

Contextual Factors and the Creativity of Employees: The Mediating Effects of Role Stress and Intrinsic Motivation on Economy and Finance Organization in Tehran

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Abstract

Creative frontline service employees may be crucial in ensuring organizational performance. However, scant research has investigated the antecedents of service employee creativity. This research applies Role Theory to enlighten this issue. The findings reveal that: role conflict and role ambiguity have opposing effects on creativity; Role Theory complements Cognitive Evaluation Theory as a mediational mechanism for the influence of contextual factors on creativity; and, against current thinking, contextual factors also affect creativity directly. The results underscore the need to reconceptualize the mechanisms by which contextual factors influence creativity, and suggest how managers can promote creativity through the work environment.

Keywords: Creativity; Frontline employees; Services; Contextual factors

Introduction

Innovation is an increasingly important management function to ensure a firm's growth (Han, Kim, and Srivastava 1998; Im and Workman 2004). However, firms need creative employees to initiate organizational innovation. Not surprisingly, employee creativity is recognized as key for generating a competitive advantage (e.g., Shalley, Zhou, and Oldham 2004). The role of frontline employees in ensuring organizational innovation is of particular importance in service firms. As boundary workers, they occupy a privileged position to collect first-hand market information. Thus, frontline employees hold an important creative potential that could be incentivized (Wang and Netemeyer 2004). Frontline service employees also often hold unstructured jobs, frequently facing customers with quite diverse needs, implying that they need to be innovative (Dubinsky et al. 1986; Wang and Netemeyer 2004). As frontline employees are frequently responsible for service delivery, they are key in ensuring customer satisfaction (Bitner, Booms, and Tetreault 1990). Consequently, their creativity can be of great value for service organizations. The marketing field has an established tradition concerning the study of relationship marketing themes (e.g., Coulter and Coulter 2003; Ganesan 1994). Since the late 1990s, this topic has become increasingly popular in the retailing literature (e.g., Brown and Lam 2008; Grewal, Levy, and Lehmann 2004; Kumar, Shah, and Venkatesan 2006; Lei, de Ruyter, and Wetzels 2008; Reynolds and Beatty 1999), which has paid increasing attention to the customer experience in order to better understand it (Mittal, Huppertz, and Khare 2008; Naylor et al. 2008; Ofir et al. 2008; Puccinelli et al. 2009). Frontline employees play a major role in shaping customer experiences and relationships (e.g., Crosby, Evans, and Cowles 1990; Walter 1999). Crosby, Evans, and Cowles (p. 69), for example, argue that because of his/her close proximity to the customer, the "service salesperson is often best suited to perform the role of 'relationship manager'". Bitner, Booms, and Tetreault (1990) observed that the capacity of the frontline employee to customize the service to each customer's unique needs determines customer satisfaction. Furthermore, customer-employee rapport positively influences customers' satisfaction and loyalty (Gremler and Gwinner 2000, 2008). Creative employees are more likely to uncover customers' latent needs, to develop a good rapport with customers, and to solve their service problems creatively and effectively, ultimately creating a superior experience (cf. Grewal, Levy, and Kumar 2009; Verhoef et al. 2009). Frontline employees' creative initiatives should also enhance customer value, which has important behavioral consequences (e.g., Kleijnen, Ruyter, and Wetzels 2007). This suggests that the creativity of frontline service employees has a great potential to contribute to successful long-term relationships. In summary, creative frontline service employees are likely to have a substantial impact on producing superior customer experiences, customer satisfaction, quality relationships and, thus, on organizational performance. This implies that organizations may have much to benefit from understanding the key organizational as well as personal characteristics that are associated with employee creativity. With this knowledge, managers will be able to fine-tune recruitment, selection and training programmes, as well as to orchestrate the work environment in a way that promotes creative behaviors by frontline service employees. Despite the importance of creative behavior among frontline service employees, empirical research has yet to identify its determinants. This gap is

significant because different tasks may require different skills, motivations, and cognitive strategies (Mumford 2003). Frontline employees play a boundary-spanning role, whose specificities have long been acknowledged to greatly affect employee job attitudes and behaviors (e.g., Babakus, Yavas, and Ashill 2009; Bettencourt and Brown 2003; Singh 1998). They deal with many people inside and outside the organization (e.g., supervisors, coworkers, and customers), and each of these people behaves in ways that promote his or her personal needs and expectations. As a consequence of the social interactions with a large set of people, incompatibility of expectations often emerges, increasing employee role stress (Nonis, Sager, and Kumar 1996), the two key aspects of which are role conflict and role ambiguity (cf. Rhoads et al. 2002; Tubre and Collins 2000).

2. Research background

This investigation is focused on the relationship between contextual factors and creativity, drawing on Cognitive Evaluation Theory to explain such linkages. Based on the call from Shalley, Zhou, and Oldham (2004) for scholars to explore new contextual characteristics and mediational mechanisms, we investigate the effect of role stress on frontline service employee creativity. Thus, we review Cognitive Evaluation Theory and Role Theory, but initially discuss key creativity issues. Finally, we integrate Cognitive Evaluation Theory with Role Theory.

2.1. Creativity

Employee creativity is the development of ideas about practices, procedures, products, and/or services that are (a) novel and (b) potentially useful to an organization (Oldham and Cummings 1996; Shalley, Zhou, and Oldham 2004). Ideas are novel when they involve a considerable recombination of existing materials or the development of materials that are completely new (Oldham and Cummings 1996). Ideas are useful when they provide direct or indirect value to an organization in the short or long term (Shalley, Zhou, and Oldham 2004). Whereas employee creativity concerns the development of ideas at the individual level, organizational innovation involves the implementation of those ideas at the organizational level (Woodman, Sawyer, and Griffin 1993). Thus, creativity is a first step in the innovation process (Shalley, Zhou, and Oldham 2004; West and Farr 1990). Not surprisingly, a substantial amount of research has developed on the antecedents of employee creativity. Many studies have concentrated on the personal drivers of employee creativity, considering, in particular, the role of personality and cognitive style. The other major area of research has considered the role of contextual factors, defined as “dimensions of the work environment that potentially influence an employee’s creativity but that are not part of the individual” (Shalley, Zhou, and Oldham 2004:935). This stream has identified a myriad of contextual factors that affect creativity such as job characteristics (e.g., Oldham and Cummings 1996), employee relationships with co-workers (e.g., Amabile et al. 1996) and employee relationships with supervisors (e.g., Tierney and Farmer 2004). We have followed the latter approach, and have thus focused on the link between contextual factors and creativity. The work context is determined to a great extent by managerial behaviors, thus constituting a key area for managerial intervention aimed to influence employee creativity.

