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THE EFFECTS OF INFORMATION MANAGEMENT POLICIES ON REACTIONS TO HUMAN RESOURCE INFORMATION SYSTEMS: AN INTEGRATION OF PRIVACY AND PROCEDURAL JUSTICE PERSPECTIVES

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The goal of the present study was to extend research on information privacy and fairness by examining these constructs within the context of human resource information systems. Using a 2×2 experimental design and data from 124 employed subjects in an organization that was in the process of developing a human resource information system, the present study examined the main and interactive effects of policies concerning ability to authorize disclosure (ability to authorize vs. no ability to authorize) and target of disclosure (internal to the organization vs. external to the organization) on invasion of privacy perceptions and fairness perceptions. Results of multivariate and univariate analyses of variance indicated that the independent variables had main and interactive effects on both fairness perceptions and invasion of privacy perceptions. Moreover, a confirmatory factor analysis suggested that invasion of privacy perceptions and fairness perceptions are distinct constructs. Implications of these findings for theory and practice are discussed.

Although the word "privacy" never appears in the United States Constitution, surveys conducted over the past 2 decades suggest that most Americans believe that privacy is just as important as any right granted by the Constitution (Alderman & Kennedy, 1995). For instance, a 1979

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survey of Americans by Harris and Westin found that 75% believe in the basic right to privacy and 92% favor safeguarding of personal information by organizations. That is, individuals believe that organizations should have policies that regulate the gathering, storing, using, and disseminating of personal information, thereby protecting employees from a loss of privacy. In addition, a recent analysis of privacy trends by Katz and Tassone (1990) found that public concern over privacy may actually be on the rise. Specifically, the trend analysis suggests that privacy concerns rose prior to 1970, leveled out through the 1970s, then again increased in the 1980s. One possible explanation for this increase in privacy concerns is the technological advances occurring during the examined time period. New technologies (especially computers) allow quicker and easier access to personal information. Thus, the collection, storage, usage, and dissemination of personal information through use of computer databases and information systems may be responsible for these renewed concerns over privacy in the public domain.

The Impact of Technology

One reason why perceived invasion of privacy is an increasingly important topic is the advancement of technology. Computers, e-mail, electronic monitoring, and computer databases have all stimulated privacy concerns. For instance, research by Piller (1993a) found that 22% of managers surveyed searched employee computer files. This percentage equates to approximately 20 million workers for whom perceptions of invasion of privacy may be evoked by these searches. Since 1984, the number of e-mail users has risen from 1 million to over 20 million (Alderman & Kennedy, 1995), enhancing the risk of perceived invasion of privacy. This is especially important in organizational contexts because case law supports the position that e-mail is the property of the organization, not the individual (*Shoars v. Epson America, Inc.*, 1992). Managers have the legal right to search employee e-mail files. Clearly, the increased use of computers, along with other technological advances, has made the issue of privacy salient. Concerns about invasion of privacy are especially prominent in organizations with human resource information systems. A human resource information system is defined as an electronic means of collecting, storing, analyzing, and retrieving data about employees (cf. Kavanagh, Gueutal, & Tannenbaum, 1990). In recent years there has been a rise in the use of these systems. One reason for the increased use of such systems is that they are essential for human resource planning, enabling human resource managers to achieve their business-related goals (Walker, 1993). In addition, human resource information systems are thought to increase human resource managers'

abilities to monitor the workforce, produce reports easily, utilize employee skills effectively, and even reduce labor costs.

Despite the many benefits of the increased use of human resource information systems, there is a growing concern among members of the general public about the extent to which advances in computer-technology have the potential to violate employees' perceived rights to privacy (Harris, 1992). One reason for this concern is that, although employers have become increasingly aware of the need to control the disclosure of personal employee information, the practices and methods for protecting employee privacy vary widely from one organization to the next. For example, results of a survey of 301 companies by Piller (1993a) indicated that less than 35.9% of companies had a written policy on privacy. In addition, research by the Human Resource Systems Professions (Piller, 1993b) reported that 20% of companies had an open policy regarding access to employee data (i.e., anyone could gain access to personal information). Overall, these studies suggest that the increased use of computers in organizations may increase the salience of privacy issues.

The Tension Between Personal Privacy and Business Interests

The previous sections suggest that there is a fundamental struggle between an individual's right to privacy and an organization's legitimate business interests (Culnan, Smith, & Bies, 1994). Organizations utilize human resource information systems to gain a competitive advantage in the marketplace (Walker, 1993). The collection, storage, and retrieval capabilities inherent in these systems allow organizations to easily access data about employees, thereby increasing efficiency. It is critical, however, that this increase in efficiency is balanced against the individual's privacy interests. Fair information practices suggest that individuals should (a) know how organizations use personal information (b) have the right to prevent secondary use of personal information, and (c) feel secure that organizations will take reasonable precautions to prevent misuse of personal information (Culnan, Smith, & Bies, 1994). In view of this tenuous relationship between privacy concerns and organizational needs, a major purpose of the present study was to determine the degree to which variations in human resource information system policies in organizations affect individuals' perceptions of both invasion of privacy and fairness of the policies. Results of the study should aid human resource information system administrators in developing new human resource information systems and promulgating fair information policies.

