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Information Systems Outsourcing

Enduring Themes,
New Perspectives
and Global Challenges

Second Edition

🜪 Springer

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Work Outcomes and Job Design for Contract Versus Permanent Information Systems Professionals on Software Development Teams[1]

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1   Introduction

The contracting of information services has become an essential strategy for organizations in light of corporate downsizing and restructuring, volatile and competitive environments, and rapid advances in information technology (Ang and Straub 1998; Clark et al. 1998; Lacity and Hirschheim 1993; Loh and Venkatramen 1992; Willcocks and Lacity 1998). In particular, the motivation to contract for information systems (IS) development is highlighted for companies striving to meet skyrocketing demand for new software applications in the Internet-enabled economy.

Contract IS professionals are individuals who contract directly or through an employment agency with firms requiring their services on a temporary basis (Ang 1994; Ang and Slaughter 2000; Bureau of Labor Statistics 1995; Fishman 1997; Matusik and Hill 1998; Slaughter and Ang 1996). According to the U.S. Bureau of Labor Statistics, the number of IS professionals who work as contractors increased more than 40% from 1995 to 1998 (Cole-Gomolski 1998). An estimated 10% to 30% of software development professionals in large corporations are contractors.

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[1]   This paper previously appeared as: Ang, S. and Slaughter, S., "Work Outcomes and Job Design for Contract Versus Permanent Information Systems Professionals on Software Development Teams," *MIS Quarterly*, Vol. 25 No 3. The current version appears with permission of *MIS Quarterly*. An earlier version of this paper won the Best Paper Award at the 31st Hawaii International Conference on Systems Sciences, 1998.

The use of contractors to supplement permanent staff in all kinds of employment has increased dramatically. Many organizations hire contract workers to remain responsive to dynamic economic and technological changes by reducing the fixed cost of permanent staff (Nollen and Axel 1996; Pfeffer and Baron 1988). Others have an urgent need for specialized skills or want to test the abilities of temporary staff before deciding to employ them on a permanent basis. Still others prefer to supplement their permanent workers with contractors to provide flexibility in responding to volatile and unpredictable work demands (Maniscalco 1995; Slaughter and Ang 1996).

The study of contract workers is not new. However, much prior analysis of the contingent workforce is centered on the labor market and economic system (see Cappelli 1995; Jacoby 1985). It focuses on trends in alternative employment relations (Barker and Christensen 1998; Belous 1989; Gallagher and McLean Parks, in press; Golden and Appelbaum 1992; Kalleberg et al. 1997; Kalleberg and Schmidt 1996) or the rationale for different employment relations (e.g., see Atkinson's (1984) core-periphery arguments; Davis-Blake and Uzzi 1993; Golden 1996). While informative, this research does not provide insight into the organizational attitudes, behaviors, and outcomes associated with using contractors. In particular, relatively little is known about the impact of alternative employment arrangements on behavioral and attitudinal outcomes in the workplace, especially when contractors and permanent employees work together on teams. These attitudes and behaviors are significant because they are related to important work outcomes, including performance. The lack of research on the behavioral consequences of employing contractors poses a dilemma for managers (Feldman et al. 1994; Nollen and Axel 1996). How should one manage permanent and contract workers? Will permanent workers and contractors behave and perform in the same way? Do they share the same attitudes?

Generally, contract work has involved use of para-professionals such as nursing aids, clerical temps, and manual laborers to do easily-monitored, non-recurrent tasks that can be accomplished independently and require relatively limited skills and little organization-specific knowledge (McLean Parks et al. 1998; Pearce 1993). In contrast, software development contractors are professionals who typically team with permanent employees for the life span of a software development project. These mixed teams work on interdependent tasks to design, enhance, and install complex information systems that are often central to an organization. Because IS contractors can be involved in strategically important activities, their use can pose significant risks to the employing organizations (Ang and Beath 1993; Lacity and Hirschheim 1993). For example, in the absence of a written contractors may misappropriate trade secrets and valuable software artifacts such as source code, algorithms, documentation, and flowcharts (Hoffman 1992).

As the deployment of contract professionals in organizations increases, important questions emerge about their use. A major question is to what extent contract

professionals are able to work with their permanent counterparts and contribute to organizational effectiveness. IS contracting, also described by Willcocks and Lacity (1998, p. 5) as a "buy-in" sourcing strategy, is one type of sourcing relationship an organization can have with the external market for IS services. Prior research on the sourcing for IS services has focused on understanding the logic underlying the sourcing decision (for example, see Ang and Cummings 1997; Lacity and Hirschheim 1993; Nam et al. 1996; Richmond et al. 1992). This research has provided a number of valuable insights into the determinants of IS sourcing choices. However, in the introduction of their book on IS sourcing, Willcocks and Lacity note that past research has not addressed a number of critical themes. Among them is the need to better understand the human resource, behavioral, and performance issues surrounding IS sourcing decisions (Willcocks and Lacity 1998, p. 34).

In this study, we examine use of contract professionals in software development. Our primary objectives are to compare and understand differences in work attitudes, behaviors, and performance of contract and permanent professionals who work together on software development teams. We believe our study is the first to formally examine the organizational psychology and behavioral consequences of IS contracting. Moreover, with the exception of Krausz et al. (1995), Mallon and Duberley (2000), Pearce (1993), and Van Dyne and Ang (1998), little published research exists on organizational behavior issues relating to use of contractors in other significant professional and technical functions. Thus, our study informs research on non-IS professionals as well.

Our paper proceeds as follows. We draw upon theories of social exchange (Blau 1964) and social comparison (Goethals and Darley 1987) to propose an initial research model that hypothesizes differences in work attitudes, behaviors, and performance between contract and permanent professionals. Using a sequential mixed-methods design (Tashakkori and Teddlie 1998), we evaluate and elaborate upon this model. Our first study is a survey of contract and permanent IS professionals working together on software development teams in a large transportation company. We use multivariate analysis of covariance to analyze differences in their attitudes, behaviors, and performance. In our second study, we conduct in-depth interviews with contract and permanent IS professionals to learn more about their work environments. Using the results from both studies, we enhance our theoretical model of attitudes, behaviors, and performance in IS contracting. We make suggestions for further research and conclude with implications for managing IS professionals.

2 Study 1: The Survey Social Exchange and Norms of Reciprocity

Social exchange theory (Blau 1964) can be used to contrast workplace attitudes and behaviors of contract and permanent professionals. This theory focuses on the exchange relationships between two or more actors. Social exchange is a pattern of mutually contingent tangible and intangible exchanges in which „the precise services the employee or professional will be obligated to perform are not specified in detail in advance" (Blau 1964, p. 93). The norm of reciprocity (Gouldner 1960) is central to social exchange theory. Norms of reciprocity represent the rules governing social exchange and form a key motivational basis for work attitudes and behaviors (Settoon et al. 1996).

From a social exchange perspective, we expect that work status (i.e., whether a professional is contract or permanent) is a major determinant of the exchange relationship between individuals and the employing organization (Rousseau 1995, 1997). Work status influences employer obligations such as pay, benefits, access to training, and opportunities for advancement. By virtue of their work status, contract professionals do not expect repeated, long-term exchange relationships with an organization. Their interactions are short-term and bounded (Cappelli 1995; Rousseau 1997). Contract professionals receive different inducements from organizations. They receive fewer rewards, are not routinely considered for promotions, and cannot expect ongoing employment. In contrast, permanent employees have repeated opportunities for cycles of reciprocal exchange with an organization.

Social exchange theory provides a strong rationale for proposing that IS contractors will have less positive attitudes and behaviors based on the specifics of their social exchange relationships and the norms of reciprocity. Because of their work status, contractors receive fewer tangible and intangible benefits from their employing organizations (Rousseau 1997). Accordingly, the less positive attitudes and behaviors of contractors can be viewed as contingent responses to the fewer benefits they receive. In the following sections, we apply these work-status predictions to attitudes, behaviors, and performance in IS contracting.

2.1 Social Exchange Relationships and Social Comparisons in IS Contracting

The work attitudes examined in this study include self-ratings of perceived organizational support, distributive justice, and alienation. These attitudes are beliefs concerning the extent to which the organization values workers' contributions and cares about their economic and social well-being (Eisenberger et al. 1986). They also represent the employee's belief in the organization's fulfillment of its part of the social exchange agreement (Guzzo et al. 1994).

In addition to these work attitudes, we examine two peer-rated assessments of in-role and extra-role behaviors, and four supervisor-rated assessments of obedience, loyalty, trustworthiness, and performance. We selected these organizational behaviors because they have been theorized and shown to be salient with respect to a variety of exchange relationships (Rousseau and McLean Parks 1993). For example, empirical research has found that in-role and extra-role behaviors and performance are associated with reciprocal actions on the part of the employer in terms of support for employees or fair resource allocation (Eisenberger et al. 1986; Graen et al. 1982; Konovsky and Pugh 1994). Furthermore, prior research has shown that employees view performance and in-role and extra-role behaviors as acceptable commodities for exchange (Foa and Foa 1980). In-role behaviors refer to expected job duties and responsibilities. Extra-role behaviors include discretionary actions beyond role expectations. These behaviors are viewed as social resources that may be exchanged by individuals who have been the recipient of social rewards (Moorman 1991). The discretionary nature of these behaviors means they may easily be given or withheld, making them ideal wares for reciprocation.

The social comparison of work attitudes, behaviors, and performance of contract versus permanent professionals becomes salient when they work together closely on teams, particularly when team members are colocated. According to social comparison theory (Goethals and Darley 1987; Kruglanski and Mayseless 1990; Levine and Moreland 1987), proximity heightens the social comparison processes of employees and contrast effects perceived by observers (Nistbett and Ross 1980). Thus, when contract and permanent professionals work together, automatic social comparison processes are triggered. Social comparisons apply not only to individual group members but also to observers of employee behaviors (such as peers and supervisors). We, therefore, expect that social comparison processes differentially affect not only how individuals with different work status (i.e., contract or permanent) evaluate themselves but also how observers (peer and supervisors) rate them.

