148	100.00
Wage	41	27.70
Salary	107	72.30
Total	148	100.00
Union Member		
No	106	71.62
Yes	42	28.38
Total	148	100.00
Education		
High School Graduate	9	6.08
Some College	23	15.54
College Graduate	116	78.38
Total	148	100

Procedure

Internet searches and trade magazines were used to identify academic and governmental institutions that were in the process of implementing ERP systems, or have "gone live" with an ERP system for no more than 24 months. The electronic addresses from the identified institutions were used to contact potential respondents by email (Simsek & Veiga, 2000). Potential respondents were identified by their function within the institutions.

Measures

The study measured employees' perceptions of procedural justice, perceived organizational support, ERP leadership, ERP involvement, and ERP commitment to the implementation of an ERP system.

Dependent variables

1. **ERP Commitment:** The study measured commitment using a modified version of O'Reilly and Chatman's (1986) commitment scale. The Cronbach alpha was 0.76. The following are sample items: "The reason I prefer ERP to other systems is because of what it stands for, its values" and "I feel a sense of ownership for ERP rather than being just a user." Employees were asked to indicate the extent to which they agree with these statements using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).
2. **ERP involvement:** The study measured ERP involvement from the 15item questionnaire developed by Barki and Hartwick (1994). It captures four involvement elements, four personal relevance elements, and four attitude elements. The Cronbach alpha was 0.98. Employees were asked to rate the ERP implementation on 5-point bipolar scales anchored by evaluative adjective pairs, extremely negative was scored as 1, neutral as 3, and extremely positive as 5. The following are sample pairs: "essential nonessential" and "useful-useless."

Independent variables

1. **Procedural justice:** The study measured procedural justice from the questionnaire developed by Colquitt (2001). The Cronbach alpha was 0.83. The following sample items refer to procedures used to implement ERP: "Have you been able to express your views and feelings during the implementation?" and "Have the implementation been free of bias?" Employees were asked to indicate the extent to which they agree with

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these statements using a 5-point Likert scale (1 = To a very small extent; 5 = To a very large extent).

2. **ERP leadership:** The study measured ERP leadership using a modified version of Avolio and Bass' (1999) intellectual stimulation scale from MLQ (Form 5X). The Cronbach alpha was 0.91. The following are sample items: "ERP leaders re-examine the ERP assumptions with potential users" and "ERP leaders seek different views from potential users." Employees were asked to indicate the extent to which they agree with these statements using a 5-point Likert scale (1 = To a very small extent; 5 = To a very large extent).

3. **Perceived organizational support:** The study measured POS using Eisenberger et al.'s (1986) short form of perceived organizational support scale. This is a 16-item scale with reverse-scored items. The Cronbach alpha was 0.95. The following are sample items: "The organization strongly considers my goals and values" and "The organization cares about my opinions." Employees were asked to indicate the extent to which they agree with these statements using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Control variables

1. **Race,** categorized as 0 for white and 1 non-white.
2. **Gender,** categorized as 0 for male and 1 for female.
3. **Age**, measured in years.
4. **Education,** categorized as 1 for college graduates and 0 for otherwise. The otherwise category includes respondents with high school degrees and respondents with some college education (see Table 1).
5. **Years with the organization,** measured in years.
6. **Years in position,** measured in years.
7. **Respondent classification,** categorized as 0 for wage and 1 for salaried.
8. **Union member,** categorized as 0 for no and 1 for yes.
9. **Type of organization,** categorized as 0 for otherwise and 1 for educational. The otherwise category was composed of most respondents from government institutions (see Table 1).
10. **Type of implementation,** categorized as 0 for partial and 1 for comprehensive.
11. **Implementation was modified,** categorized as 0 for no and 1 for yes.
12. **Implemented by,** categorized as 1 for consultants and company personnel and 0 for otherwise. The otherwise category includes implementation by consultants and implementation by company personnel (see Table 1).

13. **Supplier,** categorized as 1 for PeopleSoft and 0 for otherwise. The otherwise category includes BAAN, SAP, J.D. Edwards, Sungard SCT, and non-responses (see Table 1).
14. **Numbers of months since "go-live,"** measured in months.

Results

Table 2 shows correlations, reliabilities (in parenthesis), means, and standard deviations for all variables used in the study. The pattern of correlations for procedural justice indicates a positive relationship with ERP commitment, ERP involvement, ERP leadership, and POS. Likewise, ERP commitment, ERP involvement, ERP leadership, and POS have positive relationships.

