Contextual Factors in Post-adoption: Applying the Model of Proactive Work Behavior to the Study of End-User innovation

Emergent Research Forum papers

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Abstract

Research on post-adoption has proliferated and has offered insight into the antecedents that drive post-adoptive usage. Yet, much of such research has focused exclusively on instrumental belief constructs about the technology itself and related abilities and, thus, has not sufficiently examined the organizational context in which post-adoptive usage takes place. Deepening understanding of perceived contextual factors is important to gain a more holistic understanding of the use-process and to account for the fact that organizational structures play an important role in post-adoption. To address this need, this research-in-progress paper introduces the Model of Proactive Work Behavior to IS research, which enables investigating how, why, and for whom such prominent contextual factors as job autonomy drive pertinent post-adoption behaviors, like innovation. The paper hypothesizes that job autonomy increases individual innovation with IT via certain proactive cognitive-motivational states, and it ends with a brief overview of the proposed methodology and expected contributions.

Keywords
Post-adoption, proactivity, innovation, autonomy.

Introduction

Empirical research on the post-adoptive usage of technologies by end-users has proliferated and has offered insight into the antecedents that drive such usage. Yet, much of such research has focused exclusively on instrumental belief constructs about the technology itself and related abilities (e.g., computer self-efficacy; Thatcher et al. 2011) and, thus, has not sufficiently examined the organizational context in which post-adoptive usage takes place. Deepening understanding of perceived contextual factors and their interactions with technology-related belief constructs is important to gain a more holistic understanding of the use-process and to account for the fact that organizational structures and social environments play an important role in shaping the usage of technologies in organizations (Lamb and Kling 2003). More specifically, within the complex social settings that generally constitute organizations, people don’t usually consider themselves users of technologies but, rather, accountants, sales reps, or finance specialists. Hence, a thinly contextualized concept of the user, which focuses exclusively on the user’s beliefs about the technology, limits our understanding of the use-process and the practical advice we can give to managers. Further, shedding more light on the perceived contextual factors that surround post-adoptive usage will lead to the development of richer theoretical models that, ultimately, will yield
more accurate estimates of post-adoptive usage (Lamb and Kling 2003). One of the most ubiquitously studied contextual factors at work is job autonomy, a characteristic that significantly shapes employees’ opportunities to exercise personal agency in the course of their work (Johns 2006; Grant and Parker 2009). An aspect of post-adoptive usage that is particularly beneficial to organizations and likely to be influenced by contextual factors such as job autonomy is end-user innovation. End-user innovation implies that employees try to apply a technology in new ways to their work tasks to increase the efficiency and effectiveness with which they accomplish their IT-enabled work (Ahuja and Thatcher 2005). Although prior work has explored the impact of perceptions of job autonomy on end-user innovation, more research is required to examine the mechanisms underlying this relationship. Thus, this study will investigate how, why, and for whom perceived job autonomy drives individual innovation with IT.

To inform our understanding of the perceived contextual factors that drive individual innovation with IT, we use the Model of Proactive Work Behavior (MPWB) (Crant 2000; Frese and Fay 2001; Parker at al. 2006). This model constitutes a useful theoretical framework since it specifies a relatively complete set of proactive cognitive-motivational states that link contextual features of job environments to various proactive behaviors at work, such as individual innovation behaviors (e.g., end-user innovation with technologies). The model enables identifying pertinent contextual drivers of innovation with IT as well as predictions as to how, why, and for whom these drivers influence such innovation.

The paper is structured as follows. The next section provides a background on MPWB and clarifies further why MPWB is useful to study individual innovation with IT or other post-adoptive behaviors. The third section develops a series of research hypotheses suggesting that job autonomy impacts trying to innovate with IT via several proactive cognitive-motivational states. The fourth section briefly outlines the general methodology to test our research model. The paper concludes with an overview of its contributions.

**Background on the Model of Proactive Work Behavior**

Proactive work behavior or proactivity refers to the extent to which employees take self-initiated action (Crant 2000), before being asked to do so (Grant and Ashford 2008). According to MPWB, all types of behaviors can be carried out proactively (Crant 2000; Grant and Ashford 2008). In particular, individual innovation behavior serves as an exemplar case of proactivity at work (Parker et al. 2006; Scott and Bruce 1994). Within the domain of Information Systems (IS), MPWB suggests that individuals who use a technology in innovative ways on their own accord are engaging in proactive behaviors. Overall, MPWB provides a useful framework for the present study since post-adoptive behaviors, such as individual innovation with IT, are not generally required by organizations but are self-initiated (Jasperson et al. 2005) and, therefore, proactive.

MPWB is an important model in the organizational behavior as well as the industrial and organizational psychology literature. There is consistent and strong empirical evidence for its claims (e.g., Bindl and Parker 2010; Clegg et al. 2002; Frese and Fay 2001; Parker and Collins 2010; Parker et al. 2006). For example, using data from almost 300 workers, Parker et al. (2006) empirically validated the notion that job autonomy is associated with proactive work behaviors via various cognitive-motivational states. These authors also conducted tests of differential validity and showed that the cognitive-motivational processes that underlie proactive behavior are distinct from those for other work behaviors.

