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The Impact of Organizational Ethical Climate on Reporting Behaviors in Information Systems Projects

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ABSTRACT

Without accurate status information, a project manager's ability to monitor progress, allocate resources effectively, and detect and respond to problems in a prompt fashion is greatly diminished, and this can lead to impaired project performance. Several factors can contribute to intentional misreporting of status information by project members to the project manager. In this study, the impact of organizational ethical climate was assessed through the analysis of responses from 228 project members drawn from a variety of on-going information systems (IS) projects. Our results revealed that project members who perceived themselves to be in an organization where rules are followed strictly tended to misreport less, while those operating in an environment dominated by personal self-interest tended to misreport more. Somewhat surprisingly, the existence of a team-spirited environment did not appear to have an impact on misreporting behaviors. Implications for researchers and IS project managers are discussed.

Keywords

Ethical Climate, Project Management, Project Status Reporting, Misreporting Behavior

INTRODUCTION

Managing information systems (IS) projects is a challenging task. One of the factors contributing to this challenge is the difficulty of obtaining accurate and timely status reports. Without accurate information, project managers are less able to allocate project resources and plan for task completion. Reasons for inaccurate reporting can be either intentional (e.g., withholding pertinent information) or unintentional (e.g., honestly over-estimating percentage of completion). In this research, we focus our attention on the intentional misreporting of project status by project team members.

There are several factors that influence project misreporting, including those at the individual, dyadic, project or organizational level (Smith and Keil, 2003). In this study we focus our attention on the organizational level, and more specifically on the potential impact of organizational ethical climate. To do so, we surveyed 228 project members from on-going IS projects, obtaining their perceptions of the ethical climate for the organization in which they were working as well as their assessment of the amount of alteration and withholding of information in which they engaged while reporting to their project manager.

ORGANIZATIONAL ETHICAL CLIMATE

Climate is defined as "the relatively enduring quality of the total (organizational) environment that (a) is experienced by the occupants, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the environment" (Denison, 1996; Tagiuri and Litgwin, 1968, pg. 25). There is a growing body of evidence within the IS literature that suggests that climate does matter in reporting behaviors in IS projects (Ancona and Caldwell, 1990; Keil, Smith, Pawlowski and Jin, 2004; Smith, Keil and Depledge, 2001; Smith and Keil, 2003).

Based on our review of the organizational climate and IS literature, we concluded that the "ethical climate" framework that was conceptualized by Victor and Cullen (1988) could form a solid theoretical basis for our work. This framework seems to

capture the climate characteristics that have proven salient to reporting behaviors both in IS and non-IS settings (e.g., Ancona and Caldwell, 1990; Athanassiades, 1973; Gray, 2001; Keil et al, 2004).

According to Victor and Cullen (1987, 1988), an organization’s ethical climate can be characterized by its orientation on two different axes: ethical criterion and referent (see Table 1). The *ethical criterion* is that which is used in organizational decision-making. Based on moral philosophy, these criteria can be sorted into three categories: egoism (maximizing self-interest), benevolence (maximizing joint interests), and principle (adherence to principle). The *referent* is the group that is viewed as the source for ethical reasoning. These can also be sorted into three categories: individual (consideration of needs and preferences of one’s own self), local (consideration of organization’s interests), and cosmopolitan (consideration of larger social/economic system’s interests).

		Referent		
		Individual	Local	Cosmopolitan
Ethical Criterion	Egoism	1. Self-Interest	2. Company Interest	3. Efficiency
	Benevolence	4. Friendship	5. Team Spirit	6. Social Responsibility
	Principle	7. Personal Morality	8. Rules, Standard Operating Procedures	9. Laws, Professional Codes

Table 1. Theoretical Ethical Climate Types

While the theory suggests that each of the above nine distinct climate types could be found in organization settings, empirical research has found that fewer than nine varieties are likely to exist (see our discussion on “measures” below). Even though researchers have been unable to replicate empirically all nine climate types, Victor and Cullen (1988)’s work has received extensive support throughout the literature. Our work utilizes their concepts to link three climate types and project status reporting. These three types are: Self-interest (cell 1), Rules and Codes (comprising of cells 8 and 9) and Team Spirit (cell 5). These three types have been selected because (1) they represent three climate types that have been empirically validated by prior research (Vaicys et al. 1993), (2) they tap into the three level of the ethical criterion, and (3) prior research has shown that they are likely to influence reporting behaviors.