In the following sections, we theorize further and hypothesize differences in the perceived attitudes, behaviors, and performance of contract versus permanent IS professionals. Figure 1 summarizes the research model for Study 1.
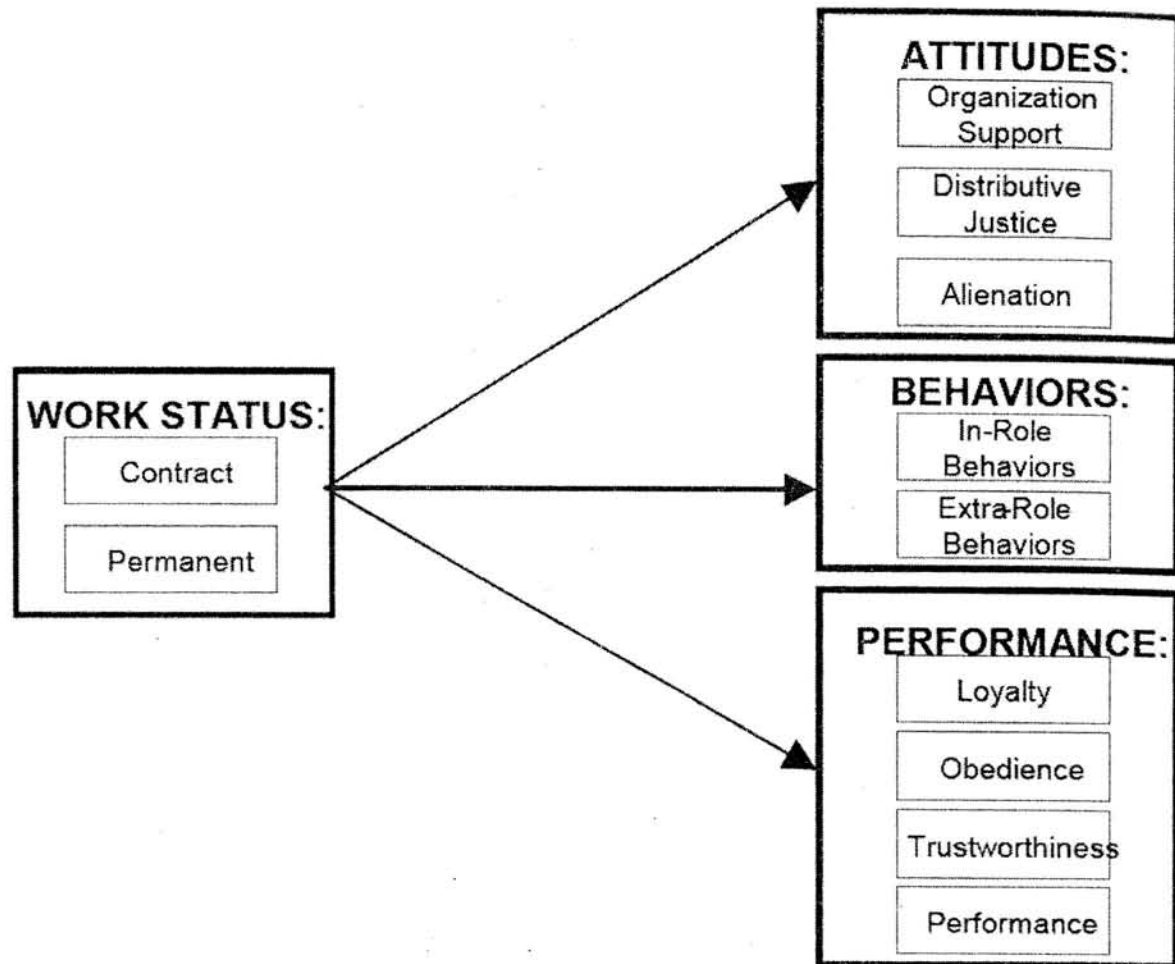
Figure 1: Initial Research Model

2.2   Work Attitudes (Self-Assessments)

2.2.1   Perceived Organization Support and Work Justice

Eisenberger and colleagues (Eisenberger et al. 1986; Eisenberger, Fasolo, and Davis-LaMastro 1990) developed the concept of perceived organization support (POS) to explain the different inducements workers receive from the organization. POS refers to individuals' beliefs that their organization cares about their well-being, provides help when needed, considers their goals and values, and appreciates their contributions. Adopting a social exchange framework, Eisenberger and colleagues argue that high levels of POS create feelings of obligation. Employees feel they ought to be committed to their employers. They also feel obliged to reciprocate and return the employers' commitment by engaging in behaviors that support organizational goals. Therefore, the perception that an organization supports its members and values their contributions is hypothesized to positively affect employees' behavior and performance.

On the other hand, if employees believe their organization does not value their contributions, they are likely to feel some form of injustice. Justice refers to individuals' perceptions of fairness and equity in the workplace (Cropanzano 1993; Greenberg 1987). Central in the research on justice and equity is the concept of distributive justice (Pinder 1998). According to Greenberg (1990), people have a strong urge to be treated fairly and to see themselves and be seen by others as fair. Distributive justice, therefore, refers to whether employees perceive their employers to be giving them their fair share of rewards.

It is likely that contract professionals would perceive a lower level of organization support and distributive justice because contractors typically are not regarded as full members of an organization; they are transient, and often are considered to be an „out" group. This is especially so if contract professionals compare their social exchange relationships with those of permanent professionals. Although contract professionals can receive higher hourly wages than their permanent counterparts, they normally do not share the same organizational perks and benefits such as training, health care, vacation, and retirement contributions. For example, the U.S. Chamber of Commerce reports that organizations pay health, retirement, and vacation benefits to 100% of permanent employees but to only 17% of contract workers (Chamber of Commerce of the United States 1991). More recent figures from the Contingent Worker Supplement to the U.S. Current Population Survey indicate that 87% of regular full-time employees work in firms that offer them health insurance, as opposed to only 14% of contingent workers (Thorpe and Florence 1999). A particular issue in IS is that contractors typically do not share in a firm's lucrative stock options.[2] Therefore, we expect that:

Hypothesis 1a: *Contract professionals experience a lower level of organizational support than permanent professionals.*

Hypothesis 1b: *Contract professionals experience a lower level of distributive justice than permanent professionals.*

2.2.2   Alienation

In contrast to POS, alienation represents the negative social-psychological reaction to the workplace. According to McKee (1969) and to Schmitt and Moody (1994), an alienated worker feels meaningless in the workplace and estranged from social work groups. Alienation also signals a lack of control and powerlessness on the part of an individual. It is the lack of power to direct one's work, to maintain satisfactory work relationships, and to create a self-definition.

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[2]   Independent contractors and temporary employees at Microsoft won a major court case that resulted in their entitlement to benefits, including participation in the company's 401(k) plans and discount stock purchases. However, companies do not usually provide benefits to their IS contracts and temporary workers (Cole-Gomolski 1998).

Social exchange theory suggests that contract professionals are likely to feel more alienated because they have shorter organizational tenure and do not have time to socialize and form meaningful relationships with other employees. Feelings of alienation are often intensified if organizations regard contract professionals as peripheral rather than core and assign them less challenging and less significant tasks (Pearce 1993). In the context of software development, for example, contract professionals could be relegated to coding or support activities rather than given more challenging assignments in systems analysis and design.

Furthermore, the transitory nature of contract work discourages permanent co-workers from getting to know contractors on a personal level. As described by a contract professional in an ethnographic study of short-term employment (Rogers 1995, p. 149), „since they don't see you as being permanent they sort of dismiss you as being expendable, like you're not worth it. Therefore, we posit that:

Hypothesis 1c: *Contract professionals experience a higher level of alienation than permanent professionals.*

2.3   Work Behaviors

2.3.1   In-Role Behaviors (Peer Assessments)

In-role behavior is defined as behavior that is required or expected in performing assigned job duties, activities, and responsibilities. Required behavior is a condition of continued employment; it is formally expected of all job incumbents regardless of work status. In-role behavior provides the basis for regular, routine, reliable, and on-going performance of established duties (Van Dyne and Lepine 1998). Although we recognize that the job duties of permanent employees and contract professionals might differ, we expect both types of workers to perform the minimum job requirements. For contract professionals, incentives are tied directly to specific responsibilities and assignments. Similarly, for permanent professionals, the minimum threshold for continued employment is the fulfillment and reliable performance of established duties and tasks. For both permanent and contract professionals, lack of in-role behavior can lead to punishment, reprimand, or termination. Consequently, we expect both contract and permanent professionals to exhibit similar levels of in-role behavior because their incentives encourage performance of such behaviors. Thus,

Hypothesis 2a: *In-role behaviors by contract professionals are perceived to be no lower than those exhibited by permanent professionals.*

2.3.2   Extra-Role Behaviors (Peer Assessments)

Extra-role behaviors refer to discretionary actions of workers that go beyond their existing role expectations and are not mandated by the organization (Van Dyne et

al. 1995). This definition highlights the importance of extra-role behaviors that are not simply behaviors outside of role expectations that happen to occur within an organization. The behaviors must be directed toward benefiting the organization. An example would be volunteering to mentor new employees.

Based upon the social norms of reciprocity governing the employment relationship, we do not expect contractors to display the same levels of extra-role behaviors as permanent IS professionals. The relationship between contract professionals and the organization is specific, close-ended, and economic in nature. Rewards tend to be based upon fulfillment of explicit and written contractual obligations. As an IS contractor observes, "it's easy to get too busy helping to get your original work done. Contractors who don't accomplish their primary task are soon unemployed" (Rosenthal 1996, p. 106). On the other hand, the relationship between permanent professionals and the organization tends to be covenantal in nature (Rousseau and McLean Parks 1993). Covenantal relationships endure beyond close-ended economic exchange relationships. Permanent employees enjoy more extensive and open-ended rewards, such as career-enhancing investments in the form of training and career advancements on the part of the employer. Therefore, we expect that,

Hypothesis 2b: *Extra-role behaviors by contract professionals are perceived to be lower than those exhibited by permanent professionals.*

2.4   Work Performance

2.4.1   Loyalty and Obedience (Supervisor Assessments)

Loyalty and obedience are key organizational citizenship behaviors. These behaviors refer to civic citizenship at work (Van Dyne et al. 1994). Loyalty is allegiance to an organization and promotion of its interests. It relates to defending, promoting, and presenting a positive view of the organization. Obedience represents respect for the rules and policies of an organization and willingness to expend appropriate effort on its behalf. Fundamentally, obedience means that employees follow work rules and instructions.

We do not expect contract professionals to display the same levels of loyalty and obedience as permanent professionals. Such behaviors are more under an individual's control. Therefore, they are likely to vary as a function of an employee's attachment to the organization. Contract professionals do not expect long-term employment relationships with their organizations. "Contracting allows me to have freedom," explains a help-desk technician who quit regular employment to become a contractor. „If I work for a company and it's something I enjoy, I can press for a full-time job. But if it's not to my liking, I can take off" (Alexander 1998, p. 83). If a contract professional chooses not to exhibit these behaviors, no long-term repercussions arise for low loyalty or disobedience,

because the contractor's attachment to the organization is transitory. On the other hand, permanent employees are expected to exhibit loyalty and obedience as part of their covenantal relationship with their employer. Therefore,

Hypothesis 3a: *Contract professionals are perceived to be less loyal than permanent professionals.*

Hypothesis 3b: *Contract professionals are perceived to be less obedient than permanent professionals.*

2.4.2   Trustworthiness and Performance (Supervisor Assessments)

Traditionally, trust is defined as conscious reliance on another person (Hosmer 1995) and allowing oneself to be vulnerable to another person in a situation where the other person's behavior is not controlled (Deutsch 1962; Zand 1972). In a more recent refinement of the concept, Rousseau et al. (1998, p. 395) define trust as a "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another."

Organizations typically do not have ongoing relationships with contract professionals. Thus, they do not have the opportunity to develop trusting relationships based on observed reliability and dependability over time. As Zucker (1986) argues, repeated and ongoing interaction is the foundation for the assessment of personal trustworthiness. If no expectations for ongoing interaction exist, trustworthiness is unlikely to be a salient characteristic of the relationship. Therefore, organizations may be uncomfortable and unwilling to share confidential information and delegate important functions to contractors. For example, a Fortune 100 company decided not to hire contractors to support its e-mail system because, "E-mail is a mission-critical application...there's a confidentiality issue as well when other systems people who don't work at your company have complete access to your software" (Girard and Wallace 1997, p. 12). Many companies have required IS contractors to sign formal legal documents to protect confidential organizational information and to mandate the transfer of critical knowledge to permanent staff after an assignment is completed. Based on the different work status of contract professionals, we expect that organizations would view permanent IS professionals as more trustworthy than contractors. Consequently,

Hypothesis 3c: *Contract professionals are perceived to be less trustworthy than permanent professionals.*

Our last hypothesis concerns supervisor assessments of subordinate performance. This hypothesis integrates and summarizes the logic we have developed in the preceding hypotheses. Following on the logic of differences in organizational citizenship behaviors and the employment relationship between contract or permanent professionals and the organization, we expect that contract

professionals will be rated lower in performance evaluation compared to their permanent counterparts. Therefore:

Hypothesis 3d: *Contract professionals are rated lower on performance than permanent professionals.*

2.5   Method

2.5.1   Research Setting

To improve the homogeneity of our sample and reduce the likelihood of extraneous factors that might influence the results, we focused on one organization, one kind of IS professional (software developers), and one kind of IS sourcing (i.e., contracting in of IS professionals through employment agencies, see Ang and Slaughter, forthcoming).

