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Modeling information technology impacts in clerical work environments

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ABSTRACT

The industrialization of white collar work via information technology (IT) is a key indicator of the emerging post-industrial economy (Hirschhorn, 1988). A conceptual model linking clerical work environments to effective IT impacts such as IT utilization, IT's perceived ease of use and performance impact was developed and empirically tested. Underlying the model is the premise that clerical job structure is a facilitator of IT impacts (Weber, 1988). The results indicate that clerical job structure factors such as typing, composing or editing, and bookkeeping were significantly related to IT impacts in clerical work settings. A job holder's IT competence and top management commitment to IT were also found to be significantly related to IT impacts in clerical work settings. Antecedent relationships among the IT impacts also contributed to understanding the IT impacts - for example, IT utilization affected perceived ease of use and perceived performance impact, and perceived ease of use affected perceived performance impact.

INTRODUCTION

"The central importance of data and information processing in the day-to-day activities of most people in the industrialized world" (Senn, 1995, p. 9) is now widely recognized. Hirschhorn (1988) suggests that using information technology to industrialize white-collar workers is a key indicator of the emerging post-industrial economy. Thompson, et al. (1994) argue that firms invest heavily in IT based on the belief that workers will use IT to become more productive.

The impacts of this industrialization of white-collar work needs to be well understood. Yet, the relationship between organizational life and IT is "so multifarious as to encompass the most disparate cause-effect relations in different contexts"; thus, research "must determine, as far as possible, what particular cause-effect relations prevail in specific contexts" and "must determine, as far as possible, what particular cause-effect relations prevail in specific contexts" and "locate such cases as closely as possible within larger ranges of cases in which similar cause-effect relations can be expected to prevail" (Attewell & Rule, 1984, p. 1190). The present study heeded this advice and focused exclusively on clerical work environments.

Weber (1988) found that clerical activities facilitated IT impacts. Clerical employment represents approximately 20% of total U. S. employment (Hunt & Hunt, 1987). Nonetheless, an in-depth understanding of the relationship between clerical work environments and IT impacts is still lacking. The need to understand IT impacts in clerical work settings is heightened by the fact that many managerial and blue-collar jobs have clerical tasks associated with them. The fundamental question addressed in this paper is: how can clerical work environments and IT impacts be modeled and measured more accurately so that organizations can better manage their clerical work environments with respect to IT?

The results of the present study suggest that clerical job structure factors such as typing, composing or editing, and bookkeeping contributed to understanding IT impacts in clerical work environments. A job holder's perceived IT competence level and top management commitment to IT also contributed to understanding the IT impacts. Additionally, antecedent relationships among the IT impacts themselves contributed to understanding the IT impacts--for example, IT utilization affected perceived ease of use and perceived performance impact; and perceived ease of use affected perceived performance impact. The results suggest that managerial action with respect to job structure, personnel selection, and organizational environment may facilitate more effective IT impacts in clerical job settings.

The paper proceeds as follows: first past research is examined to develop the theoretical premises for the model presented here; then, the conceptual model is developed; next, data collection and the survey instrument are described; then, the empirical analysis of the model is discussed; and finally, the key findings and contributions of this research are summarized.

THEORETICAL REVIEW

IT is becoming central to the everyday working life of white-collar workers (Senn, 1995). Thompson, et al. (1994) suggest that underlying this movement to IT is the belief that IT use will lead to productivity impacts. As IT becomes increasingly pervasive in white-collar job settings, a critical consideration is the need to develop a better understanding of the relationship between job structure and IT impacts.

Weber (1988) modeled future IT impacts as a function of present job structure. A broad spectrum of jobs were examined to test the model. The Position Analysis Questionnaire's (PAQ) 13 job dimensions were used to model job structure (Mecham, et al., 1977). Job experts were

used to assess the IT impact for a job due to the deployment of IT. Weber found that 6 of the PAQ's 13 job dimensions were significant predictors of future IT impacts. Four job dimensions were inhibitors of IT impacts: engaging in physical activities, being aware of work environment, performing service/related activities, and working in an unpleasant/hazardous demanding environment. Two job dimensions were facilitators of IT impacts: performing clerical/related activities and supervising/directing/estimating. Weber's results suggest that the more a job involves performing clerical activities, the greater the impact of IT. Weber suggested that an in-depth analysis of the significant job dimensions (e.g., clerical work) be undertaken to develop a better understanding about their relationship to IT impacts.