Authentic leadership predicting employees' creativity Perceptions of psychological safety (Edmondson, 1999) and intrinsic motivation (Ryan & Deci, 2000) help to support our hypothesis that AL predicts employees' creativity: authentic leaders promote employees' perceptions of psychological safety and their intrinsic motivation, which in turn make them more creative. Psychological safety refers to how individuals believe that the team or organizational context is safe for interpersonal risk-taking (Edmondson, 1999). Elsbach and Hargadon (2006, p. 476) argue that “research on psychological safety suggests that feeling that one may be oneself without fear of image threats may motivate workers to freely engage in innovative and playful behavior at work.” By being transparent with employees, guided by internal ethical standards, and able to objectively analyze relevant data (including employees' dissenting and/or idiosyncratic opinions and proposals) before making decisions, authentic leaders promote employees' trust, respect, and identification (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Gardner et al., 2005; Ilies, Morgeson, & Nahrgang, 2005; Walumbwa et al., 2008). Trust, respect, and identification lead employees to experience greater psychological safety, thus feeling free to take risks, to propose unconventional ideas, and to introduce conflicting opinions without fear (Avolio et al., 2004; on, 1999; Walumbwa et al., 2010). As a consequence, employees tend to be more creative in facing problems and opportunities. Intrinsic motivation reflects “an inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn” (Ryan & Deci, 2000, p. 70), and literature suggests that intrinsic motivation ignites creativity (Zhou & Ren, 2012).

Employees' intrinsic motivation nurtures creativity because intrinsically motivated employees are (a) more curious and learning oriented, (b) cognitively flexible, (c) willing to take risks, and (d) persistent when facing challenges, obstacles, and opportunities (Amabile, 1997; Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999; Zhou, 2003; Zhou & Ren, 2012). Considering that literature (Ilies et al., 2005) suggests that authentic leaders make their employees more intrinsically motivated (by supporting their self-determination),

A model of work context factors and employee creativity

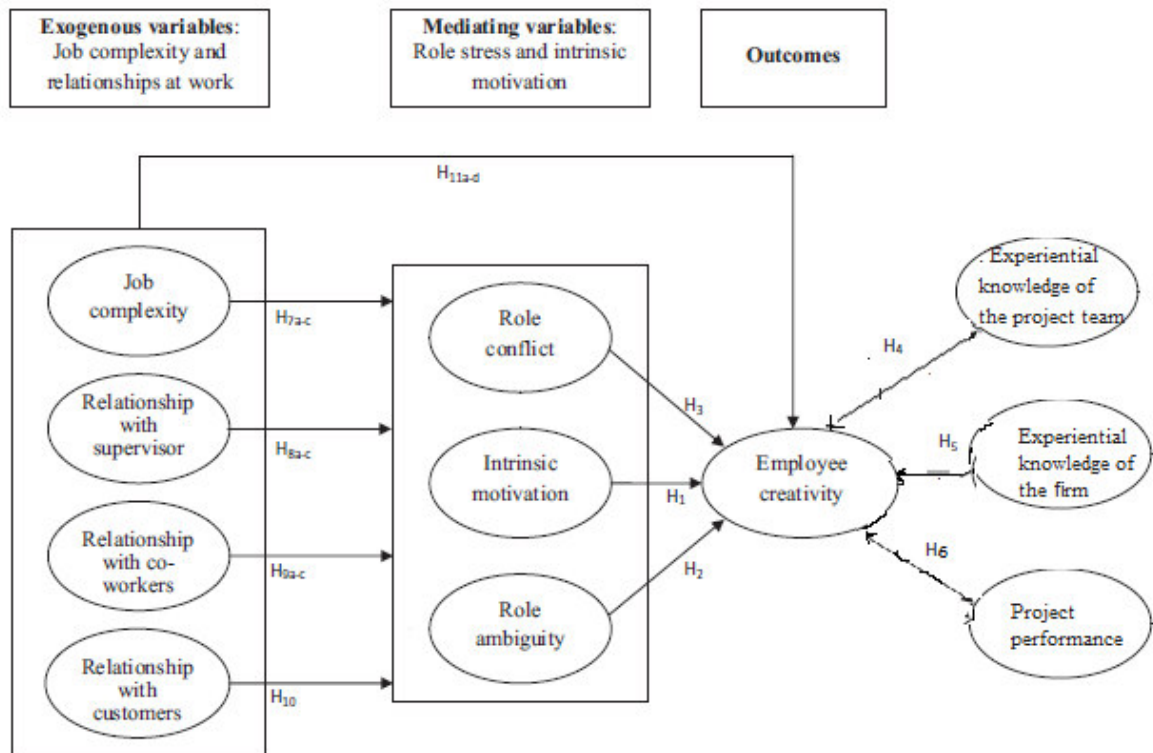


Fig. 1. A model of work context factors and employee creativity.

2.2 The effects of mediating variables: role stress and intrinsic motivation

Intrinsic motivation. Intrinsic motivation is the extent to which an employee is excited about a work activity and is motivated to engage in it for the sake of the activity itself (Oldham and Cummings 1996). To be creative, employees need to be sufficiently interested in a certain problem and/or outcome and in finding ways to solve or achieve it. Consequently, motivation serves to control the attention employees devote to the heuristic issues of creative tasks (Woodman, Sawyer, and Griffin 1993). Intrinsically motivated employees are thus more likely to explore new pathways and to take greater risks (Amabile, Goldfarb, and Brackfield 1990). Consequently, intrinsically motivated employees will be more excited about their work and this increases their creativity (Shalley, Zhou, and Oldham 2004). Intrinsic motivation has been widely considered in the creativity literature, but few studies have empirically tested it and those that have done so produced mixed results (Shalley, Zhou, and Oldham 2004).

Alongside academic achievement, creativity has also been linked to other academic outcomes including motivation (e.g. Crutchfield, 1962; Hennessey, 2009; Qualifications & Curriculum Authority, 2001). The majority of research exploring the relationship between creativity and motivation has relied, explicitly or implicitly, on the distinction between intrinsic and extrinsic motivation, most commonly associated with self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000). Intrinsic motivation, where school work and academic study is found to be interesting and enjoyable, is believed to foster creativity through encouraging curiosity, and persistence on challenging and unfamiliar tasks. Positive correlations exist between self-reported intrinsic motivation and creativity self-beliefs (Prabhu, Sutton, & Sauser, 2008) and creative product (Chen, Himsel, Kasof, Greenberger, & Dmitreiva, 2006). Extrinsic motivation, in which school work and academic study is contingent on an external outcome, is believed to inhibit creativity self-beliefs and creative product. Research findings are equivocal however; null and inverse relationships have all been reported in the literature (e.g., Cooper & Jayatilaka, 2006; Eisenberger & Rhoades, 2001; Grant & Berry, 2011; Prabhu et al., 2008; Sung & Choi, 2009). Some have argued that extrinsic motivation could be positively related to creativity by providing the impetus to overcome hurdles on creative tasks or when rewarding outcomes are contingent on creativity (Eisenberger & Rhoades, 2001; Eisenberger, Rhoades, & Cameron, 1999). The measures of extrinsic motivation typically used in creativity research tend to focus on the most externally contingent form of extrinsic motivation (Kasof, Chen, Himsel, & Greenberger, 2007) and do not cover the full domain of extrinsic motivations described by self-determination theory which includes elements of external contingencies being internalised to a greater or lesser extent. We therefore propose that the relationships between creativity self-beliefs and academic motivation are re-examined using a measure of academic motivation which not only makes a distinction between

intrinsic and extrinsic motivation, but which covers the full domain of extrinsic motivations as described in self-determination theory (including external, introjected and identified forms of extrinsic motivation). We also extend the literature by including another variable, amotivation, referring to an absence of motivation to engage in school work and other academic tasks. As creativity self-beliefs can predict engagement in school work somewhere on a continuum from self-determined (e.g. curiosity) to other-determined (e.g. familial praise) reasons, we would expect to find inverse relations with the disengagement characterised by amotivation. Given that gf will account for some proportion of variance in motivational constructs (e.g., Freudenthaler, Spinath, & Neubauer, 2008; Schick & Phillipson, 2009), it would be a useful additional step to establish how much additional variance in motivational constructs can be explained by creativity self-beliefs after gf has been accounted for. We propose the following:

H1. Intrinsic motivation positively relates to employee creativity.