We selected the Software Development Division of a large transportation company. The division employs both contract and permanent IS professionals who work together on teams to develop information systems. Seven of the 12 departments in the Division have both contract and permanent professionals. Within their departments, the professionals are further divided into 21 work teams. Fifteen are mixed teams including both contract and permanent professionals. The remaining six have only permanent professionals. We focused on the 15 mixed work teams for the study. Of the 15 mixed work teams, 11 agreed to participate. Everyone on these 11 teams completed the survey. The other four work teams declined to participate as they were busy implementing information systems at the time of the study. We did not find any significant differences between these teams and participating teams in terms of team size ($t = 1.87$, $p > .10$) and mix of contract and permanent professionals ($t = .32$, $p > .75$). Therefore, participating teams should be representative of all mixed teams in the organization. The participating teams ranged between four to seven members (including a supervisor) on each team. Each team had one or two contract professionals.

2.5.2   Participants

Complete responses from all participants were obtained. Participants included 15 contract professionals and 48 permanent professionals, of whom 11 are supervisors. Thus, contract professionals account for almost 30% of the non-supervisory workforce in these work teams. Some significant differences exist in the demographic profiles of the non-supervisory contract and permanent professionals. The minimum organizational tenure is one year. On average, organizational tenure is higher for the permanent employees (an average of seven years for permanent employees versus less than two years for contractors). Of the permanent employees, 65% are male, while 93% of contractors are male. Because

contract professionals are significantly different from permanent professionals in organizational tenure and gender, we include these variables as concomitant variables (i.e., covariates) in our analysis.[3]

Due to stringent recruitment selection criteria, the contract and permanent professionals in this organization have comparable IS technical skills and abilities. Both groups undergo similar pre-recruitment tests of technical skills and aptitudes. Furthermore, in contrast to many organizations, except for fringe benefits, the company does not discriminate between contract and permanent professionals. All professionals, contract and permanent, have equal opportunities to attend training courses and company events. Also, no obvious differences exist in physical identification cards. This setting provides a strict test of our hypotheses because differences in treatment of contract and permanent professionals are minimal.

2.5.3   Data Collection

We surveyed multiple informants within the organization to collect data from different perspectives. This approach enriches our understanding of the multi-faceted effects of contract professionals and reduces percept-percept inflation or mono-method bias in our survey (Crampton and Wagner 1994). The use of a single organization provides a natural control for organizational effects. However, the single organization, the intense nature of data collection to obtain multiple observations on each participant and the need to have a complete set of matched responses on each participant to constitute an observation led to difficulties in achieving a large sample size. We, therefore, took a number of steps in our research design to improve the precision and power of our results. These include purposive sampling, use of highly reliable and validated measures, and use of covariates in the analysis (Baroudi and Orlikowski 1989).

Data collection efforts were intense. We administered and collected data on each individual from three perspectives: self, peer, and immediate supervisor. Within

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3   Note that tenure and gender are variables that could be observed before the study, are not influenced by the study, and as such are appropriate for selection as concomitant (Neter et al. 1990, p. 862). We also find differences in age and work experience between the different types of workers (with contract workers being younger and having less work experience). However, age and work experience are highly correlated with organizational tenure (Pearson correlations > .90). Statistically, it is problematic to add them to our model as covariates, given the high multi-collinearity between the variables. Conceptually, of the three related variables, organizational tenure or work experience are the most appropriate variables to include in our model, given our interest in understanding workplace attitudes and behaviors. In the organization in our study, tenure was deemed to be most relevant, given the organization's complex business rules and relationships that workers needed to understand to effectively complete software development projects. However, as a robustness check, we ran our analysis using work experience or age as covariates instead of tenure and found no differences in our results.

each group, participants completed a self-questionnaire designed to elicit self-perceptions and attitudes at the workplace and a peer-questionnaire designed to elicit assessments of the behaviors of each co-worker on their work teams. In addition, supervisors were asked to evaluate each subordinate on their work team. Questionnaires were color coded to distinguish between self, peer, and supervisor assessments. Management approval in conducting the study was given on the condition that participation was voluntary. As such, given our multiple informants design, much time and effort were spent in harnessing support from departmental managers, group supervisors, and individual staff within the division to ensure that we had complete responses from all participants.

Because of the sensitivity of the topics, participants were concerned about confidentiality of responses and wished to remain anonymous. Supervisors were asked to assign a number or letter to each professional on their work teams and to inform each team member of the assigned code so that evaluation of the peer matched with the right code. In this way, only supervisors knew the specific participant corresponding to the code. However, because supervisors could not obtain the responses to the questionnaire, confidentiality and anonymity were protected. Only the researchers had access to the codes on the questionnaires and could use these codes to match the self, peer, and supervisor assessments for each individual.

One month prior to the distribution of the questionnaire, a pilot test was conducted with two contract professionals and three permanent professionals (including one who acted in the supervisory capacity). Participants in the pilot test were drawn from teams that were not part of the primary study. The pilot test was conducted to ensure that questionnaire items were clear and tapped issues of concern to the participants. We obtained feedback and made minor refinements to the questionnaires. We also interviewed the pilot study participants to provide more insight into the organizational context. Interviews covered topics such as the organization's philosophy toward contract professionals, job attitudes, values at the workplace, and the impact of the use of contractors on permanent employees.

2.5.4 Construct Validity and Reliability

Items used in this study were adapted from instruments used in prior research in industrial and organizational psychology that examine workplace attitudes, behaviors, and performance. All items were assessed using a seven-point Likert-type scale with the anchors 1 = strongly disagree, 4 = neutral, and 7 = strongly agree. Participants circled the number to indicate their responses to any specific question. Table 1 describes the items we used, provides sample item questions, and reports the reliability (Cronbach's α) we obtained. All constructs have high reliabilities (.72 to .96).

To assess the construct validity of each scale, a principal components factor analysis with an orthogonal rotation was performed for items within source of

rating (i.e., the factor analysis was conducted three times: for self-rated items, for peer-rated items, and for supervisor-rated items). Within source of rating, the items demonstrated both convergent and discriminant validity (Campbell and Fiske 1959). All scales loaded cleanly (see Tables 2, 3, and 4).

We calculated the value for each self-rated, peer-rated, and supervisor-rated construct by averaging the values for the construct's items.[4] In addition, for the peer ratings of organizational behaviors, we calculated the score relating to a particular individual by averaging the ratings of that individual by the peers within the individual's team. The averaged values of items for the constructs are used in our correlation and mean comparison analyses.

To justify aggregating the peer ratings, we assessed interrater agreement within groups (George and Bettenhausen 1990; Kozlowski and Hattrup 1992) using the agreement index (rWG(J)) suggested by James et al. (1984). This index was calculated for every individual for both the in-role and extra-role behaviors constructs. It was computed using a uniform null distribution. Overall, the estimates of within-group interrater agreement for organizational behaviors indicated a high level of agreement (average for in-role behaviors = .95, range = .68 to .99; average for extra-role behaviors = .94, range = .76 to .99). Consistent with the values suggested by Nunnally (1978), our values for rWG(J) indicate a "good" amount of within-group interrater agreement (George and Bettenhausen 1990). Of the 104 estimates of within-group interrater agreement (for 52 individuals for each of the organizational behaviors constructs), all were close to or greater than .70. This suggests sufficient agreement to average the peer ratings of organizational behaviors for each individual and to use the averaged peer ratings for that individual in subsequent analyses.

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4   We prefer the use of simple averages of construct items to the use of factor scores in our analysis. Although factor scores can exhibit advantages over item averages, there are disadvantages associated with their use. Specifically, the weightings are idiosyncratic to the sample under study, and may change with other samples. Using different factor scores with different samples makes results incomparable across studies and also inflates the fit. Further, respected methodologists suggest that simple averaging of items is better than the weighting of items (e.g., Ghiselli et al. 1981). For these reasons and also to facilitate interpretation of our results, we use item averages for construct values. However, as a robustness check, we also conducted our analysis using the factor scores for the constructs, and the findings are consistent with those reported in Table 6.

Table 1: Questionnaire Measures and Reliability in Our Study

Construct	Assessed By	Measure Assesses	Measure/ Source	Sample Item	Reliability (Cronbach's α from our study)
Perceived Organizational Support	Self	Degree to which workers perceive the organization as providing help, caring and appreciating their efforts.	Three items. (Eisenberger et al. 1986)	"Help is available from this organization when I have a problem."	0.85
Distributive Justice	Self	Degree to which person perceives organization as giving fair rewards.	Five items. (Mc Lean Parks and Kidder 1994)	"The organization fairly rewards me for the amount of effort I put forth."	0.96
Alienation	Self	Degree to which person feels psychologically detached at work.	Three items. (Middleton 1963)	"While at work, I often feel lonely."	0.72
In-Role Behaviors	Peer	Degree to which person performs expected tasks.	Four items. (Van Dyne and Lepine 1998)	"This worker performs the tasks that are expected as part of the job."	0.93
Extra-Role Behaviors	Peer	Degree to which person performs extra tasks.	Seven items. (Van Dyne and Lepine 1998)	"This worker volunteers to do things."	0.94
Obedience	Super-visor	Degree to which person complies with work rules.	Four items. (Van Dyne et al. 1994)	"This workers follows work rules and instructions with extreme care."	0.95
Loyalty	Super-visor	Degree to which person shows loyalty to organization.	Four items. (Van Dyne et al. 1994)	"This worker defends this organization when others criticize it."	0.91
Trustworthiness	Super-visor	Degree to which person feels comfotable delegating important functions to another.	Three items. (Van Dyne and Ang 1998)	"I am willing to share confidential information with this worker."	0.89
Performance	Super-visor	Degree to which person can fulfill responsibilities and meet quality standards.	Three items. (Van Dyne 1993)	"Quality of work completed is high."	0.94

Table 2: Factor Loadings for Self-Rated Items

	Factor 1	Factor 2	Factor 3
Alienation: Item 1	0.665	-0.336	-0.352
Alienation: Item 2	0.888	0.069	-0.151
Alienation: Item 3	0.619	-0.053	-0.323
Distributive Justice: Item 1	-0.241	0.926	0.082
Distributive Justice: Item 2	-0.121	0.887	0.107
Distributive Justice: Item 3	-0.189	0.862	0.317
Distributive Justice: Item 4	-0.135	0.880	0.268
Distributive Justice: Item 5	-0.124	0.792	0.412
Organization Support: Item 1	-0.418	0.228	0.640
Organization Support: Item 2	-0.118	0.154	0.899
Organization Support: Item 3	-0.398	0.118	0.852