MPWB indicates that proactive behavior results from *proactive cognitive-motivational states*, which diminish uncertainty and psychological risk (Bindl and Parker 2010). This view implies that risk is inherent in proactive work behaviors. For example, post-adoptive IT use behaviors, such as individual innovation, embody risk because they require that users try out something new, with high potential for loss of time, mistakes, and errors (Ahuja and Thatcher 2005). Additionally, proactive behavior results from *beliefs about the work environment*, especially from perceived job autonomy (Bindl and Parker 2010; Parker et al. 2006). This notion is consistent with prior IS research, indicating that job autonomy impacts individual innovation with IT (Ahuja and Thatcher 2005). Autonomy can offset the psychological risk involved in proactivity and encourage risk taking because it builds an environment in which people feel safer and more comfortable to take risks. By contrast, environments perceived as psychologically unsafe (e.g., limited autonomy and no room for error) hinder proactivity (Bindl and Parker 2010). In line with this argument, there is strong empirical evidence that job autonomy is positively – yet indirectly – related to proactivity at work (e.g., Baer and Frese 2003).
Consistent with theories of social psychology, MPWB suggests that there are distal and proximal causes of proactive behavior. Specifically, perceived aspects of the work environment such as perceived job autonomy are **distal predictors (i.e., indirect predictors)** of proactive behaviors, while proactive cognitive-motivational states such as change orientation are **proximal predictors (i.e., they impact proactive behaviors directly)** (Bindl and Parker 2010; Parker et al. 2006). Consistent with Fishbein and Ajzen (1974) as well as with Wixom and Todd (2005), MPWB suggests that proactive cognitive-motivational states mediate the impact of job autonomy on proactivity because they are more action-oriented, more specific, and closer to behaviors than such aspects of the work environment as autonomy (Bindl and Parker 2010; Parker at al. 2006).

While perceived autonomy is a pertinent aspect of the work environment according to MPWB and prior IS research (i.e., an indirect driver of individual innovation; Ahuja and Thatcher 2005; Scott and Bruce 1994), relevant cognitive-motivational states include role-breadth self-efficacy, control appraisals, change orientation, and flexible role orientation (Parker et al. 2006), which are defined in the next section.

**Hypotheses Development**

Consistent with Ahuja and Thatcher (2005), using the theory of trying we conceptualize individual innovation with IT as peoples’ goals of applying IT in new ways to work tasks; that is, we conceptualize it as trying to innovate with IT. The technologies considered here are those that are flexible and complex enough to be used innovatively, such as Microsoft Excel that offers ample flexibility and complex functionality. Based on MPWB, we hypothesize that individual innovation with IT increases with job autonomy via the cognitive-motivational states. The logic for the proposed model is based on the correspondence principle implied in MPWB, which holds that beliefs that closely correspond to a focal behavior (i.e., the proactive cognitive-motivational states) are proximal, direct predictors of that behavior, while factors that are more distant from the behavior (perceived job autonomy) provide indirect effects.

Role-breadth self-efficacy refers to a worker’s perceived capability of carrying out a range of activities that extend beyond the prescribed core tasks. As such, it is a “can do” belief that increases with perceptions of autonomy and reduces perceptions of risk and uncertainty, thus increasing proactivity. Accordingly, role-breadth self-efficacy is a proactive cognitive-motivational state and a proximal predictor of proactivity that can mediate the impact of job autonomy on proactivity (Parker et al. 2006):

**H1a:** Role-breadth self-efficacy mediates the positive effect of job autonomy on trying to innovate with IT; that is, there is a positive, indirect effect of job autonomy via role-breadth self-efficacy on trying to innovate with IT.

Control appraisals refers to workers’ expectations that they can impact the outcomes of their work. As such, it increases with the amount of control workers have over their work (i.e., autonomy) and, in turn, counters perceptions of risk and uncertainty that generally decline with increased control, thus increasing proactivity. Hence, control appraisals is a proactive cognitive-motivational state and a proximal predictor of proactivity that mediates the impact of job autonomy on proactivity (Parker et al. 2006). Hence:

**H1b:** Control appraisals mediates the positive effect of job autonomy on trying to innovate with IT; that is, there is a positive, indirect effect of job autonomy via control appraisals on trying to innovate with IT.

Change orientation refers to an active orientation toward change and a positive approach toward errors. It is driven by autonomy since greater job autonomy generates positive affect and signals trust from management, enhancing openness to change. Change orientation, in turn, reduces the feelings of threat related to proactivity due to a more positive outlook on change in general and errors in particular. Accordingly, change orientation is a proactive cognitive-motivational state and a proximal predictor of proactivity that mediates the impact of job autonomy on proactivity (Parker et al. 2006). Hence:

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1 Personal innovativeness in IT, which refers to peoples’ willingness to try out any new technology (Agarwal and Prasad 1998), could be a proactive cognitive-motivational state in the context of IS that captures the idea of change orientation (change orientation toward new technologies). Therefore, it should be included as a control variable in tests of this model to see whether additional variance in post-adoption usage is explained by the MPWB.
H1c: Change orientation mediates the positive effect of job autonomy on trying to innovate with IT; that is, there is a positive, indirect effect of job autonomy via change orientation on trying to innovate with IT.