The concept of IT impact as a function of job structure is an extension of the more general concept of technology impact as a function of job structure (Trist, et al., 1963; Trist, 1981). Trice and Treacy (1988, p. 37) noted that "an information system impacts performance to the extent that the specific functionality provided corresponds to (i.e., 'fits') the underlying task that the system is designed to support."

Davis (1989) suggested that perceived ease of use (an efficiency measure) and perceived usefulness (an effectiveness measure) were fundamental determinants of user acceptance of IT. Davis, et al., (1989) developed and tested a technology acceptance model and contrasted it with a theory of reason action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1977; Fishbein, 1979; Ajzen & Fishbein, 1980) model formulation and found mixed support for both models. Venkatesh and Davis (1994), building upon Bandura's (1977; 1982) self-efficacy work, theorized that a user's general computer self-efficacy or competence and a user's direct hands-on experience with a system were important determinants of a user's perceptions of a system.

In addition to job structure and a user's IT self-efficacy considerations, top management commitment to IT has consistently been found to be a key determinant of successful IT outcomes (Sander & Courtney, 1985; Wiell, 1988; Weill & Olson, 1989). Top management commitment to IT might be viewed as a surrogate indicator of whether an organization's internal environment facilitates or inhibits IT impacts.

MODEL DEVELOPMENT

A basic tenet of the IT literature is that routine, highly structured tasks are the most programmable. Weber (1988) found a direct relationship between clerical work environments and IT impacts and suggested that this reflected "the fact that computers are especially capable of performing the routine, straight-forward data processing functions that characterize clerical work" (p. 75). Building upon this past research, the primary contribution of the current research is to propose and test a conceptual model of IT impacts with respect to clerical work environments. The model builds upon and extends Weber's (1988) research. Per Weber's suggestion, an in-depth analysis of a significant job dimension--performing clerical/related activities--is undertaken.

Conger (1987) was studying the flow of information to coordinate the activities of various units of a firm--tasks which are closely aligned with clerical work. Thus, Conger's ITs definition was utilized as a foundation for this research:

ITs are tools that support computing and communications (McKenney & McFarlan, 1983). The components of IT are technologies for data processing, word processing, and teleprocessing" (Conger, 1987, p. 134). A technology is considered an IT, if and only if the technology is embodied and accessible in one of the following computer types: desktop computer, minicomputer, or mainframe.

The modifications to Conger's IT definition were made to facilitate the comparability of the perceptual mapping of ITs across individuals. More specifically, the objective was to focus on IT implementations involving a monitor and keyboard configuration.

