



The organizational citizenship behavior of IS personnel: Does organizational justice matter?

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ARTICLE INFO

Article history:

Received 30 January 2009

Received in revised form 17 January 2013

Accepted 2 February 2013

Available online 18 February 2013

Keywords:

Information Systems Personnel

Project Management

Organizational citizenship behaviors

Distributive justice

Procedural justice

Interactional justice

ABSTRACT

In developing a successful IS development project today, good IS personnel are crucial. However, just achieving and maintaining their skills is not sufficient; they must contribute to the project in a meaningful fashion, including their supportive activity: organizational citizenship behavior (OCB). However, IS personnel have different motivational factors, informal behavior patterns, and exhibit OCBs different from those in other fields. In addition, projects present a different face than operations in an organization and alter the context of OCBs. This combination leads to a unique setting where the perceptions of equity by IS employees in project teams are unlikely to follow patterns established for functional operations. To determine if perceived equity can lead to desirable attitudes and behavior in this novel setting, we surveyed IS team members of development projects. Data from 298 respondents in 47 project teams indicated that equity, as measured by perceptions of justice, add to job commitment, which serves as a mediator between the justices and OCBs. Project leaders of teams with IS personnel must therefore work to improve the perception of equity in the distribution of rewards and treatment.

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1. Introduction

The boundary spanning nature of an IS project requires the presence of both explicitly recognized behaviors and extra-role behaviors to complete the project successfully. The extra-role behaviors or organizational citizenship behaviors (OCBs) have been recognized throughout the management literature as crucial for organizational success, especially when there is mutual dependence among employees required to accomplish a defined task such as in an IS development project. OCBs include beneficial actions that help prevent problems, identify and complete activities not fully specified, assist other team members, identify flawed practices, and participate in political processes. Such activities are rarely explicitly stated, required, or rewarded, but are still essential for those working in jobs that span organizational boundaries, require resourcefulness, and suffer from extensive

ambiguity. Focusing specifically on IS personnel is essential because research has shown that IS workers are motivated and behave differently, and have different expectations than workers in other fields [2,6,8].

Much effort has been devoted to studying explicitly defined in-role behaviors for IS personnel, such as remaining with the job and dependably carrying out assigned tasks in job requirements, but personnel policies and practices resulting in OCBs have not been well studied [14]. Given their importance in IS project success and the differences of IS personnel from the employee body at large, it seemed essential to develop an understanding of how to improve OCBs of IS personnel working on IS projects. Studies in other disciplines provide ways to do this. A relationship between perceived organizational justice (one's perception of fair treatment by the organization and its managers) and work commitment has been studied in the human management literature [9]. Though such studies have been directed at organizations rather than projects, they concluded that different forms of organizational justice have different impacts on work commitment and OCBs. The different forms of justice have included distributive, procedural, and interactive justice. Further, job commitment (the perspective that one's job is central to one's life) has been found to affect behaviors and to be a key factor in activating IS employee

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motivation [1]. Thus, organizational justice and IS worker's job commitment serve as potential motivators in developing effective OCBs.

This leads us to make a study with the objective of determining practices that will encourage the development and exhibition of OCBs among IS personnel; the specific research questions were:

- Does job commitment motivate IS personnel to practice effective citizenship behavior?
- Do the organizational justices promoted by an organization help improve job commitment and increase OCBs?
- Which forms of organizational justice appear to promote organizational citizenship behavior and does job commitment act as a mediator in such relationships?
- IS project managers could utilize the answers to build a productive environment based around the justices found to be most important.

2. Background

The temporary nature of projects and dynamism of project-oriented environments lead to challenges in ensuring ethical treatment of employees and commitment to goals [4]. Considerations of treatment are an important aspect of perceptions of equity among employees, where equity is a feeling of equal, fair, treatment in the distribution of rewards, application of processes, and intensity of communication. Background and context are important in these perceptions. Here, the *context* is the IS development project and the *background* is the one held by the IS employee.

Besides traditionally working on a project rather than a production environment, the boundary spanning requirements of the IS worker do not always allow application of guidelines from the general human resource (HR) literature [5]. IS employees work in environments with a high demand for change, rapidly advancing technology, ambiguity, and with the effects of changes to the business environment. Overall, job variations and employee characteristics push IS employees to develop different perceptions about employment conditions and alter their reactions in a fashion that requires independent study; these have been well documented in prior studies.

