The Influence of Work Environment on IT-Specific Individual Differences: An Empirical Study

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Résumé
Partant de recherches menées par Thatcher et Perrewé (2002) et Ahuja et Thatcher (2005), cette étude approfondit l’analyse de l’impact de variables générales et spécifiques aux technologies de l’information (TI) liées à l’environnement de travail sur les différences individuelles influençant l’utilisation des TI. Une enquête a été conduite avec un échantillon de 1010 salariés en formation continue en France. Les résultats montrent que l’autonomie, la surcharge de travail qualitative et l’appui managérial influencent significativement les variables individuelles situationnelles spécifiques aux TI. Cette étude approfondit l’examen des interactions entre des variables de l’environnement de travail et les différences individuelles. Elle contribue à une meilleure compréhension des relations entre des variables clés dans la compréhension du processus essentiel d’adaptation mutuelle entre la TI, l’organisation, et les individus.

Mots clés:
Efficacité personnelle avec les TI, Anxiété, Innovation personnelle, Environnement de travail, Surcharge de travail.

Abstract
Drawing on prior research of Thatcher and Perrewé (2002) and of Ahuja and Thatcher (2005), the purpose of this study is to furthering our understanding of the impacts of broad and IT-specific work environment variables on individual differences influencing IT use. A survey has been conducted with a sample of 1129 workers in professional training in France. The results show that autonomy, qualitative overload, and IT managerial support significantly impact IT situation-specific individual differences. This study furthers the examination of interactions between work environment variables and individual differences. It contributes to a better understanding of the interplay of key variables in the mutual adaptation process between IT, organizations, and individuals.

Key-words:
1. Introduction

The pace of implementation and the often disruptive IT (Lyytinen and Rose 2003; Beaudry and Pinsonneault 2005) invoke a constant need of adaptation within organizations (Leonard-Barton 1988; Beaudry and Pinsonneault 2005). In the course of their adaptation to IT, system users make use of their resources and capabilities such as their ability to control the consequences of IT (Beaudry and Pinsonneault 2005) but are also influenced by their work environment (Ahuja and Thatcher 2005). Furthermore, users differ significantly in their interactions with IT depending on individual characteristics (Zmud 1979; Venkatesh 2000; Karahanna et al. 2002) and work environment variables (Ahuja and Thatcher 2005; Ahuja et al. 2007). There are thus theoretical challenges posed by the understanding of how these variables impact individual usage behaviors.

There are also practical challenges associated with the understanding of such issues. Indeed, practitioners need to be constantly aware of how users interact with IT in order to design appropriate training programs (Thatcher and Perrewe 2002). As well as it is necessary for system designers to constantly ensure that systems fit user tasks (Goodhue and Thompson 1995), it is also important to acknowledge the determinants of user computer self-efficacy (CSE) or “ability to competently use technology” (Compeau and Higgins 1995, p. 189). Indeed, CSE has been found to influence how individuals use and interact with IT (Compeau and Higgins 1995). In the same time researchers still widely report attempts of users to work around systems (Orlikowski 2000; Boudreau and Robey 2005; Vaast and Walsham 2005). This holds even when these systems are very restrictive such as ERP systems (Boudreau and Robey 2005). While these behaviors might be motivated by multiple reasons, users competent enough to use specific IT are probably more capable to use it in faithful ways. Little do we know, however, about the influence of work environment variables on CSE. Researchers indeed investigated CSE as an independent variable, studying its impacts on system usage related variables (e.g., Venkatesh 2000), or as an independent variable studying its individual-related determinants (Thatcher and Perrewe 2002). Few, however, clearly focused on the influence of work environment variable on CSE. Consequently, our research question is the following: What are the influences of broad work environment factors and IT-specific work environment factors on CSE?

Drawing on Thatcher and Perrewe (2002), the purpose of this empirical study is offering further insights on the effects of work environment on IT-specific individual differences. This empirical study has been conducted with 1119 employees attending professional training courses in France. These individuals came from more than 200 organizations. Consequently, an additional strength of this study is the generalizability of its findings to French corporations.

The paper is organized as follows. In the first section, we motivate the need for gaining further insights into the influences of work environment and individual differences on individual reactions with IT. Then we introduce the research model and the hypotheses. The model draws on Ahuja and Thatcher (2005) and on Thatcher and Perrewe (2002) research. Then, we present the methodology and analyses. Finally, we discuss the results and the contributions of this study and conclude with a future research agenda.