Note: Factors are extracted using Principal Component Analysis. The Rotation is Varimax with Kaiser

Table 3: Factor Loadings for Peer-Rated Items

	Factor 1	Factor 2
Extra-Role Behaviors: Item 1	0.834	0.256
Extra-Role Behaviors: Item 2	0.743	0.337
Extra-Role Behaviors: Item 3	0.804	0.292
Extra-Role Behaviors: Item 4	0.785	0.439
Extra-Role Behaviors: Item 5	0.865	0.307
Extra-Role Behaviors: Item 6	0.740	0.298
Extra-Role Behaviors: Item 7	0.750	0.372
In-Role Behaviors: Item 1	0.298	0.833
In-Role Behaviors: Item 2	0.409	0.763
In-Role Behaviors: Item 3	0.319	0.897
In-Role Behaviors: Item 4	0.344	0.882

Note: Factors are extracted using Principal Component Analysis. The Rotation is Varimax with Kaiser Normalization

Table 4: Factor Loadings for Supervisor-Rated Items

	Factor 1	Factor 2	Factor 3	Factor 4
Loyalty: Item 1	0.906	-0.072	0.320	0.049
Loyalty: Item 2	0.872	0.251	0.049	0.018
Loyalty: Item 3	0.854	0.145	0.325	0.122
Loyalty: Item 4	0.820	-0.008	0.019	0.163
Obedience: Item 1	0.140	0.848	0.359	0.200
Obedience: Item 2	0.091	0.832	0.414	0.194
Obedience: Item 3	0.022	0.797	0.266	0.417
Obedience: Item 4	0.097	0.789	0.287	0.390
Performace: Item 1	0.188	0.224	0.658	0.232
Performace: Item 2	0.285	0.226	0.854	0.302
Performace: Item 3	0.113	0.222	0.614	0.309
Trustworthiness: Item 1	0.105	0.219	0.381	0.748
Trustworthiness: Item 2	0.014	0.080	0.235	0.920
Trustworthiness: Item 3	0.339	0.329	0.300	0.684

Note: Factors are extracted using Principal Component Analysis. The Rotation is Varimax with Kaiser Normalization

2.6   Statistical Analysis

We evaluated our hypotheses using Multivariate Analysis of Covariance (MANCOVA). Because permanent and contract professionals are significantly different in their organizational tenure and gender, we included these variables as covariates in the MANCOVA.[5]

We conducted a number of additional analyses to assess the robustness of our results for the peer ratings of in-role and extra-role behaviors. Our second MANCOVA tests for differences in the ratings of organizational behaviors for each peer dyad (i.e., where ratings are not averaged across peers) to determine whether peer ratings could be influenced by differences in relational demography. Relational demography (Tsui and O'Reilly 1989; Tsui et al. 1995) refers to similarities or differences between an individual and others within a group on such demographic factors as gender, age, race, religion, and occupation. Research in organizational behavior suggests that a variety of work outcomes can be affected by demographic differences between individuals. For example, O'Reilly et al. (1989) have found that turnover is more likely for individuals most different from others in an organization. In the context of our study, relational demography

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[5]   It is possible that the relationship between organizational tenure and the outcome variables is non-linear. We conducted additional analyses using non-linear forms of the organizational tenure variable (such as the natural logarithm of tenure) and found no differences in our results. Thus, we report our results using the linear form of organizational tenure.

implies that individuals are more likely to positively perceive those who are demographically similar. To assess whether differences in the relational demography in work status between the contract and permanent professionals on a team could lead to a bias in ratings in peer dyads, we operationalized a variable called WSDIFFER (work status difference). We set WSDIFFER to 1 if the work status of the source and target for the peer rating was different and 0 if the same. That is,

> WSDIFFER = 1 if a contractor is rating a permanent professional or if a permanent professional is rating a contractor,

or

> WSDIFFER = 0 if a contractor is rating a contractor or a permanent professional is rating a permanent professional.

We then incorporated WSDIFFER as a covariate in the second MANCOVA to assess whether differences in peer ratings of organizational behaviors could be attributed to differences in relational demography or to actual differences in behaviors.

We also conducted a further analysis in which we operationalized the WSDIFFER variable to distinguish between four groups: (1) contractor evaluating contractor, (2) permanent professional evaluating permanent professional, (3) contractor evaluating permanent professional, and (4) permanent professional evaluating contractor. We then incorporated this alternative operationalization of the WSDIFFER variable as a covariate in a third MANCOVA to assess whether rating bias differed between contractors and permanent professionals.

2.7   Results

Table 5 presents the pairwise correlations between the constructs. Table 6 displays and compares the marginal mean values for the constructs by type of professional (permanent and contract), controlling for gender and organizational tenure.

For our first MANCOVA, the Hotelling's T^2 test is significant (Hotelling's T^2 = .825, F = 3.666, p < .01) indicating that contract and permanent professionals differ in one or more of the dependent measures. A statistical power analysis of the MANCOVA was conducted to determine whether the sample size of n = 15 contract professionals and n = 37 permanent employees is sufficiently powerful to detect significant effects. Using the method developed by Cohen (1988), the effect size, as measured by the multivariate f^2 index, is .88. This effect size is large according to the levels suggested by Cohen. The large effect size indicates a strong relationship between work status (contract versus permanent) and a linear combination of the dependent variables. Based on the effect size, the post-hoc calculation of power in this MANCOVA is 0.97. This value is well above the

recommended levels of .80 (Baroudi and Orlikowski 1989; Cohen 1988; Murphy and Myors 1998).

Table 6 summarizes the results of univariate F tests for mean differences between contract and permanent IS professionals for each variable. In terms of self-ratings, controlling for differences in organizational tenure and gender, we find that contractors do not differ from permanent professionals in their average perceptions of workplace justice and alienation. Therefore, Hypotheses 1b and 1c are not supported. In terms of perceived

Table 5: Pairwise Intercorrelations of the Constructs

	1	2	3	4	5	6	7	8	9
1. Organizational Support	1.00								
2. Distributive Justice	0.49**	1.00							
3. Alienation	-0.67**	-0.57**	1.00						
4. In-Role Behaviors	-0.17	-0.10	-0.09	1.00					
5. Extra-Role Behaviors	-0.11	-0.08	-0.06	0.70**	1.00				
6. Loyalty	-0.37**	0.01	0.10	0.29*	0.06	1.00			
7. Obedience	-0.15	0.12	-0.18	0.30*	0.12	0.27	1.00		
8. Trustworthiness	-0.33*	0.11	-0.11	0.35*	0.23	0.31*	0.68**	1.00	
9. Performance	-0.29*	0.06	-0.09	0.32*	0.21	0.43**	0.81**	0.80**	1.00

* indicates significance at 5% level   ** indicates significance at 1% level

organizational support, we find that contractors perceive higher levels of organization support on average than permanent professionals, contradicting Hypothesis 1a. For average peer ratings, we find that contract workers exhibit significantly lower in-role behaviors (contradicting Hypothesis 2a) and lower extra-role behaviors (supporting Hypothesis 2b) than permanent workers, controlling for differences in organizational tenure and gender. Finally, Hypotheses 3a to 3d are supported as supervisors rate their contract sub-ordinates significantly lower than their permanent counterparts on loyalty, obedience, trustworthiness, and performance.

The results of our additional analyses of peer ratings are consistent with the findings from our first MANCOVA. For our second MANCOVA, the Hotelling's T^2 test is significant (Hotelling's $T^2 = .196$, $F = 18.872$, $p < .01$). Controlling for the relational demography of work status, this result indicates that significant differences exist between the organizational behaviors of contract and permanent IS professionals. The post-hoc calculation of the power in this MANCOVA is high at 0.99. We also conducted a MANCOVA using our alternative variable for relational demography that distinguishes between the four different types of

rater/ratee dyads. Overall results from this additional analysis are consistent with the MANCOVA results just reported. The Hotelling's $T^2 = .082$, $F = 7.916$, $p < .01$; the power of this test is high at 0.95.

Table 6: Hypothesized and Actual Results from MANCOVA Analysis

Variable	Hypotheses (C=Contractor, P= Permanent)		Covariates		Permanent Workers n = 37	Contract Workers n = 15	F value of means comparison	Actual Relationship Found
	H#	Relationship	Gender	Organizational Tenure	Marginal Mean (std dev)	Marginal Mean (std dev)		
Self Assessment								
Organizational Support	1a	C < P	0.17 (0.45)	-0.01 (0.05)	4.08 (0.23)	4.83 (0.38)	2.60*	C > P
Distributive Justice	1b	C < P	0.48 (0.54)	0.01 (0.06)	4.05 (0.28)	4.01 (0.46)	0.01	C = P
Alienation	1c	C > P	0.21 (0.47)	-0.01 (0.05)	3.28 (0.24)	3.36 (0.40)	0.03	C = P
Peer Assessment								
In-Role Behaviors	2a	C = P	-0.03 (0.22)	-0.01 (0.02)	5.81 (0.11)	5.21 (0.19)	6.80*	C < P
Extra-Role Behaviors	2b	C < P	-0.09 (0.21)	-0.01 (0.02)	5.38 (0.11)	4.56 (0.18)	13.55 **	C < P
Supervisor Assessment								
Loyalty	3a	C < P	-0.31 (0.22)	-0.02 (0.02)	4.52 (0.11)	4.08 (0.19)	3.52*	C < P
Obedience	3b	C < P	0.17 (0.41)	-0.21 (0.04)	5.54 (0.21)	4.69 (0.35)	3.93*	C < P
Trustworthiness	3c	C < P	-0.02 (0.38)	0.04 (0.04)	5.83 (0.19)	4.34 (0.32)	14.24 **	C < P
Performance	3d	C < P	0.04 (0.38)	0.01 (0.04)	5.74 (0.20)	4.75 (0.32)	6.24* *	C < P

Note: Estimated coefficients are reported for the covariates with the standard deviation in parentheses. Marginal mean values from the MANCOVA analysis are reported for the dependent variables after controlling for gender and organizational tenure.
    * indicates significance at 5%level ** indicates significance at 1%level

Controlling for relational demography, our results for the peer dyads indicate that the in-role behaviors exhibited by contract workers (meanc = 5.45) are lower than those exhibited by permanent workers (meanp = 5.70). This difference in means is

significant ($F1,194 = 2.35$, $p = .06$). Similarly, the extra-role behaviors exhibited by contract workers (meanc = 4.44) are lower than those exhibited by permanent workers (meanp = 5.37). This difference in means is significant ($F1,194 = 32.92$, $p < .01$). We also find similar results in an analysis of the peer dyads using our alternative variable for relational demography that distinguishes between the four different types of rater/ratee dyads. Controlling for the type of relational demography in the dyad, the in-role behaviors exhibited by contract professionals (meanc = 5.38) are lower than those exhibited by permanent professionals (meanp = 5.65). This difference in means is significant ($F1,194 = 2.66$, $p < .05$). Similarly, the extra-role behaviors exhibited by contract professionals (mean = 4.63) are lower than those exhibited by permanent professionals (meanp = 5.30). This difference in means is significant ($F1,194 = 12.58$, $p < .01$). Our results from these three analyses are consistent and imply actual differences in organizational behaviors between the two kinds of professionals. Contract professionals engage in lower in-role behaviors (contrary to our expectations) and in lower extra-role behaviors (as we expected).