*Human Resource Information Systems, Privacy, and Fairness**Organizational Privacy and Fairness*

Much of the current research on invasion of privacy perceptions has focused on procedures used by organizations to acquire information from job applicants or employees, or the use of such information in making personnel decisions (Stone & Herringshaw, 1991; Stone & Jones, 1992; Stone & Kotch, 1989). Organizational procedures such as authorization procedures, consequence of information release, target of release, advanced notice and purpose of request have been examined (Fusilier & Hoyer, 1980; Stone & Herringshaw, 1991; Stone & Jones, 1992; Stone & Kotch, 1989; Tolchinsky et al., 1981). The main premise underlying such studies is that organizations that act in a procedurally just manner will evoke fewer negative reactions from individuals than organizations that do not act in a procedurally just manner. Specifically, the lesser the perceived invasiveness of organizational actions, the greater the acceptance of such actions by job applicants or incumbents (Stone, 1995).

Interestingly, privacy research focusing on organizational procedures is quite similar to research undertaken in the procedural justice area (cf. Greenberg, 1990, for a review of this research). Procedural fairness (or justice) has been shown to be an extremely important factor in determining reactions to organizational events. "Reactive process" theories of procedural fairness (cf. Greenberg, 1987) suggest that it is important for the procedures used in making a decision to be viewed as fair by the individual. Thus, regardless of the outcome of the decision, the individual who views procedures as fair will be happier with the decision than the individual who views procedures as unfair (Thibaut & Walker, 1975).

For a number of reasons, two procedural variables (i.e., ability to authorize disclosure and target of disclosure) were chosen as the focus of the present study. First, several previous studies have examined the impact of ability to authorize disclosure and target of disclosure on invasion of privacy perceptions (e.g., Fusilier & Hoyer, 1980; Tolchinsky et al., 1981). Results show these two factors to predict invasion of privacy perceptions. However, the subjects in these studies were asked to read and react to role-play scenarios. Therefore, the impact of these two factors is unclear in situations where there would be real-world consequences for subjects. Furthermore, although there is some theoretical support for the importance of these two factors in the procedural justice literature, to date there has been no empirical test of the impact of either ability to authorize disclosure or target of disclosure on fairness perceptions. Finally, there are practical reasons for exploring these

variables. Over 20 years ago, the Privacy Protection Study Commission (1977) noted concern about the growing number of requests from external agencies for personal information. These requests from external agencies have increased as technology has made data transfer to outside organizations easier.

These attributes of human resource information systems were studied as antecedents of two major outcomes, that is, perceptions of (a) the degree to which such systems result in perceived invasion of privacy and (b) the perceived fairness of procedures associated with such systems. It is important to note that the present research focuses on perceptions, not legal determinations, of invasion of privacy. Proof of invasion of privacy, as in all tort cases, requires that damages be shown.

Ability to Authorize Disclosure

One of the more widely studied procedural factors in the privacy literature is the ability to authorize the disclosure of information. Although different researchers have used various labels (e.g., "permission given" in Tolchinsky et al., 1981, and "perceived control" in Fusilier & Hoyer, 1980), the main premise is that a policy that requires employee authorization prior to personal information release is perceived as less invasive than a policy which does not require such authorization.

Theoretical support for the importance of the ability to authorize disclosure in determining employee reactions is found in both the organizational privacy and procedural fairness literatures. Stone and Stone (1990), in the development of a privacy model, argue that an important determinant of invasion of privacy perceptions is the degree to which the subsequent release or disclosure of data is made with the employee's permission. One of the central definitions of privacy is the ability to control information about oneself. An individual's desire not only to be aware of information gathering and dissemination, but also to give permission for the gathering or dissemination, a priori, is one strategy that individuals use to protect their privacy. Procedural justice theory (Thibaut & Walker, 1975) supports this logic, suggesting that authorization is a form of process control. The ability to authorize disclosure allows the individual to maintain control over the process, which subsequently leads to feelings of justice or fairness.

Empirical evidence on the relationship between ability to authorize disclosure and employee reactions comes from a number of studies. For example, research by Fusilier and Hoyer (1980) and Tolchinsky et al. (1981) found that individuals who gave prior consent for disclosure of information perceived the disclosing of personal information to be less invasive of personal privacy than individuals who did not give prior con-

sent. Interestingly, the Tolchinsky et al. field experiment gathered data from employed subjects, whereas Fusilier and Hoyer gathered data from undergraduate subjects. The similarity of results suggests the generalizability of the importance of the ability to authorize disclosure across different populations of subjects.

A recent article by Bies (1993) suggests the importance of authorization. He noted that authorization is often a key element in due process. Interestingly, however, authorization has not been a focus of procedural justice research. Thus, Bies suggested that fairness researchers more closely examine this variable as a predictor of fairness. As a result, the present study addressed this research need. More specifically, we tested the following two hypotheses concerning the authorization of disclosure:

Hypothesis 1a: Organizational policies that provide for employee authorization before the release of personal information will be perceived as less invasive of privacy than policies that do not require such authorization.

