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UNDERSTANDING IS IMPACTS IN MANDATORY ENVIRONMENTS: USAGE, COMPATIBILITY BELIEFS, STRESS, AND BURNOUT

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Abstract

Information systems usage is often conceptualized as the behavior that signifies technology adoption or system success; however, little research has focused on the possibility that there are negative individual outcomes to IS use. This research proposal is designed to examine the circumstances under which mandated information systems usage contributes to work stress and, subsequently, employee burnout—an individual’s response to chronic work stressors. In particular, it examines the extent to which conflicts between users’ beliefs about the compatibility of information systems with their work and their actual usage behavior contributes to perceptions of role conflict, a type of work stress that has been previously linked to burnout.

Those experiencing burnout report high levels of emotional exhaustion, an increased sense of cynicism toward their work, and low levels of personal accomplishment. From an organizational viewpoint, burnout is important because of its association with such outcomes as job satisfaction, absenteeism, intention to leave, and actual turnover (Maslach, Schaufeli, & Leiter 2001). To the extent that information systems usage contributes to employee burnout, it is important that MIS practitioners and researchers are able to identify the problem and work to mitigate the potentially negative personal and organizational outcomes.

One context where the potential for negative individual and organizational outcomes exists is healthcare. Information technology is often touted as a means of improving the quality and reducing the costs of healthcare (Bates 2002). As such, many healthcare organizations are adopting clinical information systems as part of the patient care process. Evidence exists that healthcare workers do not necessarily believe such systems can deliver the results promised (Likourezos et al. 2004; Loomis et al. 2002). This belief is substantiated by research indicating information systems might, in fact, be detrimental to patient care in some cases (Koppel et al. 2005).
As these systems are adopted by healthcare organizations, their routine use by frontline healthcare workers is often mandated. In some organizations, mandatory technology use goes beyond social pressures. Jasperson, Carter, and Zmud (2005) described a mandatory adoption decision as one in which the organization integrates the information system into the work system such that users must use the system in order to accomplish their work tasks. When the technology is wholly integrated into the system, usage is no longer a choice or the result of social pressure. Rather, it is the only way in which work can be accomplished. In such a context, the question of interest ceases to be whether beliefs are predictive of usage, but rather whether beliefs are congruent with usage, and, if not, what impact that has on individuals who are mandated to behave in a manner that is potentially inconsistent with their beliefs. The hospital setting in which this research will be conducted is an example of just such a mandatory context and thus provides an excellent setting in which to explore this research question.

The research proposed herein seeks to discover if and how the combined effect of registered nurses’ use of a clinical information system and their beliefs regarding the compatibility of information systems with their values is related to burnout. Within the healthcare context, burnout has been linked to outcomes such as patient safety and patient satisfaction (Leiter et al. 1998; Vahey et al. 2004). Given the link between burnout and turnover, it is a phenomenon of especial importance due to the current nursing shortage (Lynn & Redman 2005). Nurses are in short supply in the healthcare industry and are projected to remain so for the foreseeable future. In light of this fact, Cohen (2006) argued that organizations must take measures to enhance both job satisfaction and organizational commitment in order to retain nurses.

From a theoretical standpoint, this proposal contributes to the MIS literature in a number of important ways: 1) It introduces burnout as a new, previously-untested individual impact resulting from the combination of IS use and personal beliefs regarding information systems; 2) It extends the compatibility literature into the post-adoptive context by using a newly developed compatibility with values construct to examine how potential mismatches between users’ values and their behavior are related to burnout; and 3) It contributes to the growing body of literature on information systems usage in a post-adoptive, mandatory environment—a relatively under-examined context given the likelihood that it is, in reality, the predominant organizational usage context.

Drawing upon the information systems, organizational behavior, and individual psychology literature, the research model in Figure 1 is proposed. It is asserted that the combined effect of an information system’s compatibility with users’ values and actual use of the system is related to users’ perceptions of role conflict, defined as users’ perceptions of conflicting job demands. It has been studied as an antecedent of burnout, most often associated with higher levels of emotional exhaustion and depersonalization, but also in some studies to decreased personal accomplishment (Cordes & Dougherty 1993). This proposal will test the relationship between role conflict and each of the three sub-dimensions of burnout, as well
as previously suggested relationships between the three sub-dimensions.

![Figure 1. Research model](image)

The research hypotheses will be tested in a field study employing a survey methodology for data collection. Quantitative data will be collected via a cross-sectional survey and research hypotheses will be tested using structural equation modeling. The survey will be electronically administered to participants as part of a larger survey being conducted by the sponsoring organization. Participants for this study will be registered nurses employed with a large urban hospital system located in the southeastern United States. The research will be conducted within one organization (a large hospital system), focusing on one type of healthcare worker (nurses) who have been using the same information system for approximately three years. The information system is used by the nurses for electronic charting purposes. In addition to providing them a means to complete patient care documentation, it also allows nurses to view physician orders, as well as laboratory and radiology results. This setting is a mandatory usage environment in the sense that the information system is completely integrated into the nurses’ work system. There is no other way for them to enter and/or access necessary data other than to use the system.