2.4. Role stress.

The role stressors we consider are role ambiguity and role conflict, which scholars have not yet related with employee creativity. Role conflict refers to perceived incompatible job expectations from role-set members, which makes it difficult, if impossible, for the worker to meet concurrently (Dubinsky and Skinner 1984), such as company policies that clash with market conditions, and conflicting evaluation mechanisms. Employees facing conflicting expectations are likely to find that one or more of their role partners will be displeased regardless of how well they perform their role (Churchill, Ford, and Walker 1976). Moreover, Hartline and Ferrell (1996) claim that role conflict makes it difficult for employees to decide how best to accomplish their tasks. Accordingly, role conflict can constrain employee creativity, as it reduces the effectiveness with which employees use their creative and domain-relevant skills. This negative effect is consistent with the vast research documenting the adverse consequences of role conflict on employees (e.g., Arnold et al. 2009a; Singh 2000). In contrast, some evidence points to a positive effect of role conflict on employee performance (e.g., Behrman and Perreault 1984; Michaels, Day, and Joachimsthaler 1987). The rationale is that, as conflict is unavoidable in many frontline jobs, employees simply must cope with it to be effective. In this vein, Goolsby (1992) stated that employees may respond to role stress in a constructive way, namely by trying to alter and manage the situation creating the stress. In a creativity field, it can be argued that employees can cope with the conflicting pressures by approaching problems and tasks in imaginative ways. The success of frontline employees should be maximized when the expectations of all of their multiple-role partners are met. With regard to retail managers, Arnold et al. (2009b:131) note that “especially in a retailing context, it is most productive to have an appreciation for behaviors that benefit both the customer and the firm”. Thus, to perform effectively, employees are likely to transform conceptual spaces to reach new combinations of knowledge structures, in search of solutions that address perceived incompatibility among the expectations of their role partners. Role ambiguity is an employee’s perceived inadequate knowledge with which to execute a job (Dubinsky and Skinner 1984). This lack of employee information may concern job responsibilities, the standards by which job performance is judged to be adequate, and the rewards associated with it (Rizzo, House, and Lirtzman 1970; Singh 1993). Ambiguity may result from supervisory miscommunication, poor training, and/or lack of a clear role definition by management (Mattson and Dubinsky 1979). Employees facing role ambiguity are not certain of the activities they need to perform and their degree of freedom in executing their tasks. Additionally, they have a poor picture of how their tasks relate to other jobs, to people inside and outside the organization, and to the firm’s overall goals. This makes it difficult for employees to relate their competencies to their jobs and to concentrate on the internal nature of their tasks. This will hinder them from fully using their expertise and creative-thinking skills in executing their jobs, thus negatively impacting on creativity. Moreover, role stress evokes self-regulatory and coping mechanisms. Exposure to stressful situations leads individuals to focus on and to evaluate the threats they face and the various ways of dealing with them. However, even in situations of modest stress, chronic stress may erode individuals’ coping ability (Singh, Goolsby, and Rhoads 1994). Regardless of the employee’s level of effort, his/her “behaviors are likely to be inefficient, misdirected, or insufficient” (Michaels, Day, and Joachimsthaler 1987:32), and this affects creativity. Past evidence has systematically documented negative outcomes for role ambiguity. As to role conflict, some positive effects have emerged. Of particular interest are the results obtained by Bettencourt and Brown (2003), who determined that role conflict was positively related to internal influence (the extent to which employees have the initiative to improve service delivery), supporting the improvement opportunities created by role conflict. Accordingly, we propose the following:

H2. Role ambiguity negatively relates to employee creativity.

2.5 Role conflict

When individuals adopt paradoxical frames, they are faced with contradictory dimensions or factors that are not commonly associated or linked. The contradictory relationships between dimensions and the atypicality associated with this experience may lead individuals to experience a sense of conflict and discomfort. Drawing on cognitive tuning theory (Schwarz, 1990; Schwarz & Bless, 1991), we suggest that this sense of conflict signals the type of context in which a person finds herself and directs her to think and behave in ways that will

help her adapt to the context. In an attempt to adapt to the context, people are likely to draw on their creative thinking and become more sensitive to complementary relationships between seemingly contradicting stimuli (Fong, 2006). This explorative processing style facilitates insight-related processing, bolstering the ability to break away from inappropriate initial assumptions and strategies, and enabling an unconstrained mental search for novel information. Indeed, a sense of conflict has been suggested to be a crucial trigger for perspective taking and exploration of novel associations (Huang & Galinsky, 2010). For instance, people who live abroad “may experience culture shock, feeling anxious and disoriented,” and this disorientation is a fundamental factor in explaining the relationship between multicultural experience and creativity (Leung, Maddux, Galinsky, & Chiu, 2008). Similarly, the sense of disorientation and conflict individuals experience when reading an absurd short story has been shown to enhance their desire to learn novel patterns (Proulx & Heine, 2009). Research testing the effect of a conflict mindset on creativity has shown that individuals experiencing a conflict mindset generated broader conflict-related categories and more original solutions to conflict-related situations compared to individuals experiencing a cooperation mindset (De Dreu & Nijstad, 2008). In a similar vein, experienced conflict increases the tendency of team members to scrutinize and deeply explore different alternatives and, as a result, to find novel insights (e.g., Beersma & De Dreu, 2005; Nemeth, Personnaz, Personnaz, & Goncalo, 2004).

H3. Role conflict positively relates to employee creativity.

2.2. The multi-level relationships of experiential knowledge and creativity

According to creativity theorists (Amabile, 1996; Shalley, 1991; Woodman et al., 1993), it is suggested that the degree to which experiential knowledge contains domain-relevant skills accumulated in international operations will have an effect on how experiential knowledge influences creativity. However, adopting multi-level conceptualization, this study tries to entail a more complicated explanation of the relationship. First, it is expected in our model that the team members' working creatively (i.e., process-based creativity) will be powered by their knowledge from their past experience (i.e., team-level experiential knowledge) working with similar types of procedures related to the foreign market (Amabile, 1996). While no empirical finding has been reported on the relationship utilizing multi-level conceptualization, the path between team-level experiential knowledge and outcome-based creativity is much less clear. A project team generally implies a multitasking unit that performs multiple processes, simultaneously and sequentially, to orchestrate goal-directed tasks (Morris, 1997). Thus, in such a project team system, it would be less plausible to think that the team can have any creative outcome (i.e., a final result, not an idea) without any input from the firm, outside of the team. The pessimistic argument on the path between team-level experiential knowledge and outcome-based creativity is in some way supported by Mezias and Glynn (1993). According to their reasoning, team members with a high level of experiential knowledge are more likely to perceive their project as one of their routines, which subsequently lowers the possibility of new outcomes (outcome-based creativity, in this case). Thus:

H4. Experiential knowledge of the project team has positively relates to employee creativity.

