

2009

A Model of Individual Coping with Information Technology Challenges to Identity

Hamid Nach

Ecole des Sciences de la Gestion, nach.hamid@uqam.ca

Albert Lejeune

Ecole des Sciences de la Gestion, lejeune.albert@uqam.ca

Follow this and additional works at: <http://aisel.aisnet.org/amcis2009>

Recommended Citation

Nach, Hamid and Lejeune, Albert, "A Model of Individual Coping with Information Technology Challenges to Identity" (2009).
AMCIS 2009 Proceedings. 174.

<http://aisel.aisnet.org/amcis2009/174>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2009 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

A Model of Individual Coping with Information Technology Challenges to Identity

Hamid Nach

École des Sciences de la Gestion
UQAM, Montreal, Canada
nach.hamid@uqam.ca

Albert Lejeune

École des Sciences de la Gestion
UQAM, Montreal, Canada
lejeune.albert@uqam.ca

ABSTRACT

Drawing on ideas from identity control theory and coping theory and on a diverse range of social psychology literature, we propose an integrative theoretical framework that unpacks and traces the processes by which information technology comes to affect users' identity. We define four types of strategies (acting on the situation, adjusting the self, catharsis and distancing) through which people cope with technological challenges to the self. We suggest that these strategies may lead to four individual-level outcomes, namely reinforced identity, redefined identity, ambivalent identity and anti-identity. The model is provided with a preliminary support through reference to real life situations, carefully selected from extant empirical IS enquiries.

Keywords

Identity control theory, coping theory, information technology, identity.

INTRODUCTION

In the last few years, information technology (IT) has ceased to be the exclusive realm of specialists as managers and workers from diverse areas rely to an ever-increasing degree on IT to accomplish their work. However, to fit in their new IT environment, organizational actors are required to develop new skills, behaviors and attitudes while dismissing others, and this may pose serious challenges to their sense of self (Lamb and Davidson, 2005). Indeed, by altering the way people work, IT may not only redefine their roles and role expectations but may also disrupt the social and psychological processes underlying identification through which individuals come to understand *who they are* as persons and role occupants (Burke, 2000). IT may actually bring new meanings, replacing or discarding others that are central to people's positive view of themselves (Burke, 2007, Walsham, 1998). For example, technology may provide individuals with less autonomy and responsibility than their previous ways of working, and this may introduce feelings of inadequacy and dislocation and pose a threat to their identities as competent workers (Walsham, 1998, Pettigrew, 1985). Similarly, IT may add, remove or alter aspects of a role that are deep-rooted in an individual's sense of self. Such situations may lead to feelings of frustration, alienation, disaffection and estrangement which eventually prompt individuals to employ efforts to deal with the threatening situation (Beaudry and Pinsonneault, 2005, Cast and Burke, 2002).

In information system (IS) literature, there is a substantive and rich body of research that examines individuals' reactions to IT and the impact of technology on their work environment (e.g. Beaudry and Pinsonneault, 2005, Tyre and Orlikowski, 1996, Griffith, 1999, Pinsonneault and Rivard, 1998, Monteiro and Hanseth, 1996). We believe, however, that the theoretical accounts developed so far in this literature have largely ignored *identity* as an analytical category. This is somewhat surprising given the importance of the concept in other disciplines such as management, social sciences, organizational behavior and social psychology, which have long acknowledged identity as a potent means to explore and explain a range of social and organizational phenomena (Foreman and Whetten, 2002). For example, identity has been used to explain organizational processes and behaviors such as adaptation (Ibarra, 1999), cooperation (Dutton et al. 1994), loyalty (Chung et al. 2001), commitment (Sass and Canary 1991), motivation (Knippenberg 2000), communication patterns (Korver and van Ruler 2003), career change (Ibarra 2007), dynamics of control and resistance (Sveningsson and Larsson 2006), organizational change (McInnes et al. 2006), leadership and managerial work (Alvesson and Willmott 2002). Such studies have produced a wealth of insights and a great many theoretical accounts. In information system, however, our knowledge of the linkage between information technology and identity remains, thus far, limited and much remains to be explored (Nach and Lejeune, 2009). For example, it is not clear how individuals adapt to information technology challenges to their identity neither how they strive to define or redefine themselves in response to substantive shifts induced by IT. In this study, we take a first step towards filling this particular gap. Drawing

on ideas from identity control theory (Burke, 2007) and coping theory (Folkman et al., 1986, Lazarus and Folkman, 1984), the objective of the paper is to build an integrative theoretical framework that unpacks and traces the processes by which information technology comes to affect organizational actors' identity. We defined four types of strategies (acting on the situation, adjusting the self, catharsis and distancing) through which people cope with technological challenges to their self. We suggest that these strategies may lead to four individual-level outcomes, namely reinforced identity, redefined identity, ambivalent identity and anti-identity. We provide the suggested model with a preliminary support through reference to real life situations, carefully selected from extant empirical IS enquiries.

This paper is organized as follows; in the first section we present the premises of the identity control theory. Next, we present the model and how coping theory is incorporated into it. Then, we define four strategies of coping with information technology challenges to identity and their potential outcomes. The last section discusses the contributions and implications of the model and suggests avenues for future research.

IDENTITY CONTROL THEORY

Interest in identity within the organizational context has grown considerably over the last decade, as it has emerged as an important variable capable of explaining a range of organizational behavior. Theorists understand identities as internally stored information and meanings that provide contextually appropriate answers to the question "who am I?" and serve as frameworks for interpreting experience (Burke, 2000). Burke's groundbreaking work introducing identity control theory (ICT) is of a particular interest in this research as it addresses the internal dynamics that operate within the self when a person claims an identity (Burke, 2007). Within ICT, identity is the set of meanings that define who one is as a person (e.g. friendly, honest), as a role occupant (e.g. project manager, sales representative) or as a group member (e.g. Canadian or female) (Burke, 2000). These meanings constitute what is termed an *identity standard* (Burke, 1991). So far, the identity standard is only one part of a dynamic, self-regulating control system that operates when an identity is activated and which has in fact four other components (Burke, 2000). The first component is the *perception* of meanings that are relevant to our identity, meanings which usually come from others' feedback about how we are coming across in a particular situation. The second component is a process called the *comparator* which compares the perceived meanings with those held in the identity standard. The third element is the *error* signal emitted by the comparator, notifying us if a discrepancy is registered. The last element is the set of *behaviors* that aim to change the situation, in case of a discrepancy, so that one's perceived self-relevant meanings once again match the meanings held in one's identity standard (Burke, 1991, Burke, 1996).