Figure 1. An IT Outcome Model for Work Environments

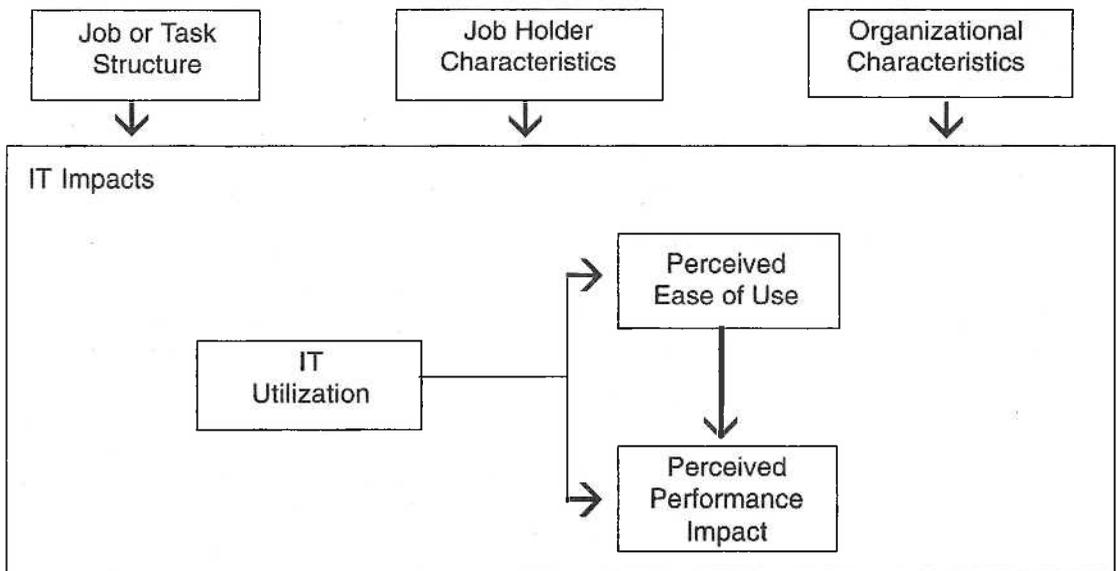


Figure 1 presents a generic IT impact model for work environments. The current model extends Weber's (1988) research by adding constructs related to a job's contextual setting--characteristics related to the job holder and the organization. The model also focuses on specific IT impacts as opposed to a more all encompassing measure of IT impact as used by Weber.

Similar to Weber's research model, the model assumes that job structure can be represented by a stable set of underlying dimensions and that certain job structure dimensions may facilitate or inhibit IT impacts. Additionally, the present model assumes certain contextual variables related to the job holder and organization may facilitate or inhibit IT impacts and that certain IT impacts may facilitate or inhibit other IT impacts.

The IT impacts include IT utilization, perceived ease of use, and perceived performance impact. The IT impacts provide an indication of the degree of current IT integration into a job based on the cumulative technological advances in IT. In other words, like Weber's model, IT is viewed as a gestalt as opposed to more specific forms of IT (e.g., spreadsheet technology, database technology, word processing technology, etc.).

The IT impacts are modeled as a function of job or task structure, job holder factors, organizational factors and antecedent relationships among the IT impacts. The antecedent relationships between the IT impacts are suggested by the literature (Davis, 1989; Davis, et al., 1989; Venkatesh & Davis, 1994) as discussed in the previous section. Underlying the model is the premise that IT impacts are a function of job structure.

Figure 2. An IT Outcome Model for Clerical Work

(NOTE: The +/- next to each variable name represents the direction of its hypothesized relationship to the IT impact variables.