A firm's experiential knowledge in foreign markets contributes to the development of new knowledge (Barkema, Bell, & Pennings, 1996; Pennings, Barkema, & Douma, 1994). While outcome-based creativity, or the development of new knowledge as outcomes of a project, is unlikely to be produced principally by the project team's experience-based knowledge, it will be more closely associated with the firm's experience-based knowledge in foreign markets. If outcome-based creativity occurs at the project level and process-based creativity at the individual level, we can probably argue that process-based creativity is socialized learning (March, 1991), depending more on social setting. Whereas, outcome-based creativity is a reflection of the innovative actions committed by a firm to realize new ideas through knowledge exploration. Firm-level experiential knowledge is primarily aggregated knowledge codified and stored in procedures and routines (Kogut & Zander, 1993). First, because the nature of outcome-based creativity is analogue to knowledge exploration that is innovative, and has high variance in activities and less certain outcomes (March, 1991), outcome-based creativity is likely to benefit from the firm-level experiential knowledge that offers a broad and heterogeneous knowledge base accumulated over time and from different foreign markets. Therefore, it is more likely to bear influences on outcome-based creativity. Second, because outcome-based creativity is more likely market-oriented, it inevitably interfaces with product market and benefits from firm-level experiential knowledge gained from various international activities in the past. In other words, to obtain tangible results, firms are more likely to leverage their experiential knowledge to facilitate and tap the outcome-based creativity. An alternative theory will help explain this. Experimenting with new alternatives in foreign markets, the experience-based knowledge generation (Delios & Beamish, 2001) is made possible only on the firm-scale. Firms sometimes set up projects so as to facilitate project innovation through experimentation (Lorenzen & Frederiksen, 2005), and they use projects to develop strategy which is treated as a resource to secure particular outcomes (Knights & Mueller, 2004). Knowledge capabilities of firms primarily serve to condition the development of newer outcomes. In sum, outcome-based creativity will more likely be produced when the firm is more experienced and thus has better knowledge capabilities. The firm-level experiential knowledge, in contrast, will have little to do with the

process-based creativity of the project team that is triggered more by the team's characteristics. Therefore:

H5. Experiential knowledge of the firm has positively relates to employee creativity.

2.4. Project performance and experiential knowledge

There is abundant evidence suggesting an experiential effect at the firm level. The literature has emphasized the influence of experiential knowledge at the firm level on international strategic decisions such as entry mode choice (e.g., Erramilli, 1991; Kogut & Singh, 1988), investment sequence (e.g., Chang, 1995; Kogut, 1983), and location selection (e.g., Benito & Gripsrud, 1992; Davidson, 1980). Market selection and entry mode choice in particular have increasingly been viewed as functions of economic opportunity as the firm gains experience. Researchers have observed a positive relationship between the level of profitability and the extent of the geographic scope of MNCs that indicates the level of a firm's experience-based knowledge (Delios & Beamish, 1999; Geringer, Beamish, & daCosta, 1989; Tallman & Li, 1996). For instance, Luo (1999) tested the effect of firm-level experience on multidimensional performance of foreigninvested firms in China. It is known that MNCs are more successful if they lead to foreign investment decisions with other activities that give them familiarity with foreign markets (Newbound, Buckley, & Turwell, 1978). Firms having experience in a particular foreign market are familiar with the operating environment and acquire greater confidence in understanding customer needs (Davidson, 1980). Thus, they are more likely to succeed in business activities within the foreign market by achieving better returns. The positive influence of firm-level experiential knowledge on international performance can also be explained on the flip side of the business function—cost reduction. While costs of doing business abroad have been known to be a major determinant of international performance of MNCs (Aliber, 1970; Benito & Gripsrud, 1992; Hymer, 1976; Zaheer, 1995), firm-level experiential knowledge can progressively reduce these costs as accumulated knowledge takes effect in the foreign market (Davidson, 1980; Johanson & Vahlne, 1977), leading to better market performance. Project performance is a part of the firm's overall performance whether the scale of the project is big or small. Therefore, the above discussion leads to the following hypothesis asserting the positive relationship between firm-level experiential knowledge and the performance of international projects. And, again, we cannot find any plausible explanation on the path between team-level experience and another outcome, project performance, when the team-level experiential knowledge is singled out from the firm-level one.

H6. Project performance has positively relates to employee creativity.

b) The mediated effects of job complexity and of work relationships

Job complexity. Job complexity refers to jobs that are rich in autonomy, variety, identity, feedback, and significance. These five characteristics constitute the Job Characteristics Model (Hackman and Oldham 1975, 1980), which can be used to examine jobs with the aim of producing desired employee behaviors. Following Hackman and Oldham (1980), autonomy concerns the extent to which employees enjoy freedom in carrying out their duties; variety refers to the extent to which employees must exercise different skills and perform diverse activities; identity is the extent to which employees must perform a whole and complete piece of work; feedback concerns the extent to which employees obtain direct information about their performance whilst executing their tasks; and significance is the extent to which employees perceive their jobs as being important to the organization or to other people. Job complexity affects creativity through intrinsic motivation (e.g., Shalley, Zhou, and Oldham 2004). Complex jobs make employees feel that their job is meaningful and important, and that they are personally responsible for work outcomes, thus raising their work excitement. Most studies, however, have not tested whether the effects of job complexity are mediated by intrinsic motivation. Notwithstanding, some regression studies support a direct positive effect of job complexity on employee creativity (e.g., Oldham and Cummings 1996), but others obtain no such support (e.g., Tierney and Farmer 2004), and this suggests a possible mediating role for intrinsic motivation. Several studies have supported a positive link between job characteristics and motivation (e.g., Eby et al. 1999). We thus offer the following:

H7a. Job complexity positively relates to intrinsic motivation.

Evidence suggests that enriched jobs relate negatively to role ambiguity and role conflict (Dubinsky and Skinner 1984). Employees in such jobs have more opportunities “to determine their own role expectations and to deal more freely with problems of role clarification” (Dubinsky and Skinner 1984:40). Dubinsky and Skinner observed that autonomy and feedback negatively related to role conflict, and that autonomy and task identity related negatively to role ambiguity. Singh (1993) also obtained some support for the role of autonomy and feedback in decreasing ambiguity. We thus propose the following:

H7b. Job complexity negatively relates to role conflict.

H7c. Job complexity negatively relates to role ambiguity.

Relationship with the supervisor.

Research shows that supervision contributes to creativity. Supportive supervisors exhibit concern for employees' needs and opinions, provide informational feedback, and promote the development of their skills (Deci and Ryan 1985; Lichtenstein, Netemeyer, and Maxham 2010). Consequently, a good supervisor will “promote employees' feelings of self-determination and personal initiative at work, which should then boost

levels of interest in work activities and enhance creative achievement” (Oldham and Cummings 1996:611). Many studies directly link supervisory behavior with creativity (e.g., Amabile et al. 2004), but few have investigated the mediating effect of employee motivation. Shin and Zhou (2003) observed that intrinsic motivation partially mediates the effects of transformational leadership, and research in other contexts supports a link between supervision and intrinsic motivation (e.g., Eby et al. 1999). Therefore, we offer the following:

H8a. The relationship with the supervisor positively relates to intrinsic motivation.