According to identity control theory, if, in an interactive setting, people perceive their reflected identity meanings to be congruent with the meanings in their identity standard, they will continue to act in the same manner that is producing those perceptions of the self (Stets and Burke, 1994). If there is high discrepancy, however, people will change their behavior in order to counteract the disturbance and reduce the discrepancy (Burke, 1991). This process of controlling perceptions of identity-relevant meanings to make them congruent with the meanings in the identity standard is also termed the process of identity verification (Burke, 2007). In addition, ICT considers the emotional reactions that people have in response to identity confirmation or disconfirmation. Thus if a discrepancy is large or is increasing, people experience negative emotions such as stress, frustration and discomfort; if it is small or decreasing, they experience positive affect such as self-esteem, joy and a sense of mastery (Cast and Burke, 2002).

THE MODEL

The model depicted in figure 1 builds on premises of identity control theory (Burke, 2007, Burke, 1991) and coping theory (Pearlin and Schooler, 1978). It provides insights on the internal dynamics that operate within the self when an individual's identity is challenged in the course of interactions with information technology. As shown in the figure, the process starts with exposure to a new IT which is often considered as a major organizational change that can affect job activities and role expectations (Orlikowski, 2000). Subsequently, individuals perceptually and cognitively appraise the IT experience and verify how self-relevant meanings reflected in the course of interaction with the technology are consistent with the way they actually see themselves.

When reflected identity-relevant meanings match one's identity standard, the individual experiences positive emotions such as satisfaction, enthusiasm, enjoyment and excitement. Indeed, users may find that a given technology provides a creative way of doing their job, one that may add a desired role that confirms, supports and reinforces their identities. For example, Lee and his colleagues (2006) showed that teachers who consider the use of WebCT to be important in fulfilling their role as 'instructor' reported being particularly satisfied with the use of the technology. Similarly, Barrett et al. (2001) examined the case of implementation of a geographical information system (GIS) in the Indian forestry

sector and documented how a user was enthusiastic as his role of *'planning officer'* became more significant with the use of the GIS. The worker remarked that he naturally endorsed the technology because he believed it would enhance the performance of his *'forest officer'* identity. The study by Lamb and Davidson (2005) has similar elements: the authors (2005) describe how some scientists were passionate about using particular advanced technologies as they conferred valued status and identity on them, enhancing distinction within their community.

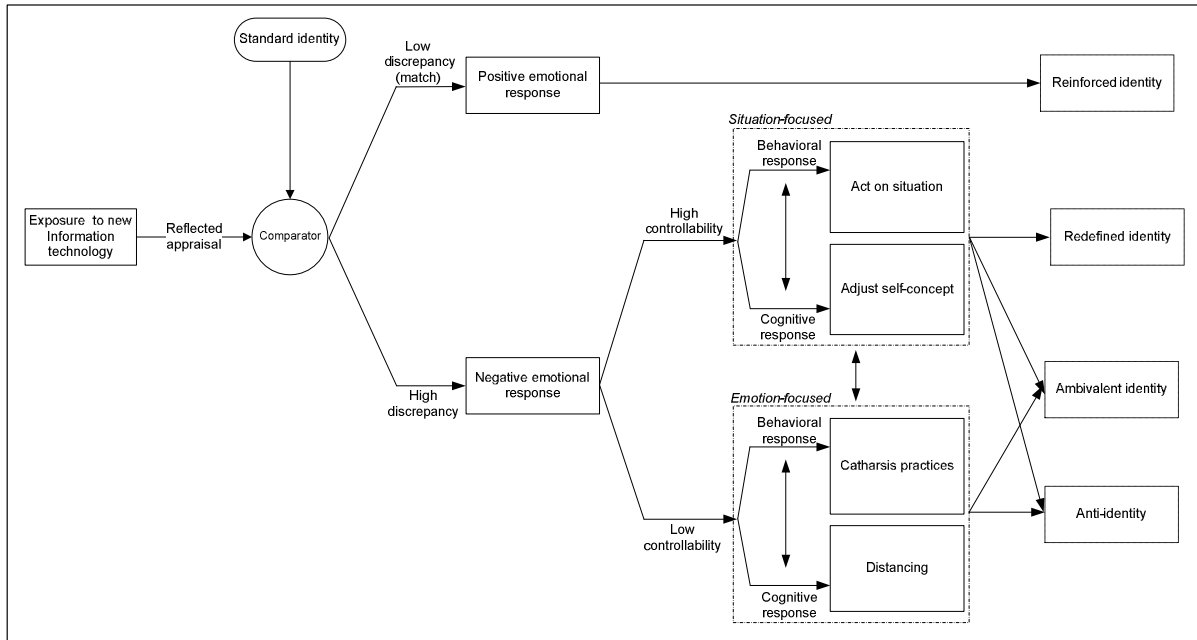


Figure 1: A theoretical model of coping with IT challenges to identity

On the other hand, when there is a large discrepancy between the perceptions of self-relevant meanings while interacting with technology and the meanings carried in the identity standard, an "error signal" is emitted by the comparator (Burke and Stets, 1999). In such cases, IT may have imposed a meaning on the individual independent of, or counter to, his or her values, beliefs and behaviors. For example, a Group Decision Support System (GDSS) may promote participative leadership – i.e. consulting peers in decision-making – whereas the person sees himself as a ‘directive leader’ who typically seeks followers’ compliance. As an immediate result of such discrepancy, the individual experiences negative emotional arousal such as dissatisfaction: this has probably been the most documented affective reaction in IS literature (Martinko et al., 1996). There are, however, other emotions that have been recognized as negative affective reactions to IT, although they have received only scant attention in IS research: these reactions include anxiety, stress, hostility, anger, distress, frustration, discomfort, depression and fear (Cenfetelli, 2004, Martinko et al., 1996).

As example of emotional arousal related to identity discrepancy, we may consider the case described by Walsham (1998) of a professional salesperson who was particularly distressed by a Groupware System that he saw as inadequate for his own purposes in a number of respects. A case study by Novek (2002) gives a similar picture. Indeed, the author describes how a new Drug Distribution System became a frustrating daily reality to a group of pharmacists who were given only limited flexibility in their work. One pharmacist lamented:

“I’m losing my pharmacy skills ... I could do more clinical pharmacy at Shopper’s Drug Mart where at least I’d get to talk to the customers”.