Hierarchical regression analyses were performed to test the employees' perceptions that greater procedural justice in adopting and implementing ERP systems would lead to greater POS and a higher level of employee involvement and commitment towards the ERP implementation (Hypothesis 1). Table 3 depicts the results of hierarchical regressions related to the tests for hypothesis 1. The regression coefficients indicate that after entry of the control variables, procedural justice had significant positive relationships with POS and ERP commitment, and an insignificant positive relationship with ERP involvement. The control variable supplier had significant positive relationships with POS and ERP involvement, and the number of months since go-live had a significant positive relationship with ERP involvement. Thus, the analyses partially supported hypothesis 1, which predicted that higher employee perceptions of procedural justice lead to greater POS and a higher level of ERP commitment and involvement. However, the effect of greater procedural justice on ERP involvement, although in the predicted direction, was not significant at the 5% level[1].

Hierarchical regression analyses were also used to test hypothesis 2, which states that POS mediates the effects between procedural justice and ERP involvement, and between procedural justice and ERP commitment. Baron and Kenny (1986) noted that a variable functions as a mediator when it accounts for the relationship between the independent variable and the dependent variable, Figure 2 depicts the basic mediation chain.

Mediator

Independent Variable ⟶ Dependent Variable

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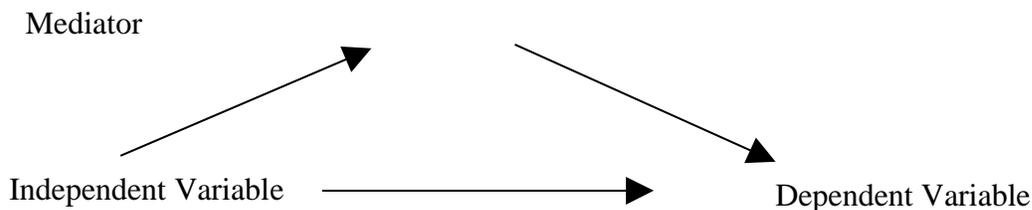
[1] Procedural Justice was significant at the .10 levels.

Figure 2. Mediation

        Baron and Kenny (1986) indicated that a mediator must meet three requirements:

1. Variations in levels of the independent variable significantly account for variations in the mediator (POS).

2. Variations in the mediator significantly account for variance in the dependent variable.

3. When the independent variable and the mediator are controlled, the magnitude of the relationship between the independent variable and the dependent variable is no longer significant. Full mediation occurs if the relationship between the independent variable and the dependent variable is zero.

        Three regression equations are needed to test for mediation (Baron & Kenny, 1986). The first equation regresses the mediator (POS) on the independent variable and the independent variable must affect the mediator. Table 3, step 2, (page 26) shows that the independent variable, procedural justice, has significant positive relationships with the mediator (dependent variable POS), which satisfies the first requirement for mediation. The second equation regresses the dependent variable on the independent variable and the independent variable must affect the dependent variable. Table 3, Step 2, (page 28) indicates that procedural justice has positive significant relationships with ERP commitment satisfying the second requirement for mediation. The relationships between procedural justice and ERP involvement, Table 3, Step 2, (page 30) did not satisfy the second requirement for mediation. The third equation, Table 4, regresses the dependent variable (ERP commitment and ERP involvement) on both the independent variable and the mediator. The mediator must affect the dependent variable and the effect of the independent variable in the third equation must be less than in the second. Table 4 shows a significant positive relationship between the mediator (POS) and ERP commitment, and the effect of procedural justice (independent variable) in the third equation is less than in the second, which satisfies the third requirement. POS mediates the relationship between procedural justice and ERP commitment, which satisfied all three requirements for mediation. The relationships between the mediator (POS) and ERP involvement were positive and insignificant when the mediator and procedural justice were entered into the regression, which does not satisfy the third requirement. Therefore, hypothesis 2 is partially supported.

        Hierarchical multiple regression analyses were performed to test for the moderating effect of ERP leadership on procedural justice. Hypothesis 3 indicates that an intellectually stimulating ERP leadership moderates the relationship between procedural justice and employee involvement and commitment towards ERP implementation, so that procedural justice will have a larger effect on the involvement and commitment of employees who experience more intellectually stimulating leadership.

According to Baron and Kenny (1986), a moderator variable affects the direction and/or strength of the relation between the independent and dependent variables. Figure 3 summarizes the properties of a moderator variable.