Project-based organizations focus on the empowerment of their employees and develop a customer orientation in which IS workers are expected to be autonomous and participate in a client-service orientation. IS workers face much pressure because of deadlines and fiscal constraints. However, there is a great deal of interdependence among departments and disciplines with team members facing multiple assignments from a project portfolio. These needs represent a mutual set of conditions that should be present in the IS project environment.

2.1. Organizational justice

In any employment relationship, there are expectations of exchange. The fairness of exchanges, an individual's perception of the fairness of treatment received, and his or her behavioral reaction to such perceptions are a premise of *organizational justice*. Researchers have classified it into three categories: distributive, procedural, and interactional; each having distinct antecedents and consequences. *Distributive justice* focuses on beliefs about whether or not deserved outcomes are received. *Procedural justice* focuses on whether or not employees perceive the process by which the outcomes are determined as fair. *Interactional justice* focuses on the quality of the interpersonal treatment received when procedures are implemented. These are continuously evaluated and subject to the influence of the project leader and

the organizational structure. They can also be manipulated by an organization in order to achieve desired effects.

Organizational justice theories suggest that individuals may respond to any unfair relationship by displaying negative emotions and behaviors [13]. An employee may react initially by reducing voluntary obligations and attachments. Thus, the exchanges made before and during a project will create employee perceptions that impact their commitment to the task and thus lead to negligent behavior (little concern for work quality). The loss of commitment was a major consideration in our study.

2.2. Job commitment

Job commitment is a psychological factor determining the importance of a person's work as important to him or her. It is considered a key factor to increasing work effort, personal growth, and satisfaction within the work place [3]. It is thus more related to the current set of tasks than to a view of the career, the organization, or even the profession as a whole. Though work outcomes may be better understood as a function of all forms of commitment, researchers argue that job commitment relates to employee's work behavior more than do other forms of attachment. Furthermore, the temporary nature of projects focuses on tasks rather than the career. Therefore, we examined job commitment in our study, instead of other forms of commitment.

2.3. Organizational citizenship behaviors

OCBs fall into five factors:

- (1) altruism: helping behaviors directed at co-workers;
- (2) conscientiousness: doing the in-role job beyond the standards required by the organization;
- (3) courtesy: taking action to help prevent problems of work associates;
- (4) sportsmanship: being willing to accept minor, temporary personal impositions and inconveniences without protest, etc.;
- (5) civic virtue: taking constructive and responsible involvement in the governance of the organization and regularly attending meetings.

These behaviors are essential to an organization because they reduce friction, provide flexibility, shape psychological and organizational contexts, serve as critical catalysts, and increase efficiency and effectiveness; however little is known about the conditions that encourage desired OCBs in IS personnel. OCBs help to enhance coworker and managerial productivity, free up resources to be used by more productive activities, reduce any scarce resources dedicated to purely maintenance functions, coordinate activities with other people, strengthen the organization's ability to attract and retain the good employees, stabilize an organization's performance, and adapt effectively to environmental change. Without employee OCBs, any working team will be a fragile social system.

Research, however, has shown that OCBs are context dependent and will thus be developed differently for project based tasks rather than a traditional structure. Due to this, the literature is full of discussions about the appropriate dimensionality and specific content items. Few seem to agree on the dimensionality of the OCB concept. In our study we therefore attempted to understand how OCBs are developed in IS personnel.

3. Hypotheses development

The focus of our study was to examine the relationships among organizational justice, job commitment, and OCBs of IS personnel

in a project context. We propose the research model shown in Fig. 1, arguing that organizational justice will lead to a positive job commitment, which in turn, will have a positive impact on an individual's OCB.

Reactive content theories attempt to explain employee response to fair or unfair treatment. These state that employees will react to unfair relationships by displaying negative emotions (e.g., withdrawal), which motivate them to reduce the inequity in the exchange. The result can be significant on job commitment. Distributive justice focuses on employee perceptions about the fairness of outcomes, including pay, promotion, rewards, allocation of tasks, and the work itself. If expected outcomes are not perceived to be satisfied, lower job commitment can be expected.

Previous research concluded that IS personnel have different internal motivations and, thus, different expectations of reward. For IS personnel, wages, interesting work, promotion opportunities, and personal growth have been considered more important than for other employees. Tangible products resulting from a development project provide specific results to be rewarded. Fair distribution of these may be attached to perceptions of performance in determining IS personnel job commitment. Thus, perceived treatment in the distribution of work and rewards influences IS personnel's internal motivation to job commitment. Hence:

H1a. The IS worker's perceived organizational distributive justice positively influences the IS worker's job commitment.