As discussed above, ICT posits that, in cases where the perceived identity comparison gap is too great, congruence-enhancing responses will be triggered, providing motivation to remediate the problem (Burke, 2000). For example, a person may use a behavioral strategy (e.g. confronting the identity-threatening event) to modify the situation, or use a cognitive strategy (e.g. reassessing one's core beliefs) to modify the meaning of the situation (Stets and Tsushima, 2001). Burke (1996), in later works, refers to these strategies as coping responses. Coping refers to the specific efforts that people employ to master, tolerate, reduce, or minimize stress stemming from problematic social experiences such as identity interruption (Lazarus and Folkman, 1984, Burke, 1991). However, identity control theory (Burke, 2000) does

not say much about the nature of the conditions under which each coping strategy occurs. The theory remains somewhat silent on the types and outcomes of the efforts people deploy when their identity is disrupted. Interestingly, some useful theoretical insights into the nature of these dynamics are provided by the coping theory (Pearlin and Schooler, 1978) that we present in the next section.

Coping Theory

In this section we move towards integrating premises of coping theory into the model. Coping theory suggests that people employ two types of strategies to deal with threatening situations: *situation-focused strategies* and *emotion-focused strategies* (Folkman and Lazarus, 1980). Situation-focused strategies are geared towards changing or solving the problematic situation (Folkman et al., 1986). They include efforts like direct action, planning, and information-seeking (Pearlin and Schooler, 1978). Emotion-focused strategies, on the other hand, aim to reduce the negative emotional impact of the problem (Folkman and Lazarus, 1980). They include attempts such as feelings reinterpretation, distancing oneself and diverting attention away from the stressor (Thoits, 1991). Markedly, this type of coping does not seek to alter the stressful event as much as it aims to vent the stress it arouses (Pearlin and Schooler, 1978).

Coping theorists assert that people use actually both strategies to deal with stressful episodes (Thoits, 1991). Yet, they underline that one type of strategy may prevail over another based on the extent of control the person has over the situation (Taylor, 1998). Controllability includes both the ability to lead the circumstances that created the stress to change and the ability to control and adjust oneself to the demanding situation, either cognitively or behaviorally (Aldwin, 1994, Stets and Burke, 1994). Hence, when a troubled person-environment relation is perceived as 'controllable', individuals will use proportionally more problem-focused strategies than emotion-focused ones; and when it is perceived as 'uncontrollable' they will engage proportionally more emotion-focused coping efforts than problem-focused ones (Thoits, 1991).

Therefore, we suggest that in response to an information technology situation that is challenging to identity, a person will engage in behavior that is a function of the extent to which the self and work environment are appraised as amenable to change. At one end of this appraisal continuum are those situations over which the individual believes he or she has control and about which something constructive can be done; these situations call for problem-focused forms of coping (e.g. learning new skills, misusing the system); at the other end are situations that are seen as totally beyond the individual's control and that have to be endured nonetheless, such in organizational downsizing; these situations, by contrast, call for emotion-focused forms of coping (e.g. voicing frustration).

Four strategies of coping with information technology challenges to identity

As a reminder, we asserted that according to ICT, individuals engage in some behavioral and/or cognitive efforts to deal with disrupted identities (Burke, 1991, Stets and Tsushima, 2001). Interestingly, this behavioral/cognitive distinction was also considered by coping theorists (Pearlin and Schooler, 1978, Lazarus and Folkman, 1984). Evidence suggests that, in response to problematic events, people attempt to alter the problem or the negative emotions either with a behavioral or a cognitive strategy (Lazarus and Folkman, 1984). Hence, based on this distinction, we propose a four-fold classification of coping strategies with IT threats to a user's identity. As we show in table 1, situations can be altered behaviorally (acting on situation) or cognitively (adjusting the self) and emotional reactions can be altered behaviorally (catharsis practices) or cognitively (distancing). For the sake of clarity, we present each of these response modes as a dominant aspect of a chosen strategy, as we believe behavior and cognition are actually linked to each other. In the following section, we move forward to present these strategies and illustrate each of them with empirical evidence from extant IS inquiries.

Situation-focused	Adjust the self	Act on situation
Emotion-focused	Distancing	Catharsis practices
	Cognitive response	Behavioral response

Table 1: Four strategies of coping with IT challenges to identity

Situation-focused strategies

Act on situation: The first quadrant of the proposed classification is “*acting on situation*”. We suggest that when individuals believe they can do something when their identity is threatened by information technology, they will take action to defend their valued identity and attempt to bring their work environment back into line with their self. Some of these reactions are widely documented in IS literature and take the form of active resistance, complete rejection of the technology, partial use of its functionalities, changing technology features, changing procedures and routines, system misuse, system workarounds or even sabotage (Martinko et al., 1996, Agarwal, 2000, Marakas and Hornik, 1996, Tyre and Orlikowski, 1996).

To illustrate the use of this strategy, consider Alvarez’s case study (2008) of an Enterprise System that seriously challenged the identity of scheduling representatives (SR) in a public research university. With the arrival of the system, the role of SRs went from ‘*academic advisors*’ who determine which students are assigned to which courses, since they were familiar with the degree requirements of their respective departments, to ‘*traffic cops*’ who merely route requests through strict adherence to policy and rules. The routines inscribed into the system had the effect of limiting SRs’ view of information and thereby their ability to provide the breadth and depth of services that they had in the past. Some representatives were distressed as they felt the system stripped them of their autonomy and valued identity. In response to this encounter, they used a combination of resistance acts such as creative workarounds, misuse, and partial use of the system in an attempt to re-establish their sense of self. These tactics, however, only managed to restore a certain amount of control over their work process.

Similarly, Schultze and Boland (2000) report that a Knowledge Management System (KMS) challenged the identity of a group of business analysts in a US-company. Initially, the analysts viewed themselves as ‘*strategic advisors*’ whose role was continuously to scan the environment in order to be alerted to relevant information and convey it upwards to decision-makers. With the introduction of the KMS, however, they found themselves in a newly democratized world of information in which their gatekeeping and information-producing role was contested. Indeed, the system advocated an open access and share policy to which the analysts were particularly opposed. Turned into simple ‘*knowledge workers*’ with no specific privileges, the analysts reproduced pre-existing practices and made minimal use of the system in an attempt to preserve their valued identity.

Adjust the self: The second strategy in our model is “*adjusting the self*”. Situation-focused coping has been found to be associated with some degree of self-adjustment to threatening circumstances, particularly when people believe they have a relative degree of control over their selves (Aldwin, 1994). Hence, we suggest that IT users may accommodate aspects of their self in a bid to bring it in line with the new IT environment and, therefore, reduce the identity-dissonant state. For example, individuals may resist particular requirements of a technology but consent to adjust some personal habits to fit other requirements. Similarly, a user may be initially reluctant to use a technology but choose to fully adapt to the new work environment by learning new skills in response to sustained support from management or perceived value in the long run.

