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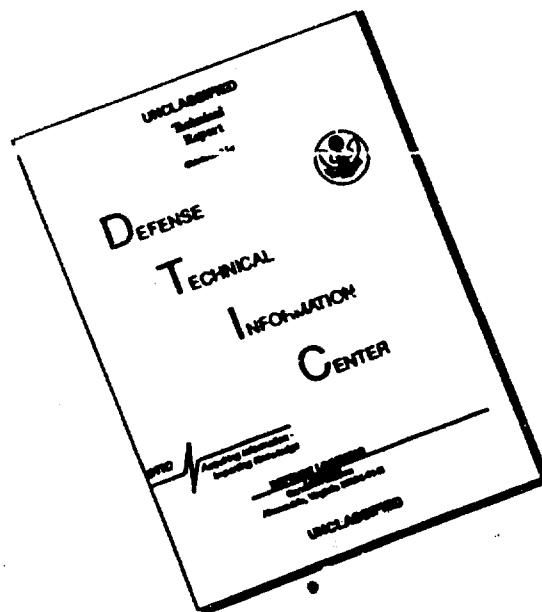
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Impression Management, Candor, and Microcomputer-Based Organizational Surveys: An Individual Differences Approach

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Abstract — *The present paper suggests an individual differences approach to the issue of whether responses on computerized surveys are more candid than those on paper-and-pencil scales. It was hypothesized that skilled and motivated impression managers — individuals high in self-monitoring (Snyder, 1974), would inflate their scores on an index of job satisfaction under paper-and-pencil assessment but would exhibit lower levels of job satisfaction under computer*

assessment. Low self-monitors were thought to be relatively unaffected by mode of assessment. In the present study, currently employed management students were administered either a paper-and-pencil or computer version of the Job Satisfaction Index and the Self-Monitoring Scale. Interactions of self-monitoring and mode of assessment on subscales of pay, promotion, and coworker, as well as a combined measure of job satisfaction, indicated that high self-monitors were found to have lower levels of job satisfaction on the computer than on paper-and-pencil. Mode of assessment also influenced the job satisfaction of low self-monitors. Their job satisfaction scores were higher under computer assessment than on paper-and-pencil.

Increasing the accuracy of responses on surveys and questionnaires is a challenge faced throughout organizational settings (Sackett & Harris, 1985). As Schuldberg (1988) notes, a number of studies have shown that computerized assessment increases candor or frankness of responses on psychological tests and surveys (e.g., Carr & Ghosh, 1983; Evan & Miller, 1969). However, other studies have failed to find increasingly candid responses using the computer (e.g., Skinner & Allen, 1983). The present paper considers the issue of increased candor and accuracy of computerized responses, and suggests an individual differences approach to specifying which type of people might be more likely to respond frankly on the computer. The results of an initial test using Snyder's (1974) self-monitoring scale are reported.

The Candor Issue

Lack of candor is a problem affecting the interpretation of psychological tests, surveys, and questionnaires. Especially when the information required is sensitive, embarrassing, or threatening, individuals often exhibit a tendency to "fake good" (Schuman & Kalton, 1985). This tendency may significantly bias survey data (Nederhof, 1985).

An examination of the psychological and organizational behavior literature in the field of impression management (cf., Giacalone & Rosenfeld, 1989), reveals a number of examples where lack of candor is manifested: inflated scores on several dimensions of a personality test when the results were intended for a job application (Gordon & Stapleton, 1956), exaggerated salaries and length of service at previous jobs for job applicants (Broussard & Braunea, 1986), and inflated self-evaluations and salary aspirations when individuals were publicly associated with a survey and the results were to be shown to a supervisor (Giacalone & Rosenfeld, 1986).

One course of action is to attempt to reduce the tendency for response distortions (Schuman & Kalton, 1985). Among the techniques that have been offered are physiological measures of attitude such as pupil dilation (Hess, 1965), galvanic skin response, and facial muscle contractions (Petty & Cacioppo, 1981); psychological manipulations such as the bogus pipeline — a machine purported to have lie detecting capabilities (Jones & Sigall, 1971); and tighter methodological procedures such as the randomized response technique, the use of anonymous and self-administered questionnaires, and the inclusion of forced-choice items of equal social desirability (see Nederhof, 1985, for a review).