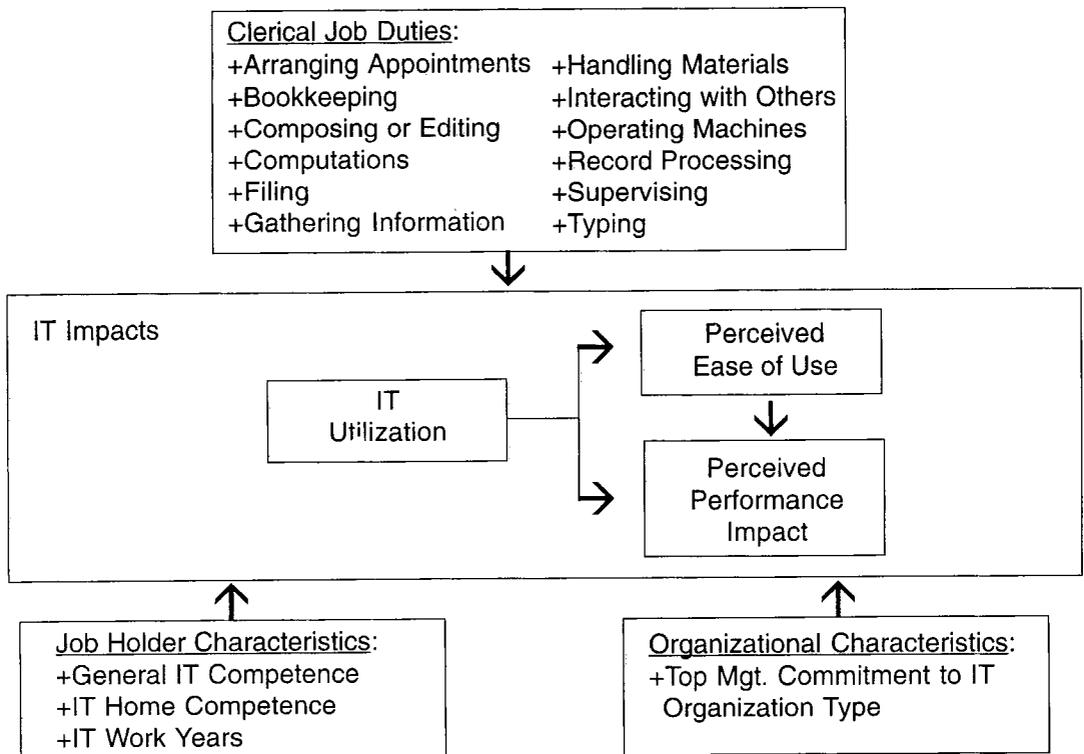


Figure 2 presents a more detailed IT impact model applicable to clerical work environments. The model suggests that utilization, perceived ease of use, and perceived performance impact are a function of job structure, a job holder's perceived IT competence and experience, and top management commitment to IT. Additionally, the model suggests that utilization or direct hands-on experience impacts ease of use and performance impact perceptions (Venkatesh & Davis, 1994) and that performance impact perceptions are impacted by ease of use perceptions (Davis, 1989; Davis, et al., 1989; Venkatesh & Davis, 1994).

Gandy and Maier's (1979) clerical task inventory--the 12 clerical job duties in Figure 2--provides a means for performing an in-depth analysis of the clerical job dimension identified by Weber. Based on the results of an earlier application of their clerical task inventory, Gandy (1988) concluded that "the results indicate that a large number of separately titled clerical positions and jobs in federal, state, and local government contexts can be described in terms of a small number of job types" (pp. 1189-1190). The premise underlying such research is that jobs with similar job structures can be managed similarly with respect to hiring, pay and promotion policies, etc. A logical extension would be to use quantified job content information for purposes of IT management with respect to clerical jobs.

The arrows and pluses (+) in Figure 2 indicate the hypothesized relationships among constructs. For example, top management commitment to IT and the IT impacts are hypothesized to vary directly. In other words, the expectation is that top management commitment to IT facilitates the IT impacts. The expectation is that the 12 clerical job duties in general would vary directly with the IT impacts. Such relationships would be consistent with Weber's (1988) finding that clerical work is a facilitator of IT impacts.

DATA COLLECTION AND SURVEY INSTRUMENT

A survey instrument was designed to gather the data necessary to conduct an empirical test of the model in Figure 2. When constructing the survey attempts were made to select measures previously used and validated by prior research.

Data was collected from organizations located in a large metropolitan area in the northeast. A total of fifteen organizations participated in the study: 9 private sector organizations, 4 government units, and 2 public institutions of higher education. The survey completion process was similar to Gandy and Maier (1979). Participating organizations were asked to provide a sample of clerical workers who used IT. Then, the researcher would go to the site on a selected date and time and administer the instrument to group settings. The survey instrument took most participants about 40 minutes to an hour to complete.

A total of 247 usable surveys were collected. Organizations were classified into three types: private sector, higher education, and government sector. The sample consisted of 159 private sector respondents (or 64.4% of the sample), 52 higher education respondents (or 21.1%) and

36 government sector respondents (or 14.6%). Table 1 summarizes the reliability coefficients per Cronbach's alpha and the primary source from which items were adapted for the survey instrument used in this study for each of the model's constructs. The reliabilities ranged from .52 for operating machines to .94 for perceived performance impact.

Table 1. Construct Reliabilities and Sources for Items

	Number of Items	Reliability	Items Adapted From
Arranging Appointments	6	.83	Gandy and Maier (1979)
Bookkeeping	27	.89	Gandy and Maier (1979)
Composing or Editing	9	.89	Gandy and Maier (1979)
Computations	8	.73	Gandy and Maier (1979)
Filing	21	.89	Gandy and Maier (1979)
Gathering Information	9	.70	Gandy and Maier (1979)
Handling Materials	17	.89	Gandy and Maier (1979)
Interacting with Others	15	.85	Gandy and Maier (1979)
Operating Machines	8	.52	Gandy and Maier (1979)
Record Processing	22	.84	Gandy and Maier (1979)
Supervising	19	.91	Gandy and Maier (1979)
Typing	7	.79	Gandy and Maier (1979)
General IT Competence	3	.66	Joseph (1984)
IT Home Competence	2	.59	Joseph (1984)
IT Work Years	1	-	Joseph (1984)
Top Mgt. Commitment to IT	4	.86	Weill (1988)
Private Sector	1	-	-
Local Government	1	-	-
Perceived Ease of Use	6	.92	Davis (1989)
Perceived Performance Impact	6	.94	Davis (1989)
IT Utilization	3	.69	Joseph (1984)

Utilization, Perceived Ease of Use and Perceived Performance Impact

IT utilization was defined as the degree of IT use by a job holder. Utilization was measured using three items adapted from Joseph (1984). The items measured: 1) the percentage of total job time spent interacting with IT, 2) number of hours per week spent using IT for work, and 3) number of hours per week spent using IT generated paper output. A factor analysis of the three items produced a one factor solution.