Supervisors also influence employee-perceived role stress. Role ambiguity and role conflict “represent a lack of information and information overload, respectively” (Tubre and Collins 2000:157). Therefore, supervisors influence the degree of stress perceived by their subordinates, given that most of their work entails communicating implicitly and explicitly with them. A supervisor should clearly communicate expectations for the subordinate’s behavior and rewards, and will communicate any deviations from these expectations to the subordinate (Walker, Churchill, and Ford 1975). Furthermore, by providing subordinates with the proper resources to accomplish their job duties, and by giving them enough freedom to satisfy customers’ needs with unconventional solutions, supervisors can reduce role conflict (Babin and Boles 1996). Diverse studies support the negative effect of supervision on role stress (e.g., Kohli 1989; Lankau, Carlson, and Nielson 2006). Therefore, we offer the following:

H8b. The relationship with the supervisor negatively relates to role conflict.

H8c. The relationship with the supervisor negatively relates to role ambiguity.

2.7 Relationship with co-workers.

Peers provide emotional support to, and help each other with job-related problems. In particular, task feedback from co-workers, in the form of knowledgesharing has been found to help focus employee attention on tasks (Zhou and George 2001). Moreover, useful feedback from co-workers may indicate that they value change, prompting employees to believe that the search for novel ways of doing things is supported by fellow workers (Zhou and George 2001). In addition, fellow workers may serve as a source of ideas and knowledge that may stimulate an employee’s idea generation (Madjar 2005). The interaction with fellow workers may further increase employee motivation by promoting wider interests and even by creating pressure for team members to introduce new ideas (Cummings and Oldham 1997). However, empirical research provides evidence of both positive (e.g., Zhou and George 2001), as well as insignificant effects of co-worker support on employees’ creativity (e.g., Van Dyne, Jehn, and Cummings 2002). A possible reason for these mixed findings is the failure to include the mediating effects of intrinsic motivation. Alternatively, in the presence of good co-worker relationships, employees may engage in ‘groupthink’, which may dilute creative ideas or stymie creative thought. Janssen and Van Yperen (2004) also argue that employees may avoid behaviors that could harm the relationship with peers. We thus offer the following:

H9a. The relationship with co-workers positively relates to intrinsic motivation.

Relationships with co-workers should also lower employees’ role stress. Co-workers may help clarify the tasks each is to perform, allocate time for performing tasks, and provide feedback regarding how well employees are performing, thus reducing employees’ anxiety (Kohli and Jaworski 1994). Coworkers can also help each other to prioritize tasks and devise rules or strategies to cope with conflicting demands. This is consistent with social learning theory, which contends that mentors greatly affect employees (Bandura 1977). Research has found that supportive peers help disseminate knowledge and behaviors associated with service quality (Redman and Mathews 1998), and that peer feedback is negatively related to role ambiguity (e.g., Kohli and Jaworski 1994). We thus predict the following:

H9b. The relationship with co-workers negatively relates to role conflict.

H9c. The relationship with co-workers negatively relates to role ambiguity.

2.8 Relationship with customers

The nature of frontline service jobs is that most employees spend most of their work time interacting with customers. Consequently, it is predicted that when employees feel satisfied with their customer work, and enjoy assisting customers, they will strive harder to satisfy their needs. Therefore, we propose the following:

H10. The relationship with customers positively relates to intrinsic motivation.

We do not expect the relationship with customers to affect role stress. Role ambiguity is related with the extent to which an employee thinks he/she has inadequate knowledge to perform his/her job. Role conflict concerns an employee’s perceived incompatibility between expectations of two or more role-set members. Thus, it is unlikely that the degree of customer loyalty or friendliness will impact upon role ambiguity or role conflict. It is not because customers are more friendly or loyal that employees will better know how to carry out their duties. Similarly, frontline employees may encounter conflict between customers’ requests and company policies, but this is not necessarily caused by a good or bad relationship with customers. Customers can be trustful and even so pose requests that collide with the organization’s rules. Thus, we do not link relationship with customers to role stress.

c) The direct effects of job complexity and of work relationships

We establish a direct relationship between employee creativity and an employee's job complexity and work relationships. Two reasons contribute to this. Firstly, considering the direct effects of contextual factors enables us to test whether the effects of role stress and intrinsic motivation hold in the presence of direct effects. Secondly, empirical evidence supports such a direct relationship; for example Eby et al. (1999) found that the effects of exogenous variables on job attitudes and behaviors are only partially mediated by intrinsic motivation. Moreover, most researchers who have explored the effects of contextual factors on employee creativity and who have generally held an intrinsic motivation perspective have also tested the direct effects of contextual factors on creativity, although generally they have failed to examine the mediating effect of intrinsic motivation (Shalley, Zhou, and Oldham 2004). It is likely that job complexity has a direct, positive effect on creativity that is not mediated by intrinsic motivation. An employee with a job rich in identity accompanies customers from the beginning to the end of the service delivery process. Consequently, this employee develops a better understanding of the different stages of the service delivery process, and a better understanding of customer needs. Job complexity should, therefore, affect employee creativity, regardless of the mediating effect of intrinsic motivation. An employee's relationship with his/her supervisor and with co-workers should also directly affect employee creativity. Supervisors may provide prompt performance feedback and demonstrate appropriate behaviors (Feldman 1976; Van Maanen and Schein 1979), and this increases employee competence. Kohli, Shervani, and Challagalla (1998:266) note that "by helping salespeople understand, for example, how to negotiate better or make superior presentations, managers can enable salespeople to improve their competences". Weitz, Harish, and Sujana (1986) also contend that supervisors focused on the development of salespeople's skills and abilities enable and motivate employees to learn new ways of performing a task. Similarly, co-workers in a retail setting can generally observe their peers and provide work-related feedback, which can help employees to augment their knowledge and hone their skills (Kohli and Jaworski 1994). The increased competencies should lead employees to address the needs of customers in more creative ways, regardless of their intrinsic motivation level.

Finally, when employees enjoy interacting with customers, they are more likely to carefully listen to their needs and to actively seek further information from them. With this increased customer information, employees can better use their competencies in addressing the unique needs of each customer. Additionally, customers can provide an outsider's perspective, which can fuel creative responses (Madjar 2005). This is particularly relevant for services involving customer co-production. Increased communication flows heighten the degree of customer co-production, and this means that customers will participate in a more constructive manner in the service development and delivery process (Auh et al. 2007), and this should enhance employee creativity. In summary, to test whether the mediating effects hold in the presence of direct effects, we offer the following hypotheses:

H11a. Job complexity positively relates to employee creativity.

H11b. The relationship with the supervisor positively relates to creativity.

H11c. The relationship with co-workers positively relates to creativity.

H11d. The relationship with customers positively relates to creativity.