While these measurement devices were specifically developed to reduce response distortions, a number of studies have shown that computerized assessment also reduces response distortions and increases frankness or candor on

psychological tests, surveys, questionnaires, and structured interviews (e.g., Carr & Ghosh, 1983; Duffy & Waterston, 1984; Evan & Miller, 1969; Kiesler & Sproull, 1986; Lucas, Mullin, Luna, & McInroy, 1977). However, other investigators have failed to obtain increased truthfulness on the computer (Kosin, Kitchen, Kochen, & Stodolosky, 1970; Lukin, Dowd, Plake, & Kraft, 1985; Schuldberg, 1988; Skinner & Allen, 1983). These contradictory findings are presently reviewed.

COMPUTERIZED ASSESSMENT AND CANDOR: SUPPORTIVE EVIDENCE

A number of researchers have reported greater candor on computerized assessment, especially when the items require sensitive or potentially embarrassing responses. Evan and Miller (1969) had undergraduates complete a questionnaire containing both sensitive, anxiety provoking items from the MMPI Lie and Manifest Anxiety Scales, and neutral, factual items. The authors hypothesized that the computer would engender feelings of anonymity and candor that would lead to more forthright responding when the questions were of a personal or sensitive nature. When the items were factual and nonthreatening, the differences between computer and paper-and-pencil would be reduced. As predicted, the group completing the questionnaire on a computer terminal had higher MMPI Manifest Anxiety Scores and lower MMPI lie-scale scores. There were no differences between computer and paper-and-pencil groups for factual items. Carr and Ghosh (1983) obtained higher admissions of fear on a computerized Fear Questionnaire than when the same items were presented on a paper-and-pencil inventory or asked in a face-to-face interview.

If, as these studies suggest, sensitivity of material is important in determining when computerized assessment will increase candor, then it would be expected that surveys relating to abuse of drugs and alcohol would show significant computer vs. paper-and-pencil differences. This view is supported by a study in which male patients were surveyed about their alcohol-related problems. As compared to a direct interview, a 30% greater admission of alcohol consumption on a computerized questionnaire was obtained (Lucas, Mullin, Luna, & McInroy, 1977). Similarly, a study conducted in Edinburgh, Scotland, found that a computerized survey led to a 33% higher admission of alcohol consumption than a face-to-face interview (Duffy & Waterston, 1984).

Kiesler and Sproull (1986) extended these results obtained in clinical settings to social science surveys and questionnaires. Users of a computer-mail system completed a health and personal characteristics questionnaire which contained five items from the Need for Approval Scale (Crowne & Marlowe, 1960) as a test of social desirability. While there were no response differences between the computer survey and paper and pencil for attitudes toward health, computerized assessment did lead to a significantly lower proportion of socially desirable responses on the five items from the Need for Approval Scale. Sproull (1986) reported that individuals responding by computer were more likely to choose extreme responses, suggesting a tendency to be more forthright. In an organizational setting, salespeople at the Chevron Corporation were asked their views on the company's marketing strategy on either a paper-and-pencil or computerized survey. While the paper-and-pencil respondents "had only kind words for their bosses," when the same questions were asked on a computer, "not all the responses were so favorable to management" (Feinstein, 1986, p. 35).

What accounts for these obtained reductions in response distortions on computer surveys and questionnaires? An anonymous reviewer has suggested that differences between paper and pencil and computer responding may be due to the fact that individuals who respond on paper and pencil mode can typically look back at their answers and allow for "purposeful" consistency. This option is typically not available on computer surveys. Alternatively, Kiesler and Sproull (1986) suggest that the computer induces greater honesty by creating a social situation where the person is less concerned about how they appear to others; the setting appears to be impersonal and anonymous. Support for this contention comes from Kiesler, Siegal, and McGuire (1984) who report that people in a computer-mediated communication group were more uninhibited in their verbal behavior than in face-to-face groups. In essence, computers are perceived as less judgmental. Finally, the possibility exists that individuals responding on computers perceive that they are being monitored and like those assessed on the bogus pipeline are hesitant to overly inflate their responses.

COMPUTERIZED ASSESSMENT AND CANDOR: CONFLICTING EVIDENCE

Other studies have demonstrated that the computer obtains equivalent (but not more candid) responses to paper-and-pencil instruments. Comparable results have been reported on computerized and paper-and-pencil versions of the WAIS (Elwood & Griffin, 1972), Slossan Intelligence Test (Hedl, O'Neil, & Hansen, 1973), and the MMPI (Schuldberg, 1988; White, Clements & Fowler, 1985). In addition, similar results have been found on microcomputer, paper-and-pencil, and interview formats for substance abuse surveys (Duffy & Waterson, 1984; Erdman, Klein, & Griest, 1983; Skinner & Allen, 1983).