Prior research has provided some preliminary evidence that guided our propositions about the influence of the above three climate types on project reporting. Our conjectures for each climate type are summarized below:

- *Self Interest (egoism)*: In organizations in which employees are expected to act in *individually* self-serving ways (that is, to look out only for themselves), the employees will likely increase distortion behaviors so as to protect self-interests. Employees in such organizations will likely distort information so as to positively manage impressions of their own performance. To the extent that misreporting is considered an unethical behavior, these observations are consistent with theoretical arguments and empirical results indicating that unethical behavior (including deception) is most closely associated with self interest ethical environments (Fritzsche, 2000; Wimbush and Shephard, 1994).
- *Rules & Code (Principle)*: It is most likely that, to the extent an external law/code provides guidance to individuals in the domain of reporting, it will tend towards (rather than away from) a demand that they provide non-distorted information to superiors. Similarly, those who perceive their organization to be one where rules and standard operating procedures are closely followed will likely avoid misreporting, as this would go against the rules. Thus, to the extent that employees rely on internal rules and external laws/codes, this would tend to reduce (rather than encourage) their distortion behavior. In support of this perspective, Fritzsche (2000) observed that individuals operating in a rules and code environment were unlikely to engage in deliberate deception. Also, Wimbush and Shephard (1997) observed a negative correlation between a rules and code environment and lying behaviors.
- *Team Spirit (Benevolence)*: Team spirit climates are “supportive,” in that they “encourage worker participation, free and open exchange of information, and constructive conflict resolution” (Costigan and Schmeidler, 1984, p. 112). Indeed, it is this “free and open exchange of information,” without fear of retribution, that is inconsistent with distortion behavior. Employees in team spirit climates will generally engage in altruistic exchange of information and will feel no urge to distort information, either for purposes of self-aggrandizement or to further other organizational goals. Fritzsche (2000) observed that individuals operating in a team spirit environment were unlikely to engage in deliberate deception, providing some empirical support for this proposition.

In summary, then, we hypothesize that:

H1: Individuals' perceptions that they work in high self interest organizations will be positively associated with higher levels of misreporting behavior.

H2: Individuals' perceptions that they work in high rules and code organizations will be negatively associated with higher levels of misreporting behavior.

H3: Individuals' perceptions that they work in high team spirit organizations will be negatively associated with higher levels of misreporting behavior.

While our conceptual work focuses on only three climate types, our empirical work includes measures for all climate types. We did this in order to pursue an exploratory investigation that examines the potential association between all climate types and reporting behaviors even though prior research does not provide specific conjectures for such linkages (other than for the three that were discussed above).

RESEARCH METHODS

To assess the above hypotheses within the context of the "team member – project manager" dyad, we conducted a survey study. Project team members were asked to provide information about their reporting to their project manager. In other words, the respondents offered their perceptions in their role as report *senders*. The measures of separate dimensions of organizational ethical climate were correlated with assessments of misreporting behaviors to test the hypotheses.

Measures

We utilized previously developed and validated measures as much as possible to assess the constructs of interest. To assess the dimensions of organizational ethical climate, we used the 36-item ethical climate questionnaire (ECQ) developed by Cullen et al. (1993). Two of the six items measuring misreporting behaviors (MR1 and MR3) were adapted from Roberts and O'Reilly, 1974; two more (MR4 and MR6) were adapted from Fulk and Mani, 1986; and the final two (MR2 and MR5) were developed by the authors for this study. See the Appendix for a description of the misreporting measures and scale.

The survey instrument was pilot tested by ten individuals from the study population. Based on their feedback, the wording of some of the questions was modified to reflect their professional environment. For example, the term "company" was replaced with "organization" to account for the fact that the population included many employees of governmental agencies.

With respect to the ECQ, to the best of our knowledge, no researchers have been able to measure all nine dimensions (as shown in Table 1) empirically. Neither the 26-item ECQ developed by Victor and Cullen (1988) or the expanded 36-item version (Cullen, Victor and Bronson, 1993, Table 2, pages 669 and 670) that we used in this study has yielded unambiguous measures for all the dimensions. Instead, while some measures of specific dimensions of ethical climate (as defined by Victor and Cullen, 1988 and Cullen et al., 1993) have consistently loaded on the same factor, others have not. Nevertheless, the ECQ has remained the dominant measure of organizational ethical climate within this research stream (Fritzsche, 2000).