2.8   Discussion

Table 6 compares our findings and hypotheses. Overall, the results from Study 1 support many of our hypotheses but also reveal some surprises. Consistent with our hypotheses, we observe that IS contractors engage in fewer organizational citizenship behaviors and are perceived to be less trustworthy, loyal, and obedient than permanent professionals. This pattern of results is consistent with the inherent differences in the social exchange relationship between contract or permanent professionals and their employers. Contrary to our predictions, we find that IS contractors perceive a more favorable work environment than permanent professionals in this organization. Contractors perceive high levels of organization support. They do not feel that they have been alienated or treated unjustly in the workplace relative to their permanent peers. However, despite a favorable work environment for contractors, peers observe their contract counterparts to exhibit lower in-role behaviors. Moreover, supervisors evaluate contractors' performance lower than that of their permanent counterparts. Contractors may be rated lower not because their performance is actually lower but because supervisors and peers expect their performance to be lower. However, our findings suggest that contractors do in fact perform at a lower level than permanent professionals. That is, no matter who rates the contractors-whether permanent or contract peer-the behaviors of contractors are consistently rated lower than those of permanent professionals. To further illustrate, a supervisor in the pilot study related an incident that reflected what he referred to as the typical behavior of contract professionals in the organization:

> The supervisor had assigned a contract professional some simple modules to code
> and had established a one-week deadline to complete the work. The contract

professional completed the modules exactly on schedule; however, the supervisor observed that the contract professional seemed to pace out his work over time and made maximum use of the one-week duration given. As the supervisor reviewed the program specifications against the delivered modules, he realized that he had left out several important algorithms of the modules from the specifications. These algorithms were not implemented in the modules coded by the contractor. In a subsequent conversation, the contractor admitted that he knew the algorithms were missing but had kept quiet because, "…it is not my job to question work assigned to me." The contractor asserted that the specifications were not clear and complete, and that he should not be blamed for errors in specifications. [Interview Transcript; Supervisor, Transportation Company]

Our unexpected findings and the incident reported by the supervisor suggest the need to more closely examine the task and work environments of contract versus permanent IS professionals. Thus, we conducted a second study that was qualitative in nature. Our goals in this second study were to obtain a deeper and richer understanding of their jobs, roles, and tasks and to understand how differences in the work environment may contribute to differences in their work attitudes, behaviors, and performance.

3   Study 2: The Case Studies

3.1   Job Design and Work Outcomes

In Study 1, we observed that professionals who have a different work status experience different work outcomes in terms of their individual work attitudes, behaviors, and performance as perceived by peers and supervisors. To frame our examination of the work environment for contract and permanent professionals, we adopted Hackman and Oldham's (1980) Job Characteristics Model (JCM). According to the model, five core task dimensions (variety, identity, significance, autonomy, and feedback) influence perceptions of the quality of work life as well as job performance. As articulated in the Job Characteristics Model, task variety refers to the variety of duties, tasks, and activities for a job. Task identity refers to the extent to which a job allows the opportunity to complete an entire piece of work from beginning to end. Task significance refers to the extent to which the job is significant and important compared to other jobs in the organization. Task autonomy refers to the extent to which the job allows freedom, independence or discretion in work scheduling, sequence, methods, procedures, quality control or other decision-making activities. Task feedback refers to the extent to which the work itself provides feedback about the effectiveness of job performance.

Hackman and Oldham's Job Characteristics Model is relevant because we are striving to understand whether any systematic differences in the jobs and work environments for contract versus permanent professionals lead to differences in work outcomes. Below we describe our qualitative study in which we adopt the JCM as the theoretical lens to examine the differences in tasks and work environments of contract versus permanent professionals in software development.

3.2   Site Selection and Research Setting

In Study 2, we conducted case studies in three organizations. One was the transportation company in our first study, enabling us to further explore the reasons for the survey findings from this organization. The other two were a private hospital and a government housing agency, selections based on Yin's (1994) recommendations to enhance literal replication in multiple case sampling. Although the organizations in this study represent different industries (transportation, medical, and housing) and sectors (private versus public), all have large IS departments and hire contractors to work with permanent employees on software development teams.

3.3   Data Collection

Data collection involved a series of in-depth interviews with key informants in the organizations. We followed a multiple-informants design in our case studies, similar to our approach in Study 1. We conducted interviews with IS contractors, permanent peers, and supervisors, randomly selecting two contractors and two permanent professionals in each organization, for a total of 12 interviews. Note that we interviewed individuals in the transportation company for Study 2 who had not participated in Study 1. Contractors from each organization were selected from those who worked with permanent professionals on mixed software development teams. Permanent professionals from each organization were selected from supervisors responsible for supervising one or more mixed teams of contract and permanent professionals and from software developers who worked with at least one contractor on a mixed software development team.

Using semi-structured interview questions, we asked background questions about current job position, organizational tenure, and prior work experience. Non-supervisory individuals were asked to describe their overall perceptions of work experiences at the current organization and then to describe in detail the nature of their jobs and their tasks, duties, and responsibilities. The contractors were also asked about the nature and terms of their contracts, including length, salary, termination, and benefits. Supervisors were asked to reflect upon their experiences in supervising contractors and permanent employees and to compare contractors to

permanent subordinates in terms of similarities and differences in their backgrounds and job assignments. Supervisors were also asked to describe the challenges and opportunities in supervising mixed teams of contract and permanent professionals.

The first author and two research assistants conducted the interviews. All interviews were conducted on-site and generally lasted two to three hours. Interviews were either tape-recorded or documented with copious notes taken during the interview and transcribed immediately afterward. Transcripts from the 12 interviews comprised 15,494 words and 83 pages of text.

3.4   Textual Analysis: Analytical Strategy and Reliability Assessment

We employed the methods suggested by Miles and Huberman (1984) to code and analyze the qualitative data from our interview transcripts. We used a two-step coding and analysis process. First, to mitigate bias, the second author (who did not participate in the interviews) independently read the transcripts and coded the data into themes using the task dimensions included in the Hackman and Oldham job characteristics model. Table 7 presents an example of some coded data from our first step of coding and analysis.

Our second step of coding and analysis involved summarizing the data for each task dimension across the three cases and across each type of professional (i.e., contractor vs. permanent professional). The coding identifies the type of task dimension discussed by each interviewee and also the strength of each task dimension (i.e., high or low) that was experienced by contract versus permanent professionals in their immediate work environment. The intent in this second round of coding was to help detect patterns in the evidence related to each construct by comparing task dimensions across each type of professional and across each organization. Table 8 presents the results from our second round of coding and analysis.

To establish an independent assessment of the reliability of the coding, two "blind" coders, Ph.D. students in IS who were not involved in the study, read and coded transcripts according to the dimensions from the JCM. They conducted initial coding on the transcript from the first organization to establish an initial interrater reliability. The Cohen's Kappa for this coding was .76. The coders then discussed the discrepancies in coding and developed explicit coding rules to reconcile the discrepancies. Subsequently, the coders independently coded the rest of the transcripts, with a resulting Cohen's Kappa of .97. Given this level of near perfect agreement, the coding approach was deemed reliable, satisfying Landis and Koch's (1977) threshold of 0.70.

3.5   Results

3.5.1   Background on Work Environment

The attitudes, behaviors, and performance of contract and permanent professionals in all three organizations are similar to those found in Study 1. In terms of attitudes, we found that contractors receive the same socialization processes as permanent professionals, actively participate in departmental meetings, and join in social gatherings. The contractors, therefore, reported favorable work environments and were not alienated socially in the workplace. In terms of behaviors and performance, supervisors reported IS contractors' performance to be lower than their permanent counterparts, consistent with results in Study 1.

Table 9 provides a comparison of hiring, termination, and compensation practices for the contract and permanent IS professionals interviewed in the three organizations. Distinct differences exist in the practices used to hire, terminate, and compensate contractors versus their permanent counterparts. The contractors are hired from employment agencies. They typically have one- to two-year contracts with the organizations. In all three organizations, few contractors have more than two years of organizational tenure because their contracts normally are not renewed after two years. In contrast, for permanent staff hired directly by the organizations, the average organizational tenure ranges from two to eight years. Salaries (in terms of hourly pay) are higher for contractors in all three organizations-about 25% to 30% higher than for comparable permanent professionals. However, the contractors receive neither health insurance nor retirement benefits. Typically, contractors do not work overtime; each organization has a policy restricting overtime for contractors. If contractors do work overtime, they may not be fully compensated because the organizations pay the employment agency, which may choose not to pass on the extra pay to the contractors.

Considerable variation exists in termination practices. In some situations, either contractors or the organizations can prematurely terminate a contract with one month's notice. In the hospital, contractors can be terminated with 24 hours notice and one-month compensation. In other situations, the employment agency charges penalties for early termination either to the organization or to the contractor. Contractors could be prohibited by their employment agency from extending their contracts beyond the negotiated termination date. The variation in termination policies appears to derive from differing practices among employment agencies. In contrast, less variation exists in termination policies for permanent employees. Organization policies typically specify at least one month's notice and provide one or more months of severance pay if the organization initiates the termination. In all three organizations, permanent staff are more likely to terminate voluntarily rather than be terminated by the organization.

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	Construct Definition	TransportationCompany		Hospital		Government Agency	
		IS Permanent	IS Contractors	IS Permanent	IS Contractors	IS Permanent	IS Contractors
Task Variety	The variety of duties, tasks and activities for a job.	"My job scope includes analysis, design and implementation: eliciting requirements from users, and vendor management and contracting. I also mentor the contractors on my team."	"My work is primarily coding. I work on old and new platforms"	"My job scope includes analysis, design and implementation. I do little or no programmnig. I do some systems integration and manage vendors. I am the interface with the users."	"I do SAP programming. I also code customer MIS reports, but I don't have much contacts with the users."	"I mainly do analysis and talk to the users to formulate problems. I also work with the contractors and approve their work"	"I only do coding, nothing else."
Task Identity	Job allows an opportunity to complete an entire piece of work from beginning to end.	"I work on projects from start to finish."	"I do small tasks, not large."	" Any development analysis work I do is from start to end."	" The specs are provided to me by the systems analyst. I can't test and implement my code"	"I am responsible for the project from start to end."	"I can't do the implementation because I can't access the databases and the users."
Task Signifi cance	Job is significant and important compared with other jobs in the organization.	"I am the project leader and have authority over the team."	"My work involves mainframes and old technology. What is the value of this?"	"I supervise and integrate a set of vendor solutions. The vendor is responsible for support, but I am the project leader."	"I have to work with fictitious data on the development system. My access rights to patient data are restricted."	"I am the project leader and can manage the resources for the project."	"I have no authority or rights. I must go through the in house staff for everything."
Task Autonomy	Jobs allows freemom, independence or discretion in work scheduling, sequence, methods, procedures, quality control or other decision-making.	"I am the project leader and create the project plan based on what I think needs to be done."	"I am told specifically what to do (change) in the system and the due date."	"I have a lot of choice in how I do a project. Each project is different."	"I cannot negotiate the type of work they give me."	"Permanent staff can determine the project scope and details."	" Everythings spelled out in the specs."
Task Feedback	The work itself provides feedback about the effectiveness of job performace	"I am responsible and accountable for the performanceof each project phase."	"My supervisor checks on the quality of my coding."	"I am successful if there areno problems in integrating vendor solutions."	" Contract programmers are given much closer supervision, e.g. check their LOC to ensure that no new things are added."	"I am responsible for the proper functioning of the system."	" Supervisors go through the work with the contractors and tell them to expect close monitoring."