Independent Variable

Moderator

Dependent Variable

Independent Variable X Moderator
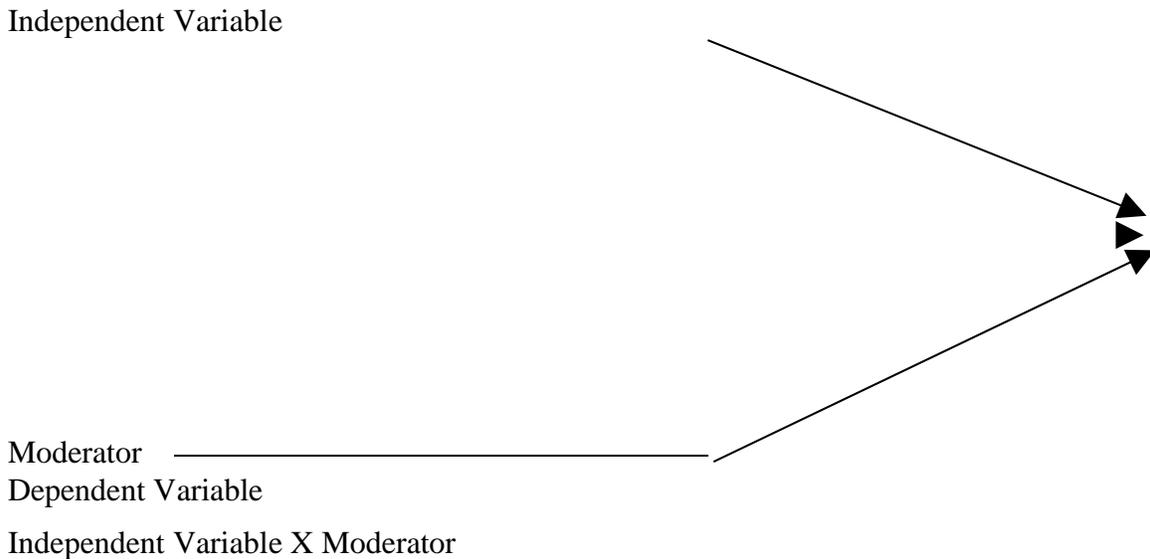
Figure 3. Moderator Model

The following moderated multiple regression equation was used to test for moderation:

$$\hat{Y} = a + b_1X + b_2Z + b_3X*Z, \qquad (1)$$

where $\hat{Y}$ is the predicted value of the dependent variable (ERP involvement or ERP commitment), a is the intercept, b_1 is the coefficient of the independent variable (procedural justice), b_2 is the coefficient of the moderator (ERP leadership), and b_3 is the coefficient of the interaction term (procedural justice X ERP leadership). The interaction term, a third independent variable, is the product of the procedural justice variable and the moderator. Aguinis and Pierce (1999) noted that rejecting the null hypothesis that the coefficient of the interaction term is equal to zero ($b_3 = 0$) indicates the presence of a moderating or interaction effect (Agresti & Finlay, 1999; Champoux & Peters, 1987). They also noted that calculating the multiple correlation coefficient associated with equation (1), minus the multiple correlation coefficient associated with equation (1) less the interaction term (Champoux & Peters; Stone & Hollenbeck, 1989) can also be used to assess the interaction term.

For the moderated hierarchical regressions, the demographic control variables were entered first, the procedural justice variable second, ERP leadership third, and then the interaction term. Tables 3, Steps 1 and 2, ERP commitment and ERP involvement, and Table 5, Steps 3 and 4, show the results of hierarchical regression analyses used to assess

moderation. The results for Tables 3, highlighted above, indicate that procedural justice had positive significant relationships with ERP commitment and positive, but no significant relationship with ERP involvement. Table 5, Step 3, indicates significant positive relationships between ERP leadership and ERP commitment and between ERP leadership and ERP involvement when the moderator and procedural justice variables were entered into the regression equation. It also reveals that the control variables supplier and race of the respondent had significant positive relationships with ERP involvement when ERP leadership and procedural justice variables were entered into the regression equation. Table 5, Step 4, reveals that the control variable supplier had a significant positive relationship with ERP involvement when ERP leadership, procedural justice, and the interaction variables were entered into the regression equation.

Additionally, Table 5, Step 4, also reveals that procedural justice and the interaction term were significant and positively related to ERP involvement. Thus, the interaction term PJxERPLEAD was different from zero, which implies that ERP leadership moderates the relationship between procedural justice and ERP involvement. Therefore, hypothesis 3 was partially supported.