The case of loan managers at ABC Bank provides a good illustration of the self-adjustment strategy (Walsham, 1998).

Walsham (1998) reported that the Bank embarked on an ambitious program of reform of its loan activities based on a Decision Support System (DSS). The purpose of the technology was to give 'recommendations' to loan managers in their decision making. However, many loan managers perceived the system as unhelpful and particularly threatening to their identity. Indeed, the '*loan managers*' became '*loan workers*', subject to extensive control and surveillance, whereas in the past, they had enjoyed a certain degree of autonomy in their business activities. Although some managers frequently overdrove the 'advice' of the system and used their intuition to act in congruence with their self, still they spent some time learning the system and adjusting to the new work environment, viewing it as potentially valuable in the longer term.

In a similar spirit, Gal et al. (2008) documented the case of construction engineers whose identity was markedly affected by the integration of a 3D technology in their construction practice. The technology called for a radical replacement of conventional tools used in the company. The engineers were reluctant as they perceived the system to be complex and required an entire learning curve at once. However, they agreed to make major adjustments to their work. They learned how to use the software and integrate it into their practices. As a result, after the technology was integrated, the engineers became, metaphorically, "*air traffic controllers*" whose major activity was to sit in front of a computer supplying information and guiding subcontractors.

Emotion-focused strategies

Emotion-focused coping efforts, as stated above, deal with the feelings of hopelessness that are typically generated by low-control stressors. They are geared towards regulating the negative emotional impact of the stressful event (Lazarus, 1975). Several studies have found that coping mechanisms of this type tend to be associated with poor self-adjustment or failure to confront the problematic situation (Aldwin, 1994). Thus, failure to diminish an IT-caused identity discrepancy, either by acting on the situation or adjusting the self, is likely to trigger some emotion-focused responses. As shown in the model, these responses are of two types: behavioral (catharsis) and cognitive (distancing). Their primary function is to minimize the discomforts engendered by the IT event and to help re-establish some emotional equilibrium (Pearlin and Schooler, 1978).

Catharsis practices: Catharsis refers to the process of gaining relief through outwardly expressing frustration (Verona and Sullivan, 2008). It consists of activities that help people get some emotional relief from a persistent stress (Scheff, 1979, Cunha and Orlikowski, 2008). While there is little agreement about the nature of processes through which catharsis allow people to release tension (Bushman, 2002), scholars consider practices to be cathartic to the extent that they allow people to vent the tension they experience as a result of low-control stressors (Cunha and Orlikowski, 2008).

In IT literature, the case documented by Cunha and Orlikowski (2008) provides an exemplary illustration of the use of catharsis in response to a threatening IT event. The authors examined how employees at Epsilon, a European petroleum products company, used an online discussion forum to help them deal with IT organizational changes that they perceived as threatening to their identity. Employees interpreted the projected change as dismissive of their long-standing contributions to the company. Hence, because they felt powerless to divert or stop the change process, employees at Epsilon attempted to cope with the ongoing attacks to their identity and vent their anger and frustration through the use of online forums. In a case like this, the use of forums could be understood as a form of catharsis as it was meant to release the tensions associated with threats to their identity without having directly to confront or contest the source of those threats. In the following excerpt, the authors explain the employees' concerns.

... No matter how much Epsilon employees interpreted these changes to be threatening to their identity, they believed that there was *little they could do about them*. Feeling disempowered to resist the change program, they found an outlet for these *frustrations* in participating in discussions about the meaning and impact of the changes. In particular, many found the online forum a valuable discursive resource for venting about the changes [...]. In this way, they experienced some measure of *release* from the negative emotions and tensions associated with what they interpreted as ongoing threats to their identity. This process of venting can be seen to be *cathartic* [...], and we identified three specific practices through which employees performed such catharsis: constructing counter-narratives; sharing protest stories; and expressing solidarity.¹ (Cunha and Orlikowski, 2008, p. 141)

Distancing: Cognition and cognitive processes are believed to provide people with some relief or prevent them from

¹ Italics added.

being overwhelmed by situational stress (Lazarus, 1975). When people feel there is nothing that they can do about a stressful situation, they are likely to use ‘*distancing*’ to regulate their anger (Garnefski et al., 2002). Distancing refers to coping through cognitive detachment from a threatening situation that is to be endured (Mikulincer and Florian, 2002). It acts as a ‘defense mechanism’ employed to protect oneself from unpleasant emotions related, particularly, to unalterable stressors (Folkman et al., 1986). To ‘*detach*’ themselves from a context perceived as aversive, individuals may, for example, avoid thinking about it; divert attention away from the problem; use humor, making light of the situation; or mentally disengage from the goal with which the stressor is interfering (Stone et al., 1995). In the case described by Cunha and Orlikowski (2008) mentioned above, some employees used humor to reduce resentment while others refused to believe that change was actually happening.

It is believed that the use of distancing may initially help individuals diffuse stress associated with problematic situations and maintain some emotional balance. In the long run, however, the use of this strategy has been found to have detrimental effects as frustration is likely to increase if the situation remains unchanged (Mikulincer and Florian, 2002). In the remainder of this paper, we discuss some potential outcomes of users’ responses to IT challenges to identity.

Outcomes of coping strategies

Outcomes of situation-focused strategies

As previously discussed, *acting on the situation* — as a behavioral strategy— and *adjusting oneself* — as a cognitive strategy — are situation-focused strategies that generally operate interactively when dealing with identity-threatening situations induced by information technology. We postulate that, in terms of their outcomes, these coping strategies may lead either to a *redefined identity*, to an *ambivalent identity* or to an *anti-identity*.

Redefined identity: When dealing with a threatened identity, individuals may seek to adjust themselves or negotiate rearrangement of the problematic situation such that a new satisfying synthesis is attained (Ibarra, 1999). In instances where they are successful, their standard identity is deemed to have incorporated new meanings and probably to have removed existing ones in a deliberate and consenting fashion. In such cases, identity will have been consistently ‘*redefined*’ in light of new circumstances, and the discrepancy will have been brought back to zero. For example, a technology may initially be perceived as threatening to identity, but pressuring management to make significant changes to some of its features may lead to positive reappraisal. Hence, when changes are applied, the person would typically welcome the use of the technology and incorporate the meanings associated with it, sometimes irrevocably, within his or her self-conceptions. Or, the person might make meaningful changes to his or her self-conceptions so that they became more consistent with the role performance embedded in the technology.