Procedural justice focuses on perceptions of the fairness of the processes by which received outcomes are determined. For disputants, control over the presentation of their arguments and having sufficient time to present their cases are examples of procedural justice; for employees, having a voice in response to inequity is an example. Knowing a decision-process has consistency, bias suppression, accuracy, ways to correct incorrect decisions, compliance with ethical or moral standards, and stakeholder representation enhances perception of fairness. Understanding this process enhances confidence in the potential to satisfy salient needs. In turn, employees devote themselves to their jobs in order to get what they want. Equity considerations are valued, but past studies have focused on this aspect of procedural justice in a project context [7]. Hence, we propose:

H1b. The IS worker's perceived procedural justice positively influences the IS worker's job commitment.

Interactional justice focuses on the quality of interpersonal treatment that employees receive when procedures are implemented. It consists of two types of interpersonal treatments: the degree to which employees are treated with politeness, dignity, and respect by supervisors or managers when executing procedures or determining outcomes and the degree of adequate explanations provided by decision makers about why and how procedures were used or why the outcomes were distributed.

Being treated with dignity better satisfies the human need for justice and provides some idea about how to target the goals that employees want to achieve. Then, employees will increase their level of job commitment to pursue their needs.

This is particularly true for IS personnel with their need for higher esteem, task significance, understanding of the meaning behind an activity, and higher achievement characteristics than other professionals. In addition, employee involvement through teaming with others is a frequently cited motivator for IS employees: a good working relationship with others will motivate IS personnel, while IS personnel receiving little consideration or respect from managers will have detrimental outcomes. Hence, we proposed that reducing job commitment to balance inequitable states should be expected if unfair organizational interaction is perceived, thus:

H1c. The IS worker's perceived interactional justice positively influences the IS worker's job commitment.

Reciprocity means that if a person receives a benefit from someone, then that person provides something beneficial in return. Continued exchange of benefits between people results in a cycle of indebtedness and a need for repayment. This increases the social exchange relationship between the actors and increases the commitments felt by all involved. Due to previously received benefits from the organization and obliged to repay them, employees become more committed to their jobs and reciprocate in some way. OCBs are under employees' control and are influenced by employee's attitudes and beliefs. Thus, if employees feel an obligation to reciprocate, OCB is a common choice.

Considering that IS personnel are usually boundary spanners (contacting many points in the organization across functional areas), they have more opportunity to decide how to improve embedded practices. Hence, higher job commitment by IS employees should yield more co-operation, helping behavior, and assumed responsibility in their organization, Thus:

H2. The IS worker's job commitment is positively associated with the IS worker's OCB.

4. Research methodology

4.1. Data collection

Target respondents of our study were system analysts charged with planning, analyzing, and designing in IS development projects. We contacted one first-line or middle-level manager in eight branches of the Taiwan Tax Authority and asked him or her to be our contact person and aid in the distribution and collection of questionnaires. All agreed to participate and were briefed on our research purpose; we also visited the liaisons and project leaders of every ongoing IS project in each branch. During each visit the researcher stressed the importance of participation in the study and provided the instruments for distribution. Confidentiality of data treatment was assured to all participants by having the researcher collect the completed questionnaires at a time scheduled by the primary contact. Two weeks later, a reminder was sent and the collection process repeated to attain a better response rate.

Overall, responses were received from members of 47 different projects in the 8 branches. A total of 306 questionnaires were returned from the IS project teams. Eight questionnaires were discarded due to incomplete responses or incorrect job titles. The remaining 298 respondents provided an average project team size of 11 people working in projects having an average duration of 1.6 years. Total team composition for these projects was 548 individuals suggesting a 54% conversion to usable responses. The demographics of the sample are shown in Table 1.

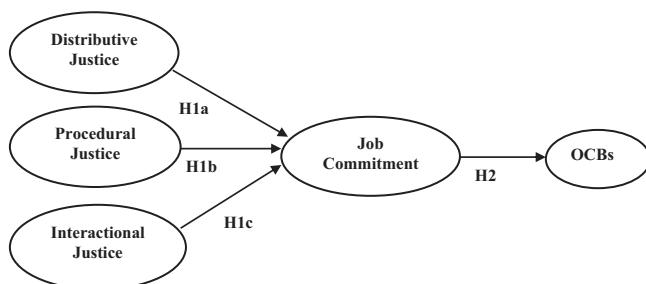


Fig. 1. Research model.