To illustrate, consider the Efficiency dimension. The same three items (numbers 2, 19 and 25 from the ECQ - Cullen et al., 1993) have loaded on a single factor in some studies (Cullen et al., 1993; Fritzsche, 2000; Vaicys et al., 1996; Victor and Cullen, 1987), while in other studies these items have been spread across a variety of factors or did not load very highly on any factor (Victor and Cullen, 1988). As another example, most researchers have found that some subset of the items that were intended to measure the dimensions of friendship and team spirit (numbers 12, 16, 21, 32, and 35) have loaded on a single factor, instead of two separate factors (Cullen et al., 1993; Fritzsche, 2000; Ruppel and Harrington, 2001; Vaicys et al., 1996; Victor and Cullen, 1987, 1988; Wimbush et al., 1997). As a third example, some researchers have found a separate dimension for social responsibility (Cullen et al., 1993; Vaicys et al., 1996), while others have not (Wimbush, Shepard and Markham, 1997).

Part of the instability of the measures may be attributed to the use of exploratory factor analysis with an insufficiently large sample size in some studies; part may be attributed to inherent weaknesses in some items. Nevertheless, there appears to be sufficient stability in the measures to suggest that at least a subset of them can be used (albeit with some caution) to adequately measure from five to seven dimensions of organizational ethical climate. Consistent with previous studies, we performed exploratory factor analysis and identified seven distinct dimensions; self interest, company interest, efficiency, team spirit, social responsibility, personal morality, and rules and code (see "results" section below).

Sample

The sample consisted of individuals who were team members in state governmental projects in an Eastern U.S. state. These individuals included users, IS professionals and vendor representatives. We used stratified sampling to select a diverse subset of projects (based on several dimensions, including project duration, budget, and vendor involvement) from a listing of on-going state projects. Surveys were sent to all non-executive participants in each selected project. The cover letter that accompanied the survey was signed by the researchers, the state auditor and an executive from the respondent's organization. 500 surveys were mailed, and 21 were returned as undeliverable. Two reminders were emailed to each subject. 264 participants responded, yielding a gross response rate of 55.1%. Of these, thirty-six cases were removed from the sample because of missing data. We embraced an intentionally conservative algorithm in deciding which cases should be removed. A case was removed if the respondent did not complete two or more of the items for any construct. This left 228 usable responses, for a net response rate of 47.6%. We believe that the endorsement of the survey by state government executives contributed positively to the response rate. The respondents were instructed to answer the questions in the questionnaire within the context of a specific IS project (the project on which the participant was spending most of his/her time).

To assess the presence of non-response bias, we compared late responses (last 20% received) to early responses (first 20% received) in each study. One item (out of the 33 that were included in our analysis) was found to be different across the sample segments (at the .05 level of significance), which is less than what one would expect from chance alone. Thus, we concluded that the threat of non-response bias was not high.

RESULTS

We utilized a combination of exploratory factor analysis and the Partial Least Squares (PLS) technique to analyze the data. Since previous studies that have used the ECQ (Cullen et al., 1993) have demonstrated some inconsistencies with respect to the factor structures obtained, we employed exploratory factor analysis to assess the stability of the factor structure. This resulted in seven factors that were interpretable and that matched quite closely the results obtained by Vaicys et al. (1993).

As a more stringent test of the measures and to test our hypotheses, we also employed the PLS technique (specifically, PLS-Graph version 3.0 - Chin and Frye, 2001). Unlike traditional statistical methods, PLS enables the simultaneous assessment of the measurement and the structural models. PLS is considered especially useful in the early stages of theory testing, and emphasizes model prediction rather than model fit (Chin and Newsted, 1999). In addition, PLS is less restrictive than covariance-based structural equation modeling (CB-SEM) techniques such as LISREL, AMOS or EQS in terms of sample size and distributional requirements (Chin and Newsted, 1999). For example, CB-SEM techniques generally require large sample sizes. Given that 1) our study represents an initial attempt to explore the linkage between ethical climate and reporting quality, 2) the sample size for our study was below 250, and 3) our primary emphasis was on model prediction rather than model fit, the use of PLS was deemed appropriate.

Measurement Model Assessment

Table 2 shows the item loadings for the constructs (misreporting and the seven dimensions of organizational ethical climate) and measures that we employed. The column labeled ECQ shows the item number corresponding to the items taken from Cullen et al.'s (1993) 36-item ECQ questionnaire. For a description of the specific ethical climate items, please see Cullen et al. (1993, Table 2, pages 669 and 670). For a description of the misreporting items, please see the Appendix.