Hypothesis 1b: Organizational policies that provide for employee authorization before the release of personal information will be perceived as fairer than policies that do not require such authorization.

Target of Disclosure

Models of privacy (Stone & Stone, 1990) suggest that the target of disclosure is an important determinant of invasion of privacy. Information from a human resource information system may be released to a variety of individuals. Supervisors, coworkers, and individuals external to the company are all potential targets of information release. Although target of disclosure was first proposed as an important variable by Jourard (1966), the recent increase in interconnectedness of organizations has made research on the effects of this variable salient. Specifically, with advancements in technology, organizations are able to gather information about individuals, store the information in electronic data bases, easily access the information, and disseminate it worldwide with little or no effort.

Theories of privacy (Stone & Stone, 1990) suggest that individuals will perceive the gathering of personal information to be less invasive of privacy when it will be subsequently disclosed to others within an organization than when it will be disclosed to others outside of an organization (e.g., other companies, private investigators, mailing-list database companies). Theoretical support for the importance of target of disclosure in the privacy literature comes from Jourard (1966) who noted that "the most powerful determinant of self-disclosure is the identity of the person to whom one might disclose information and the nature and purpose of

the relationship between the two people" (cited in Stone & Stone, 1990, p. 367). There is a certain expectation that personal information will be properly used within a work organization for decision-making purposes. That same expectation may not exist for the release of personal information outside of such an organization. Empirical support for this notion comes from Stone, Gueutal, Gardner, and McClure (1983) who showed that individuals' attitudes about their ability to control information were more positive for employers than they were for other types of organizations (e.g., IRS, insurance companies). These results showed that individuals felt more comfortable releasing personal information to their employing organization than to other types of organizations. Therefore, it seems reasonable to infer that individuals would want personal information released to their employer to remain within the organization, and not be released to outside organizations.

Theories of procedural fairness support the findings from the privacy literature. In a recent article examining similarities between the privacy and fairness literatures, Bies (1993) promoted the importance of target of disclosure. In fact, Bies stated that the boundary between one's organization and other organizations could be a macrodimensional view of the group-value model of procedural justice developed by Lind and Tyler (1988). The basic assumption of this model is that people value membership in social groups. That is, people want to belong to social groups and to establish and maintain the bonds that develop within these groups (Tyler, 1989). It is conceivable that employees of an organization may value the organizational membership and identify with the organization. Thus, by Tyler's logic, information shared within an organization would be considered expected and fair, while the release of information outside the organization would be viewed as less fair.

Two previously mentioned studies (Fusilier & Hoyer, 1980; Tolchinsky et al., 1981) examined the importance of target of disclosure. Interestingly, Tolchinsky et al. found support for the hypothesis that individuals would react more negatively to disclosure to an outside target than inside, while Fusilier and Hoyer did not find a similar effect. One possible reason for the discrepancy in these results is sample differences: Fusilier and Hoyer used a student sample, while Tolchinsky et al. surveyed an employed sample. Support for the importance of gathering reactions to target of disclosure from employed subjects comes from research by Woodman et al. (1982). Using data from a sample of currently employed subjects, they found that the internal disclosure of information was much less invasive than the external disclosure of information.

Although theories of fairness support the logic that policies concerning the target of disclosure should have an impact on perceptions of fairness, to date there has been no empirical examination of the relationship

between target of disclosure and fairness. Therefore, another purpose of the present study was to test the following two hypotheses:

Hypothesis 2a: Organizational policies that restrict access of personal information to internal targets will be perceived as less invasive of privacy than policies that allow the release of information to external targets.

Hypothesis 2b: Organizational policies that restrict access of personal information to internal targets will be perceived as more fair than policies that allow the release of information to external targets.

Interaction of Procedures

Thus far, the focus of this article has been on the main effects that ability to authorize disclosure and target of disclosure have on individuals' reactions. However, there is a sound basis for hypothesizing that such reactions will be interactively influenced by these two factors. More specifically, the Stone and Stone (1990) model of privacy provides theoretical support for the hypothesized interaction. First, the model suggests that invasion of privacy perceptions will be greater when information is released outside of an organization than when information is maintained within an organization. The reason for this is that when personal information is disseminated outside of an organization, individuals lose the ability to control subsequent releases. Moreover, individuals may perceive that there are fewer negative consequences when personal information is used by their employer than when used by outside entities. One reason for this is that employees often have a good idea of the uses that may be made of personal information by their employing organization. Therefore, they feel that they have a higher degree of control over information when it remains within the hands of their employing organization than when the information is released to outside organizations.

It deserves noting that the loss of control over information is central to the notion of invasion of privacy (Stone & Stone, 1990). When individuals are able to authorize the release of information, they have control and concerns about invasion of privacy are minimal. However, when personal information is disseminated outside of an employing organization without first obtaining the employee's consent, feelings of control decrease and concerns about invasion of privacy increase. Thus, beliefs about control are enhanced by organizational policies that provide individuals (e.g., employees) with the ability to authorize any and all disclosures of personal information.