2. Theoretical Background

Better understanding user adaptation to IT is a topic of growing interest in information systems (IS) research (Leonard-Barton 1988; Beaudry and Pinsonneault 2005; Deng et al. 2007). Recent research indicates that both individual differences and work environment can influence user interaction with IT (Thatcher and Perrewe 2002; Ahuja and Thatcher 2005; Beaudry and Pinsonneault 2005). Taking into account these factors separately, Thatcher and Perrewé (2002) and Ahuja and Thatcher (2005) provide insightful results, respectively on individual factors leading to CSE and on the influence of work environment on post-adoptive behaviors. Integrating both views can offer, we believe, additional insights on these issues. Therefore, we relied on these studies to develop our research model.

The purpose of Thatcher and Perrewé (2002) was to develop a more comprehensive nomological net around CSE. Thus, they investigated the interplay between IT-specific individual difference (computer anxiety and CSE), situation specific individual difference (personal innovativeness with IT) and broad traits (negative affectivity and trait anxiety). However, although this study furthered our understanding of individual differences leading to IT usage, it only addresses the individual and personal level to explain user self-efficacy with the technology. Though, organizational or environmental factors are likely to play a prominent role in user efficacy with technologies (Ahuja and Thatcher 2005; Deng et al. 2007). It is thus important to integrate this dimension and to study its impacts on aforementioned factors leading to IT use.

Ahuja and Thatcher (2005) partly filled this gap by taking into account several work environment variables to explain user trying to innovate with IT. Ahuja and Thatcher (2005) contend this latter variable is a relevant post-adoption outcome. They finally identified work overload and autonomy to be significant variable that influence trying to innovate with IT. They also showed the role played by gender in user perceptions.

Following Ahuja and Thatcher (2005), this work is an attempt to further examine the effects of work environment on IT related variables. Our focus is on the effects of work environment on IT-specific individual differ-
ences, namely computer anxiety (CA) and CSE. In contrast, Ahuja and Thatcher (2005) examined the influence of work environment on user trying to innovate with IT. We also add another work environment variable, which is IT managerial support.

3. Model and Hypotheses
This paper examines the relationship between work environment, the stable situation-specific trait of personal innovativeness with IT, and a stable broad trait, namely CA.

Drawing on Thatcher and Perrewé (2002), we posit CA as a direct antecedent of CSE. Personal innovativeness is posited to influence both aforementioned variables. We then hypothesize work environment variables of autonomy, quantitative and qualitative overload (Ahuja and Thatcher 2005), as having direct influence on CA. IT managerial support is posited as a direct predictor of CSE. The research model is displayed in Figure 1 below. It has seven hypotheses, which we introduce hereafter.

3.1. IT-specific Individual Differences
Through a synthesis of the literature, Zmud (1979) stressed the role of individual differences for IS success. Specifically, the researcher highlighted three categories of individual differences that are specific to the IS context and that play a significant role in IS use. These categories are cognitive styles, personality and demographic/situational variables (p. 967). Following this research, Karahanna et al. (2002) studied one type of individual differences, namely personality traits, that includes personal innovativeness, written communication apprehension, oral communication apprehension and CA. Karahanna et al. (2002) found that personality traits influence the perception of IT usefulness, namely the relative advantage of decision support systems. Similarly, this research aims at investigating individual differences through personality traits by addressing CA and personal innovativeness with IT. CSE is added as a third individual difference (Thatcher and Perrewe 2002).

3.1.1. Computer Self-Efficacy (CSE)
CSE pertains to the category of dynamic individual differences (Thatcher and Perrewe 2002). CSE is defined as “a judgment of one’s capability to use a computer” (Compeau and Higgins 1995, p. 192). Compeau and Higgins (1995) argued that CSE has three main dimensions. The first dimension is magnitude, which reflects the capability of an individual to perform complex tasks with computers. The second dimension is strength, that is, the confidence of an individual in his/her ability to perform tasks with computers. Finally, generalizability refers to the domain of activity to which CSE applies. Researchers have linked CSE to several outcome variables. For instance, CSE is positively related with outcome expectations (Compeau and Higgins 1995), system usage (Compeau and Higgins 1995; Venkatesh et al. 2003; Thompson et al. 2006), enjoyment during system usage (Compeau and Higgins 1995) and perceived behavioral control (Thompson et al. 2006). Given that the implications of CSE for system usage it is thus important to identify its determinants.