Research method

Sample

To collect the data for our study we collaborated on Economy and Finance Organization in Tehran with a total of 2,279 frontline employees, which makes creativity a key factor in responding to such economic pressures. The 2,279 frontline employees received a packet containing a cover letter explaining the research being conducted (including the hospitals' approval of the study and an anonymity and confidentiality assurance), a self-administered questionnaire, and a stamped, addressed return envelope. Respondents were given the choice of mailing the envelope or of depositing it in a questionnaire-box that was located in a central location in each of the three hospitals. Of the 2,279 frontline employees who were sent surveys, 525 responded. Due to missing data, 65 surveys were eliminated, yielding 460 usable questionnaires, representing a 20.2 percent net response rate. The sample is comprised of 64 percent female respondents, with 58 percent between 31 and 50 years old. Pooling individuals with different occupations contributes to the generalization of findings. Moreover, focusing the study on a single job position would reduce the variance of variables, lowering the capacity to detect associations between constructs. Therefore, other studies have also followed a similar sampling strategy (e.g., Hartline, Maxham, and McKee 2000; de Jong, de Ruyter, and Lemmink 2004).

Measures and measurement analysis

A pre-tested questionnaire was built with multiple-item, seven-point scales ranging from "strongly disagree" (1) to "strongly agree" (7). Job complexity draws on the five job characteristics of the Job Diagnostic Survey (Hackman and Oldham 1980). These characteristics affect three critical psychological states: variety, identity, and significance influence the extent to which employees perceive their jobs as meaningful; autonomy impacts on experienced responsibility; and feedback influences knowledge of work results, enabling employees to be aware

of their effectiveness at work. Hackman and Oldham (1980) proposed a single-index, the Motivating Potential Score (MPS) that combines the five job characteristics and serves to evaluate the extent to which a job can generate intrinsic motivation. The formula, $MPS = \text{autonomy} \times \text{feedback} \times (\text{variety} + \text{identity} + \text{significance}) / 3$, has been used in the past to measure job complexity (e.g., Oldham and Cummings 1996). After a preliminary data analysis, we used confirmatory factor analysis to assess the psychometric properties of the five job characteristics. The final model (see Appendix A) shows an adequate fit: $\chi^2 = 272.3$, $df = 80$, $p < .01$, Incremental Fit Index (IFI) = .94, Tucker–Lewis Index [TLI] = .92, Comparative Fit Index [CFI] = .94, Root Mean Square Error of Approximation [RMSEA] = .07. The factor loadings are large, supporting the convergent validity of the measures. The composite reliability of each scale equals or exceeds the .80 threshold, except *task identity*, with a reliability of .68. This suggests that the scales are internally consistent. The average variance extracted (AVE) for each job characteristic exceeds .50, except for task identity (.42). The correlations between job characteristics range from $-.04$ to $.61$. Therefore, the AVE is larger than the squared correlation between any two constructs, supporting the discriminant validity of the job characteristics (cf. Fornell and Larcker 1981). Next, we computed the MPS to form an index for job complexity. The scale for employee creativity is from Ganesan and Weitz (1996). This measure is consistent with previous studies, in that the measure regards creativity as a unitary construct (cf. Shalley, Zhou, and Oldham 2004). Thus, it does not distinguish between different creative ideas, which can range from minor improvements to major breakthroughs. The measures for the employee's relationship with supervisor, co-workers and customers were also adapted from past research (Churchill, Ford, and Walker 1974; Comer, Machleit, and Lagace 1989). Intrinsic motivation is based on Sujan (1986), whereas the items for role conflict and role ambiguity are from Rizzo, House, and Lirtzman (1970). After a preliminary data analysis, the items were submitted to confirmatory factor analysis. The final model has an adequate fit ($\chi^2 = 504.2$, $df = 297$, $p < .01$, IFI = .97, TLI = .97, CFI = .97, RMSEA = .04). The factor loadings are highly significant, and the composite reliability of each scale exceeds the .80 threshold, except for *role conflict* and *role ambiguity* (both with a reliability of .77). This supports the internal consistency and convergent validity of the scales. We also observed that in all cases, the AVE was larger than the square of the correlation coefficients for each pair of variables, which provides evidence of discriminant validity (Fornell and Larcker 1981). Table 1 presents univariate statistics, correlation coefficients, Cronbach alphas, average variances extracted, and composite reliabilities. Appendix A provides details of the scales' items. As this study obtained information through self-reports, common method variance was an issue to consider. In line with Podsakoff, MacKenzie, and Podsakoff (2003), respondents were not told of the specific purpose of the research, and were guaranteed anonymity of responses. We also ran two single-factor confirmatory analyses, one for the items associated with the job characteristics, and another for the remaining construct items, with all items loading on a single common method variance factor in each analysis. The fit indices of the resulting models were unacceptable, indicating that respondents could not differentiate the constructs, thus implying that the results should not be much affected by common method variance. We also assessed the extent to which multicollinearity can affect model estimation. Grewal, Cote, and Baumgartner (2004) determined a number of circumstances under which the adverse effects of multicollinearity in SEM are reduced. Our study meets a number of these conditions: (1) the Fornell and Larcker (1981) test for discriminant validity between constructs is satisfied; (2) the composite reliability of all but one construct exceeds the .70 level (the exception being task identity, with a composite reliability of .68); (3) the correlation between constructs is small, not exceeding the .80 level; and (4) the ratio of sample size to number of parameters estimated is relatively large, around 6:1. Thus, the effects of multicollinearity are negligible. Finally, we conducted measurement invariance tests to ascertain whether it is reasonable to combine the three hospital samples to test the proposed research model. Steenkamp and Baumgartner (1998) state that, when the purpose of the research is to relate constructs in a nomological net, configural and metric invariance if the purpose is to compare means across groups, and factor variance invariance if comparisons of standardized measures of association across groups are to be conducted. The aim of our study is not to conduct comparisons across groups, but to relate a number of constructs. Accordingly, we conducted configural and metric invariance tests. Initially, we tested the validity of the factor structure across groups with no equality constraints, which is a baseline model for further tests of invariance. The results indicate that the hypothesized factor structure fits well across groups ($\chi^2 = 1267.8$, $df = 891$, $p < .01$, CFI = .95, TLI = .94, IFI = .95, and RMSEA = .03). This reveals the existence of a similar pattern of salient and non-salient loadings across groups, thus supporting configural invariance. We estimated another model with the factor loadings constrained to be equal across groups, and obtained the following fit: $\chi^2 = 1304.3$, $df = 929$, $p < .01$, CFI = .95, TLI = .95, IFI = .95, and RMSEA = .03. A chi-square difference test ($\chi^2 = 36.5$, $df = 38$, $p > .10$) suggests the inexistence of significant differences in factor loadings, thus supporting metric invariance.