This is a convenience sample, which will limit the generalizability of the findings; however, there are some benefits to its use. Collecting data from one organization improves the homogeneity of the sample, thus decreasing the likelihood that extraneous variables might influence the results. Further, as burnout is a process that occurs over time, the use of a sample that has been using the same information system for approximately the same extended period of time allows for the examination of burnout as the result of combined systems usage and compatibility beliefs. Although the ability to make causal references is limited by the cross-sectional nature of the data collection (there is no way to control for burnout levels prior to system implementation), the length of time that nurses have been using the system strengthens the argument that IS-related belief and behavior conflicts contribute to role conflict and subsequent burnout.
With the exception of usage, constructs will be measured using previously developed and validated scales. Usage will be measured via a single item self-report measure, “On average, how much time do you spend on the system every day?” This is consistent with how system usage has been measured in past technology acceptance studies (Davis 1989; Venkatesh & Davis 2000). Although self-report measures of actual usage are not necessarily strongly related to objective computer-recorded system usage, self-report measures were deemed suitable for this study because individuals’ perceptions of their technology usage have been argued to be important in their own right and have demonstrated stronger relationships with attitudes and beliefs relating to technology than objective measures (Straub, Limayen, & Karahanna 1995).

Compatibility with values will be measured using the five-item scale developed and validated by Karahanna et al. (2006). The original scale for the measurement of this construct contained six items; however, Karahanna et al. dropped one item from their final analysis due to its high cross-loadings on more than one compatibility construct. This research follows their example and also excludes the item in question. Respondents will score the items for this measure on a 7-point Likert-type scale with the anchors being “strongly agree” and “strongly disagree”.

Role conflict will be measured using the eight-item scale developed and validated by Rizzo, House, and Lirtzman (1970). Although the particular type of role conflict of interest to this study is person-role conflict, previous studies have found that both sent role and person-role conflict tend to occur together (Bostrom, 1980). Further, the scale developed by Rizzo et al. contains items meant to tap both facets of role conflict, and studies of the convergent and discriminant validity of the role conflict scale have confirmed that these items hang together as a single measure (House & Schuler, 1983; Rizzo, House, & Lirtzman, 1970). As such, it was decided that the entire role conflict scale developed by Rizzo et al. will be used. Respondents will score the items for this measure on a 7-point Likert-type scale with the anchors being “strongly agree” and “strongly disagree”.

The sub-dimensions of burnout will be measured using the Maslach Burnout Inventory-General Survey (Maslach et al., 1996). Although registered nurses do fall into the category of the “caring professions” for which the MBI-Human Services Survey (MBI-HS) was developed, the items developed for that version of the MBI were worded to focus more upon the provider-recipient relationship rather than in relation to work in general. There is precedent in the literature for using the MBI-GS with a nursing samples (Allen & Mellor, 2002; Greenglass, Burke, & Fiksenbaum, 2001; Leiter et al., 1998), and the factorial structure of the MBI-GS has been found to be consistent across numerous occupational groups, including nurses (Langballe, Falkum, Innstrand, & Aasland, 2006). Respondents will be asked to report the frequency with which they experience the sub-dimensions of burnout on a 7-point scale anchored by “never” and “every day”. In addition to the measurement scales, demographic information will also be collected in order to provide descriptive statistics for the sample
and to test for potential control variables (e.g., hospital, unit type). The specific hypotheses to be tested are as follows:

**H1:** Users’ beliefs regarding the system’s compatibility with values will be negatively related to role conflict.

**H2:** System usage will moderate the relationship between compatibility with values and role conflict such that the relationship will be stronger for those reporting higher amounts of usage and lower compatibility with values.

**H3:** Role conflict will be positively related to emotional exhaustion.

**H4:** Role conflict will be positively related to depersonalization.

**H5:** Role conflict will be negatively related to personal accomplishment.

**H6:** Emotional exhaustion will be positively related to depersonalization.

Another goal of this proposal is to gain greater understanding of the specific values with which information systems are deemed to be compatible/incompatible. As developed by Karahanna et al. (2006), the existing measure of compatibility with values is not value-specific. That is, it assesses the extent to which individuals perceive information systems to be compatible with their values in a general sense but does not capture what values they find systems usage to be compatible or incompatible with. Although the quantitative data collection proposed for this study will provide valuable information regarding the existence and degree of behavior/belief conflict, it does not aid in identifying specific values. Discovering which values are tapped is important to both in terms of having a thorough understanding of the phenomenon, as well as understanding how to effectively design interventions that appeal to appropriate values. In line with previous IS-related values research, additional qualitative data will also be collected (Kohli & Kettinger, 2003). This data will be collected using a replicated case study design employing a purposeful sampling technique.

**Keywords:** Mandatory adoption, system usage, compatibility, healthcare information systems, role conflict, burnout, work stress

**REFERENCES**


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