Empirical support for these views comes from a previously mentioned study by Tolchinsky et al. (1981). Results of the study showed evidence of a two-way interaction between ability to authorize disclosure and target of disclosure on privacy perceptions. Although there

has been one empirical examination of the interactive effects of ability to authorize disclosure and target of disclosure (Tolchinsky et al., 1981) on invasion of privacy perceptions, there has been no specific examination of this relationship within the human resource information system context. Moreover, no previous studies have considered the interactive effects of ability to authorize disclosure and target of disclosure on fairness perceptions. Therefore, another purpose of the present study was to test the following hypotheses:

Hypothesis 3a: Target of disclosure and ability to authorize disclosure will interactively influence invasion of privacy perceptions: The difference in invasion of privacy perceptions between release of information to an external target and an internal target will be much greater when there is no ability to authorize disclosure than when there is the ability to authorize disclosure.

Hypothesis 3b: Target of disclosure and ability to authorize disclosure will interactively influence fairness perceptions: The difference in fairness perceptions between release of information to an external target and an internal target will be much greater when there is no ability to authorize disclosure than when there is the ability to authorize disclosure.

The Relationship Between Invasion of Privacy Perceptions and Fairness Perceptions

As noted above, theoretical work on both privacy and fairness has implications for the information system variables that are the focus of the present study. Furthermore, several studies have provided support for the proposition that both the ability to authorize disclosure and the target of disclosure affect invasion of privacy perceptions (e.g., Fusilier & Hoyer, 1980; Tolchinsky et al., 1981). Although the ability to authorize disclosure and the target of disclosure have not been studied with respect to the criterion of fairness, it seems reasonable to argue that the impact of these variables on fairness should be similar to their impact on privacy.

Interestingly, because of a dearth of empirical work, the empirical distinction between invasion of privacy perceptions and fairness perceptions has not been firmly established. Conceptually, invasion of privacy perceptions and fairness perceptions are distinct constructs: Fairness is the extent to which individuals perceive the procedures that led to a decision as being fair or just, whereas invasion of privacy is the perceived ability to control personal information. Research has shown these two variables to be moderately correlated (Racicot & Williams, 1993). This moderate correlation between invasion of privacy perceptions and fairness perceptions has led some researchers to combine the

two constructs into a single reactions measure (e.g., Stone & Herringshaw, 1991). For instance, Stone and Kotch (1989) performed a principal components analysis of subjects' responses to four items measuring fairness perceptions and four items measuring invasion of privacy perceptions. Although they expected to find two separate factors, results of their study suggested that the items loaded on a single factor accounting for 61.4% of the variance in the original scores. However, the results of other research suggest that invasion of privacy perceptions and fairness perceptions are separate constructs. More specifically, a principal components analysis by Racicot and Williams (1993) resulted in two factors (i.e., fairness perceptions and invasion of privacy perceptions) which accounted for 69.1% of the variance in the original scores. Further, the results of this Racicot and Williams drug testing study showed an outcome by safety-sensitivity interaction: Termination was perceived as more fair for the safety-sensitive job than for the safety-nonsensitive job, even though no difference in invasion of privacy perceptions was detected. The authors concluded that both invasion of privacy perceptions and fairness perceptions should be considered in future research. Results of research by Bies and Moag (1986) suggest that job applicants perceived certain questions as an invasion of privacy and unfair, regardless of whether they received a job offer. Interestingly, however, Bies (1993) noted that procedural justice research on privacy is practically nonexistent.

Theory suggests that invasion of privacy perceptions and fairness perceptions are separate constructs. For instance, Leventhal (1980) discussed privacy in regards to his ethicality rule which states that "allocative procedures must be compatible with the fundamental moral and ethical values" (p. 45) of individuals. In addition, Leventhal argued that "the ethicality rule may dictate that methods of observation that... invade privacy are unfair" (p. 46). This implies that procedures or practices that invade privacy will be viewed as unfair, making concerns for privacy an antecedent of fairness. Further theoretical support for the relationship between invasion of privacy perceptions and fairness perceptions stems from Gilliland's (1993) discussion of employee reactions to selection procedures. Gilliland stated that, although privacy has not been empirically examined in the selection fairness literature, the invasiveness of interview questions (i.e., perceived invasion of privacy) may be an additional antecedent of selection fairness. Bies (1993) states that privacy becomes a procedural justice issue when expectations about control over personal information are violated. Moreover, both Arvey and Sackett (1993) and Iles and Robertson (1989) suggested that the perceived invasiveness of a selection procedure may influence applicants' reactions to that procedure. In view of the above, the present

study tested the following two hypotheses concerning perceptions of invasion of privacy and fairness:

Hypothesis 4a: Invasion of privacy perceptions and fairness perceptions are two separate constructs.

Hypothesis 4b: Invasion of privacy perceptions and fairness perceptions will be negatively related.

Method

Subjects and Research Setting

Subjects were 124 employed persons who were enrolled in a part-time MBA program (65 males, 45 females, and 14 who did not specify gender) at a large, northeastern university. The average age of the subjects was 29.15 ($SD = 4.89$) years; the range of subject age was 23 years to 44 years. All but one of the subjects were employed on a full-time basis. These participants had an average of 7.5 ($SD = 5.05$) years of full-time work experience in a variety of positions, including accountant, real estate broker, computer programmer, marketer, employee trainer, lawyer, and chemist.