Conclusion

The purpose of this research was to determine how procedural justice, perceived organizational support (POS), and ERP leadership influence employees' attitudes during the implementation of an ERP system. The study tested three hypotheses. The first hypothesis predicted that when employees perceived greater procedural justice, they would exhibit higher levels of POS, ERP commitment, and ERP involvement. The second hypothesis predicted that POS would mediate the relationship between procedural justice and ERP involvement and between procedural justice and ERP commitment. The third hypothesis predicted that intellectually stimulating ERP leadership would moderate the relationships between procedural justice and ERP commitment and between procedural justice and ERP involvement. Figure 4 depicts the study's anticipated relationships and Figure 4 the found relationships.
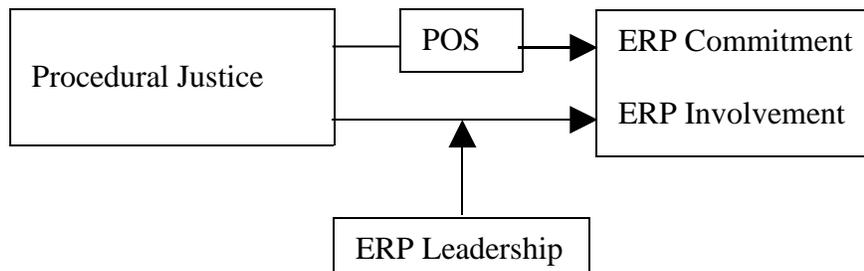
**Figure 4.** Anticipated Relationships
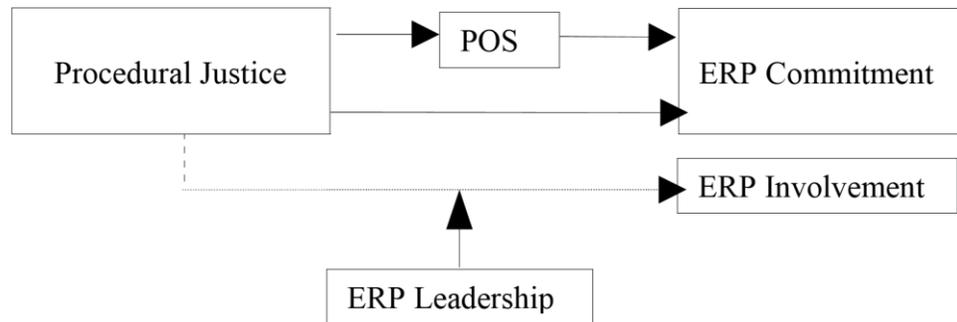
Figure 5. Found Relationships

Procedural Justice

Procedural justice was significant and positively related to ERP commitment, indicating that when employees perceived fair ERP implementation procedures they were more committed to the ERP implementation process. The relationship between procedural justice and ERP involvement was positive but insignificant, which indicates that it may not influence employees' involvement. Thus, increased participation and more voice from ERP leaders did not appear to increase the personal relevancy and importance of the ERP implementation to the employees.

The control variable supplier was significant and positively related to ERP involvement, which would tend to indicate that the type of software supplied influence employees involvement. ERP involvement refers to the employees' subjective psychological involvement with the implementation process (Barki & Hartwick, 1989; Kappelman, 1995). It is the employee's assessment of the relevance and importance of the ERP implementation process. Thus, the supplier's logic or configuration may affect the employee's assessment of the software and hence involvement. If the ERP software system is relevant to the employees, their motivation for engaging with it will increase. Although, the converse is also true. For instance, one respondent indicated that the ERP software increased workload and caused numerous problems and excessive stress.

Perceived Organizational Support

The study's findings supported the relationship between procedural justice and perceived organizational support. The regression equation revealed significant positive relationships between procedural justice and POS, indicating that when employees perceive greater procedural justice (i.e., increased participation, more voice from ERP leaders) they perceive greater levels of organizational support. Rhoades and Eisenberger's (2002) path analysis also revealed a strong relationship between fairness perception with POS and Moorman, Blakely, and Niehoff (1998) found that procedural justice was related to POS. Thus, when employees perceive procedural justice in the ERP implementation process, they often feel that the process incorporates their well-being.

POS as Mediator. Hierarchical regression analyses were used to determine the mediating effect of perceived organizational support (POS) between procedural justice and ERP commitment and between procedural justice and ERP involvement. The results indicated that POS mediates the relationships between procedural justice and ERP commitment. The mediator functions as a third variable, which represents a generative mechanism through which procedural justice affects ERP commitment (Baron & Kenny, 1986). POS had no mediating effect between procedural justice and ERP involvement. Greater organizational support does not influence the employees' assessment of the relevancy and importance of the ERP implementation process.

ERP Leadership as a Moderator

The study showed that ERP leadership has a significant positive influence on ERP commitment and ERP involvement, indicating that as ERP leadership increases, employees' ERP commitment and ERP involvement increase. Thus, it is possible for ERP leaders to influence employees' identification and internalization with the ERP implementation process, thereby inducing employees' commitment to the ERP implementation process. Similarly, ERP leaders can empower employees to be active participants in the definition requirements phase of the ERP process, which often heightens employees' significance and importance of the initiative, enhancing the employees' ERP involvement. Involvement is a subjective psychological state and is not visible (Barki & Harwick, 1989; Kappelman, 1995). Therefore, it is difficult for ERP leaders to determine employees' involvement in the ERP implementation process solely by observation. To understand the employees' subjective psychological state, ERP leaders must incorporate employees' views and concerns in the decision-making process.

The results from the moderated regression analyses indicated that ERP leadership moderates the relationships between procedural justice and ERP involvement. However, ERP leadership had no moderating effect between procedural justice and ERP commitment. In essence, the findings indicate that ERP leadership can use procedural justice to moderate the direction and/or strength of employees' involvement with the ERP implementation process. Perhaps, this is why organizations, including educational institutions, were reluctant to participate in the study since the results would cast doubt on their stewardship of the ERP implementation process. For instance, representatives from a major university in the Baltimore area and from a branch of the military indicated that the questionnaire would heighten employees' resentment and cause additional problems for the administration, which is an indication that these organizations were not implementing proper ERP leadership.