		Transportation Company		Hospital		Government Agency	
	Construct Definition	**IS Permanent**	**IS Contractors**	**IS Permanent**	**IS Contractors**	**IS Permanent**	**IS Contractors**
Task Variety	The Variety of duties, tasks and activities for a job.	HIGH: Analysis, Design, Testing, Implementation, End User Liaison, Vendor Management, Contract Negotiation, Project Leader, Mentoring Contractors	LOW: Coding	HIGH: Analysis, Design, Testing, Implementation, End User Liaison, Vendor Management, Contract Negotiation, System Integration, Configuration, System Administration, Database Design, Project Leader, Mentoring Contractors	LOW: Coding, Report Generating	HIGH: Analysis, Design, Testing, Implementation, End User Liaison, Project Leader, Mentoring Contractors	LOW: Coding, Report Generating
Task Identity	Job allows an opportunity to compete an entire piece of work from beginning to end.	HIGH: work on projects from start to finish	LOW: no view of whole system or project	HIGH: work on projects from start to finish	LOW: no view of whole system or project	HIGH: work on projects from start to finish	LOW: no view of whole system or project
Task Significance	Job is significant and important compared with other jobs in the organization.	HIGH: assigned managerial and supervisory roles, have authority and access privileges	LOW: workarounds and maintenance on older technologies, no access privileges	HIGH: assigned managerial and supervisory roles, have authority and access privileges	LOW: no rights authority or access privileges	HIGH: assigned managerial and supervisory roles, have authority and access privileges	LOW: no authority or access privileges
Task Autonomy	Jobs allows freedom, independence or discretion in work scheduling, methods, quality control or other decision-making.	HIGH: given project request/scope and can create work plan, much discretion in setting project schedules	LOW: cannot negotiate the type of work assigned or deadlines, given specific instructions on what to do and how to do it.	HIGH: given project request/scope and can create work plan, much discretion in setting project schedules	LOW: cannot negotiate the type of work assigned or deadlines, given specific instructions on what to do and how to do it.	HIGH: given project request/scope and can create work plan, much discretion in setting project schedules	LOW: cannot negotiate the type of work assigned or deadlines, given specific instructions on what to do and how to do it.
Task Feedback	The work itself provides feedback about the effectiveness of job performance	HIGH: project outcomes give feedback on effectiveness of earlier stages	LOW: supervisor monitors work, assignments, quality of coding	HIGH: project outcomes give feedback on effectiveness of earlier stages	LOW: supervisor monitors work, assignments, quality of coding	HIGH: project outcomes give feedback on effectiveness of earlier stages	LOW: supervisor monitors work, assignments, quality and timeliness of coding

Table 9: Comparison of Hiring, Compensation and Termination Practices for Contract and Permanent IS Professionals Included in Case Studies

	Transportation Company		Hospital		Government Agency	
	IS Permanent	IS Contractors	IS Permanent	IS Contractors	IS Permanent	IS Contractors
Hiring Practices	Directly	Through Employment Agency	Directly	Through Employment Agency	Directly	Through Employment Agency
Structure of Salary and Benefits	Salaried (not hourly). 12 days vacation pay. Medical benefits free. Company contributes to retirement fund. Can be promoted.	Hourly (rate averages 25-30% more than for permanent). No overtime pay. 8 days vacation paid through employment agency. No medical benefits. No retirement fund. Cannot be promoted.	Salaried (not hourly). 10 days vacation pay. Medical benefits free. Company contributes to retirement fund. Can be promoted.	Hourly (rate averages 25-30% more than for permanent). No overtime pay. No paid vacation days. No medical benefits. No retirement fund. Cannot be promoted.	Salaried (not hourly). 12 days vacation pay. Medical benefits free. Company contributes to retirement fund. Can be promoted.	Hourly (rate averages 25-30% more than for permanent). No overtime pay. 9 paid vacation days for entire contract. No medical benefits. No retirement fund. Cannot be promoted.
Termination Practices	Usually requires at least 1 month notice on either side and severance pay.	Usually requires at least 1 month notice of premature termination on either side.	Usually requires at least 1 month notice on either side and severance pay.	Contractors can be terminated upon 24 hour notice and 1 month severance pay.	Usually requires at least 1 month notice on either side and severance pay.	Contractors must pay penalty to break the contract.

3.6 Job Design Features

As Tables 7 and 8 indicate, patterns in the job dimensions differ by type of professional. The jobs of contractors in each organization are low in task variety, identity, significance, autonomy, and feedback, relative to those of permanent professionals. Contractors' tasks are low in variety because they primarily do programming tasks, compared to permanent professionals whose activities include analysis, design, user interaction, implementation, system integration, systems administration, configuration management, vendor management, project management, and database design as well as socializing and mentoring the contract professionals on their teams.

Because contractors are usually assigned only coding tasks, they do not have the opportunity to see the results of their work when the system is implemented, leading to low task identity:

I have no view of the whole picture, just a small view of what I am doing. [Interview Transcript, IS Contractor, Transportation Company].

In contrast, permanent professionals in all three organizations are involved in projects from start to finish. This gives them a greater opportunity to experience completion of an entire piece of work, although they may not actually do all of the tasks in each phase.

The contractors' comments about their work assignments suggest that they believe their jobs have low task significance. Some contractors indicated they were assigned maintenance tasks or „workarounds,“ often on older technologies, instead of new development:

> They brought me in to work on an old technology like FoxPro. I couldn't believe it! There is absolutely no value in [maintaining] such outdated systems! [Interview Transcript, IS Contractor, Transportation Company].

Contractors also have restricted access to users, customers, production systems, and production databases. In addition, the organizations all have policies that prohibit or restrict contractors from staying beyond normal working hours. If contractors have to work overtime, a special security approval process is required to enable them to stay late. That the contractors may view these restrictions as a reflection of the lower significance of their role in the organization is implicit in the comments of a contractor:

> [The company] did not immediately give me the privileges and rights to the production system. They may do so later in the contract. But, I don't have full access now. They have to recognize me first. [Interview Transcript, IS Contractor, Transportation Company].

At the time of this statement, the contractor was over 16 months into his two-year contract with the transportation company. In contrast, permanent professionals are given more authority, access, and responsibility at the beginning of their employment.

Contractors also have low autonomy. They are given specific instructions on what to do and how to do it and have little ability to negotiate their work assignments:

> Contractors are given program specifications. Because they don't know the business, everything is spelled out clearly for them. [Interview Transcript, Supervisor, Government Agency].

On the other hand, permanent professionals have relatively high autonomy in their jobs:

> Permanent staff are given only the project scope and can find out the details themselves. [Interview Transcript, Supervisor, Government Agency].

Compared to the jobs of their permanent counterparts, contractors' jobs are low in task feedback. Permanent professionals receive frequent task feedback in the form of intermediate and final project outcomes. In contrast, contractors receive detailed feedback from their supervisors but not from the work itself, leading to

low task feedback. In all three organizations, supervisors closely monitor and evaluate contractors. They are assessed in terms of the correctness of their code and whether they follow good programming practices. For example, a supervisor described how she provided detailed feedback to contractors:

> I regularly check on contractors' overall job assignments and work load and evaluate them based upon whether they meet the work plan. Sometimes, I need to counsel them, if there are a lot of errors in their work or they're not meeting the schedule. I first go through the work plan and ask for reasons for the poor quality work...if the contractor makes a mistake, I assess the reasons why it occurs. For example, if the code has a lot of GOTO statements, then it is not acceptable. I need to monitor them closely to maintain the standard. [Interview Transcript, Supervisor, Hospital].

The transcripts suggest that contractors do not obtain direct feedback about their job performance from the work itself. Rather, they appear to rely solely upon supervisors to evaluate the quality of their work. Contractors appear to have limited access to users, customers, production information systems, and databases in the organizations. This could prevent them from testing and assessing the quality of their work themselves. Contractors are also less attuned to the nuances of the organizational context, which may inhibit them from perceiving and interpreting feedback cues in the work environment.

4   Overall Discussion and Conclusion

We believe this sequential, mixed-method study of contract versus permanent IS professionals represents the first effort in IS research to formally examine the behavioral consequences of mixed teams of contract and permanent professionals in software development. Our results were derived from two complementary studies. The quantitative survey provided data on differences in the perceived attitudes, behaviors, and performance of the two groups of professionals. The qualitative case studies served to support and expand the data obtained from the survey, providing additional evidence that is useful in understanding why these differences between the two groups exist.

The results from Study 1 indicate that the work attitudes of contract professionals are more favorable than permanent professionals. Nonetheless, the contractors are perceived to exhibit lower in-role and extra-role behaviors and lower performance. Case analyses from Study 2 suggest that the results found in Study 1 can be attributed to how organizations assign jobs to the two groups of professionals. The organizations in our study designed jobs for their IS contract professionals that are narrow, limited in scope and significance, unchallenging, and lack autonomy. This may contribute to the contractors' lower behaviors and performance. In turn,

permanent employees' jobs may be unintentionally expanded to compensate for the under-employment of the contractors. Thus, permanent employees bear the primary accountability and responsibility not only for their work but also for the contractors' work. This increase in responsibility and accountability may not be explicitly rewarded, leading to perceptions of lower organizational support by permanent professionals. Eventually, a negative spiral may emerge where permanent co-workers experience work spillover from contract professionals (Pearce 1993; Smith 1994).

A number of theoretical, methodological, and practical implications arise from this study. By way of theoretical implications, this study has shown that IS professionals with different work status experience differences in the nature of the job they perform and exhibit different work attitudes, behaviors, and performance. The study highlights the importance of work context, specifically the nature of job design that can mediate the relationship between work status and job related outcomes in IS contracting. Figure 2 shows our revised theoretical model based on the findings from the two studies.

As shown in Figure 2, we theorize that job design characteristics mediate the relationship between work status and attitudes, behaviors, and performance in software development teams. Specifically, we propose that work outcomes of an IS professional are not directly affected by work status but by the nature of the jobs assigned to them. Future research is needed to test the model proposed in Figure 2.

A second research implication relates to the type of contract professionals who have been our focus of attention. In this study, we restricted our attention to contractors who are deployed on software development teams. Future research should examine contractors' attitudes, behaviors, and performance in the larger variety of roles to which they are increasingly being assigned, including strategic consulting and even Chief Information Officer.