3.1.2. Computer Anxiety (CA)
While Sun and Zhang (2006) identify CSE as a cognitive reaction to IS use, they introduce CA as an affective reaction to IS use. Similarly Venkatesh (2000) considers CA as an emotion in his research model. Therefore, by dealing with CSE and CA variables in our research, we can assess both cognitive and affective reactions linked to IT use. CA refers to an anxious state towards IT use. Usually, individuals who experience CA fear using IT and can be reluctant to interact with it (Igbaria and Parasuraman 1989).

Several studies found that CA is negatively related to IT use (Coiffin and Maclntyre 1999; Venkatesh 2000; Durnedell and Haag 2002). For instance, Durnedell and Haag (2002) showed that lower levels of CA encourage higher levels of system usage, more specifically of Internet use. Other researchers such as Coiffin and Maclntyre (1999) observed the relationship between CA and CSE. They investigated computer-related affective states by conducting a survey with Canadian college students. They found that CA leads to lower levels of CSE. This result was confirmed in another survey by Thatcher and Perrewe.
positive impact of PIIT on ease of use perceptions, CSE. Thompson et al. (2006) also found a strong related with beliefs such as usefulness, ease of use and showed that individual innovativeness is significantly related to CSE and future intentions. Furthermore, Thatcher and Perrewe (2002) linked computer innovativeness to CSE and import outcomes. Corroborating this, Thatcher and Perrewe (2002) found support for this construct in relation with technology adoption. They suggest that personal innovativeness with IT has important impacts on adoption decisions and innovation related outcomes. Corroborating this, Thatcher and Perrewe (2002) linked computer innovativeness to CSE and found CA mediates this relationship. Personal innovativeness with IT is considered a “situation-specific stable trait” (Thatcher and Perrewe 2002, p. 385). As envisaged by Thatcher and Perrewe (2002), Yi et al. (2006, p. 417) showed that individual innovativeness is significantly related with beliefs such as usefulness, ease of use and compatibility. Thompson et al. (2006) also found a strong positive impact of PIIT on ease of use perceptions, CSE and future intentions. Furthermore, Thatcher and Perrewe (2002) found support for the impact of PIIT on CSE and on CA. Hence:

Hypothesis 1: Computer anxiety negatively influences computer self-efficacy.

Furthermore, we note that the aforementioned studies were conducted in an academic setting with college students as subjects. Therefore, testing the influence of CA with a sample of managers will extend the generalizability of these results. The next individual difference this research addresses is personal innovativeness.

3.1.3. Personal Innovativeness with IT

Researchers often distinguish individuals depending on their readiness to adopt a new IT (e.g., Mahajan and Peterson 1978; Brancheau and Wetherbe 1990; Parthasarathy and Bhattacherjee 1998), that is, depending on their personal innovativeness. Agarwal and Prasad (1998, p. 206) define personal innovativeness with IT (PIIT) as “the willingness to try out any new information technology”. They argue that, although innovativeness is an important predictor of adoption, IS research scarcely studied this construct in relation with technology adoption. They suggest that personal innovativeness with IT has important impacts on adoption decisions and innovation related outcomes. Corroborating this, Thatcher and Perrewe (2002) linked computer innovativeness to CSE and found CA mediates this relationship. Personal innovativeness with IT is considered a “situation-specific stable trait” (Thatcher and Perrewe 2002, p. 385). As envisaged by Thatcher and Perrewe (2002), Yi et al. (2006, p. 417) showed that individual innovativeness is significantly related with beliefs such as usefulness, ease of use and compatibility. Thompson et al. (2006) also found a strong positive impact of PIIT on ease of use perceptions, CSE and future intentions. Furthermore, Thatcher and Perrewe (2002) found support for the impact of PIIT on CSE and on CA. Hence:

Hypothesis 2: Personal innovativeness with IT positively influences computer self-efficacy.

Thus, PIIT is related to positive reactions toward IT use (Thatcher and Perrewe 2002; Thatcher et al. 2003; Thompson et al. 2006). It is also expected that PIIT will be negatively related with negative emotions such as CA. Thatcher and Perrewe (2002) indeed found support for this negative relationship. Hence, we posit:

Hypothesis 3: Personal innovativeness with IT negatively influences computer anxiety.