Summary Conclusion

The findings of the study revealed that procedural has a positive effect on perceived organizational support (POS). That is, when employees perceive greater procedural justice,

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they feel that the organization is acting in their best interest. Additionally, procedural justice and ERP leadership were positively related to ERP commitment. Likewise, POS mediated the relationship between procedural justice and ERP commitment; and ERP leadership moderated the relationship between procedural and ERP involvement.

Employee commitment and involvement are essential for the success of organizational initiatives, such as ERP implementation (Barki & Hartwick, 1994; Kappelman, 1995). ERP involvement is a motivational force, which affects the diffusion outcome of the ERP system (Kappelman; O'Keefe, 1990). The study findings indicate that procedural justice can facilitate the implementation of ERP initiatives. Moreover, ERP leadership influences employees' ERP involvement and ERP commitment, and ERP leaders by applying fair procedures can direct and strengthen employees' involvement with the implementation process. Additionally, employees' perception of greater procedural justice leads to higher ERP involvement and ERP commitment, and a greater sense of organizational support. Furthermore, perceived organizational support enhances the employees' perception of procedural justice leading to increased ERP commitment.

Implications of the Study

The study implies that procedural justice is an important determinant of employees' ERP commitment. Moreover, ERP leadership influences employees' ERP commitment and ERP involvement, and more importantly ERP leadership through procedural can moderate employees' ERP involvement, their subjective psychological view of the organizational initiative. In essence, ERP leaders can use procedural justice to make the ERP process relevant to the employees.

Strengths and Weaknesses of the Study

The strength of the study is its novel approach of using procedural justice to examine employees' reactions to the ERP implementation process and the resulting findings. Thus, the study revealed that procedural justice could enhance employees' commitment to the ERP implementation process. Moreover, ERP leadership facilitates employee involvement and commitment. Thus, lack of procedural justice and appropriate leadership may explain why so many ERP systems fail to deliver results consistent with expectations.

One limitation of the study was the difficulty in obtaining institutional participation; this led to the identification of potential respondents through online directories. Thus, the approach may affect sample representativeness, although Simsek and Veiga (2001) did not believe that sample representativeness was a major problem when seeking initial insight into organizational problems. Additionally, respondents were using new technologies, which involved new skills; and that could result in workforce downsizing. Both of these factors could condition the results.

Suggestion for Future Research

Future research should examine the implementation of other organizational initiatives using procedural justice to determine if it, indeed, facilitates the successful implementation of organizational initiatives. That is, does the concept of fairness improve cooperation and reciprocity from employees in implementing organizational initiatives? Additionally, a qualitative follow-up ERP implementation study would add additional information to the above findings.

Table 2

Correlations, Reliabilities, Means, and Standard Deviations

Subscale	Mean	Std. Dev.	1	2	3	4	5	6	7
Correlations									
1 ERP Commitment	2.58	0.88							
2 ERP Involvement	3.54	1.31	.49(**)						
3 ERP Leadership	2.80	1.12	.49(**)	.32(**)					
4 Perceived Organizational Support	2.96	1.05	.45(**)	.39(**)	.37(**)				
5 Procedural Justice	2.82	0.89	.39(**)	.20(*)	.56(**)	.31(**)			
6 Age of Respondent	47.03	8.94	-0.06	-0.04	0.01	0.05	-0.05		
7 Education of Respondent	0.78	0.41	0.06	0.14	0.07	0.04	.22(**)	0.00	
8 Gender of Respondent	0.50	0.50	-0.07	0.12	-0.09	0.11	-0.11	-0.16	-.39(**)
9 Implementation was Modified	0.78	0.42	0.03	-0.03	0.07	-0.10	-0.08	-0.01	-0.09
10 Implemented by	0.86	0.34	-0.03	0.13	0.01	0.00	0.03	0.10	.28(**)
11 Race of Respondent	0.33	0.47	0.02	.21(*)	-0.08	-0.02	-0.16	-0.15	-0.08
12 Respondent Work Classification	0.72	0.45	-0.12	0.08	0.01	0.16	0.08	0.14	0.08
13 Supplier	0.51	0.50	-0.13	0.16	-.28(**)	0.10	-.23(*)	0.00	0.01
14 Type of Implementation	0.54	0.50	0.03	-0.06	0.11	-0.02	0.11	-0.05	0.06
15 Type of Organization	0.56	0.51	-.19(*)	0.02	-0.13	-0.05	-0.09	-0.09	0.08
16 Union Member	0.28	0.45	0.11	-0.05	-0.03	-.19(*)	-0.12	-0.10	-0.03
17 Years in the Position	7.16	6.38	-0.07	-0.09	-0.02	0.00	-0.02	.35(**)	-0.14
18 Years with the Organization	13.84	9.65	0.02	-0.02	0.10	0.00	0.03	.49(**)	-0.13

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

(continued)