Perceived ease of use was defined as the degree to which the job holder believes that using IT is free of effort. Perceived performance impact was defined as the degree to which the job holder believes that using IT enhances job performance. The definitions are very similar to Davis's (1989) definitions for perceived ease of use and perceived usefulness. Davis was interested in using system specific perceptions to understand future system utilization.

The present study attempts to understand current IT utilization and perceptions of IT's ease of use and performance impact in clerical work environments due to the cumulative technological advances in IT. The present definitions view IT as gestalt as opposed to a particular IT and use present tense verbs (e.g., is) versus future tense verbs (e.g., would be). Perceived ease of use and perceived performance impact were measured using twelve items adapted from Davis (1988). A factor analysis of twelve items produced two factors consisting of six items each as expected.

The Task Inventory

A key part of the survey was a clerical task inventory, which was adapted from Gandy and Maier (1979). Several of Gandy and Maier's duties (e.g., computing, coding and related activities; typing, keypunch, or key data entry; etc.) and task statements were reworded to be computer neutral (i.e., to exclude explicit references to computers or related devices). Also, two duties--taking dictation, and miscellaneous duties and tasks that Gandy (1988) found to account for a very small amount of job time--were pared from the task inventory. Further, some task statements were combined to reduce the length of the instrument. The revised clerical task inventory consisted of 168 task statements grouped into 12 duties. Table 2 presents the task inventory items for the first duty--Arranging for Appointments, Meetings or Events.

Table 2. Task Inventory for Arranging for Appointments, Meetings, or Events

Duty A. Arranging for Appointments, Meetings or Events

Do Task	Task Statement	Task Time						
A1.	Coordinate or prepare agenda item for meetings and conferences.	1	2	3	4	5	6	7
A2.	Distribute agenda or minutes of meeting.	1	2	3	4	5	6	7
A3.	Maintain either personal diary or appointment schedule for others.	1	2	3	4	5	6	7
A4.	Make physical arrangements for meetings after being given time and place (such as notifying participants, reminding participants of required action, scheduling rooms, reserving public address equipment and other equipment).	1	2	3	4	5	6	7
A5.	Make travel arrangements (such as transportation and hotel arrangements).	1	2	3	4	5	6	7
A6.	Schedule events such as court hearing dates or surgery.	1	2	3	4	5	6	7

Conceptually, each duty is independent of all other duties. Further, each task statement is independent of all other task statements in the sense that each task statement measures an activity not captured by any other task statement. Task statements concerned with similar activities are grouped together to form the duty categories.

Generation of Job Profiles

The task statements were used to generate a job profile for each respondent in a manner similar to Gandy and Maier (1979). Respondents were asked to go through the entire task inventory (i.e., all 168 task statements) and check "to do" task column for those that they did as part of their job. Then, the respondents were asked to go through the task inventory a second time and fill in the task time column for those tasks that had "to do" task column checked. When completing the task time column for a given task, respondents were asked to estimate the amount of total job time spent on that task in comparison to all other tasks--e.g., a 4 rating would indicate an average amount of time compared to other tasks; a 1 rating would indicate a very low amount of time compared to other tasks; a 7 rating would indicate a great deal of time compared to other tasks. The respondents estimated the percentage of their total job time was captured by the task inventory.

For each respondent, duty times are calculated by summing the standardized task time ratings (each task time rating divided by the sum of all task time ratings for the entire task inventory) or each duty and multiplying that result by the percentage of total job time captured by the task inventory. A job profile for a respondent would consist of their 12 duty times. Each duty time represents the percentage of job time spent on that duty. By definition, total job time is 100%. For the current sample, the task inventory captured an average of 77.8% of total job time for the sample respondents. Thus, on average, approximately 22.2% of a respondent's job time was not captured by the clerical task inventory.

A Pearson correlation coefficient matrix for the 12 duty time variables was generated and no correlation exceeded .28. Further, a principal component factor analysis with varimax rotation using the 12 duty time variables as inputs produced a simple 12 factor structure accounting for 100 percent of the variance. Each of the twelve duties loaded on their own unique factor with the factor loadings ranging from .96 to .99 and no other factor loading exceeded .14. The factor analysis and Pearson correlation results provide strong evidence that the 12 duty times represent independent dimensions of clerical job structure.