At the time of the present study, the administrator of the part-time MBA program was in the process of developing a human resource information system for the program. As a result, data for the present study were collected in connection with an actual information system in an organization. We believe that this provides for a higher level of subject involvement in the study than is typical of other studies concerned with reactions to information systems. As noted above, in many such studies subjects are asked to provide their responses to scenarios that depict the policies of information systems in hypothetical organizations.

Procedure

Subjects were informed that the School of Business was in the process of developing a human resource information system for individuals in the part-time MBA program. In order to aid in the development of the system, the students were asked for their input on the types of information that was to be stored in the system and the policies that would be used to maintain the information. Subjects were informed that their input would aid in the design of the human resource information system. Then they were randomly assigned to one of four conditions that were created by crossing manipulated levels of (a) ability to authorize

disclosure and (b) target of disclosure. This resulted in 31 subjects per condition.

In a single session, subjects were sequentially asked to (a) complete an informed consent form, consenting to complete a personal data sheet dealing with information that was likely to be stored in the human resource information system, (b) read two policies which might serve to guide uses made of the collected data, and (c) complete a questionnaire designed to assess fairness perceptions and invasion of privacy perceptions. Subjects were told that only the researchers would have access to the gathered data. Finally, subjects were debriefed and thanked for their participation in the study.

Manipulations

The manipulation of the study's independent variables occurred through the description of information policies that were presented to the subjects. Each of the manipulations is described below.

Ability to authorize disclosure. Ability to authorize disclosure was manipulated through the description of the organization's policies related to information disclosure. In the ability to authorize condition the following policy was presented: "Your personal information will *not* be released without your prior consent. Your personal data will only be released once you have given prior consent for the release of your personal information."

In the no ability to authorize condition the following policy was presented: "Your personal information *can* be released without your prior consent. Your personal data will be released at the time of request. A list of requests will be maintained by the MBA Program Administrator, although you will not be informed of the requests on a regular basis. Once your information is stored in the computer database, it can be released without your prior approval."

Target of disclosure. Target of disclosure was manipulated through the description of the organization's policies related to information disclosure. Note that in the following descriptions, the phrase "once your approval is gained" was only inserted into the policy statement in the condition where prior approval was required before the release of information.

In the internal target condition, the following policy was presented: "Your personal information will be available only to faculty members. Some faculty would like to have access to your information in order to track students in their concentrations. (Once your approval is gained), your personal information will be provided to faculty for purposes of

tracking your progress. Nobody outside of the university will have access to your personal information.”

In the external target condition, the following policy was presented: “Your personal information will be available to faculty members *and* outside organizations. The MBA Program Administrator will maintain the information that you have just provided to the computer database. Some faculty would like to have access to your information in order to track students in their concentrations. Other organizations outside of the University would also like to have access to your information. For instance, credit agencies, potential employers, and insurance agencies often request information from the University. (Once your approval is gained), your personal information will be provided to faculty members and outside organizations.”

Measures

Invasion of privacy perceptions. A 20-item measure developed by Stone et al. (1983) was used to assess invasion of privacy perceptions, defined as the extent to which subjects’ perceived they had control over their personal information. Some examples of items are: “I feel somewhat uncomfortable about some of the ways the MBA program will be collecting personal information about me,” and “I am pleased that I will be able to keep the MBA program from collecting personal information that I would like to keep secret” (reverse scored). Subjects responded on 7-point Likert-type scales with response anchors of 1 = *strongly disagree* to 7 = *strongly agree*. For this measure, the higher the score, the greater the perceived invasion of privacy. Coefficient alpha for this measure was .95.

Fairness perceptions. A 6-item measure of fairness perceptions was used to assess subjects’ reactions to the information policies. The measure was based on work by Leventhal (1980) and Greenberg (1990), and has been used in previous research (e.g., Stone & Kotch, 1989). Items dealt with the degree to which fair procedures were used by the organization. Some examples of items are: “The procedures that will be used to govern the dissemination of my personal data are fair,” and “The procedures that will be used by the MBA program are just.” Subjects responded on 7-point Likert-type scales with response anchors of 1 = *strongly disagree* to 7 = *strongly agree*. The higher the score on the measure, the greater the perceived fairness. Coefficient alpha for this measure was .94.

Manipulation checks. Subjects responded to two items that were designed to assess their perceptions of the manipulations. One item

dealt with the ability to authorize disclosure. The other was concerned with target of disclosure.

Analyses

Given the correlation between the dependent measures, a 2×2 multivariate analysis of variance (MANOVA) was used to test Hypotheses 1–3. The MANOVA was followed up by analyses of variance for each of the two measured outcomes (i.e., fairness perceptions and invasion of privacy perceptions). Hypothesis 4a was tested through a confirmatory factor analysis (LISREL 8; Jöreskog & Sörbom, 1993). The LISREL analysis used a sample covariance matrix as input and a maximum likelihood solution. Hypothesis 4b was tested through a correlational analysis.