Table 2

Correlations, Reliabilities, Means, and Standard Deviations

8	9	10	11	12	13	14	15	16	17	18
0.06										
-0.04	-0.06									
.23(**)	0.12	-.18(*)								
0.06	-0.07	.20(*)	0.01							
0.13	0.02	0.07	0.05	0.03						
-0.15	0.05	0.03	-0.08	0.05	-.29(**)					
.20(*)	-0.09	-0.03	0.12	.18(*)	.25(*)	-0.11				
-0.08	0.07	-.19(*)	0.04	-.88(**)	-0.06	-0.04	-0.16			
0.00	0.09	-0.12	-0.15	0.05	-0.10	0.03	-0.04	-0.03		
-0.02	0.10	0.07	-0.04	-0.05	-0.16	-0.01	-.17(*)	0.06	.53(**)	

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Table 3 Summary of Hierarchical Regression Analyses for Variables Predicting Perceived Organizational Support - Hypothesis 1 (N=148)

Variable	POS		
	B	*SE B*	ββ
Step 1			
(Constant)	3.02**	0.98	
Age of Respondent	0.01	0.01	0.04
Education of Respondent	0.19	0.34	0.06
Gender of Respondent	0.29	0.26	0.14
Implementation was Modified	-0.31	0.27	-0.13
Implemented by	-0.55	0.40	-0.16
Number of months since Go-Live	0.01	0.02	0.10
Race of Respondent	-0.21	0.28	-0.09
Respondent Work Classification	0.25	0.56	0.10
Supplier	0.30	0.24	0.15
Type of Implementation	-0.01	0.24	-0.01
Type of Organization	-0.06	0.27	-0.03
Union Member	-0.21	0.56	-0.08
Years in the Position	-0.01	0.02	-0.03
Years with the Organization	0.00	0.01	0.02
ΔR^2	0.12		
F Change	0.75		

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

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting
Perceived Organizational Support - Hypothesis 1 (N=148)

Variable	POS		
	B	*SE B*	β
Step 2			
(Constant)	1.26	1.10	
Age of Respondent	0.01	0.01	0.09
Education of Respondent	-0.02	0.33	-0.01
Gender of Respondent	0.29	0.25	0.14
Implementation was Modified	-0.22	0.26	-0.09
Implemented by	-0.34	0.39	-0.10
Number of months since Go-Live	0.02	0.02	0.16
Race of Respondent	-0.13	0.26	-0.05
Respondent Work Classification	0.25	0.53	0.10
Supplier	0.46*	0.23	0.23*
Type of Implementation	0.07	0.23	0.03
Type of Organization	0.01	0.25	0.00
Union Member	-0.11	0.54	-0.04
Years in the Position	-0.01	0.02	-0.06
Years with the Organization	0.00	0.01	-0.04
Procedural Justice	0.41**	0.14	0.34**
ΔR^2	0.09		

F Change	9.20**
Total R^2	0.21

*$p < .05$. **$p < .01$.

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting
Table 3 (continued)

ERP Commitment - Hypothesis 1 (N=148)

Variable	ERP Commitment		
	B	*SE B*	β
Step 1			
(Constant)	4.02**	0.69	
Age of Respondent	-0.01	0.01	-0.16
Education of Respondent	0.05	0.24	0.03
Gender of Respondent	0.00	0.18	0.00
Implementation was Modified	0.05	0.19	0.03
Implemented by	-0.30	0.29	-0.12
Number of months since Go-Live	0.00	0.01	0.03
Race of Respondent	0.19	0.20	0.11
Respondent Work Classification	-0.24	0.40	-0.14
Supplier	-0.14	0.17	-0.09
Type of Implementation	-0.19	0.17	-0.13
Type of Organization	-0.23	0.19	-0.16
Union Member	-0.34	0.40	-0.19
Years in the Position	-0.01	0.02	-0.07

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Summary of Hierarchical Regression Analyses for Variables Predicting

Years with the Organization	0.01	0.01	0.10
ΔR^2	0.12		
F Change	0.80		

*$p < .05$. **$p < .01$.

ERP Commitment - Hypothesis 1 (N=148)

	ERP Commitment		
Variable	B	$SE\ B$	β
Step 2			
(Constant)	2.95**	0.79	
Age of Respondent	-0.01	0.01	-0.12
Education of Respondent	-0.08	0.24	-0.04
Gender of Respondent	0.00	0.18	0.00
Implementation was Modified	0.10	0.19	0.06
Implemented by	-0.17	0.28	-0.07
Number of months since Go-Live	0.01	0.01	0.08
Race of Respondent	0.24	0.19	0.14
Respondent Work Classification	-0.24	0.38	-0.14
Supplier	-0.04	0.17	-0.02
Type of Implementation	-0.14	0.16	-0.09
Type of Organization	-0.19	0.18	-0.13
Union Member	-0.28	0.39	-0.16
Years in the Position	-0.01	0.02	-0.10

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

Years with the Organization	0.00	0.01	0.05
Procedural Justice	0.25**	0.10	0.29**
ΔR^2	0.07		
F Change	6.63*		
Total R^2	0.19		

*$p < .05$. **$p < .01$.