Job Holder IT Self-Efficacy

Three constructs were used to ascertain a job holder's IT competence or IT self-efficacy. The items were adapted from Joseph (1984). The general IT competence items measured: 1) exposure to IT during formal education, 2) whether the job holder had interacted with IT most of their working life (i.e., the degree of overlap between working life and IT use), and 3) knowledge

of IT prior to having access to IT at work. The IT home competence items measured: 1) how many years a job holder had been using IT at home for non-job related activities, and 2) how many years a job holder had been using IT at home for job related activities. The IT work years measured how many years a job holder had been using IT at work. Thus, as operationalized, a job holder's past IT experience consists of three dimensions which are labeled: 1) general IT competence, 2) IT home competence, and 3) IT work years. A factor analysis of the six items measuring the user's IT competence confirmed the three factor structure.

Top Management Commitment to IT

Top management commitment to IT has consistently been shown to be a key indicator of successful IT outcomes (Sanders & Courtney, 1985; Weill, 1988; Weill & Olson, 1989). Top management commitment to IT was measured using 4 items adapted from Weill (1988). The items measure whether top management: 1) encourages or does not encourage IT use, 2) is strongly/weakly involved with IT, 3) is significantly/insignificantly involved with IT, and 4) is consistently/inconsistently involved with IT.

EMPIRICAL ANALYSIS AND DISCUSSION OF RESULTS

Regression analysis was used to identify the most important independent variables for each of the IT impact variables. For each IT impact, forward and backward regressions were generated. The final regression models included only those variables that had significant t-statistics at at least the .05 level and whose entry order and exit order were identical in the forward and backward regressions. For regression purposes, two dummy variables were used to represent the three organizational types: private sector (1 if private sector, 0 otherwise) and government sector (1 if government, 0 otherwise). Government sector organizations consisted of agencies and departments at the county level. Table 3 summarizes the variables identified by the backward and forward regressions analyses for each of the three IT impact variables.

IT Utilization

IT utilization was defined as the degree of IT use by a job holder. The IT utilization regression produced an adjusted R^2 of .161 and identified six significant variables: (in order of entry) private sector, IT work years, typing, composing or editing, top management commitment to IT, and bookkeeping. All six variables were directly related to IT utilization.

The private sector result may indicate that private sector organizations are doing a better job of integrating IT into their clerical work environments than public higher education and the government sector. The top management commitment to IT finding is consistent with past research (Sanders & Courtney, 1985; Wiell, 1988; Weill & Olson, 1989).

Table 3. Summary of the Regression Results for the IT Impacts**Dependent Variable = IT Utilization**

Independent Variables	Beta	T-Stat	T Sig
Private	.268809	4.539	.0000
+ IT Work Years	.181707	3.100	.0022
+ Typing	.179079	2.928	.0037
+ Composing or Editing	.183026	2.979	.0032
+ Top Mgt. Commitment to IT	.156797	2.625	.0092
+ Bookkeeping	.161613	2.614	.0095

Adjusted R-Square = .161

F = 8.884

F significance level = .0000

Dependent Variable = Perceived Ease of Use

Independent Variables	Beta	T-Stat	T Sig
+ General IT Competence	.341194	5.861	.0000
+ IT Utilization	.219561	3.810	.0002
+ Typing	-.136996	-2.394	.0174
+ IT Home Competence	.124905	2.158	.0319

Adjusted R-Square = .210

F = 17.357

F significance level = .0000

Dependent Variable = Perceived Performance Impact

Independent Variables	Beta	T-Stat	T Sig
+ Perceived Ease of Use	.425855	8.082	.0000
+ IT Utilization	.250541	4.687	.0000
+ Top Mgt. Commitment to IT	.146274	2.845	.0048
Government Sector	-.125809	-2.422	.0162

Adjusted R-Square = .366

F = 36.509

F significance level = .0000

NOTE:

1. The + prior to each variable name indicates its hypothesized direction of the relationship with the IT impacts.
2. The beta column contains standardized regression coefficients for each variable.
3. Variables are listed in order of entry into the forward regression analysis.
4. Adjusted R-square is the preferred measure for goodness of fit because it is not subject to the inflationary bias of R-square (Norusis, 1990).