Results

Manipulation Checks

Cross-tabulations were performed to assess the effectiveness of the study's manipulations. There were between condition differences in the subjects' perceptions of ability to authorize disclosure, $\chi^2(3) = 110.00$, $p < .01$ and target of disclosure, $\chi^2(3) = 106.15$, $p < .01$. Ninety-six percent of the participants correctly perceived the ability to authorize disclosure manipulation and 95% percent of the participants correctly perceived the target of disclosure manipulation. These results indicated that the manipulations were very effective.

Effects of the Information Policies

The MANOVA showed main effects for both ability to authorize disclosure, multivariate $F(2,119) = 15.75$, $p < .001$, and target of disclosure, multivariate $F(2,119) = 17.81$, $p < .001$. In addition, it revealed evidence of an interaction effect of these two variables, multivariate $F(2,119) = 9.94$, $p < .001$.

Invasion of privacy perceptions. A 2×2 ANOVA was used to assess the effects of ability to authorize disclosure (ability to authorize vs. no ability to authorize) and target of disclosure (internal vs. external) on invasion of privacy perceptions. The summary of this analysis is reported in Table 1 and the relevant means are reported in Table 2. As can be seen in Table 1, there was a main effect for ability to authorize disclosure, $F(1,120) = 15.93$, $p < .001$, partial $\eta^2 = .12$. On average, the ability to authorize disclosure was perceived as less invasive ($M = 71.03$) than the lack of ability to authorize disclosure ($M = 86.43$).

TABLE 1
Analysis of Variance for Invasion of Privacy Perceptions and Fairness Perceptions

Source	Invasion of privacy perceptions				Fairness perceptions				
	SS	df	MS	F	SS	df	MS	F	p
Authorization (A)	7095.51	1	7095.51	15.93	1699.04	1	1699.04	31.63	< .001
Target (T)	15224.80	1	15224.80	34.18	1258.26	1	1258.26	23.42	< .001
A × T	6474.32	1	6474.32	14.53	982.26	1	982.26	18.28	< .001
Explained	28794.64	3	9598.21	21.54	3939.57	3	1313.19	24.44	< .001
Residual	53451.29	120	445.42		6445.35	120	53.71		
Total	82245.93	123	668.66		10384.92	123	84.43		

Note: N = 124 (31 per group).

TABLE 2
*Descriptive Statistics for Invasion of Privacy Perceptions
 and Fairness Perceptions*

Condition	Invasion of privacy perceptions			Fairness perceptions		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Ability to authorize disclosure						
Internal target	31	67.45	21.15	31	28.09	6.34
External target	31	75.16	22.22	31	27.35	6.73
No ability to authorize disclosure						
Internal target	31	68.12	24.13	31	26.32	9.24
External target	31	104.74	16.05	31	14.32	6.61

Table 1 also reveals a main effect for target of disclosure, $F(1,120) = 34.18, p < .001$, partial $\eta^2 = .22$. On average, the release of information to an internal target was perceived as less invasive ($M = 67.78$) than the release to an external target ($M = 89.95$). Finally, there was an interaction between ability to authorize disclosure and target of disclosure, $F(1,120) = 14.53, p < .001, \eta^2 = .07$. For the invasion of privacy criterion, the difference between release of information to an external target and an internal target was much greater when there was no ability to authorize disclosure than when there was the ability to authorize disclosure.

Fairness perceptions. A 2×2 ANOVA was used to assess the effects of ability to authorize disclosure (ability to authorize vs. no ability to authorize) and target of disclosure (internal vs. external) on fairness perceptions. The summary of this analysis is reported in Table 1 and the relevant means are reported in Table 2. There was a main effect for ability to authorize disclosure, $F(1,120) = 31.63, p < .001$, partial $\eta^2 = .20$. On average, an ability to authorize disclosure was perceived as more fair ($M = 27.72$) than the lack of an ability to authorize disclosure ($M = 20.32$). Table 1 also reveals a main effect for target of disclosure, $F(1,120) = 23.42, p < .001$, partial $\eta^2 = .16$. On average, release of information to an internal target was perceived as more fair ($M = 27.20$) than the release of information to an external target ($M = 20.83$). Finally, there was an interaction effect between ability to authorize disclosure and target of disclosure, $F(1,120) = 18.28, p < .001, \eta^2 = .09$. For the fairness criterion, the difference between release of information to an external target and to an internal target was much greater when there was no ability to authorize disclosure than when there was the ability to authorize disclosure. Overall, the findings of these analyses provide strong support for Hypotheses 1-3.

TABLE 3
Means, Standard Deviations, Covariances and Correlations

Variable	M	SD	1	2	3	4	5
1. Invasion of privacy perceptions	78.87	25.85	668.22	-.77*	0.29*	0.43*	0.58*
2. Fairness perceptions	24.02	9.18	-182.72	84.27	-.40*	-.34*	-.61*
3. Authorization (A)	0.50	0.50	3.75	-1.84	0.25	0.00	0.57*
4. Target (T)	0.50	0.50	5.56	-1.56	0.00	0.25	0.57*
5. A × T	0.25	0.43	6.45	-2.41	0.12	0.12	0.18

Note: Covariances are shown on and below the main diagonal; zero-order correlation coefficients are shown above the main diagonal.