Table 3 (continued)

ERP Involvement - Hypothesis 1 (N=148)

Variable	B	ERP Involvement	
		SE B	β
Step 1			
(Constant)			
2.00	1.20		
Age of Respondent			
-0.01			

Summary of Hierarchical Regression Analyses for Variables Predicting

0.02   -0.09

Education of Respondent

0.69

0.40   0.20

Gender of Respondent

0.27

0.30   0.11

Implementation was Modified

-0.23

0.32   -0.08

Implemented   by

0.49

0.47   0.12

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

Number of months since Go-Live

0.03

0.02   0.22

Race of Respondent

0.51

0.32   0.18

Respondent Work Classification

0.60

0.75   0.20

Supplier

0.53

0.28   0.22

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Summary of Hierarchical Regression Analyses for Variables Predicting

Type of Implementation

-0.23

0.28   -0.09

Type of Organization

0.17

0.31   0.07

Union   Member

0.47

0.76   0.16

Years in the Position

0.01

0.03   0.07

Years   with   the   Organization

-0.01

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

0.02	-0.07
ΔR^2	0.18
F Change	1.20

ERP Involvement - Hypothesis 1 (N=148)

Variable	ERP Involvement		
	B	*SE B*	β
Step 2			
(Constant)	0.79	1.39	
Age of Respondent	-0.01	0.02	-0.06
Education of Respondent	0.55	0.40	0.16
Gender of Respondent	0.26	0.30	0.11
Implementation was Modified	-0.17	0.31	-0.06
Implemented by	0.63	0.47	0.15
Number of months since Go-Live	0.04*	0.02	0.25*
Race of Respondent	0.57	0.32	0.20
Respondent Work Classification	0.63	0.74	0.21
Supplier	0.64*	0.28	0.26*
Type of Implementation	-0.17	0.28	-0.07
Type of Organization	0.22	0.31	0.09

Summary of Hierarchical Regression Analyses for Variables Predicting

Union Member	0.57	0.75	0.19
Years in the Position	0.01	0.03	0.06
Years with the Organization	-0.01	0.02	-0.11
Procedural Justice	0.27	0.16	0.19
ΔR^2	0.03		
F Change	2.84		
Total R^2	0.21		

$*p < .05. **p < .01.$

Table 4

ERP Commitment - Hypothesis 2 (N=148)

	ERP Commitment		
Variable	B	$SE\ B$	$\text{\ss\ss}$
Step 2			
(Constant)	2.63**	0.75	
Age of Respondent	-0.01	0.01	-0.15
Education of Respondent	-0.07	0.23	-0.03
Gender of Respondent	-0.07	0.17	-0.05
Implementation was Modified	0.16	0.18	0.09
Implemented by	-0.08	0.27	-0.03
Number of months since Go-Live	0.00	0.01	0.03

Table 3 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

Race of Respondent	0.27	0.18	0.16
Respondent Work Classification	-0.30	0.36	-0.17
Supplier	-0.15	0.16	-0.10
Type of Implementation	-0.16	0.16	-0.10
Type of Organization	-0.19	0.17	-0.13
Union Member	-0.25	0.37	-0.14
Years in the Position	-0.01	0.01	-0.08
Years with the Organization	0.00	0.01	0.06
Perceived Organizational Support	0.25**	0.08	0.35**
Procedural Justice	0.15	0.10	0.17
ΔR^2	0.10		
F Change	10.60**		
Total R^2	0.29		

$*p < .05.$ $**p < .01.$

(continued)
Table 4 Summary of Hierarchical Regression Analyses for Variables Predicting ERP Involvement - Hypothesis 2 (N=148)

	ERP Involvement		
Variable	*B*	*SE B*	ß
Step 2			
(Constant)	0.59	1.38	
Age of Respondent	-0.01	0.02	-0.08
Education of Respondent	0.56	0.40	0.16
Gender of Respondent	0.19	0.29	0.08
Implementation was Modified	-0.11	0.31	-0.04
Implemented by	0.71	0.47	0.17
Number of months since Go-Live	0.03	0.02	0.23
Race of Respondent	0.60	0.31	0.21
Respondent Work Classification	0.49	0.74	0.16
Supplier	0.53	0.29	0.22
Type of Implementation	-0.19	0.27	-0.08
Type of Organization	0.22	0.30	0.09
Union Member	0.51	0.74	0.17
Years in the Position	0.01	0.03	0.07
Years with the Organization	-0.01	0.02	-0.10
Perceived Organizational Support	0.23	0.13	0.19
Procedural Justice	0.18	0.17	0.12
ΔR^2	0.03		