By way of methodological implications, this study shows that a sequential, mixed-method design adds scope, depth, and breadth to our findings. The first method of theory testing is used sequentially to help inform the second method of theory building. Research using a sequential, mixed methodology should be conducted to allow researchers not only to test an existing theory but also to build upon existing theory. Both the survey and case study methods use intense data collection efforts. Most prior studies of IS personnel have used self-report measures and reported only from the perspective of the individual. Our study suggests that gathering the perceptions of others such as peers and supervisors is essential for assessing the contribution of individuals who work in teams.
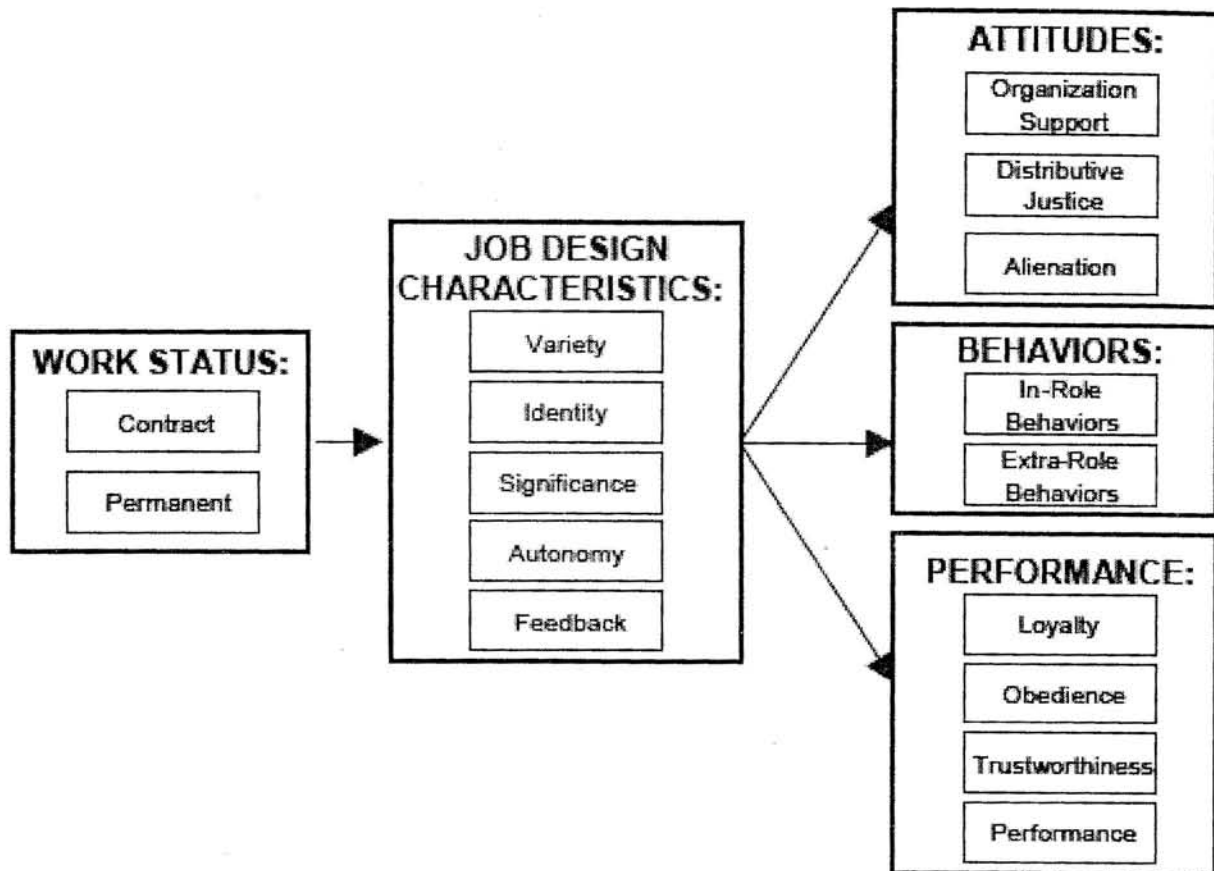
Figure 2: Proposed Research Model

In terms of practical implications, our results suggest that organizations need to redesign and tailor work assignments for contract professionals on their software development teams. Specifically, organizations should examine whether they are under-employing contract professionals and unwittingly broadening the job scope and responsibilities of permanent co-workers. Organizations may also need to adjust their appraisal and reward systems for their permanent professionals. Specifically, organizations must ensure that they adequately compensate permanent professionals who take on the additional responsibilities of monitoring, training, and socializing contract co-workers.

A second and related practical implication is the importance of clarifying job scope and responsibilities for different professionals. The management model for IS professionals may be evolving to one used to manage other highly paid and skilled professionals such as lawyers or major league sports players. Under this model, IS organizations build special-purpose teams composed of permanent core professionals, as well as temporary specialists, independents, and contractors. Essential to the success of this model is the ability to communicate job scope and set clear performance expectations for all members of the team, individually and collectively. Our study suggests that keeping mixed teams of contract and permanent professionals satisfied and productive is a challenging but increasingly necessary and worthwhile managerial goal.

References

Alexander, S. .First-Year Lessons,. Computerworld (32), September 28, 1998, p. 83.

Ang, S. .Toward Conceptual Clarity of Outsourcing,. in Business Process Reengineering:Information Systems Opportunities and Challenges,B. C. Glasson, I.T. Hawryszkiewycz, B.A. Underwood, and R. A. Weber (eds.), North-Holland Elsevier Publishers, Amsterdam, 1994,pp. 113-126.

Ang, S., and Beath, C. M. .Hierarchical Elements in Software Contracts,. Journal of Organizational Computing, (3:3), 1993, pp. 329-362.

Ang, S., and Cummings, L .L. .Strategic Responses to Institutional Influence on Information Systems Outsourcing,. Organization Science, (8:3), May-June, 1997, pp. 235-256.

Ang, S., and Slaughter, S. .The Missing Context of Information Technology Personnel: A Review and Future Directions for Research,. in Framing the Domains of IT Management Research: Glimpsing the Future through the Past, R. Zmud (ed.), Pinnaflex Educational Resources, Cincinnati, OH, 2000, pp. 305-328.

Ang, S., and Slaughter, S. .A Taxonomy of Employment Insourcing and Outsourcing Strategies in Information Systems,. in Information Systems Outsourcing in the New Economy: Enduring Themes, Emergent Patterns and New Directions, R. Hirschheim and J. Dibbern (eds.), Springer-Verlag, Heidelberg, Germany, 2002 (forthcoming).

Ang, S., and Straub, D. W. .Production and Transaction Economics in Information Systems Outsourcing: A Study of the U.S. Banking Industry,. MIS Quarterly, (22:4), 1998, pp. 535- 552.

Atkinson, J. .Manpower Strategies for Flexible Organizations,. Personnel Management (16), 1984, pp. 28-31.

Barker, K., and Christensen, K. .Controversy And Challenges Raised By Contingent Work Arrangements,. in Contingent Work, K. Barker, and K. Christensen (eds.), ILR Press, Ithaca, NY: Cornell University, 1998, pp. 1-20.

Baroudi, J. J., and Orlikowski, W. J. .The Problem of Statistical Power in MIS Research,. MIS Quarterly (13:1), 1989, pp. 87-106.

Belous, R. S. The Contingent Economy: The Growth of the Temporary, Part-Time and Subcontracted Workforce, National Planning Association, Washington, DC, 1989.

Blau, P. Exchange And Power In Social Life, Wiley, New York, 1964. Bureau of Labor Statistics, Contingent and Alternative Employment Arrangements, Report 900, U.S. Government Printing Office, Washington, DC, 1995.

Campbell, D. T., and Fiske, D. W. .Convergent and Discriminant Validation by the Multitrait- Multimethod Matrix,. Psychological Bulletin (56:2), 1959, pp. 81-105.

Cappelli, P. .Rethinking Employment,. British Journal of Industrial Relations, (33:4), December, 1995, pp. 563-603. Chamber of Commerce of the United States, Employee Benefits: 1991 Edition, Report No. A3840-1, Publication No. 0289, 1991.

Clark, T., Zmud, R., and McCray, G. .The Outsourcing of Information Services: Transforming the Nature of Business in the Information Industry,. in Strategic Sourcing of Information Systems: Perspectives and Practices, L. Willcocks and M. Lacity (eds.), Wiley, Chichester, 1998, pp. 45-78.

Cohen, J. Statistical Power Analysis for the Social Sciences (2nd ed.), Lawrence Erlbaum and Associates, Hillsdale, NJ, 1988.

Cole-Gomolski, B. .Reliance on Temps Creates New Problems,. Computerworld (32), August 31, 1998, pp. 1, 35.

Crampton, S. M., and Wagner, III, J. A. .Percept- Percept Inflation inn Micro organizational Research: An Investigation of Prevalence and Effect,. Journal of Applied Psychology (79:1), 1994, pp. 67-79.

Cropanzano, R. (ed.). Justice in the Workplace: Approaching Fairness in Human Resource Management, Lawrence Erlbaum and Associates, Hillsdale, N J, 1993.

Davis-Blake, A., and Uzzi, B. .Determinants of Employment Externalization: A Study of Temporary Workers and Independent Contractors,. Administrative Science Quarterly (38:2), 1993, pp. 195-225.

Deutsch, M. .Cooperation and Trust: Some Theoretical Notes,. Nebraska Symposium on Motivation, Nebraska University Press, Lincoln, 1962, pp. 275-320.

Eisenberger, R., Fasolo, P., and Davis-LaMastro,V. .Perceived Organizational Support and Employee Diligence, Commitment, and Innovation, . Journal of Applied Psychology (75:1), 1990, pp. 51-59.

Eisenberger, R., Huntington, R., Hutchinson, S., and Sowa, D. .Perceived Organization Support, . Journal of Applied Psychology (71:3), 1986, pp. 500-507.

Feldman, D., Doerpinghaus, H., and Turnley, W. .Managing Temporary Workers: A Permanent HRM Challenge,. Organizational Dynamics (23:2), 1994, pp. 49-64.

Fishman, S. Hiring Independent Contractors: The Employer's Legal Guide (2nd ed.), Nolo Press, Berkeley, CA, 1997.

Foa, U. G., and Foa, E. B. Resource Theory: Interpersonal Behavior as Exchange, Plenum Press, New York, 1980.

Gallagher, D. G., and McLean Parks, J. .I Pledge Thee My Troth. Contingently: Commitment and the Contingent Work Relationship,. Human Resource Management Review (11:3), 2001, pp. 181-208.

George, J. M., and Bettenhausen, K. .Understanding Prosocial Behavior, Sales Performance, and Turnover: A Group-Level Analysis in a Service Context,. Journal of Applied of Psychology (75:6), 1990, pp. 698-709.

Ghiselli, E., Campbell, J., and Zedeck, S. Measurement Theory for the Behavioral Sciences, W. H. Freeman and Co., San Francisco, 1981.

Girard, K., and Wallace, B. .Users Skeptical about E-mail Outsourcing,. Computerworld (31), March 31, 1997, p. 12.

Goethals, G. R., and Darley, J. M. .Social Comparison Theory: Self-Evaluation and Group Life,. in Theories of Group Behavior, B. Mullein and G. R. Goethals (eds.), Springer Verlag, New York, 1987, pp. 21-47.

Golden, L. .The Expansion of Temporary Help Employment in the US, 1982-1992: A Test of Alternative Economic Explanations,. Applied Economics (28:9), 1996, pp. 1127-1141.

Golden, L., and Appelbaum, E. .What Was Driving the 1982-88 Boom in Temporary Employment? Preference of Workers or Decisions and Power of Employers,. The American Journal of Economics and Sociology (51:4), 1992, pp. 473-494.

Gouldner, A. W. .The Norm of Reciprocity: A Preliminary Statement,. American Sociological Association (25:2), 1960, pp. 160-178.

Graen, G. B., Novak, M. A., and Sommerkamp, P. .The Effects Of Leader-Member Exchange and Job Design on Productivity and Satisfaction: Testing a Dual Attachment Model,. Organizational Behavior and Human Performance(30:2), 1982, pp. 109-131.

Greenberg, J. .Looking Fair vs. Being Fair: Managing Impressions of Organizational Justice, . in Research in Organizational Behavior, B.