Table 1

(a) Standard deviation, correlation matrix, reliability, and variance extracted estimates for job characteristics

	SD	X ₁	X ₂	X ₃	X ₄	X ₅	CR	AVE
Task variety (X ₁)	.97	.85					.85	.65
Task feedback (X ₂)	.95	.42	.81				.82	.61
Task autonomy (X ₃)	1.12	.36	-.55	.82			.87	.57
Task identity (X ₄)	.93	.45	.61	.55	.75		.68	.42
Task significance (X ₅)	1.36	.26	.01	-.04	.13	.84	.86	.75

(b) Standard deviation, correlation matrix, reliability, and variance extracted estimates for main constructs

	SD	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	CR	AVE
Employee creativity (X ₁)	.78	.84								.85	.64
Role ambiguity (X ₂)	.66	-.40	.75							.77	.46
Role conflict (X ₃)	.81	.21	.17	.76						.77	.46
Intrinsic motivation (X ₄)	.89	.32	-.33	.05	.85					.86	.72
Relationship with supervisor (X ₅)	1.45	.23	-.36	-.17	.25	.97				.96	.79
Relationship with co-workers (X ₆)	1.15	.11	-.35	-.10	.18	.45	.92			.92	.80
Relationship with customers (X ₇)	1.10	.22	-.21	.00	.12	.17	.24	.93		.92	.79
Job complexity (X ₈)	63.45	.48	-.63	.00	.37	.37	.25	.13	-	-	-
Experiential knowledge of the project team	63.6	.52	-.56	.07	.39	.39	.29	.16		.89	.95
Experiential knowledge of the firm	60.4	.63	-.69	.04	.41	.35	.35	.17		.69	.86
Project performance	52.3	.48	-.73	.02	.54	.42	.34	.16		.75	.65

Note: Diagonal entries are Cronbach's alpha coefficients; CR = composite reliability; AVE = average variance extracted.

Results

As this study collected information from three different hospitals, we introduced two dummy variables to account for differences in hospital size and other hospital characteristics. The structural model's fit statistics are quite reasonable:

$\chi^2 = 560.8$, $df = 343$, $p < .01$, CFI = .97, TLI = .97, IFI = .97, and RMSEA = .04. The results (see Table 2) provide solid support for the research model, as the majority of the hypotheses (13 out of 20) received statistical support. In conformance to H1, intrinsic motivation positively relates to creativity. The results also indicate that role ambiguity contributes negatively to creativity (H2), and role conflict contributes positively to it (H3). We found that Experiential knowledge of the project team has positively relates to employee creativity, supporting H4, whereas Experiential knowledge of the firm positively relates with employee creativity. H5. We also have support for H6, as Project performance has positively relates to employee creativity. We now analyze the indirect effects of job complexity and work relationships on creativity. Job complexity is positively related to intrinsic motivation, supporting H7a. H7b predicted a negative relationship between job complexity and role conflict but we obtained no significant effect. Nonetheless, job complexity contributes negatively to role ambiguity, supporting H7c. As predicted, employees' relationships with their supervisors are mediated by intrinsic motivation (H8a), role conflict (H8b), and role ambiguity (H8c). We determined that the relationship with co-workers only significantly affected role ambiguity. The coefficient for this path has a negative sign, supporting H9c. Regarding co-workers' relationships positive impact on intrinsic motivation (H9a) and negative influence on role conflict (H9b), none was significant. In H10 we predicted a positive relationship between workers' relationship with customers and intrinsic motivation, but the path was not significant. Finally, in respect of the direct effects of job complexity and work relationships on creativity, the results support a positive, direct effect of job complexity on creativity (H11a). This provides evidence that job complexity impacts upon creativity over and above that which is mediated by intrinsic motivation. Surprisingly, the relationship with the supervisor does not directly relate with employee creativity, and this fails to support H11b. The effects of supervision seem to be fully mediated by intrinsic motivation, role conflict and role ambiguity. Frontline workers' relationships with co-workers negatively relates with creativity, which contradicts H11c. As predicted in H11d, the relationship with customers has a positive, direct effect on creativity. Finally, none of the dummy variables obtained statistical significance. Our study posits that the effects of job complexity and work relationships are partially mediated by role stress and intrinsic motivation. To test this mediation effect, we estimated a model in which the effects of the exogenous variables on creativity are fully mediated by intrinsic motivation and role stress. The results of this model ($\chi^2 = 591.3$, $df = 347$, $p < .01$), compared to the hypothesized (partial mediation) model ($\chi^2 = 560.8$, $df = 343$, $p < .01$), support the hypothesized full model (χ^2

= 30.5, $df=4$, $p < .01$). Thus, the effects of job complexity and work relationships are only partially mediated by role stress and intrinsic motivation. The literature on creativity has considered the intrinsic motivation principle to explain the influence of contextual factors on creativity. However, most studies have not empirically tested this mediating link, frequently investigating instead the direct effects of contextual factors on creativity. Those that have explicitly considered intrinsic motivation obtained mixed results about its mediation effects (Shalley, Zhou, and Oldham 2004). Accordingly, we have developed a competing model in which all variables only have direct paths to creativity (i.e., intrinsic motivation and role stress do not mediate the effects of other variables), the exception being role conflict, whose effect on creativity is mediated by role ambiguity. The results of this model ($\chi^2 = 753.2$, $df = 342$, $CFI = .95$, $TLI = .94$, $IFI = .95$, and $RMSEA = .05$), when compared to the proposed model ($\chi^2 = 560.8$, $df = 343$, $CFI = .97$, $TLI = .97$, $IFI = .97$, and $RMSEA = .04$) indicate that the latter performs much better. Therefore, the results provide strong support for the mediating role of intrinsic motivation and role stress.

Table 2
 Results of structural model.

	Stand. coeff.	S.E.	C.R.	<i>p</i>	Hypotheses
Intrinsic motivation → employee creativity	.122	.046	2.30	**	H1 (+): S
Role ambiguity → employee creativity	-.171	.060	-2.26	**	H2 (-): S
Role conflict → employee creativity	.230	.033	4.35	**	H3 (+): S
Experiential knowledge of the project team	-.128	.096	-1.64	*	H4 (-): S
Experiential knowledge of the firm	.089	.072	1.63	**	H5 (-): R
Project performance	.111	.038	2.28	**	H6 (+): S
Job complexity → intrinsic motivation	.238	.064	3.31	**	H7a (+): S
Job complexity → role conflict	.080	.073	1.33		H7b (-): NS
Job complexity → role ambiguity	-.538	.052	-10.60	**	H7c (-): S
Relationship with supervisor → intrinsic motivation	.103	.037	1.73	*	H8a (+): S
Relationship with supervisor → role conflict	-.179	.055	-2.81	**	H8b (-): S
Relationship with supervisor → role ambiguity	-.163	.035	-3.11	**	H8c (-): S
Relationship with co-workers → intrinsic motivation	.023	.045	.41		H9a (+): NS
Relationship with co-workers → role conflict	-.038	.067	-.62		H9b (-): NS
Relationship with co-workers → role ambiguity	-.134	.043	-2.70	**	H9c (-): S
Relationship with customers → intrinsic motivation	.039	.041	.64		H10 (+): NS
Job complexity → Employee creativity	.214	.053	4.55	**	H11a (+): S
Relationship with supervisor → employee creativity	.066	.030	1.18		H11b (+): NS
Relationship with co-workers → employee creativity	-.090	.037	-1.66	*	H11c (+): R
Relationship with customers → employee creativity	.140	.033	2.95	**	H11d (+): S
Hospital 1 → employee creativity	.032	.079	.66		
Hospital 2 → employee creativity	-.052	.086	-1.06		

Model fit: $\chi^2 = 560.8$, $df = 343$; $IFI = .97$; $TLI = .97$; $CFI = .97$; $RMSEA = .04$. Note: Tests of hypotheses are one-tail tests; * $p \leq 0.05$; ** $p \leq 0.01$; S = supported; R = refuted; NS = not significant.