3.2. Work Environment Variables

Recent research highlighted the significant influence of work environment on individual differences, specifically on personality traits (Westerman and Simmons 2007). Indeed, Westerman and Simmons (2007) showed that work environment was a mediator of the relationship between employee personality traits and their performance. Therefore, it is reasonable to argue that work environment can also influence employee performance or efficacy with IT. In this research, the work environment components correspond to perceived autonomy and overload, which were identified by Ahuja et al. (2005) as relevant factors influencing user interaction with IT. In addition to these broad work environment variables, we identify an IT specific work environment variable that can influence system user self-efficacy: IT managerial support.

3.2.1. IT Managerial Support

IT managerial support is an IT-specific work environment variable. Researchers widely recognize the need for top management IT support for effective IT implementation (Bashein and Markus 1994; Martinko et al. 1996). According to Bashein and Markus (1994), managerial support is, indeed, a precondition for business process reengineering success. Leonard-Barton and Deschamps (1988) found managerial support to be related to more IT use. According to these researchers, this concept is in fact related to the concept of subjective norms developed by Fishbein and Ajzen (1975). Given these evidence, Jasper- son et al. (2005) suggested that top managers should continue support IT uses and good practices over time. Moreover, managerial commitment to IT change success has greater impact when it is accompanied by worker empowerment (Bashein and Markus 1994). This can be done through increased self-determination, self-efficacy, and impact (Thomas and Velthouse 1990; Spreitzer 1995). With managerial IT support, we thus expect employees to have a greater sense of self-efficacy and so to be more confident in their IT use. We posit:

Hypothesis 4: IT managerial support is positively related with computer self-efficacy.

3.2.2. Autonomy

Autonomy is related to a sense of freedom in the workplace. It refers to the practices that foster initiative and freedom in individuals’ actions (Seibert et al. 2004). Autonomy is also frequently defined as a component of empowerment (Conger and Kanungo 1988; Thomas and Velthouse 1990; Spreitzer 1995; Seibert et al. 2004). In that, autonomy is similar to self-determination. Self-determination indeed “reflects autonomy over the initiation and continuation of work behavior and processes” (Spreitzer 1996, p. 484). It is often related with work performance and job satisfaction. Ahuja and Thatcher (2005) found that higher levels of autonomy encouraged trying to innovate with IT. Ahuja et al. (2007) related job autonomy to higher levels of organizational commitment and lower levels of of IT road warriors exhaustion. Since autonomous individuals have greater capacity of initiative for making decisions about their work, we expect that autonomy will be related with lower levels of CA.

Hypothesis 5: Autonomy negatively influences computer anxiety.
3.2.3. Overload

Overload is defined as “individuals’ perception that they cannot perform a task because they lack critical resources” (Ahuja and Thatcher 2005, p. 435). Following Sales (1970), Ahuja and Thatcher (2005) distinguished a quantitative and a qualitative dimension of overload. The quantitative dimension of overload refers to what individuals cannot do because of environment limitations. The qualitative dimension of overload refers to the individuals’ perceptions that their tasks require more skills and capacities in their work than they currently possess (Ahuja and Thatcher 2005). Peterson et al. (1995) considered role overload as the lack of personal resources that would permit the individuals to fulfill their commitments, obligations, and requirements (Peterson et al. 1995). Work overload has several consequences on employees such as work exhaustion or turnover. IS implementation in the workplace can facilitate some work activities but, at the same time, can contribute to the intensification of the overall workload and increase professional constraints (Metzger and Cleach 2004).

Hypothesis 6: Quantitative overload positively influences computer anxiety

Hypothesis 7: Qualitative overload positively influences computer anxiety

4. Methods

4.1. Research Design

We used a survey design in order to test our model. Survey designs are particularly appropriate when the purpose of the research is to obtain generalizability of the findings (Pinsonneault and Kraemer 1993). Analyses have been performed with the PLS algorithm based software SmartPLS (Ringle et al. 2005). As compared with covariance based software, PLS places less demands and distributional assumptions of data (Chin 2001).