Table 1
Sample demographics.

Categories		Frequency	Percentage
Corporation type	Public	123	42
	Private	170	58
Education level	Masters or above	57	21
	Bachelor degree	215	78
	High school or associate degree	2	1
Gender	Male	134	47
	Female	150	53
Age	<30	64	24
	31–40	104	38
	41–50	62	23
	>50	40	14
Team size	<5	3	6
	5–9	18	38
	10–14	15	32
	15–19	5	11
	20–24	4	9
	>25	2	4

4.2. Measures

All constructs were obtained from past research and measured by multi-item scales. Because all target subjects were located in Taiwan, a Chinese version was created and subsequently verified by a researcher fluent in both languages. The translation work was done by one of the researchers and reviewed by 5 IS practitioners having more than five years of experience in the field; this was therefore our pre-test. The final version was prepared adjusting for feedback, requiring only minor edits. Measurement items are shown in Table 2. Likert-type scales, with anchors ranging from 1 (strongly disagree) to 7 (strongly agree) were used as measures for each item.

Distributive justice focuses on employees' perceptions about whether or not they receive the outcomes they believe they deserve. A 5-item abbreviated measure originally developed by Niehoff and Moorman⁴ was used. **Procedural justice** focuses on whether or not employees perceive as fair the process by which they receive outcomes. A 3-item abbreviated measure was used [11]. **Interactional justice** focuses on how people are treated. A 6-item abbreviated measure was used⁵.

Job commitment refers to as a cognitive or belief state of psychological identification with a particular job. A 10-item measure from Kanungo⁶ was collected, but only 7-items were employed in analysis because three had adverse effects on reliability. **OCBs** refer to employee's behaviors that are discretionary, not directly or explicitly recognized by the formal reward system, and that, in aggregate, promote effective functioning of the organization. Because of the concerns of instable dimensionality and strong relationships among those dimensions identified, a 10-item measure representing a single factor was selected that contain items of sacrifice, sharing, and presence.⁷ Two items were dropped due to low loadings on the factor.

4.3. Measure validation

Partial least squares (PLS) methodology with PLS-Graph Version 3.01 was adopted to verify measurements and test hypotheses. PLS uses ordinary least squares as its estimation technique. It performs an iterative set of factor analysis and applies a bootstrap approach to estimate the significance (*t*-values) of the paths. A two-step approach including measurement validation and path analysis was adopted for analysis. Individual item reliability was examined by determining the factor loading of each item. A high loading implies

that the shared variance between constructs and its measurement is higher than error variance. Factor loadings higher than 0.7 can be viewed as having high reliability and a factor loading less than 0.5 should be dropped.

Convergent validity can be assured when multiple items are used to measure one construct. It is examined by item-total correlation (ITC), composite reliability, and variance extracted by constructs (AVE). To meet required convergent validity, ITC should not be less than 0.3, composite reliability should be more than 0.7, and AVE should be higher than 0.5. Higher values of AVE mean variance captured by the construct is higher than the measurement error and more credible. Discriminant validity focuses on testing whether the measures of constructs are adequately differentiated from each other. To meet required validity, the square root of AVE should be greater than or equal to the correlation coefficients. Standardized Loadings, Item-Construct Correlations and Composite Reliability values are shown in Table 2 and the square roots of AVE are shown in Table 3 along with other descriptive statistics. All items in our study had loadings higher than 0.6, all constructs had AVE values higher than 0.5, the minimum composite reliability was 0.88 for job commitment, and the item-total correlations were all high. A one-factor examination was conducted to determine the potential for single source bias, but no problem was indicated. Hence, reliability and validity of measurements were assured and adequate [10].

5. Results

Table 4 reports results for the hypotheses: standardized path coefficients (β) and significance values. All paths were significant at the 0.05 level except the path from procedural justice to job commitment. The pooled effects explain 26% of the total variance of job commitment. Thus, the direct effects for the impact of two of the three justices on job commitment were supported. This shows that different types of organizational justice may have different levels of magnitude of effect on job commitment. Distributive and interactional justice were perceived as more important by IS personnel than procedural justice. These results confirm the model as proposed and serve as potential guidelines for managing IS personnel.

The impact of job commitment on OCB was also supported and it serves as a mediator between the organizational justices and OCB. Further testing of the model by including the direct links between each justice measure and OCB found that no direct link was significant, indicating that job commitment is a full mediator, which indicated that policies to change perceptions of justice would not directly increase OCBs, but may do so indirectly by increasing job commitment.