M. Staw and L. L. Cummings (eds.), JAI Press, Greenwich, CT, 1990, pp. 111-158 Greenberg, J. .A Taxonomy of Organizational Justice Theories,. Academy of Management Review (12:1), 1987, pp. 9-22.

Guzzo, R. A., Noonan, K. A., and Elron, E. .Expatriate Managers and the Psychological Contract,. Journal of Applied Psychology (79), 1994, pp. 617-626. Hackman, J. R., and Oldham, G. R. Work Redesign, Addison-Wesley, Reading, MA, 1980.

Hoffman, P. S. The Software Legal Book, Shafer Books, Croton-on-Hudson, NY, 1992.

Hosmer, L. T. .The Connecting Link between Organizational Theory and Philosophical Ethics,. Academy of Management Review (20), 1995, pp. 379-403.

Jacoby, S. M. Employing Bureaucracy: Managers, Unions, and the Transformation of Work in American Industry, 1900-1945, Columbia University Press, New York, 1985.

James, L. R., Demaree, R. G., and Wolf, G. .Estimating Within-Group Interrater Reliability with and Without Response Bias,. Journal of Applied Psychology (69:1), 1984, pp. 85-98.

Kalleberg, A. L., Rasell, E., Hudson, K., Webster, D., Reskin, B. F., Naomi, C., and Appelbaum, E. Nonstandard Work, Substandard Jobs: Flexible Work Arrangements in the United States. Economic Policy Institute and Women's Research and Education Institute, Washington, DC, 1997.

Kalleberg, A. L., and Schmidt, K. .Contingent Employment in Organizations,. In Organizations in America: Analyzing their Structures and Human Resource Practices, A. L. Kalleberg, D.

Knoke, P. Marsden, and J. Spaeth, (eds.), Sage, Thousand Oaks, CA, 1996, pp. 253-275.

Konovsky, M. A., and Pugh, S. D. .Citizenship Behavior And Social Exchange,. Academy of Management Journal (37), 1994, pp. 656-669.

Kozlowski, S., and Hattrup, K. .A Disagreement about Within-Group Agreement: Disentangling Issues of Consistency Versus Consensus,. Journal of Applied Psychology (77:2), 1992, pp. 161-167.

Krausz, M., Brandwein, T., and Fox, S. .Work Attitudes and Emotional Responses of Permanent, Voluntary, and Involuntary Temporary- Help Employees: An Exploratory Study,. Applied Psychology: An International Review, (44), 1995, pp. 217-232.

Kruglanski, A. W., and Mayseless, O. .Classic and Current Social Comparison Research: Expanding the Perspective,. Psychological Bulletin, (108), 1990, pp. 195-208.

Lacity, M., and Hirschheim, R. Information Systems Outsourcing: Myths, Metaphors, and Realities, Wiley, Chichester, 1993.

Landis, J. R., and Koch, G. G. .The Measurement of Observer Agreement for Categorical Data,. Biometrics, (33:1), 1977, pp. 159-174.

Levine, J. M., and Moreland, R. L. .Social Comparison and Outcome Evaluation in Group Contexts,. in Social Comparison, Social Justice, and Relative Deprivation, J. C. Masters and W. P. Smith (eds.), Lawrence Erlbaum and Associates, Hillsdale, NJ, 1987.

Loh, L., and Venkatraman, N. .Diffusion of Information Technology Outsourcing: Influence Sources and the Kodak Effect,. Information Systems Research (3:4), 1992, pp. 334-358.

McKee, J. B. Identity and Alienation, Holt, Rinehart, and Winston, Ltd., London, 1969.

McLean Parks, J., and Kidder, D. .Till Death do us Part: Changing Work Relationships in the 90s,. in Trends in Organizational Behavior, C. L.

Cooper and D. M. Rousseau (eds.), Wiley, New York, 1994, pp. 111-136.

McLean Parks, J., Kidder, D. L., and Gallagher, D. G. .Fitting Square Pegs into Round Holes: Mapping the Domain of Contingent Work Arrangements onto the Psychological Contract,. Journal of Organizational Behavior, (19), 1998, pp. 697-730.

Mallon, M., and Duberley, J. .Managers and Professionals in the Contingent Workforce,. Human Resource Management Journal, (10:1), 2000, pp. 33-47.

Maniscalco, R. .The Employment Staffing Alternative, . Information Systems Management, (12:4), Fall 1995, pp. 66-68.

Matusik, S. F., and Hill, C. W. L. .The Utilization of Contingent Work, Knowledge Creation, and Competitive Advantage,. Academy of Management Review, (23:4), 1998, pp. 680-697.

Middleton, R. .Alienation, Race, and Education,. American Sociological Review, (28:6), 1963, pp. 973-977.

Miles, M. B., and Huberman, A. M. Qualitative Data Analysis: A Sourcebook of New Methods, Sage Publications, Newbury Park, CA, 1984.

Moorman, R. H. .Relationship between Organizational Justice And Organizational Citizenship Behaviors: Do Fairness Perceptions Influence Employee Citizenship?. Journal of Applied Psychology (76:6), 1991, pp. 845-855.

Murphy, K. R., and Myors, B. Statistical Power Analysis, Lawrence Erlbaum and Associates, Mahwah, NJ, 1998.

Nam, K., Rajagopalan, S., Roa, H., and Chaudhury, A. .A Two-Level Investigation of Information Systems Outsourcing,. Communications of the ACM (39:7), 1996, pp. 36-44.

Neter, J., Wasserman, W., and Kutner, M. Applied Linear Statistical Models: Regression, Analysis of Variance and Experimental Designs (3rd ed.), Irwin, Homewood, IL, 1990.

Nisbett, R. E., and Ross, L. Human Inference: Strategies and Shortcomings of Social Judgments, Prentice Hall, Englewood Cliffs, NJ, 1980.

Nollen, S., and Axel, H. Managing Contingent Workers, American Management Association, New York, 1996.

Nunnally, J. C. Psychometric Theory (2nd ed.), McGraw-Hill, New York, 1978. O'Reilly, C., Caldwell, D., and Barnett, W. .Work Group Demography, Social Integration, and Turnover,. Administrative Science Quarterly, (34:1), 1989, pp. 21-38.

Pearce, J. .Towards an Organizational Behavior of Contract Laborers: Their Psychological Involvement and Effects on Employee Co- Workers,. Academy of Management Journal (36:5), 1993, pp. 1082-1096.

Pfeffer, J., and Baron, J. .Taking the Workers Back Out: Recent Trends in the Structuring of Employment,. in Research in Organizational Behavior, B. Staw and L. L. Cummings (eds.), JAI Press, Greenwich, CT, 1988, pp. 257-303.

Pinder, C. C. Work Motivation in Organizational Behavior, Prentice Hall, Upper Saddle River, NJ, 1998.

Richmond, W., Seidmann, A., and Whinston, A. .Incomplete Contracting Issues in Information Systems Development Outsourcing,. Decision Support Systems, (8:5), 1992, pp. 459-477.

Rogers, J. K. .Just a Temp: Experience and Structure of Alienation in Temporary Clerical Employment,. Work and Occupations, (22:2), May, 1995, pp. 137-166.

Rosenthal, D. .I am a Temp,. Computerworld (30), September 16, 1996, pp. 105 106.

Rousseau, D. M. Organizational Behavior in the New Organizational Era, (48), Annual Reviews, Palo Alto, CA, 1997, pp. 515-546.

Van Dyne, L., and Lepine, J. .Helping and Voice Extra-Role Behaviors: Evidence of Construct and Predictive Validity,. Academy of Management Journal (41:1), 1998, pp. 108-119.

Willcocks, L., and Lacity, M. Strategic Sourcing of Information Systems: Perspectives and Practices, Wiley, Chichester, 1998.

Yin, R. K. Case Study Research: Design and Methods, (2nd ed.), Sage Publications, Thousand Oaks, CA, 1994.

Zand, D. E. .Trust and Managerial Problem Solving,. Administrative Science Quarterly (17:2), 1972, pp. 229-239.

Zucker, L. G. .Production of Trust: Institutional Sources and Economic Structure, 1840-1920,. in Research in Organizational Behavior, B. M.

Staw and L. L. Cummings (eds.), JAI Press, Greenwich, CT, 1986, pp. 53-111.

Rousseau, D. M. Psychological Contracts in Organizations, Sage Publications, Thousand Oaks, CA, 1995.

Rousseau, D. M., and McLean Parks, J. .The Contracts of Individuals and Organizations,. In Research in Organizational Behavior, L. L.

Cummings and B. M. Staw (eds.), JAI Press, Greenwich, CT, 1993, pp. 1-43.

Rousseau, D. M., Sitkin, S. B., Burt, R. S., and Camerer, C. .Not So Different After All: A Cross-Discipline View of Trust,. Academy of Management Review, (23:3), July, 1998, pp. 393-404.

Schmitt, R., and Moody, T. E. Alienation and Social Criticism, Humanities Press, Atlantic Highlands, NJ, 1994. Settoon, R. P., Bennett, N., and Liden, R. C. .Social Exchange in Organizations: Perceived Organizational Support, Leader-Member Exchange, and Employee Reciprocity,. Journal of Applied Psychology, (81:3), 1996, pp. 219- 227.

Slaughter, S., and Ang, S. .Employment Outsourcing in Information Systems,. Communications of the ACM (39:7), 1996, pp. 47-54.

Smith, V. .Institutionalizing Flexibility in a Service Firm,. Work and Occupations (21:3), 1994, pp. 284-307.

Tashakkori, A., and Teddlie, C. Mixed Methodology: Combining Qualitative and Quantitative Approaches, Sage Publications, Thousand Oaks, CA, 1998.

Thorpe, K., and Florence, C. .Why are Workers Uninsured? Employer-Sponsored Health Insurance in 1997,. Health Affairs (18:2), 1999, pp. 213-218.

Tsui, A. S., and O'Reilly, C. A. .Beyond Simple Demographic Effects: The Importance of Relational Demography in Supervisor-Subordinate Dyads,. Academy of Management Journal (32:2), 1989, pp. 402-402.

Tsui, A. S., Xin, K. R., and Egan, T. D. .Relational Demography: The Missing Link in Vertical Dyad Linkage,. in Work Team Dynamics and Productivity in the Context of Diversity, S. Jackson, M. Ruderman, and W. Tornow (eds.), American Psychological Association, Washington, DC, 1995, pp. 97-129.

Van Dyne, L. In-Role and Extra-Role Behaviors: Cross Level and Longitudinal Effects of Individual Similarity to Other Group Members, Unpublished Ph.D. Dissertation, University of Minnesota, Minneapolis, 1993.

Van Dyne, L., and Ang, S. .Organizational Citizenship Behavior Of Contingent Workers In Singapore,. Academy of Management Journal (41:6), 1998, pp. 692 703.

Van Dyne, L., Cummings, L. L., and McLean Parks, J. .Extra-Role Behaviors: In Pursuit of Construct and Definitional Clarity,. in Research in Organizational Behavior, L. L. Cummings and B. M. Staw (eds.), JAI Press, Greenwich, CT, 1995, pp. 185-215.

Van Dyne, L., Graham, J. W., and Dienesch, R. M. .Organizational Citizenship Behavior: Construct Redefinition, Measurement, and Validation, . Academy of Management Journal (37:4), August, 1994, pp. 765-802.