These findings contradict those discussed in the previous section and suggest that an individual differences moderator may be a possible explanation.

Individual Differences

An individual differences, impression management approach may serve to clarify the effects of computer assessment. Computer assessment may lead to more candid responses in some people — those who chronically respond in socially desirable ways in a number of situations (Snyder, 1974; Snyder & Copeland, 1989). Individuals who tend to be more forthright across situations would show less of an effect on computer assessment because their responses are basically a reflection of their true inner feelings in both instances.

Rosenfeld, Doherty, Carroll, Kantor, and Thomas (1986) performed a posthoc test of this hypothesis on a data set which measured job satisfaction on a modified version of the Job Satisfaction Index (JDI; Smith, Kendall, & Hulin, 1969). The JDI seems an appropriate vehicle to assess candid responding in that the "threat" that management may view an employee's responses as unfavorable may motivate inflation of job satisfaction ratings (Futrell, Stem, & Fortune, 1978). The study used two prototypes of CENSUS (Computerized Executive Networking Survey System), a microcomputer-based survey system, in which individuals completed a survey containing a modified version of the JDI. It was found that nearly identical job satisfaction scores were obtained on the paper-and-pencil and two CENSUS

groups. However, a posthoc analysis using a possible index of concern for positive self-presentation as a blocking factor (i.e., individuals who thought it important to do as others thought they should do), found individuals high on this measure inflated their paper and pencil job satisfaction scores; a tendency reduced by computerized assessment. For individuals low on this item, computer and paper-and-pencil job satisfaction scores did not differ.

Rosenfeld et al. (1986) results suggest that an individual differences approach may allow a determination of the effects of the computer on candid responding. However, the posthoc nature of the analysis suggests that a more systematic test of the individual differences view is in order.

The Present Study

The present study broadened the scope of the Rosenfeld et al. (1986) findings using Snyder's Self-Monitoring Scale as a measure of self-presentation (i.e., impression management) motives.

The self-monitoring scale (Snyder, 1974; Snyder & Copeland, 1989) has become the most popular individual differences measure associated with impression management and self-presentation. The self-monitoring scale purports to measure the extent to which individuals are skilled at and regulate their use of self-presentation — behaviors typically aimed at making positive impressions in the eyes of others (Giacalone & Rosenfeld, 1989; Tedeschi, Lindskold, & Rosenfeld, 1985, Chapter 3). The high self-monitor is seen as being concerned with proper impression management and as being adept at tailoring actions to fit social situations. The low self-monitor is thought to be less concerned with exhibiting socially desirable behavior and is lacking in self-presentational skills (Gangested & Snyder, 1985). Rather, the behavior of the low self-monitor is a direct expression of their internal feelings and not specifically adapted to the situation (Tedeschi, Lindskold, & Rosenfeld, 1985).

It was hypothesized that high self-monitors would be more sensitive to the differential social context presented by the computer (Kiesler & Sproull, 1986). That is, they would be less concerned about inflating their responses to look good on the computer, but more concerned about so doing on a paper-and-pencil survey.

In the present study, management students who were currently employed completed Snyder's Self-Monitoring Scale and then were administered either a computerized or a paper-and-pencil survey which contained the JDI. It was predicted that the JDI scores of high self-monitors would be greater on paper-and-pencil but reduced under computer assessment. Low self-monitors, in turn, were predicted to be less sensitive to the different pressures or cues for self-presentation engendered by computer and paper-and-pencil and thus would respond similarly under both modes of assessment. Combining these two notions in a mode of assessment (computer, paper-and-pencil) by self-monitoring (low, high) factorial design, an interaction of the two independent variables was predicted for responses to the JDI.

METHOD

Subjects

Seventy-two undergraduate business students at a large southern university participated in the study. Their participation was voluntary, with current employment

being the only criterion. The participants were given an overview of the study, run through the procedures and debriefed by graduate students of the second and third authors. Although the participants were identified in both the computer and paper and pencil conditions, the data were sent in aggregated form to NPRDC for analysis without individual identities known to any of the authors.