Following the prescriptions of Chin (1998) and Fornell and Larcker (1981), we conducted several tests of convergent and discriminant validity. Within the rubric of convergent validity, we assessed (1) individual item reliability and (2) construct reliability. All constructs were modeled as reflective, rather than formative, since the measurement items were viewed as being influenced by (or caused by) the underlying latent variable (Chin and Newsted, 1999).

For item reliability, we examined the item-to-construct loadings for all variables. In order for the shared variance between each item and its construct to exceed the error variance, standardized loadings of 0.707 or greater are needed; however, loadings of 0.6–0.7 are considered acceptable if the loadings of other items within the same construct are high (Chin, 1998). One item (MR1) displayed a very low loading, and was removed. When the model was run without MR1, all but four of the remaining items exhibited loadings over .7 (see Table 2). Given that the remaining items for these constructs had loadings over .70, this did not raise too much of a concern.

Construct	Item	ECQ	MR	TS	RC	SR	EF	SI	PM	CI
Misreporting (MR)	MR2	N/A	.61	-.16	-.07	-.03	.00	.21	-.18	.10
	MR3	N/A	.83	-.14	-.15	-.17	-.13	.28	-.07	.11
	MR4	N/A	.82	-.12	-.21	-.15	-.20	.19	-.06	.00
	MR5	N/A	.90	-.11	-.23	-.16	-.19	.22	-.07	.03
	MR6	N/A	.71	-.03	-.11	-.05	-.16	.19	-.01	.09
Team Spirit (TS)	TS1	12	-.06	.74	.25	.42	.48	-.48	.31	-.14
	TS2	16	-.15	.78	.34	.46	.33	-.48	.30	-.11
	TS3	21	-.13	.83	.31	.49	.55	-.52	.30	-.09
	TS4	31	-.09	.83	.19	.48	.46	-.52	.25	-.24
	TS5	32	-.07	.78	.21	.42	.40	-.41	.42	-.17
	TS6	35	-.11	.81	.24	.50	.45	-.54	.27	-.24
Rules & Code (RC)	RC1	13	-.15	.26	.78	.33	.29	-.21	.04	-.05
	RC2	14	-.19	.30	.89	.38	.31	-.28	.06	-.18
	RC3	15	-.11	.16	.69	.34	.32	-.16	-.03	-.01
	RC4	20	-.22	.27	.85	.41	.33	-.29	.07	-.10
	RC5	24	-.09	.40	.75	.56	.39	-.41	.15	-.17
Social Responsibility (SR)	SR1	26	-.11	.45	.46	.80	.57	-.39	.28	-.15
	SR2	28	-.12	.60	.38	.87	.42	-.53	.31	-.24
	SR3	30	-.15	.52	.42	.91	.40	-.49	.26	-.19
	SR4	34	-.15	.47	.43	.88	.46	-.46	.12	-.12
Efficiency (EF)	EF1	2	-.14	.33	.29	.33	.78	-.33	.13	-.08
	EF2	19	-.15	.41	.31	.28	.77	-.26	.21	.04
	EF3	25	-.11	.40	.32	.49	.82	-.38	.13	-.06
	EF4	36	-.17	.61	.36	.59	.85	-.54	.22	-.20
Self Interest (SI)	SI1	1	.27	-.58	-.32	-.46	-.43	.90	-.21	.31
	SI2	10	.21	-.59	-.29	-.49	-.46	.90	-.15	.38
	SI3	33	.23	-.45	-.25	-.47	-.35	.82	-.12	.22
Personal Morality (PM)	PM1	3	-.10	.35	.08	.28	.23	-.19	.93	-.08
	PM2	11	-.05	.29	.03	.16	.12	-.11	.70	.05
	PM3	22	-.01	.19	.06	.04	.02	-.01	.56	-.04
Company Interest (CI)	CI1	4	.06	-.09	-.09	-.07	.03	.22	.03	.77
	CI2	8	.08	-.28	-.18	-.29	-.23	.38	-.10	.84
	CI3	17	.03	.07	.10	.05	.13	.07	.02	.54

Table 2: Loadings and Cross-Loadings of Indicators

To assess construct reliability, we considered two internal consistency indicators: composite reliability and average variance extracted (AVE) scores. All composite reliability indicators for the multi-item measures in our surveys are higher than .75, and range from .77 (for company interest) to .92 (for social responsibility); internal consistency scores of .8 or higher provide exemplary evidence of reliability (Bearden, Netemeyer, and Mobley, 1993). Fornell and Larcker (1981) suggest that an AVE value of 0.5 is required to provide evidence of satisfactory construct reliability, and all of our scores meet this standard (ranging from .53 for company interest, to .77 for self interest). Thus, we conclude that the reliability of our construct measures is adequate.