Table 5 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

F Change	2.99
Total R^2	0.24

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

Table 5

ERP Commitment - Hypothesis 3 (N=148)

	ERP Commitment		
Variable	*B*	*SE B*	ß
Step 3			
(Constant)	2.63**	0.75	
Age of Respondent	-0.01	0.01	-0.14
Education of Respondent	-0.05	0.23	-0.03
Gender of Respondent	0.01	0.17	0.01
Implementation was Modified	0.00	0.18	0.00
Implemented by	-0.08	0.26	-0.03
Number of months since Go-Live	0.00	0.01	0.03

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Summary of Hierarchical Regression Analyses for Variables Predicting

Race of Respondent	0.27	0.18	0.16
Respondent Work Classification	-0.19	0.36	-0.11
Supplier	0.05	0.16	0.03
Type of Implementation	-0.14	0.15	-0.10
Type of Organization	-0.22	0.17	-0.15
Union Member	-0.19	0.36	-0.11
Years in the Position	-0.01	0.01	-0.07
Years with the Organization	0.00	0.01	0.02
ERP Leadership	0.27**	0.08	0.39**
Procedural Justice	0.10	0.10	0.11
ΔR^2	0.11		
F Change	11.96**		

*$p < .05$. **$p < .01$.

Table 5 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting
ERP Involvement - Hypothesis 3 (N=148)

	ERP Commitment		
Variable	B	SE B	ß
Step 4			
(Constant)	3.83**	1.10	
Age of Respondent	-0.01	0.01	-0.16
Education of Respondent	-0.06	0.22	-0.03
Gender of Respondent	0.04	0.17	0.03
Implementation was Modified	-0.01	0.18	-0.01
Implemented by	-0.10	0.26	-0.04
Number of months since Go-Live	0.00	0.01	0.00
Race of Respondent	0.22	0.18	0.14

Summary of Hierarchical Regression Analyses for Variables Predicting

Respondent Work Classification	-0.19	0.36	-0.10
Supplier	0.05	0.16	0.04
Type of Implementation	-0.14	0.15	-0.09
Type of Organization	-0.24	0.17	-0.16
Union Member	-0.19	0.36	-0.11
Years in the Position	-0.01	0.01	-0.10
Years with the Organization	0.00	0.01	0.06
ERP Leadership	-0.11	0.27	-0.16
Procedural Justice	-0.26	0.26	-0.30
PJxERPLEAD	0.12	0.08	0.84
ΔR^2	0.02		
F Change	2.16		

Table 5 (continued)

Summary of Hierarchical Regression Analyses for Variables Predicting

Total R^2	0.32

*$p < .05$. **$p < .01$

ERP Involvement - Hypothesis 3 (N=148)

Variable	B	SE B	ß
		ERP Involvement	
Step 3			
(Constant)	0.44	1.25	
Age of Respondent	-0.01	0.02	-0.09
Education of Respondent	0.59	0.37	0.17
Gender of Respondent	0.29	0.28	0.12
Implementation was Modified	-0.34	0.30	-0.12
Implemented by	0.76	0.44	0.18
Number of months since Go-Live	0.03	0.02	0.20
Race of Respondent	0.60*	0.30	0.22*
Respondent Work Classification	0.75	0.71	0.25
Supplier	0.76**	0.27	0.31**
Type of Implementation	-0.19	0.26	-0.08
Type of Organization	0.16	0.29	0.07
Union Member	0.72	0.71	0.24
Years in the Position	0.02	0.02	0.08
Years with the Organization	-0.02	0.02	-0.12
ERP Leadership	0.45**	0.13	0.39**
Distributive Justice	-0.03	0.12	-0.02
ΔR^2	0.11		
F Change	2.03**		

*$p < .05$. **$p < .01$.

ERP Involvement - Hypothesis 6 (N=148)

Variable	B	SE B	ß
		ERP Involvement	
Step 4			
(Constant)	4.23*	1.80	
Age of Respondent	-0.02	0.02	-0.11
Education of Respondent	0.54	0.36	0.16
Gender of Respondent	0.39	0.27	0.16
Implementation was Modified	-0.38	0.29	-0.13
Implemented by	0.71	0.42	0.17
Number of months since Go-Live	0.02	0.02	0.14
Race of Respondent	0.46	0.29	0.17
Respondent Work Classification	0.82	0.67	0.27
Supplier	0.80**	0.26	0.32**
Type of Implementation	-0.15	0.25	-0.06
Type of Organization	0.11	0.28	0.04
Union Member	0.82	0.68	0.28
Years in the Position	0.01	0.02	0.04
Years with the Organization	-0.01	0.02	-0.05
ERP Leadership	-0.86	0.44	-0.75
Procedural Justice	-1.15**	0.42	-0.80**
PJxERPLEAD	0.40**	0.13	1.69**
ΔR^2	0.08		
F Change	9.44**		
Total R^2	0.35		

*$p < .05$. **$p < .01$.

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