As an illustration, consider the case of the ‘shopfloor supervisors’ at Albert’s, a medium-sized manufacturer who decided to introduce a Computer Integrated Manufacturing technology in its production line (Agnew et al., 1997). Although supervisors were initially reluctant to use the technology, which was perceived as threatening to their identity, they did try to adapt to the demanding situation by learning new skills. Consequently, their role underwent considerable transformation which they later came to welcome. One supervisor remarked:

There is a higher level of responsibility in this job now than before ... there is more to the job. I have had to learn how to make decisions and how to handle people ... skills I did not have before. (Agnew et al., 1997, p. 322).

Supervisors now have responsibility for a wider range of tasks than was previously the case. This involves not ‘only responsibility for the smooth running of the linestyle assembly process, but also a host of ancillary tasks, including morale and motivation, quality issues, training, absenteeism and sickness, accident and injury, as well as responsibility for ensuring customer delivery and output targets’ (Agnew et al., 1997, p. 323). Due to these changes, the workers naturally turned into ‘*team leaders*’ while they were previously termed ‘*shopfloor supervisors*’.

Ambivalent identity: As it has been suggested, situation-focused efforts may lead to a *redefined identity* in cases where the person assimilates and internalizes values associated with the new IT environment. However, an individual may not *fully* adapt to the demanding situation nor bring it *thoroughly* in line with his or her standard meanings. Therefore, the individual is likely to exhibit a cognitive ambivalence toward the IT-based change, viewing some aspects positively and others negatively. These “two minds” people, as expressed by Pratt (2000), experience clashes in their role expectations

because of incompatible demands on their identity; this would be the case of a professor who identifies with the research component of the role and disidentifies with the teaching component (Kreiner and Ashforth, 2004).

Evidence of this type of occurrence can be found in the IS literature. A first example comes from the case of a Taiwanese newspaper that decided to introduce computers in the newsroom for the sake of efficiency (Liu, 2006). Journalists decided to embrace the proposed change, although somewhat reluctantly, by learning new technical skills and adapting to new role expectations. The technology, however, altered reporters' news gathering and writing processes and shaped their identity in an ambivalent way. On one hand, journalists acknowledged that the technology allowed them to gather abundant data quickly and in a convenient way. It also made the writing process more efficient as they were able to replicate stories immediately with only a few clicks of the mouse. Journalists also valued the speed and convenience of communicating with their sources and supervisors. On the other hand, as productivity improved, the technology increased the pressure on reporters and their workload. The heavy workload and the requirement of immediacy have re-shaped reporters into '*typing machines*' (Liu, 2006). Under severe pressure, many newspaper journalists reported they were too busy to analyze and verify information carefully. A reporter lamented:

I felt like I was typing all the time ... I just 'copied' press releases rather than 'reporting,' because I had no time to cover events themselves (Liu, 2006, p. 707).

Journalists were frustrated with their work as they believed what they provided were "messages" rather than "news stories". Such change was in conflict with their vision of a 'reporter' whose duty is to provide analysis based on facts and his or her own experience and knowledge.

Wilson's case study (2002) of nurses' reaction to a clinical management system in a UK hospital has similar elements. The system was intended to replace the hand-written notes used by nurses to record the care they intended to deliver to patients. Nurses, however, expressed a lack of confidence in the system, which was seen as time-consuming. After several resistance and adaptation episodes, nurses expressed a *positive* opinion about the care planning knowledge and style promoted by the system. However, they lamented that several incompatibilities with their role persisted. They reported that the system considerably reduced the *hands-on* physical care and emotional proximity which they considered fundamental to a nurse's identity.

Anti-identity: Anti-identity can be perceived as a self-perception based on a complete *rejection* of a set of a meanings associated with a particular identity (Carroll and Levy, 2008, Elsbach and Bhattacharya, 2001). It invokes a '*not-me*' position in relation to some role expectations and is typically defined by the answer to the question '*Who am I not?*' (Sveningsson and Alvesson, 2003). Scholars argue that anti-identity is motivated by individuals' desires to 'both affirm positive distinctiveness and avoid negative distinctiveness by distancing themselves from incongruent values' (Elsbach and Bhattacharya, 2001, p. 393). We suggest that anti-identity may be a potential outcome of situation-focused strategies if individuals manage to 'neutralize' the source of the identity threat. For example, by perseveringly acting counter to the goals and values brought about by information technology, people may succeed in discarding the system or at least relegating it to a trivial role. In doing so, individuals claim an anti-identity to which they refuse to adhere and actually do not enact.

A case reported by Doolin (2004) illustrates this type of outcome. A New Zealand hospital decided to introduce a computerized resource management system whose objective was to monitor and scrutinize doctors' clinical activity. Management hoped doctors would modify their clinical behavior and become more efficient through the increased visibility of the resources they used for patient care. However, doctors were reluctant to use the system and many tended to view it with cynicism. They felt that the system would be used to justify management decisions on financial grounds, ignoring clinical issues, and this was perceived as an intrusion on the professional autonomy and clinical freedom of doctors. One clinical doctor reported:

You suddenly realise what's left is to change clinical practice. In other words, [...] you've got to change the way the doctors are working, what tests they're doing, how long they keep the person in hospital for, because then they flow on to your nursing costs and everything else (Doolin, 2004, p. 350).

Moreover, because of its surveillance processes, the system was perceived as a threat to the identity of these medical professionals. Consequently, the desire to protect the medical domain was very strong as one doctor summarized:

[Doctors] don't like this monitoring business. They don't mind doing it themselves in their own peer group, but they don't like managers and analysts saying 'Hey, why are you doing this, why are you doing that?' ... I guess it's just their culture, their professional culture – that they're clinicians and managers shouldn't be telling them how to treat their patients (Doolin, 2004, p. 352).

Another remarked what a doctor is not:

I think the doctors don't really want to be managed by somebody who isn't a doctor and I don't think that's ever going to change (Doolin, 2004, p. 353).

Continued resistance to the system by most doctors, and managers' reluctance to challenge the long tradition of medical autonomy, relegated the system to a contract management role which was trivial compared to the main objective of the system. The widespread use of the technology throughout the hospital never eventuated. Basically, doctors perceived the resource management system as threatening to their identity because it was motivated by a financial need to maximize cost recovery rather than by clinical correctness. They were able to reject the system, voicing an anti-identity — *I am a not a clinician who would like be dictated what to do in providing health care* — that they actually never enacted. In the remainder of this document, we present potential outcomes of emotion-focused strategies, namely *ambivalent identity* and *anti-identity*.