* $p < .01$, one-tailed test.

Relationship Between Invasion of Privacy Perceptions and Fairness Perceptions

As noted above, the relationship between invasion of privacy perceptions and fairness perceptions was tested using confirmatory factor analysis (LISREL 8; Jöreskog & Sörbom, 1993) with the covariance matrix shown in Table 3 as input. The 2-factor model (i.e., privacy and fairness) was compared with a 1-factor model and a nested χ^2 test was performed to determine which model best described the data. A variety of indices were used to assess model fit. The values of these fit indices for the 2-factor model were: $\chi^2(8) = 14.3$, $p = .07$, GFI = .96, and CFI = .99. The fit indices, with the exception of the χ^2 value, indicated good model fit. However, because the χ^2 index is influenced by sample size, the findings of the present study are not surprising. Note, moreover, that an inspection of the modification indices revealed no important signs of poor model fit. The values of these fit indices for the 1-factor model were: $\chi^2(9) = 125.3$, $p = .000$, GFI = .69, and CFI = .85. The resulting nested chi-square value of $\chi^2(1) = 111.05$, $p < .001$ suggests that the 2-factor model more appropriately described the data in the present study. Overall, therefore, the data support Hypothesis 4a.¹ The correlation matrix shown in Table 3 shows that invasion of privacy perceptions and fairness perceptions are negatively related (-.77), supporting Hypothesis 4b.

Discussion

Several previous studies have examined the impact of ability to authorize disclosure and target of disclosure on invasion of privacy perceptions (e.g., Fusilier & Hoyer, 1980; Tolchinsky et al., 1981). The studies

¹ More information on the confirmatory factor analysis performed in the LISREL context can be obtained from the first author.

have found these two factors to predict invasion of privacy perceptions. However, the subjects in these studies were asked to read and react to role-play scenarios. Therefore, the impact of these two factors is unclear in situations where there are real-world consequences for subjects. Furthermore, although there is sufficient theoretical support for the importance of these two factors in the procedural justice literature, to date there has been no empirical test of the impact of either ability to authorize disclosure or target of disclosure on fairness perceptions.

Results of the present study add to the evidence on the importance of the ability to authorize disclosure and the target of disclosure in affecting perceptions of fairness and invasion of privacy. Results showed that individuals perceive a policy to be most invasive and most unfair when there is no ability to authorize the release of personal information which is subsequently released to an external target. To date, the present study is the first empirical test of the effects of these two factors on the procedural fairness criterion. It is worthy of note that, whereas past research found weak effect sizes (e.g., partial $\eta^2 = .04$ for the impact of target of disclosure on invasion of privacy perceptions in Tolchinsky et al., 1981), the present study found moderate effect sizes (e.g., partial $\eta^2 = .22$ for the impact of target of disclosure on invasion of privacy perceptions). The large differences in these effect sizes highlight the importance of studying the impact of the information handling policies and practices of organizations in contexts where the same policies have real consequences for individuals. Although scenario studies are useful in research on such phenomena as privacy, the results of such studies tend to underestimate the impact of procedural variables in real-world contexts.

Although the present study provided some interesting and important information about the effects of information policies on fairness perceptions and invasion of privacy perceptions, we believe that additional research on these issues is warranted. The reason for this is that our study dealt with only two of the many factors that might influence individuals' reactions to the information handling practices of organizations. For example, in their 1977 report, the Privacy Protection Study Commission set forth seven recommendations to private-sector employers. The report advises that employers (a) review personal information handling practices, (b) limit information collection to relevant factors, (c) inform employees about information gathering practices, (d) permit employees to examine, copy, correct, or amend information, (e) keep conviction, medical, and insurance information separate from personal information, (f) limit the internal uses of information, and (g) limit the external disclosures of information (Privacy Protection Study Commission, 1977). However, 20 years later there is a paucity of empirical research dealing

with the variables considered by these recommendations. This is unfortunate because the Privacy Protection Study Commission's recommendations have direct and important implications for organizational policies. For instance, research by Piller (1993b) found that many organizations have policies that do not allow employees to check the accuracy of information on them that is maintained in human resource information systems. Thus, for example, research is needed that examines the effects of the ability to check and amend records on such outcomes as the perceived fairness of information handling practices.

Theoretical Implications

One objective of the present study was to examine empirically the relationship between invasion of privacy perceptions and fairness perceptions. The works of Leventhal (1980), Gilliland (1993), Bies (1993), Arvey and Sackett (1993), and Iles and Robertson (1989) all suggest that invasion of privacy perceptions and fairness perceptions are separate constructs. For instance, Gilliland (1993) states that, although privacy has not been empirically examined in the selection fairness literature, the invasiveness of interview questions (i.e., invasion of privacy perceptions) may be an additional antecedent of selection fairness. This implies that procedures that invade individual privacy will be deemed to be unfair, suggesting that concern for privacy is an antecedent of fairness perceptions. However, some prior research has found invasion of privacy perceptions and fairness perceptions to be so highly correlated as to be considered the same construct. One reason for this finding may be that lack of standardized measures in the privacy and fairness research. The present study attempted to develop and utilize valid and reliable measures of privacy and justice perceptions. Interestingly, the present study provides empirical support for the proposition that invasion of privacy perceptions and fairness perceptions are separate constructs: Results from a confirmatory factor analysis (LISREL) showed more support for a 2-factor model than a 1-factor model. Future researchers should ensure the continued use of valid and reliable measures in this area of research.