4.2. Measures

The scales were borrowed from prior research. CSE (3 items) and CA (3 items) are from Venkatesh (2000). Work environment variables, namely autonomy (3 items), quantitative (4 items) and qualitative overload (4 items), were developed by Ahuja and Thatcher (2005). Personal innovativeness is from Agarwal and Prasad (1998). Managerial support was adapted from social factor items available in Thompson and Higgins (1991). All measures were reflective and were assessed with a 7 point Likert scale. The possibility of not answering a question was also given to subjects who did not feel concerned by the statement. All these measures were developed in English. Thus, we first translated them into French and translated them back in English in order to ensure an identical meaning across countries. Details of items are given in Appendix.

4.3. Sampling

Questionnaires were given to workers after professional training courses in a large French training company1. The courses dealt with many general or specialized topics such as time management, personal organization, management control, accounting, team management. Many categories of workers are represented in the sample, from top managers to clerical workers. The questionnaires were distributed randomly across training courses in a period of time of one month. Overall 1129 participants took part in the study. Of these participants, 119 have been retained from analyses because they answered “not concerned” for all the items of at least one construct. Because all constructs are reflective and their items hence interchangeable (Jarvis et al. 2003), once participants answered to at least an item, they were included in the analyses. The final sample is hence of 1010 participants (90%).

Regarding the demographic information of our sample, 44% of the participants were men, and 56% women. 37% were from 26 to 30 years old, 50% from 36 years old to 50 years old, and 10% were more than 50 years old. The participants came from more than 200 companies. 23.3% of the participants work in organizations larger than 10000 employees, and 7.3% work in companies that have less than 500 employees. 57% of the participants were managers and 38% team managers.

4.4. Construct Validity and Reliability

Convergent and discriminant validity are assessed by the cross loadings table and the Average Variance extracted table. The cross loadings are given in Table 1 below. The results show that all items load clearly on their intended constructs, with values greater than 0.60. CSE1 loading on INN was above the cutoff .50 value. Because it was only marginally above this value, we decided to maintain it in analyzes. Also, t-values of the outer model loadings statistics are all greater than 1.96 for items loadings on their constructs. We can thus conclude that all items load significantly on their intended construct which is evidence of appropriate convergent validity (Gefen et al. 2000).

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1 This research has been conducted within the Observatoire Dauphine-Cegos du e-Management, a research partnership between Université Paris-Dauphine and Cegos.
Présentation du modèle à respecter pour la présentation des communications au 10ème congrès de l’AIM

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CA=Computer Anxiety, AU=Autonomy, CSE=Computer Self-Efficacy, INN=Personal Innovativeness with IT, QUAL=Qualitative Overload, QUANT=Quantitative Overload, SUP=IT Managerial Support

Table 1. Cross Loadings

Table 2. Discriminant Validity and Reliability

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CR = Composite Reliability, CA = Cronbach’s Alpha

Discriminant validity is assessed through the average variance extracted. Values on the diagonal are the root square of the average variance extracted for each construct. These values should be greater than any off-diagonal value. Since this condition is satisfied, we can conclude that our instrument has appropriate discriminant validity. The AVE table is given in Table 2 below.

Finally, reliability was checked with composite reliability (Fornell and Larcker 1981) and Cronbach’s Alphas. All values of Cronbach’s Alphas and composite reliability were well above the 0.70 generally accepted threshold (Boudreau et al. 2001). Thus, our constructs have appropriate internal consistency.

Given the very good values overall for convergent validity, discriminant validity, and reliability, we can thus conclude that our instrument has appropriate measurement properties. The step that follows is the analysis of structural paths.

5. Analyses

For the test of structural paths, we included gender, experience with IT, and age as control variables. The overall results are summarized in Figure 2 and Table 3 below.
Présentation du modèle à respecter pour la présentation des communications au 10ème congrès de l'AIM

Figure 2. Summary of Results

The variance explained for CA was $R^2 = .27$. Like expected, we found a significant negative influence of autonomy on CA ($\beta = -.14$, $p < .000$). We also found a positive relationship between qualitative overload and CA ($\beta = .33$, $p < .000$). As expected also, we found a negative relationship between personal innovativeness and CA ($\beta = -.20$, $p < .000$). However, unexpectedly, we found no significant influence of quantitative overload on CA ($\beta = .04$, N.S.). This suggests that having too much work to perform has no influence on an individual’s CA. Age, which was posited as a control variable was found to significantly influence CA ($\beta = .20$, $p < .000$), which suggests that eldest people tend to be more computer anxious than the youngest ones. Experience with IT was found to be significant with a small negative impact on CA ($\beta = -.06$, $p < .05$), suggesting that the more experience individuals have, the less computer anxious they are likely to be. Finally, we found a small and barely significant effect of gender ($\beta = -.05$, $p < .05$), with women less computer anxious than men.