Outcomes of emotion-focused strategies

We asserted that people use *catharsis* and *distancing* to deal with unalterable identity-threatening situations induced by information technology. When prompted to use these strategies as a last resort, people seek merely to get emotional relief from the stress and tension they experience as they are neither able to adjust their identity to the demanding situation nor alter the situation so that it fits their sense of self. As the problematic situation remains virtually unchanged, the success of these strategies will be typically concerned with the degree of relief and diminishment of the negative affective arousal and less with the alteration of stressful circumstances (Folkman et al., 1986). Therefore, to the extent the situation is problematic, people remain either ambivalently attached to their new work environment (ambivalent identity) or continue to reject the new IT-based role (anti-identity) which, in some cases, they are compelled to enact.

Ambivalent identity: As discussed, catharsis and distancing may provide psychologically tormented users with a relative degree of relief. However, tension created by opposing forces in their roles may persist, suggesting that ambivalent and conflicting self-relevant meanings may carry over despite a potential diminishment of anxiety. The case documented by Brocklehurst (2001) is an example of this type of occurrence. A group of professional *trainers* at a multinational computer manufacturer moved from being '*conventional office workers*' to becoming IT-based '*homeworkers*' but retained full-time salaries. Workers reported the change was stressful and particularly hard on their identity. One employee felt particularly helpless and tried to cope with his anxiety by thinking of himself as '*self-employed entrepreneur*' and his employer as a '*client*'. Despite the cognitive attempts to reframe his position, the employee still found it difficult to recast his identity in light of new circumstances. He reported being caught between conflicting demands within his role as he liked to be a trainer but complained that homeworking reduced his contact with people, his motivation for work and his sense of belonging to a team.

Anti-identity: While some people may hold ambivalent meanings towards a new IT-based role, others may thoroughly reject it. Nevertheless, they may be compelled to enact the proposed change because, for instance, of lack of alternatives. To a marked degree, enacting an 'anti-identity', especially for a long time, is likely to intensify frustration and anxiety (Sveningsson and Larsson, 2006, Pratt, 2000). Therefore, some people will ultimately withdraw rather than endure

changes to who they are (Burke, 2007). The case described by Brocklehurst (2001), presented above, gives an example of another homeworker who chose voluntarily to relinquish the problematic role as he rejected the label of ‘homeworker’ quite vehemently:

This is not about being home-based, *nor am I a homeworker*. It is about being flexible and I am a flexible worker. As a salesman and a sales trainer that is what I have always been (Brocklehurst, 2001, p. 458).²

The homeworker took the approach of not identifying with homeworking at all; later, he quit his job. Another homeworker regarded his position as a temporary stage and saw himself as treading water until he could go back into a sales team working from the office. Another admitted to entertaining thoughts of applying to another company (Brocklehurst, 2001).

DISCUSSION AND CONCLUSION

The model we propose in this paper brings new insights into the dynamic processes by which individuals cope with information technology challenges to their identity in an organizational setting. Drawing on ideas from identity control theory (Burke, 2000) and coping theory (Lazarus and Folkman, 1984) and on diverse arrays of social psychology literature, we defined four types of strategies (acting on situation, adjusting the self, catharsis and distancing) through which people strive to define and redefine themselves in response to substantive shifts induced by information technology. We suggested that these strategies may lead to four individual-level outcomes: reinforced identity, redefined identity, ambivalent identity and anti-identity. We used real life situations selected from extant IS case studies to provide a preliminary support to the model and its different patterns.

Although presented in a ‘linear’ form, the process depicted in the model is actually continuously operating as a feedback loop: individuals continually appraise the outcome of their coping efforts and engage in new coping cycles in light of new circumstances as they seek to reach congruence between reflected self-meanings and standard meanings. Hence, identity is never fixed; people will keep on moving in and out of the role-performance arena to fit in their environment. This suggests that an ambivalent identity, for instance, may turn into a redefined identity or vice versa. Moreover, the process is nearly automatic, requiring relatively little attention when the discrepancy is low (Burke, 2000). Conversely, the existence of a major discrepancy is likely to indicate some type of interruption in the identity process which prompts users to take serious steps to deal with the threatening IT situation. As most significant IT events are complex (Beaudry and Pinsonneault, 2005), people will typically use a combination of the response strategies outlined in the model. However, one strategy may take over depending on a set of situational contingencies such as the breadth of control one can exert, the availability of personal and environmental resources, and one’s identity-processing style (Berzonsky, 1997).

Furthermore, we believe that this study has several implications. First, it contributes to the IT literature by providing a rich understanding of a range of user behaviors that are grounded in the individuals’ identity. Indeed, the model helps explain a myriad of behavioral patterns such as resistance, technology acceptance and rejection, self-adjustment, self preservation, etc. Indeed, individuals may reject a technology not necessarily because of an IT-task mismatch or performance issues but because of what the technology makes them feel about themselves. In many ways, the technology may not convey who the person thinks he is in the view of himself and others. Lutgen-Sandvik (2008) reminds us that the question “Who am I?” involves not only who or what people believe themselves to be but also how they should respond to social experiences and be regarded by others. So people will continuously act so as their reflected image match the image they hold about themselves. So we see here an opportunity for IS investigators in bringing the identity frame into the mainstream of IS discipline because it may account for the many contradictory findings in IT literature.

² Italics added.

Second, the research underscores the importance of emotion in the study of IS phenomena as we believe our interactions with technology are more than rational and ‘must consider the broad and numerous emotions that we are capable of feeling towards technology’ (Cenfetelli, 2004, p. 1). Indeed, Cenfetelli (2004) stressed that emotions have received only tangential attention in IS research, whereas we need to understand how the influence of technology extends beyond our heads and into our hearts.

Third, we believe that there are IS studies that have developed rich and useful process-based theories on the complex phenomena of users’ adaptation and the often unanticipated social impacts of information technology (e.g. Beaudry and Pinsonneault, 2005, Tyre and Orlikowski, 1996, Griffith, 1999, Davis, 1991). This study does not seek to replace these models but aims to bring real improvement to our understanding of social actors, since identity has received only scant attention in IT research. The integration of identity as an analytical category was motivated by the demonstrated utility of the identity construct in other disciplines – a construct which, interestingly, was found to explain a range of organizational phenomena (Foreman and Whetten, 2002). While none of the concepts or processes is unique to the proposed model – since they are recurrent in other research analyses –, we believe that, until now, they have not been systematically selected and brought together in a common and an integrative framework and suitably put in an IS context.