Procedures

All participants were first administered a paper-and-pencil questionnaire which contained the Self-Monitoring Scale, a 25 item, true-false inventory with test-retest reliability ($r = 0.83$) and criterion validity ($r = .45$). Convergent and discriminant validities have been established in a number of studies (Snyder, 1974, 1979). They then were randomly assigned to either the computer or paper-and-pencil groups. Participants were administered the Job Descriptive Index (JDI) whose scales served as the major dependent variables in the study. The JDI, developed by Smith, Kendall, and Hulin (1969), is the most widely used measure of job satisfaction. The JDI has test-retest reliabilities in the range of 0.68-0.88 and internal consistency reliabilities from 0.75-0.93 and has had the validity of its five subscales established in a number of studies (Johnson, Smith, & Tucker, 1982; Smith, Kendall, & Hulin, 1969). The JDI assesses satisfaction in five job-related areas: work, pay, promotion, supervision, and coworkers. Each subscale is composed of a series of statements (e.g., "My work is boring," "I am well paid") relating to the specific area. Respondents indicates "Y" if the statement applies to them, "N" if it doesn't, and "?" if they can't decide.

The administration of the JDI was either paper-and-pencil or by computer. The paper-and-pencil group received the questionnaire in standard format. In both the paper-and-pencil and computer conditions, the JDI was followed by several items which assessed past experience with computers and enjoyment of the survey. These items were presented on standard five-point Likert-type scales anchored from: $1 =$ strongly disagree to $5 =$ strongly agree. Individuals in the computer condition were administered the questionnaire on an IBM/PC through the use of MASQ (Microcomputer-based Assessment, Surveys, and Questionnaires) an automated diskette-based system developed by researchers at the Navy Personnel Research and Development Center (NPRDC) in San Diego, Califormaia, working on the CENSUS project. CENSUS originally was developed as a way to survey quickly, accurately, and economically the attitudes of the Navy civilian workforce.

MASQ is an MS-DOS-based automated survey system written by NPRDC programmers. MASQ allows a microcomputer-based survey or questionnaire to be developed, run, stored, and analyzed on any IBM or IBM-compatible microcomputer. The questionnaire items are presented individually on a screen and the respondent answers by pressing a key corresponding to the desired choice. Individual responses are stored in an answer file on the MASQ diskette. A free-format screen definition allows for multiple response alternatives for each survey item. Additionally, the system can capture textual material keyed in by the user. The CENSUS project, its component, and its applications to organizational settings are described in greater detail elsewhere (Rosenfeld, Doherty, & Carroll, 1987; Rosenfeld, Doherty, Vicino, Kantor, & Greaves, 1989).

RESULTS

Equivalence of groups. A preliminary analysis showed that there were no systematic differences in scores on the self-monitoring scale between the computer ($M =$

13.46) and paper-and-pencil (M = 12.78) groups (F < 1). Furthermore, both computer (M = 2.71) and paper-and-pencil (M = 2.70) groups reported moderate but equivalent previous experience with computers.

Job satisfaction. F-tests of computer vs. paper-and-pencil administration of the five subscales of the JDI failed to produce any main effects of mode of administration (p = > 20 for all). Thus, the equivalence of paper-and-pencil and computer administrations of the JDI was demonstrated.

Self-monitoring. A median-split is the conventional means of identifying high and low self-monitoring groups (Snyder, 1974). High and low self-monitoring was contrasted with survey mode in a 2 X 2 Analysis of Variance (ANOVA). Results of the ANOVAs for the five subscales of the JDI indicated no significant effects for the work and supervisor subscales. However, significant mode by self-monitoring interactions were obtained for the promotion, $F(1,68)$= 11.25, p <.001, and coworker, $F(1,68)$= 4.92, p <.030, subscales and marginally for the pay subscale, $F(1,68)$= 3.77, p = .056, eta^2 = .06. Because all subscales were significantly correlated (range of r = .28 to .64, p <.05), a global measure of job satisfaction was obtained by summing the values for the five subscales. The ANOVA for the global job satisfaction measure similarly resulted in a mode by self-monitoring interaction, $F(1,68)$ = 5.91, p <.02. The job satisfaction scores of high self-monitors were lower for computer assessment than paper-and-pencil. For low self-monitors the opposite pattern occurred; their job satisfaction scores were higher on the computer.