Our model explains 28 % of the variance for CSE ($R^2 = .36$). CA was found to be a significant negative predictor of CSE ($\beta = -.25$, $p < .000$). Similarly, personal innovativeness was found to be a significant predictor ($\beta = -.20$, $p < .000$) of CA. These results are consistent with prior research on the topic (Thatcher and Perrewe 2002). As well, age ($\beta = -.09$, $p < .000$), experience with IT ($\beta = .07$, $p < .05$), and gender ($\beta = -.11$, $p < .000$) were found to significantly impact CSE. This suggests the elder and the more experienced the individuals are, the more self-efficient they feel. In contrast, women feel less self efficient than men. Finally, IT support was found to significantly impact CSE, which is consistent with our expectations ($\beta = .27$, $p < .000$). The results are summarized in Table 3 below.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>P.C.</th>
<th>S.D.</th>
<th>S.E.</th>
<th>T.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.V. Computer Self-Efficacy ($R^2 = .36$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Anxiety</td>
<td>-.25</td>
<td>.03</td>
<td>.03</td>
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<tr>
<td>Innovativeness</td>
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<td>.03</td>
<td>.03</td>
<td>10.35***</td>
</tr>
<tr>
<td>Support</td>
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<td>.02</td>
<td>.02</td>
<td>10.85***</td>
</tr>
<tr>
<td>Age</td>
<td>-.09</td>
<td>.03</td>
<td>.03</td>
<td>3.71***</td>
</tr>
<tr>
<td>Gender</td>
<td>-.11</td>
<td>.03</td>
<td>.03</td>
<td>4.37***</td>
</tr>
<tr>
<td>Experience with IT</td>
<td>.07</td>
<td>.03</td>
<td>.03</td>
<td>2.74**</td>
</tr>
<tr>
<td>D.V. Computer Anxiety ($R^2 = .27$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.14</td>
<td>.03</td>
<td>.03</td>
<td>5.15***</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>-.20</td>
<td>.03</td>
<td>.03</td>
<td>7.31***</td>
</tr>
<tr>
<td>Qualitative Overload</td>
<td>.33</td>
<td>.03</td>
<td>.03</td>
<td>10.18***</td>
</tr>
<tr>
<td>Quantitative Overload</td>
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<td>.03</td>
<td>.03</td>
<td>1.30</td>
</tr>
<tr>
<td>Age</td>
<td>.20</td>
<td>.03</td>
<td>.03</td>
<td>7.60***</td>
</tr>
<tr>
<td>Gender</td>
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<td>.03</td>
<td>.03</td>
<td>1.98</td>
</tr>
<tr>
<td>Experience with IT</td>
<td>-.06</td>
<td>.03</td>
<td>.03</td>
<td>2.45*</td>
</tr>
</tbody>
</table>

Significance: *$p < .05$. **$p < .01$. ***$p < .000$

Table 3. Path Coefficients

Overall, excepted for the influence of quantitative overload on CA, which was found to be insignificant, our hypotheses (summarized in Table 5 below) are thus well supported.
Moreover, it seems that deep structure usage can only be of the IT and take advantage of its full capabilities. Further, in which users employ the more advanced functionalities of the IT technology. Burton-Jones and Straub (2006) highlighted the fact that IS use can vary from a low structure to a deep structure. Deep structure usage corresponds to a situation in which users employ the more advanced functionalities of the IT and take advantage of its full capabilities. Furthermore, it seems that deep structure usage can only be reached if users develop good ability to use computers (Compeau and Higgins 1995). Therefore, identifying the predictors of CSE enables a better understanding of IT use.

Second, this study extends prior work of Thatcher and Perrewe (2002) and of Ahuja and Thatcher (2005) with the posited influence of work environment variables on individual reactions to IT. We show that qualitative overload and autonomy are factors influencing CA and that IT managerial support predicts CSE. In contrast, we found no influence of quantitative overload on IT-specific individual differences.