Fourth, it is widely accepted that information technology changes the way people work, sometimes in a substantial way. Yet, we believe people act in accordance with their identity (Stets and Burke, 2005), and we argue the impact of information technology on people’s identities remains under-explored and under-theorized. Hence, we urge IS researchers to pay greater attention to, and to contribute to, an emergent literature that places identity at the center of organization research. In this study we have taken a step to advance the IS literature by offering a process-oriented model of how identity may unfold in the course of interaction with information technology. Finally, we believe our model is readily amenable to empirical research. Future inquiries may wish to test the theoretical framework in different areas where technology is altering traditional conceptions of people’s jobs; this is the case, for instance, with the use of simulation and visualization technologies in industries such as engineering, architecture, construction, manufacturing, teaching, pharmacy, biotechnology and medicine.

REFERENCES

- Agarwal, R. (2000) Individual Acceptance of Information Technologies. In: *Framing the Domain of IT Management, Projecting the Future through the Past* (ed. Zmud, R.), pp. 85-104. Pinnaflex Education Resource, Cincinnati.
- Agnew, A., Forrester, P., Hassard, J. & Procter, S. (1997) Deskillling and Reskillling within the Labour Process: The Case of Computer Integrated Manufacturing, *International Journal of Production Economics*, 52, 317-324.
- Aldwin, C. (1994) *Stress, Coping, and Development: An Integrative Perspective*, Guilford Press, New York.
- Alvarez, R. (2008) Examining Technology, Structure and Identity During an Enterprise System Implementation, *Information Systems Journal*, 18, 203-114.
- Alvesson, M. & Willmott, H. (2002) Identity Regulation As Organizational Control: Producing The Appropriate Individual, *Journal of Management Studies*, 39, 5, 619-644.
- Barrett, M., Sahay, S. & Walsham, G. (2001) Information Technology and Social Transformation: GIS for Forestry Management in India, *The Information Society*, 17, 5, 5-20.
- Beaudry, A. & Pinsonneault, A. (2005) Understanding User Adaptation Behaviors: A Coping Acts Model, *MIS Quarterly*, 29, 3, 493-523.
- Berzonsky, M. (1997) Identity Development, Control Theory, and Self-Regulation: An Individual Differences Perspective, *Journal of Adolescent Research*, 12, 3, 347-353.
- Brocklehurst, M. (2001) Power, Identity and New Technology Homework: Implications for ‘New Forms’ of Organizing, *Organization Studies*, 22, 3, 445-466.
- Burke (2000) The Past, Present, and Future of an Identity Theory, *Social Psychology Quarterly*, 63, 4, 284-297.
- Burke, P. (1991) Identity Processes and Social Stress, *American Sociological Review*, 56, 6, 836-849.
- Burke, P. (1996) Social Identities and Psychosocial Stress. In: *Psychosocial Stress: Perspectives on Structure, Theory, Life Course, and Methods* (ed. Kaplan, H. B.), pp. 141-174. Academic Press, Orlando, FL.
- Burke, P. (2007) Identity Control Theory. In: *Blackwell Encyclopedia of Sociology* (Ed, Ritzer, G.), pp. Blackwell Publishing, Oxford.
- Burke, P. & Stets, J. (1999) Trust and Commitment Trough Self-Verification, *Social Psychology Quarterly*, 62, 347-366.
- Bushman, B. (2002) Does Venting Anger Feed or Extinguish The Flame? Catharsis, Rumination, Distraction, Anger and Aggressive Responding, *Personality and Social Psychology Bulletin*, 28, 724-731.

- Carroll, B. & Levy, L. (2008) Defaulting to Management: Leadership Defined by What It Is Not, *Organization*, 15, 1, 75-96.
- Cast, A. & Burke, P. (2002) A Theory of Self-Esteem, *Social Forces*, 80, 1041-1068.
- Cenfetelli, R. (2004) Getting in Touch with Our Feelings towards Technology. In: *Proceedings of the 2004 Academy of Management Conference*, pp. F1-F6, New Orleans.
- Chung, K., Dongchul, H. & Seung-Bae, P. (2001) The effect of brand personality and brand identification on brand loyalty: Applying the theory of social identification, *Japanese Psychological Research*, 43, 4, 195-206.
- Cunha, A. & Orlikowski, J. (2008) Performing catharsis: The use of online discussion forums in organizational change, *Information and Organization*, 18, 132-156.
- Davis, R. V. (1991) Information Technology and White Collar Productivity, *Academy of Management Executives*, 5, 1, 55-67.
- Doolin, B. (2004) Power and Resistance in the Implementation of a Medical Management Information System, *Information Systems Journal*, 14, 343-362.
- Dutton, J. E., Dukerich, J. M. & Harquail, C. V. (1994) Organizational Images and Member Identification, *Administrative Science Quarterly*, 39, 239-263.
- Elsbach, K. & Bhattacharya, C. (2001) Defining Who You Are by What You're Not: Organizational Disidentification and the National Rifle Association, *Organization Science*, 12, 4, 393-413.
- Folkman, S. & Lazarus, R. (1980) An Analysis of Coping in a Middle-Aged Community Sample, *Journal of Health and Social Behavior*, 21, 219-239.
- Folkman, S., Lazarus, R., Dunkel-Schetter, C., DeLongis, A. & Gruen, R. (1986) Dynamics of a Stressful Encounter: Cognitive Appraisal, Coping, and Encounter Outcomes, *Journal of Personality and Social Psychology*, 50, 5, 992-1003.
- Foreman, P. & Whetten, D. (2002) Members' Identification with Multiple-Identity Organizations, *Organization Science*, 13, 6, 618-635.
- Gal, U., Lyytinen, K. & Yoo, Y. (2008) The Dynamics of IT Boundary Objects, Information Infrastructure, and Organizational Identities: The Introduction of 3D Modeling Technologies into the Architecture Engineering and Construction Industry, *European Journal of Information Systems*, 14, 290-304.
- Garnefski, N., Kommer, T., Ktaaaaj, V., Teerds, J., Legerstee, J. & Onstein, E. (2002) The Relationship between Cognitive Emotion Regulation Strategies and Emotional Problems: Comparison between a Clinical and a Non-Clinical Sample, *European Journal of Personality*, 16, 403-420.
- Griffith, T. L. (1999) Technology Features as Triggers for Sensemaking, *Academy of Management Review*, 24, 3, 472-488.
- Ibarra, H. (1999) Provisional Selves: Experimenting with Image and Identity in Professional Adaptation, *Administrative Science Quarterly*, 44, 764-791.
- Ibarra, H. (2007) Identity Transitions: Possible Selves, Liminality and the Dynamics of Voluntary Career Change, INSEAD Working Papers Collection, 31, 1-54.
- Knippenberg, D. (2000) Work Motivation and Performance: A Social Identity Perspective, *Applied Psychology: An International Review*, 49, 3, 357.
- Korver, F. & van Ruler, B. (2003) The relationship between corporate identity structures and communication structures, *Journal of Communication Management*, 7, 3, 197.
- Kreiner, G. & Ashforth, B. (2004) Evidence toward an Expanded Model of Organizational Identification, *Journal of Organizational Behavior*, 25, 1-27.
- Lamb, R. & Davidson, E. (2005) Information and Communication Technology Challenges to Scientific Professional Identity, *The Information Society*, 21, 1-24.
- Lazarus, R. (1975) A Cognitively Oriented Psychologist Looks at Biofeedback, 30, *American Psychologist*, 553-61.
- Lazarus, R. & Folkman, S. (1984) *Stress, Appraisal, and Coping*, Springer, New York.
- Lee, Y., Lee, J. & Z., L. (2006) Social Influence on Technology Acceptance Behavior: Self-Identity Theory Perspective, *The DATA BASE for Advances in Information Systems*, 37, 2-3.
- Liu, C. (2006) De-Skilling Effects on Journalists: ICT and the Labour Process of Taiwanese Newspaper Reporters, *Canadian Journal of Communication*, 31, 695-714.
- Lutgen-Sandvik, P. (2008) Intensive Remedial Identity Work: Responses to Workplace Bullying Trauma and Stigmatization, *Organization*, 15, 1, 97-119.
- Marakas, G. & Hornik, S. (1996) Passive Resistance Misuse: Overt Support and Covert Recalcitrance in IS Implementation, *European Journal of Information Systems* 5, 3, 208-220.
- Martinko, M., Henry, J. & Zmud, R. (1996) An Attributional Explanation of Individual Resistance to the Introduction of Information Technologies in the Workplace, *Behaviour & Information Technology* 15, 5, 313-330.