We conducted two tests to assess the discriminant validity of the measures. First, we calculated each item’s loading on its own construct and its cross-loadings on all other constructs. As Table 2 shows, each item’s loading on its intended construct is higher than its cross-loading on other constructs. As a second part of this same test, we also compared the lowest loading of the intended items for each construct to the cross-loadings of other items on that construct. No violations were observed. In the second test of discriminant validity, we compared the square root of the AVE score for each construct to its correlations with the other latent constructs to ensure that the square root of AVE exceeded the referenced correlations (Chin, 1998). As Table 3 indicates (the square root of the AVEs are shaded), all of the measures passed this test.

Construct	MR	TS	RC	SR	EF	SI	PM	CI
Misreporting (MR)	.78							
Team Spirit (TS)	-.14	.79						
Rules & Code (RC)	-.20	.34	.79					
Social Responsibility (SR)	-.15	.59	.49	.87				
Efficiency (EF)	-.18	.55	.40	.53	.81			
Self Interest (SI)	.28	-.62	-.33	-.54	-.48	.88		
Personal Morality (PM)	-.10	.38	.07	.27	.22	-.18	.75	
Company Interest (CI)	.08	-.20	-.13	-.20	-.10	.34	-.04	.73

Table 3: Correlations Among Constructs and Square-Root of AVE (Shaded)

Structural Model Assessment

Figure 1 shows the effects for each hypothesized path. In terms of explanatory power, 10% of the variance in misreporting was explained by the dimensions of organizational ethical climate. The relatively small variance explained value suggests, not surprisingly, that other factors besides the ethical climate influence misreporting behaviors (Smith and Keil, 2003).

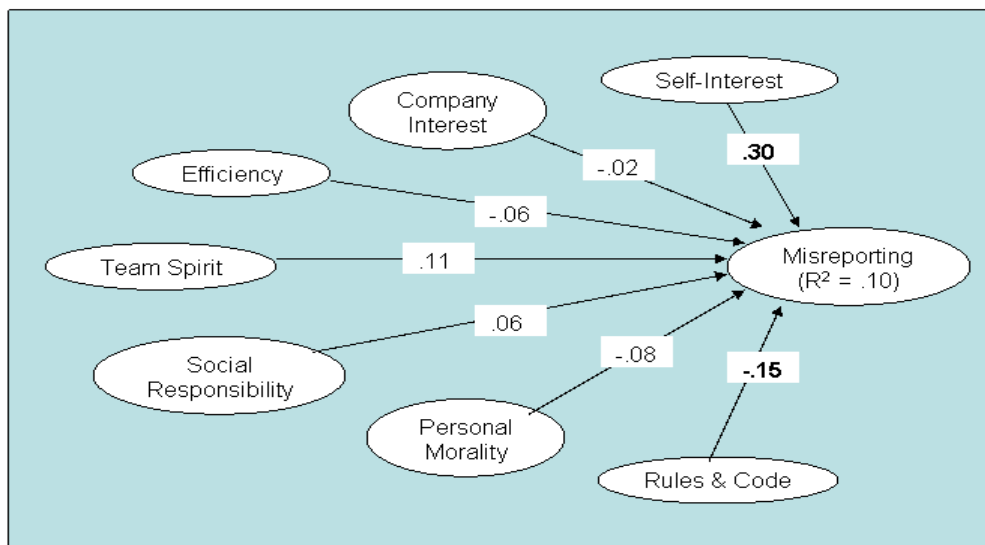


Figure 1: Structural Model Results

The statistically significant path coefficients were $-.15$ for rules and code, and $.30$ for self interest. These results indicate that project members who perceived themselves to be in an organization where rules are followed strictly tended to misreport less (supporting H2), while those operating in an environment dominated by personal self-interest tended to misreport more (supporting H1). Somewhat surprisingly, the existence of a team-spirited environment did not appear to have a statistically significant impact on misreporting behaviors (providing no support for H3).