Third, this research contributes to the external validity of prior research. Both Ahuja and Thatcher (2005) and Thatcher and Perrewé (2002), conducted their investigation with relatively small samples of student subjects in university settings (respectively N=235 and N=263). In spite of the strengths of such sampling method, especially with graduate students (Gordon et al. 1986), researchers suggest field research offer additional insights and better external validity (Bouchard 1976). By using a large sample (N=1010) of individuals with diverse backgrounds and working in different types of organizations, our study contributes to making a step forward to generalizing prior findings to the settings of French corporations. Additionally, by surveying individuals about their IT use context, we also extend the generalizability of our findings to the “ongoing use context” (Deng et al. 2007). Indeed, Deng et al. (2007) noted that most IS research dealing with CSE has focused on a training context by giving little attention to variables such as autonomy, support or personal innovativeness. This research deals with all the former variables and focuses on the post-implementation context, making our results generalizable to the ongoing use context. “The ongoing use context is where the computer actually adds value by enabling people to do work faster, better, or more creatively and, thereby, create real business value” (Deng et al. 2007, p.396). Deng et al. (2007) also explain that the ongoing use context is the step coming after training. Generally, in the ongoing use context, individuals have been using the technology for a long time and they use the technology to better perform their tasks.

Finally, the results of this study can help practitioners take into account the individual differences and work environment variables examined in this study when de-

### Table 5. Summary of Hypotheses

<table>
<thead>
<tr>
<th>#</th>
<th>Hypothesis</th>
<th>Validation</th>
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</thead>
<tbody>
<tr>
<td>H1</td>
<td>Computer anxiety positively influence computer self-efficacy</td>
<td>Yes***</td>
</tr>
<tr>
<td>H2</td>
<td>Personal innovativeness with IT positively influence computer self-efficacy</td>
<td>Yes***</td>
</tr>
<tr>
<td>H3</td>
<td>Personal innovativeness with IT negatively influences computer anxiety</td>
<td>Yes***</td>
</tr>
<tr>
<td>H4</td>
<td>IT managerial Support is positively related with computer self-efficacy</td>
<td>Yes***</td>
</tr>
<tr>
<td>H5</td>
<td>Autonomy negatively influences computer anxiety</td>
<td>Yes***</td>
</tr>
<tr>
<td>H6</td>
<td>Quantitative overload positively influences computer anxiety</td>
<td>No</td>
</tr>
<tr>
<td>H7</td>
<td>Qualitative overload positively influences computer anxiety</td>
<td>Yes***</td>
</tr>
</tbody>
</table>

Significance: *p < .05. **p < .01. ***p < .000
signing courses related with adaptation to IT and IT usage. It suggests that providing autonomy and training to people make them more confident when they interact with IT. This is also consistent with prior work on empowerment, contending autonomy and competence can help people become more efficient in the workplace (Conger and Kanungo 1988; Thomas and Velthouse 1990; Spreitzer 1995).

This research has also limitations, which is important to review. The main limitation of this study is, as in Thatcher and Perrewé (2002), its internal validity. Indeed, data have been gathered through self reports, with hence the predictor and criterion variable measures provided by the same person (Podsakoff et al. 2003). Participants may seek to remain consistent in their responses, and to respond according to social desirability. In order to mitigate the impacts of these potential problems, participants’ anonymity was guaranteed and they were asked to respond as honestly as possible. Participants were also given the possibility to send their responses by regular mail. Furthermore, the statistical tests performed (discussed in the analyses section) showed that common methods bias were not a concern in this study.

### 7. Conclusions

Building on and extending prior research (Thatcher and Perrewé 2002; Ahuja and Thatcher 2005), this study confirms and extends our understanding of the impacts of work environment variables on individual differences. This study posits broad work environment factors (autonomy, quantitative overload), and IT-specific work environment factors (IT managerial support) as influencing CSE. Of the posited relationships, only quantitative overload was found to be non significant. While prior research (Thatcher and Perrewé 2002; Ahuja and Thatcher 2005) was conducted with student subjects in an only university setting, the present study has been conducted with a much larger sample of individuals from multiple backgrounds in a French setting. Practitioners might want to take the highlighted relationships into account in order to optimize the mutual adaptation between work environments, individuals and IT.

### References


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