Enjoyment. In a replication of previous findings (e.g., Erdman et al., 1983; Rosenfeld et al., 1987) subjects reported enjoying the computer survey (M = 4.40) more than the paper-and-pencil (M = 3.92) version, $F(1,68)$ = 5.93, p <.02.

DISCUSSION

It was the purpose of the present paper to investigate the role of individual differences as related to candid responses on computer surveys. Specifically, it was hypothesized that individuals chronically high or low in self-monitoring would be differentially affected by computer versus paper-and-pencil assessment. As predicted, high self-monitors — individuals with the ability and motivation for skilled impression management — had higher job satisfaction scores on the paper-and-pencil administration of the JDI than on the computer version. For high self-monitors, the computer reduced reported job satisfaction as compared to scores obtained on paper-and-pencil. If it is accepted that it is less candid to indicate greater levels of job satisfaction, then these findings, in replicating the pattern of results obtained by Rosenfeld et al. (1986), suggest that it may be possible to specify subgroups who are likely to respond in a less candid fashion on the computer than in a comparable paper-and-pencil administration. Based on these preliminary results with university students, future testing of the individual differences hypothesis seems warranted. Although it has been found that there is less discrepancy between student and real world populations when the task is of nearly "universal experience" (Gordon, Slade, & Schmitt, 1986), nevertheless caution should be used in general-

izing these findings obtained with management students to situations where job satisfaction is measured among full-time employees in an operational setting. It needs to be determined if in a more "realistic" use of the JDI whether high self-monitor employees would similarly express less job satisfaction on a computer. Indeed, as a reviewer has suggested, it is more likely the case that for actual employees, expressing greater job satisfaction on the JDI is more clearly the socially appropriate response (since the boss might see them) than it is for management students participating in an academic environment.

In contrast to the findings for high self-monitors, the results for low self-monitors were unexpected. The pattern of job satisfaction scores for the low self-monitor is opposite to those of the high self-monitor. While it was predicted that the low self-monitor — someone characterized as consistent across situations — would exhibit similar levels of job satisfaction on both modes of administration, this did not occur. Instead, low self-monitors had higher job satisfaction scores on the computer than paper-and-pencil administration.

Although the unexpected nature of the findings for low self-monitors qualify any firm conclusions, several possibilities come to mind. First, although the self-monitoring scale has been a popular measure of self-presentation, it also has been the target of criticism for being multi-dimensional. Gabrenya and Arkin (1980) maintain that the self-monitoring scale is comprised of four factors: theatrical acting ability, sociability, other directedness, and speaking ability. It may be that low self-monitors in this study differed from high self-monitors on dimensions other than self-presentational skill which resulted in the obtained pattern of findings. Future studies should use other scales related to self-presentation to determine if the same patterning of means is obtained.

A less parsimonious explanation suggests that two motives are operating. High self-monitors, driven primarily by social cues, realize the importance of responding in a socially desirable fashion in a familiar public situation — a paper-and-pencil questionnaire. The reduced social context and heightened feelings of anonymity suggested by Kiesler and Sproull (1986) and others, reduce the need for faking good in the computer condition.

The low self-monitor tends to focus on cognitive, internal variables rather than external social cues, being more sensitive to internal states than high self-monitors (Paulhus, 1982). Perhaps, then, the differences obtained in the present study are the result of cognitive-information processing factors instead of social ones. Both Green (1984) and Jackson (1985) note that there are presentational differences between the computer and paper-and-pencil surveys. Items on the computer are typically presented one at a time while an entire paper-and-pencil test can be scanned by the respondent. This has the effect of focusing attention more on each item on the computer than on paper-and-pencil. For the low self-monitor — a person usually sensitive to internal states — this heightened focusing on each item may lead to a closer consideration of the larger issue and the resultant higher scores. Low self-monitors may think that the survey is more important if it is administered on a computer. They therefore are more diligent in answering the questions, resulting in more accurate responses, which in this instance turned out to be higher .

In conclusion, the results of the present study add to the growing body of knowledge in the computerized testing field. The JDI, a leading measure of job satisfaction, was found to produce nearly equivalent scores on both paper-and-pencil and computer administrations. Thus, the advantages that computerization of diagnostic psychological and organizational instruments provide (e.g., time savings, reduction of missing

responses, elimination of data entry, etc.) can be extended to the JDI without any apparent loss of accuracy in using the instrument. More significantly, the present results represent a first step in specifying the contexts under which computerized assessment does and does not lead to more candid responding.

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