6. Discussion

Employees contribute to effectiveness through acts associated within and outside their defined roles. The most likely way is through high work quality. The other way is by expressing discretionary OCBs. That IS personnel exhibit OCBs is critical to the IS development context. Unfortunately, no prior study apparently examined the

⁴ See B.P. Niehoff, R.H. Moorman, Justice as a mediator of the relationship between methods of monitoring and organizational citizenship behavior, *Academy of Management Journal* 36(3), 1993, pp. 527–556.

⁵ See S. Aryee, P.S. Budhwar, Z.X. Chen, Trust as a mediator of the relationship between organizational justice and work outcomes: test of a social exchange model, *Journal of Organizational Behavior* 23(3), 2002, pp. 267–285.

⁶ See R.N. Kanungo, Measurement of job and work involvement, *Journal of Applied Psychology* 67, 1982, pp. 341–349.

⁷ See D.M. Randall, D.B. Fedor, C.O. Longenecker, The behavioral expression of work commitment, *Journal of Vocational Behavior* 36, 1990, pp. 210–224.

Table 2

Standardized loadings, item-construct correlations and reliability.

Measures	Loadings ^b	Item-total correlation
Distributive justice (composite reliability = 0.95)		
1. My work schedule is fair	0.87	0.71
2. I think that my level of pay is fair	0.85	0.80
3. I consider my work load to be quite fair	0.94	0.89
4. Overall, the rewards I received here are quite fair	0.86	0.82
5. I feel that my job responsibilities are fair	0.93	0.89
Procedural justice (composite reliability = 0.95)		
During my last performance evaluation, my supervisor...		
1. Showed a real interest in trying to be fair	0.91	0.74
2. Was honest in dealing with me	0.95	0.85
3. Considered my views about my performance	0.92	0.80
Interactional justice (composite reliability = 0.98)		
1. When decisions are made about my job, my supervisor treats me with respect and dignity	0.95	0.90
2. When decisions are made about my job, my supervisor is sensitive to my personal needs	0.96	0.93
3. When decisions are made about my job, my supervisor deals with me truthfully	0.95	0.93
4. When decisions are made about my job, my supervisor shows concern about my employee rights	0.96	0.93
5. When making decisions about my job, my supervisor offers explanations that make sense to me	0.94	0.89
6. My supervisor explains very clearly any decision made about my job	0.94	0.88
Job commitment (composite reliability = 0.88, items 2, 4 and 7 removed)		
1. The most important things that happen to me involve my present job	0.65	0.58
2. To me, my job is only a small part of who I am. (reverse-coded) ^a	0.17	0.22
3. I am very much involved personally in my job.	0.71	0.54
4. I live, eat and breathe my job ^a	0.58	0.40
5. Most of my interests are centered around my job	0.70	0.60
6. I have very strong ties with my present job which would be very difficult to break	0.70	0.55
7. Usually I feel detached from my job (reverse-coded) ^a	–0.24	–0.11
8. Most of my personal life goals are job-oriented	0.75	0.60
9. I consider my job to be very central to my existence	0.78	0.68
10. I like to be absorbed in my job most of the time	0.73	0.56
OCB (composite reliability = 0.90, items 3 and 7 removed)		
1. Being willing to volunteer for tasks	0.74	0.71
2. Being willing to take on additional responsibility	0.65	0.54
3. Being willing to give personal time to the organization ^a	0.54	0.39
4. Working well without supervision	0.77	0.68
5. Often sharing knowledge and information with others	0.70	0.55
6. Frequently offering suggestions	0.64	0.47
7. Not being late for work ^a	0.54	0.41
8. Not being absent from work	0.63	0.53
9. Not wasting any time	0.80	0.67
10. Showing enthusiasm about my work	0.85	0.71

^a Item was deleted due to low loading or low Item-construct correlation.^b All significant at the 0.01 level.

antecedents of OCBs in the IS context. Based on a survey of 298 system analysts from 47 project teams we found that job commitment lead to OCBs in IS workers and that there was a link between perceived fairness and job commitment among IS personnel.