Limitations

We wish to note a few limitations that may impact the quality of our results. First, with respect to measurement, we collected self-reported perceptions. Although such perceptions are subjective, they nevertheless shed significant light on the phenomenon under investigation. Second, with respect to the sampling, we embraced a cross-sectional (rather than longitudinal) approach. While our study focused on different project lifecycle stages (ranging from analysis to implementation), the lack of longitudinal data did not allow us to assess the dynamic nature of the bidirectional influence between organizational ethical climate and reporting behaviors. In addition, the sample was selected from state governmental projects. This could limit the generalizability of the findings; for example, it is possible that the perceptions of ethical climate would be more diverse when examined in for-profit as well as not-for-profit environments.

Third, the amount of variance explained in misreporting behavior was somewhat modest. Although the magnitude and statistical significance of the path coefficients indicate an influence of two dimensions of ethical climate, it is obvious that other factors also play an important role (Smith and Keil, 2003). As suggested earlier, future work could incorporate ethical climate with other factors previously shown (or hypothesized) to impact project performance, such as the career aspirations and risk propensity of the individual project team member.

Implications for Research and Practice

Our work demonstrated empirically that at least two dimensions of organizational ethical climate are associated with misreporting behaviors. Consequently, it is important to conduct additional research to more fully understand the forces that contribute to misreporting within that process.

In particular, it has been suggested by Smith and Keil (2003) that a large number of perceptions of a project situation might impact whether and how an observer will report status information. Many factors – some individual, and some project-related – can impact the decision-making process with respect to status reporting. At the individual level, factors such as educational level and tolerance for ambiguity (Miceli and Near, 1992) can be important. At the project level, an observer's perceptions of the level of risk in the project situation (Sitkin and Pablo, 1992) and the level of time pressure associated with the project (Billings, Milburn and Schaalman, 1980) could well combine to influence whether an individual concludes that the accurate project status needs to be reported.

It is not our intention to specify a large theoretical model at this juncture; the above were offered as examples of factors that might influence the quality of reporting, and we defer to other authors who have offered much fuller coverage (Smith and Keil, 2003). We do suggest, however, that a useful stream of research could emerge through careful examination of the way in which these many factors do (and do not) impact the reporting behaviors on IS projects.

For project managers, our results suggest that perceptions of organizational ethical climate can influence the quality of reporting that they receive from project members. As a result, it would be advisable for project managers to attempt to assess ethical climate prior to, and during, an IS project. If the project members perceive the climate to be strong on self-interest, our results suggest that project managers should anticipate a greater amount of misreporting to occur. A short-term response could be to attempt to mitigate the possibility of misreporting, perhaps by soliciting status information from multiple sources. In the longer term, changes in the climate itself may be possible, although we acknowledge that project managers themselves may often be unable to effect such an organizational shift.

CONCLUSION

Our work offers evidence to support the linkage between two dimensions of organizational ethical climate and misreporting behaviors. It is our hope that our investigation has shed additional light on our understanding regarding the role of reporting in IS project management. Given the damaging effects of misreporting, we contend that there is a need to more fully understand both the factors and the management practices that impact reporting quality. We hope that our research will provide a starting point for both researchers and managers who wish to consider this phenomenon further.

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APPENDIX: MEASURES FOR MISREPORTING

Consistent with the approach advocated by Fulk and Mani (1986), the following statement was placed above the measures of misreporting on the questionnaire: "In IS projects, it is at times necessary not to pass to others some of the information that comes to us. Also, we often find it essential to change the nature of information that we pass to others. Please consider such situations when answering the following questions and keep in mind that your answers will be treated in strict anonymity."

Item	Item Wording
MR1	Of the total amount of information you receive about this project, how much do you pass on to the project manager? (reverse scored) (None 1 2 3 4 5 6 7 All)
MR2	How frequently do you find it necessary to alter the contents of your progress reports (either verbal or written) to fit the project manager's expectations? (Virtually never 1 2 3 4 5 6 7 Very frequently)
MR3	Please indicate your level of agreement with the following statement: "There are significant forces in this project that cause me to modify information in some of my communications to the project manager". (Strongly disagree 1 2 3 4 5 6 7 Strongly agree)
MR4	About how often during a typical work week do you withhold information from the project manager that might be useful to him/her? (Virtually never 1 2 3 4 5 6 7 Very frequently)
MR5	How frequently do you find it necessary to omit particular project status facts from the information you pass on to the project manager? (Virtually never 1 2 3 4 5 6 7 Very frequently)
MR6	Of the total amount of project information you receive, how much of it must be actively changed in some way before you pass it on to the project manager? (Virtually none 1 2 3 4 5 6 7 A great deal)