Finally, flexible role orientation is defined as a broad definition of work goals. When workers have an impact on a broader range of decisions due to greater autonomy, they develop ownership for these decisions as well as for the longer term goals that these decisions support. As a result of this felt ownership of decisions, workers are more likely to decide to engage in proactive work behaviors. Thus, flexible role orientation is a proactive cognitive-motivational state and a proximal predictor of proactivity that mediates the impact of job autonomy on proactivity (Parker et al. 2006). Hence:

H1d: Flexible role orientation mediates the positive effect of job autonomy on trying to innovate with IT; that is, there is a positive, indirect effect of job autonomy via flexible role orientation on trying to innovate with IT.

Additionally, according to MPWB the impacts of the proactive cognitive-motivational states on proactivity depend on specific aspects of the focal proactive behavior. Since the proactive behavior in this study is related to technology usage, the impacts of the proactive cognitive-motivational states on trying to innovate with IT should depend on beliefs about the technology. A particularly pertinent belief in this environment is computer self-efficacy (CSE), which refers to peoples’ perceived ability to use technology successfully to accomplish work tasks. Integrating CSE with MPWB is consistent with social cognitive theory, which is concerned not only with how personal factors (such as CSE) predict behaviors (such as technology usage), but also with reciprocal interactions between cognition, behavior, and the environment. The proposal that the task environment (job autonomy), via the way it is perceived (i.e., via the proactive cognitive-motivational states in the model), interacts with a facet-specific cognition (CSE) to predict trying to innovate with IT is consistent with this notion of reciprocal interaction inherent to social cognitive theory. Hence, we offer the following, additional hypotheses, which specify 2nd stage moderated mediation of autonomy-related impacts on trying to innovate with IT via the proactive cognitive-motivational states, with CSE as the 2nd stage moderator (see Figure 1).

H2a: The strength of the mediated relationship between job autonomy and trying to innovate with IT via role-breadth self-efficacy depends on the level of computer-self-efficacy; that is, the positive, indirect effect of job autonomy via role-breadth self-efficacy on trying to innovate with IT is stronger when computer self-efficacy is higher.

H2b: The strength of the mediated relationship between job autonomy and trying to innovate with IT via control appraisals depends on the level of computer-self-efficacy; that is, the positive, indirect effect of job autonomy via control appraisals on trying to innovate with IT is stronger when computer self-efficacy is higher.

H2c: The strength of the mediated relationship between job autonomy and trying to innovate with IT via change orientation depends on the level of computer-self-efficacy; that is, the positive, indirect effect of job autonomy via change orientation on trying to innovate with IT is stronger when computer self-efficacy is higher.

H2d: The strength of the mediated relationship between job autonomy and trying to innovate with IT via flexible role orientation depends on the level of computer-self-efficacy; that is, the positive, indirect effect of job autonomy via flexible role orientation on trying to innovate with IT is stronger when computer self-efficacy is higher.
Post-adoption and the Model of Proactive Work Behavior

Figure 1. Research Model

Consistent with prior IS research and with research on proactive work behavior, we will control for personal innovativeness with IT, perceived usefulness, perceived ease of use, age, gender, and organizational tenure. These variables have been shown to impact technology usage behaviors and to be related to adoption patterns of proactive behaviors (Agarwal and Prasad 1998; Parker et al. 2010).

Brief Outline of Proposed Methodology

The model proposed here will be tested using longitudinal survey research. Longitudinal research can effectively counteract the problem of common method variance (Malhotra et al. 2006), while simultaneously establishing temporal precedence, thus increasing internal validity (Straub 1989). Measures will use 7-point likert type scales and will be adapted from prior research (e.g., Ahuja and Thatcher 2005; Parker et al. 2006). Consistent with research on MPWB (e.g., Parker et al. 2006), data will be collected from a large firm in the manufacturing industry (automotive); respondents will be workers in the engineering and marketing divisions. The data will be analyzed using Preacher et al.'s (2007) standard SPSS macro for 2nd stage moderated-mediation (i.e., Model 3 in Preacher et al. 2007) to estimate the conditional indirect effects at different levels of CSE. We will also test for a direct effect of job autonomy.

Conclusion

This research will yield important implications for theory and practice. As for theory, it will shed light on the organizational context in which end-user innovation and post-adoptive usage take place. In doing so, it will help create a more holistic understanding of the use-process, accounting for the fact that organizational structures and social environments play an important role in shaping post-adoptive usage. For practice, the study will provide detailed guidance to managers regarding what contextual factors to promote (e.g., job autonomy) to increase post-adoptive usage in general, and end-user innovation in particular.
REFERENCES