- McInnes, P., Beech, N., de Caestecker, L., MacIntosh, R. & Ross, M. (2006) Identity Dynamics as a Barrier to Organizational Change, *International Journal of Public Administration*, 29, 12, 1109-1124.
- Mikulincer, M. & Florian, V. (2002) Blackwell Handbook of Social Psychology: Interpersonal Processes. In: *Attachment Style and Affect Regulation: Implications for Coping with Stress and Mental Health* (eds. Fletcher, G. and S., M.), pp. , Blackwell Publishing Inc.
- Monteiro, E. & Hanseth, O. (1996) Social Shaping of Information Infrastructure. In *Information Technology and Changes in Organizational Work* (eds. Orlikowski, W.J., Walsham, G., Jones, M. and DeGross, J.I.). Chapman and Hall, London.
- Nach, H. & Lejeune, A. (2009) "The Impact of Information Technology on Identity: Framing the Research Agenda" In the proceedings of the ASAC conference, Niagara Falls, Ontario, June. (Forthcoming)
- Novek, J. (2002) IT, Gender and Professional Practice: Or Why an Automated Drug Distribution System Was Sent Back to the Manufacturer, *Science Technology Human Values*, 27, 379-403.
- Orlikowski, W. J. (2000) Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations, *Organization Science*, 11, 4, 404-428.
- Pearlin, L. & Schooler, C. (1978) The Structure of Coping, *Journal of Health and Social Behavior*, 19, 1, 2-21.
- Pettigrew, A. (1985) *The Awakening Giant: Continuity and Change in Imperial Chemical Industries*, Blackwell, Oxford.
- Pinsonneault, A. & Rivard, S. (1998) Information Technology and the Nature of Managerial Work: From the Productivity Paradox to the Icarus Paradox?. *Management Information Systems Quarterly*, 22, 3, 287-311.
- Pratt, M. G. (2000) The Good, the Bad, and the Ambivalent: Managing Identification among Amway Distributors, *Administrative Science Quarterly*, 45, 3, 456-493.
- Sass, J. S. & Canary, D. J. (1991) Organizational Commitment and Identification: An Examination of Conceptual and Operational Convergence, *Western Journal of Communication* 55, 275-93.
- Scheff, T. (1979) *Catharsis in Healing, Ritual, and Drama*, University of California Press, Berkeley.
- Schultze, U. & Boland, R. J. (2000) Knowledge Management Technology and the Reproduction of Knowledge Work Practices, *The Journal of Strategic Information Systems*, 9, 2-3, 193-212.
- Stets, J. & Burke, P. (1994) Inconsistent Self-Views in the Control Identity Model, *Social Science Research*, 23, 236-262.
- Stets, J. & Burke, P. (2005) New Directions in Identity Control Theory, *Advances in Group Processes*, 22, 43-46.
- Stets, J. & Tsushima, T. (2001) Negative Emotion and Coping Responses within Identity Control, *Theory and Psychology*, Social Psychology Quarterly, 283-295.
- Stone, A., Kennedy-Moore, E. & Neale, J. (1995) Association between Daily Coping and End-of-Day Mood, *Health Psychology*, 14, 4, 341-349.
- Sveningsson, S. & Alvesson, M. (2003) Managing Managerial Identities: Organizational Fragmentation, Discourse and Identity Struggle, *Human Relations*, 1163-1193., 56, 10.
- Sveningsson, S. & Larsson, M. (2006) Fantasies of Leadership: Identity Work, *Leadership*, 2, 2, 203-224.
- Taylor, S. (1998) Coping Strategies. In *Research Network on Socioeconomic Status and Health* (eds. John, D. and Catherine, T.), pp. , MacArthur.
- Thoits, P. (1991) Patterns in Coping with Controllable and Uncontrollable Events. In *Life-Span Developmental Psychology: Perspectives on Stress and Coping* (eds. Cummings, E., Greene, A. and Karraker, K.), pp. 235-259. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Tyre, M. J. & Orlikowski, W. J. (1996) The Episodic Process of Learning by Using, *International Journal of Technology Management* 11, 7/8, 790-798.
- Verona, E. & Sullivan, E. (2008) Emotional Catharsis and Aggression Revisited: Heart Rate Reduction Following Aggressive Responding, *Emotion*, 8, 30, 331-340.
- Walsham, G. (1998) IT and Changing Professional Identity: Micro-Studies and Macro-Theory, *Journal of the American Society for Information Science*, 49, 12, 1081-1089.
- Wilson, M. (2002) Making Nursing Visible? Gender, Technology and the Care Plan as Script, *Information Technology & People*, 15, 2, 139-159.