The IT work years finding may suggest that length of IT use at work may be a surrogate for IT's penetration within the job holder's work area. In other words, a long history of IT use on the part of a job holder at work indicates that IT has become an integral part of the work environment and thus, more highly utilized.

The typing, composing or editing, and bookkeeping findings make sense given that "word processing" and "accounting" functions have historically been supported by IT. The typing and composing or editing results are also consistent with Baran's (1987) finding that routine clerical functions, like "keyboarding," were the most significantly affected by IT. The direct relationship between the three significant clerical job duties and IT utilization is also consistent with Weber's (1988) finding that clerical work facilitates IT impacts.

Perceived Ease of Use

Perceived ease of use was defined as the degree to which the job holder believes that using IT is free of effort. The perceived ease of use regression produced an adjusted R^2 of .210 and identified four significant variables: (in order of entry) general IT competence, IT utilization, typing, and IT home competence. Only typing was inversely related to perceived ease of use.

The general IT competence and IT home competence results may suggest that perceived competence is an indicator of a job holder's socialization or adaptation to IT (i.e., perceived ease of use). The competence results provide support for Venkatesh and Davis's (1994) premise that a user's IT competence affects their ease of use perceptions.

The IT utilization result suggests that IT utilization is an indicator that IT is perceived as easy to use. This finding supports Venkatesh and Davis's (1994) finding that direct hands-on experience or utilization may affect perceived ease of use and the more general concept that perceptions become clearer after direct experience (Fazio & Zanna, 1981; Mervis & Rosch, 1981; Smith & Swinyard, 1983).

The inverse relationship between typing and perceived ease of use may appear counter-intuitive given the prevalence of word processing software. Using word processing software requires the job holder to learn to some extent the computer's operating system and the word processing software's interface as well as printer and disk management concepts. Thus, a possible interpretation of the result may be that for simple typing (as opposed to more advanced writing functions such as composing or editing) using IT may actually make the task of simple typing more complex. The result might also reflect software vendors' tendency to embed ever-increasing functionality into their software. The increasing functionality and complexity may have a negative impact on ease of use for simple tasks.

Perceived Performance Impact

Perceived performance impact was defined as the degree to which the job holder believes that using IT enhances job performance. The perceived performance impact regression

analysis produced an adjusted R^2 of .366 and identified four significant variables: (in order of entry) perceived ease of use, IT utilization, top management commitment to IT, and government sector. Only the government sector was inversely related to perceived performance impact.

The perceived ease of use finding is consistent with past research (Davis, 1989; Davis, et al., 1989; Venkatesh & Davis, 1994) and may suggest that there is tradeoff between interacting with IT (i.e., perceived ease of use) and productive IT results (i.e., perceived performance impact).

The IT utilization result may suggest that IT utilization is an indicator of a performance impact. The finding is consistent with past research that suggests that IT utilization should produce value (Miller, 1989) and operational effectiveness (Melone, 1990). The IT utilization result is also consistent with Venkatesh and Davis's (1994) finding that usefulness perceptions are affected by direct hands-on experience and the more general concept that perceptions become clearer after direct experience (Fazio & Zanna, 1981; Mervis & Rosch, 1981; Smith & Swinyard, 1983).

The top management commitment result is consistent with past research (Sanders & Courtney, 1985; Weill, 1988; Weill & Olson, 1989) and may suggest that management may be sending out signals that IT is useful and/or taking actions to make IT more useful.

The government sector result suggests that clerical workers in the government sector perceive IT to be less useful than clerical workers in the private or higher education sectors.