Researchers concerned with privacy and fairness have often tested hypotheses that focus on the same or very similar sets of assumed antecedents (cf. Bies, 1993). As the results of the present study clearly show, the time has come to more fully integrate these two relatively distinct literatures. Thus, consistent with the present study's findings we recommend that future research continue to view invasion of privacy perceptions and fairness perceptions as separate, albeit correlated, constructs. Further, based on theoretical work by Leventhal, Gilliland, and

others, future empirical research should test the hypothesis that concern for privacy is an antecedent of fairness perceptions. Through such research we should be able to develop a better understanding of the mechanisms associated with individual reactions to the characteristics of human resource information systems.

Beyond the specific relationship between invasion of privacy perceptions and fairness perceptions, the results of the present study also provide theoretical guidance for future research in the human resource information system context. To date, no comprehensive theoretical framework has been established to guide research on reactions to human resource information systems. Therefore, one goal of the present study was to draw on theory from both the organizational privacy and procedural justice literatures to provide guidance for future research in the human resource information system context. Results of the study suggest that the combination of these literatures is useful in examining employee reactions to the development of human resource information systems. Future research in the human resource information system area should be able to draw on these vast literatures to develop and empirically test hypotheses about factors which influence employee reactions to human resource information systems.

Practical Implications

A recent analysis of privacy trends by Katz and Tassone (1990) found that public concern over invasion of privacy may be on the rise. Specifically, their trend analysis suggests that privacy concerns rose prior to 1970, leveled out through the 1970s, then increased again in the 1980s. One possible explanation for this increase in privacy concerns is the technological advances that have occurred during this time period. New technologies (especially computers) allow quicker and easier access to personal information. Thus, the collection, storage, usage, and dissemination of personal information through use of computers may be responsible for these renewed concerns over privacy among members of the general public.

Human resource practitioners should be aware of the increased concern over personal privacy, and can use the results of the present study to guide the development of human resource information system policies that are fairer and less invasive than many current systems. Specifically, results from the present study suggest that providing employees with the ability to authorize disclosure of personal information, along with maintaining personal information within the organization, will greatly lessen perceptions of invasion of privacy and greatly increase perceptions of fairness.

Limitations

Additional research is needed to bolster confidence in the external validity of the present study's findings. One external validity concern centers on the possibility of a selection by treatment interaction due to the specific nature of the organization in which the study was conducted. Specifically, it might be argued that students in an MBA program would react differently to the development of a human resource information system at their university than would the same individuals at their place of work. In addition, it might be argued that the external validity of the present study is questionable because the types of information that the university planned to collect may not have been comparable to that collected by the typical work organization. Note, however, that the types of information items considered in the present study were taken from those that appear in several commonly used human resource information systems (e.g., those of Humanic Design and Peoplesoft). This fact should reduce concerns about external validity.²

A second potential threat to the external validity of the present study's results is that the students may have perceived the information collection to be invasive and unfair because they viewed it as irrelevant to their role (i.e., student) in the university. In contrast, employees of an organization might view the collection of personal information as necessary. We can not discount the possibility that some of the information items in the information system questionnaire completed by students were perceived as irrelevant to the real information needs of the MBA program. To the extent that they were, there might be corresponding increases in perceptions of invasion of privacy. However, the fact remains that mean differences were found between the study's treatment conditions. Therefore, generalizations about individuals' reactions to the policies appear warranted. In order to confirm and extend the results of the present study, however, future research should examine employee reactions to organizational policies in different types of organizations.

Conclusions

In summary, the present study makes empirical, theoretical, and practical contributions to the organizational literature on privacy and

²In this article we use the term human resource information system in a generic sense. The information system considered by the present study is part of such a system in an educational setting. Thus, it could actually be referred to as an educational administration system or a student administration system. However, it deserves stressing that the information content and proposed uses of the system in the present study are similar to those of human resource information systems involving employee records.

fairness. First, the present study provides empirical evidence that ability to authorize the disclosure and target of disclosure have important main and interactive effects on invasion of privacy perceptions, adding to the weight of evidence in the current literature. Although these two factors have been examined in other contexts, the present study is the first to examine the joint importance of these two organizational policies in a human resource information system context. Furthermore, the present study is the first empirical test of the impact of ability to authorize disclosure and target of disclosure on the perceived fairness of a human resource information system.

The present study also contributes to the theoretical understanding of the relationship between the constructs of invasion of privacy and fairness. Findings suggest that invasion of privacy and fairness are separate, but correlated, constructs. An integration of the literatures on privacy and fairness may serve to promote a better understanding of employee reactions to the development of human resource information systems.

Finally, there are practical implications of the present study. For example, the findings highlight the importance of policies that allow authorization before the release of personal information outside the boundaries of an organization. Human resource managers should be aware of these findings and should work proactively to develop fair information policies for human resource information systems in their organizations.

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