Our results indicated that (1) job commitment is positively associated with IS personnel OCBs and (2) in general, there is a positive relationship between perceived fairness and job commitment among IS personnel; however, only distributive justice and interactional justice are significant. From previous evidence, IS personnel prioritize company policies as less important motivators in their jobs. So we expected that procedural justice might influence job commitment less than other justices. Possibly the fact

that our data was collected in China might have resulted in the effect of *guanxi*, a formal and informal clarification of interactions and relationships between individuals [15]. *Guanxi* can also influence decision making about distribution of resources and rewards. Thus, the effect of culture, interactional justice and possibly distributional justice would be more important than procedural justice in Chinese society. Finally, according to field theory, an individual's behavior is primarily influenced by those elements from the environment that are perceived as being proximal and salient [12]. In a project environment, project managers are direct parties of interaction and may influence an employee's fairness perception more than procedures.

Table 3

Descriptive statistics of the model variables.

Variable	Mean	SD	DJ	PJ	IJ	JC	OCB
Distributive justice (DJ)	4.27	1.09	0.89				
Procedural justice (PJ)	4.98	1.02	0.67	0.93			
Interactional justice (IJ)	5.07	1.08	0.59	0.86	0.95		
Job commitment (JC)	4.56	0.91	0.46	0.49	0.51	0.73	
Organizational citizenship behavior (OCB)	5.20	0.75	0.46	0.51	0.50	0.73	0.74

Note: Diagonal elements (bold) are the square root of AVE between the constructs and their measures.

Off-diagonal elements are correlations between constructs.

Table 4

Results of the PLS analysis.

Hypothesis	Beta coefficient	t-Value	Result
H1a: Distributed justice (DJ) → Job commitment (JC)	0.30 [*]	t = 4.3 [*]	Supported
H1b: Procedural justice (PJ) → JC	−0.073	t = 0.65	Non-supported
H1c: Interactional justice (IJ) → JC	0.34 [*]	t = 3.3 [*]	Supported
H2: JC → Organizational citizen behaviors (OCB)	0.64 [*]	t = 19.4 [*]	Supported

^{*} p-value < 0.05.

The positive findings of our study add several new insights. First, we examined the relationship between each kind of organizational justice and a development team member's job commitment, which should be influenced by context and perception of organizational justice. IS managers must not only focus on individuals' skills for the tasks but also their commitment to increase the chance of IS project success. Also, the allocation of tasks in work settings must be considered in examining distributive fairness. In reality task assignment decisions are made by project manager, meaning that interactional justice is also involved. Finally, as job commitment is a personal characteristic, it should be less likely to be influenced by organizational factors. However, our study showed that organizational factors, in the form of organizational justice, do indeed influence job commitment.

For IS project managers, alteration of leadership and management practices need to be accomplished by an organization. A lack of perceived justice will result in lessened job commitment and lowered performance. When project managers assign jobs, they should consider intrinsic and growth needs which increase the potential to satisfy salient needs. Failure to promote perceptions of equity can result in overt behaviors that may detract from a willingness to share crucial information and knowledge, resulting in performance degradation through a lack of interest, effort, and presence. Different perceptions exist between management and team members requiring clear expression of expectations to prevent perceptions of unfair distribution. Achievements should be recognized to help increase job commitment levels.

Project managers should participate in employee reviews to add to the perception of equity. Decisions about promotions, raises, and other tangible outcomes should involve this manager as the most frequent communicator with the worker. Matrix organizations must ensure all management contacts have appropriate input. Organizations should not centralize performance reward decisions when interactions are decentralized. Improper involvement will likely be viewed as procedural injustices. Project manager training should include techniques to elicit worker thoughts on equity and identify sources of injustice.

Our study was not without limitations. First, the data was collected in one Asian county, potentially restricting inferences to other cultures. Second, this is a cross-sectional study. Actual causal relationships between variables were not as strongly verified as could be obtained through a longitudinal study. Third, since all measures used were self-reported from a single source, social desirability effects may be present.

In summary, the OCBs can be generated by paying attention to the development of organizational justice: particularly the organization should focus on an equitable distribution of rewards and on providing ready and congenial access to peers, supervisors, and management. In this way, distributive and interactional justices are promoted to enhance job commitment, which in turn enhances organizational citizenship behavior.

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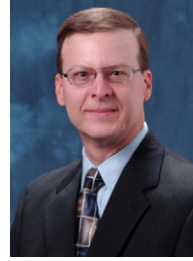
profession that have presented unique challenges, including the motivation of IS personnel and program management. She has had research papers published in the *European Journal of Operations Research*, the *Information Resources Management Journal*, and the *Securities Management Journal*.



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