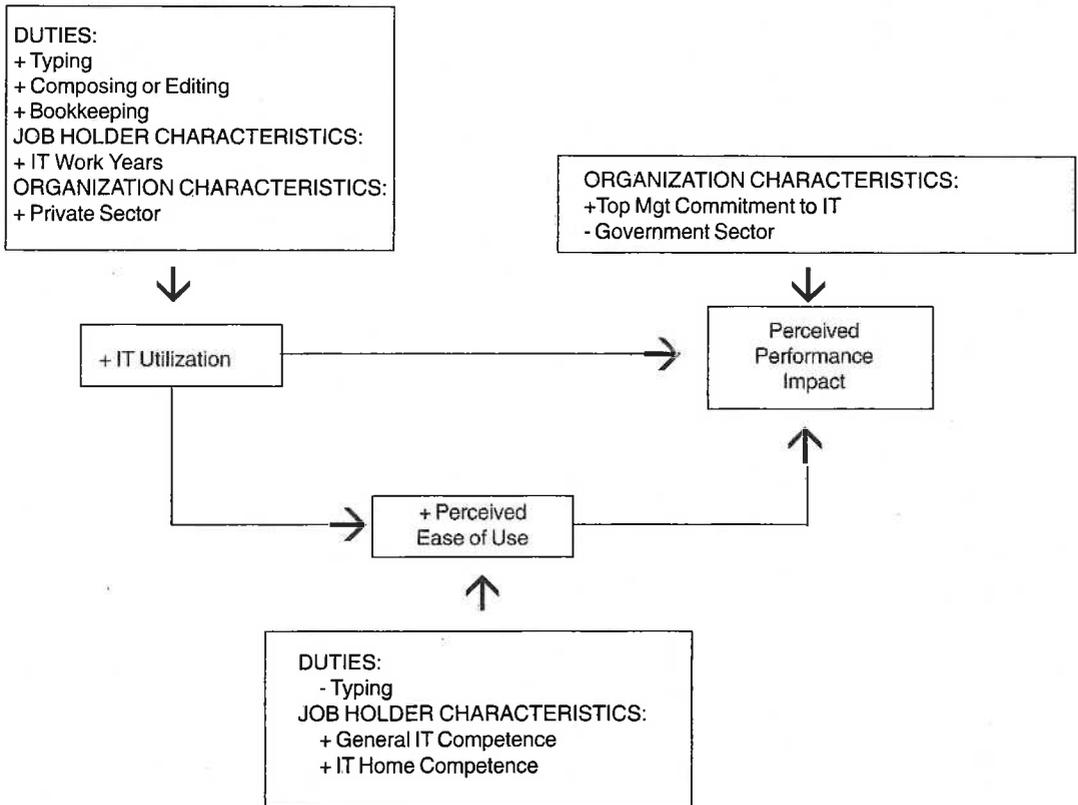
SUMMARY AND CONCLUSIONS

It is becoming central to the everyday working life of white-collar workers (Senn, 1995) based on the expectation that IT leads to productivity impacts (Thompson, et al., 1994). The primary purpose of this study was to propose and test a conceptual model relating clerical work environments to IT impacts. Managers and researchers can use such a model to aid their understanding of IT impacts in clerical work environments.

Three IT impacts were examined--IT utilization, perceived ease of use, and perceived performance impact. A model was proposed that grouped factors thought to influence the IT impacts into four major categories--job structure, job holder, organizational, and antecedent relationships among the IT impacts themselves.

Figure 3 provides a more parsimonious representation of the model based on the regression results. Only perceived performance impact did not have any job structure measures in its regression results.

Figure 3. Model Based on Regression Results



NOTE: The +/- next to each variable name represents the direction of the observed relationship between the variable and the IT impacts.

The results suggest that knowledge about the presence or absence of certain aspects of clerical job structure (e.g., typing, composing or editing, and bookkeeping) in conjunction with information related to the job holder's IT competence level, the organizational domain, and top management commitment to IT may provide insights with respect to IT impacts. The lack of a significant relationship between the sum of the clerical duties and the IT impacts may imply that either IT or clerical job structure may have to change if better facilitation of the IT impacts in clerical work settings is an objective.

Several areas of future research are apparent based on this study. Expanding the domain to include IT users and non-IT users may be advisable. Differences in job structure may be more prevalent when the two groups are contrasted. Also, using different measures of job or task structure than the task inventory used here may improve matters in terms of establishing a more significant connection between clerical job structure and IT impacts.

In conclusion, the results suggest that knowledge of job structure, a job holder's IT competence level and differences in an organization's internal and external environments may provide managers with a better understanding of IT impacts with respect to clerical work environments. Further, the results suggest that job redesign, personnel selection and managing top management commitment to IT may offer managers a means to affect IT utilization, perceived ease of use, and perceived performance impacts in clerical work settings. Given IT's propensity to be almost continually in a state of flux and IT's increasing penetration into everyday work life, the study of the relationship between work environments and IT impacts should continue to be an important avenue of research in the future.

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