Discussion and implications

A major goal of this research was to investigate the impact of role stress on frontline service workers' creativity, which has been overlooked to date in the literature. Role ambiguity adversely affects creativity, and this complies with our supposition. Role conflict, however, has a positive, direct effect on creativity, and this conforms to our predictions. Role conflict is unavoidable in frontline settings, and this may imply that, to perform effectively, employees must cope with the incompatible demands of their various role partners, including supervisors, customers and peers (e.g., Behrman and Perreault 1984); resorting to creativity may help employees meet the expectations of each role partner. We found that role ambiguity impacts negatively on intrinsic motivation, thus increasing its negative effect on creativity. This underscores the importance of clarifying duties and goals for frontline employees. Role conflict, however, further positively influences creativity via its positive effect on intrinsic motivation. This positive effect is not totally unexpected, and conforms to previous evidence positively linking role conflict with performance. We further found that role conflict adversely affects creativity through its positive impact on role ambiguity. Creativity studies have seldom empirically tested the mediating role of intrinsic motivation. In our study, job complexity affects creativity through intrinsic motivation, thus supporting such a mediating link. Another contribution of this study is that job complexity's effects on creativity are mediated by role ambiguity, but not by role conflict. Although many researchers posit a negative effect of job characteristics on role stress (see Dubinsky and Skinner 1984), researchers' evidence is not so clear cut, as mixed findings have emerged (e.g., de Jonge et al. 2001; Dubinsky and Skinner 1984; Singh 1993, 1998), with some characteristics affecting role stress but not others, and this

possibly explains why job complexity, a composite measure, does not influence role conflict.

Another important finding is that the effects of supervisor relationships on creativity are mediated by intrinsic motivation as well as by role stress. Supervisors may promote intrinsic motivation, but they also play an important role in explaining employee roles, thereby also contributing to creativity. We also found that frontline service workers' relationships with their coworkers do not significantly impact creativity through intrinsic motivation, and this fails to support the mediating role prescribed in the literature. Also against predictions, the relationship with peers does not relate to role conflict. A possible explanation for these findings is that peers have less impact on structuring the job compared to supervisors. Notwithstanding, the results show that the relationship with co-workers influences creativity through its negative influence on role ambiguity. Co-workers may be a good source for obtaining feedback about the importance of job goals and performance levels, and also on appropriate job behaviors, thus reducing role ambiguity. As to an employee's relationship with his/her customers, we found this was not related to intrinsic motivation. Dealing with the health problems of patients can have a detrimental impact on employees' intrinsic motivation, thus possibly compensating for the positive effects of the employee's relationship with his/her customers, as discussed previously.

Theoretical contribution

The creativity of frontline employees should be the most relevant in service organizations, given frontline employees' position at the border of organizations, and their role in shaping customers' satisfaction. Despite this, most of the literature fails to examine the creativity drivers for frontline service employees. Accordingly, this paper makes a number of contributions. Firstly, we developed and tested a model of creativity antecedents with frontline service employees. This is, apparently, one of the first studies in the services literature to specifically address creativity antecedents. Therefore, the results enlighten management practices that motivate creativity in service organizations. Secondly, we have extended previous research by examining the influence of new explanatory variables on creativity, namely role stress and frontline workers' relationship with customers. Creativity is positively affected by role conflict and negatively by role ambiguity, and the effect of these role stressors is partially mediated by intrinsic motivation. We also observed that a worker's relationship with customers is positively related to creativity. These results are novel. We also determined that the effects of contextual factors are mediated by intrinsic motivation as well as by role stress. This is a significant contribution, since extant literature has been relying on the intrinsic motivation principle to explain the effects of the context on creativity. Moreover, the findings indicate that contextual factors also have direct effects on creativity. Consequently, these results add to the literature and support the call from Shalley, Zhou, and Oldham (2004) for the consideration of new contextual explanatory variables as well as for additional mechanisms to explain the link between work context and creativity. Accordingly, our findings underscore the need to reconceptualise the mechanisms through which work context factors influence creativity. Apart from Cognitive Evaluation Theory, Role Theory appears to be a valuable complementary explanation for the effect of contextual factors on creativity, thus warranting attention in future research.

Implications for service managers

Our results indicate that creativity can be promoted through a work environment that enhances intrinsic motivation. This can be accomplished by manipulating six key features of the work environment: challenge, employee autonomy, resources, work-group features, supervisory support, and organizational support (Amabile 1998:81). In this respect, managers should match people's skills, interests and personality types to the right job, so that each employee can make the most of his/her expertise, and this fuels intrinsic motivation. Managers should also provide guidelines for employees, including the behaviors that employees can adopt to accomplish organizational goals. The results also suggest that some role conflict may be desirable, as it seems to spur creativity. However, this must be factored in with caution as role conflict contributes to ambiguity, which adversely affects creativity. Managers should also design jobs with higher complexity as these contribute directly and indirectly to creativity.

Fostering good relationships at work can produce important pay-offs. Supervisors should adopt styles that address the needs of frontline employees namely by establishing goals for employees, but then let them enjoy some autonomy as to how they accomplish such goals. Nonetheless, managers must be aware that supervision can reduce role conflict, thus thwarting creativity, and this must be considered in crafting the right supervision. Managers should also promote good relationships between peers. This may help employees recognize their autonomy, and motivate them to engage in the activities they are expected to perform, all of which support creativity. However, we also found that positive peer relationships had a negative direct effect on creativity. Employees may feel safer to voice new ideas, and may even use knowledge from peers as a catalyst to generate novel ideas. That said, employees may refrain from being creative in order to protect relationships with peers. Thus managers could attempt to create an environment that values creativity, and where those that advance new ideas that fail are not punished. Finally, managers can also stimulate creativity by promoting good

relationships between customers and employees, which will motivate the latter to search for information on customer needs, and this can spark creative behaviors that satisfy customers.

Limitations of this study and directions for future research

This study has a number of limitations that future research can address. To measure creativity, we used a self-report measure, an approach that has been adopted in several studies (e.g., Amabile and Gryskiewicz 1989; Gilson et al. 2005; Rice 2006; Wang and Netemeyer 2004). However, some studies have relied on objective measures of creativity, such as contributions to suggestion programs (e.g., Oldham and Cumming 1996). Others have relied on supervisor evaluations of employee creativity (e.g., Tierney and Farmer 2004). Notwithstanding, Amabile et al. (2005) contend that an individual's creativity is unlikely to be accurately assessed by any observer. This will be particularly the case with frontline employees, whose working day is spent with different customers. As these employees have boundary role positions, their creative behavior may not be consistently observable by managers (Gilson et al. 2005; Wang and Netemeyer 2004). Thus, lack of a viable alternative makes frontline employees the best available judge of their creativity. Nonetheless, it would be useful to investigate whether the results would coincide with an alternative creativity measure. Regarding the psychometric properties of the measures, we note that task identity has a composite reliability of .68, and an AVE of .42, thus failing to meet accepted thresholds. The literature distinguishes ideas that involve minor adaptations from ideas that imply major breakthroughs. Unsworth (2001) states that different types of creativity may have different drivers. However, research has been treating creativity as a unitary concept (Shalley, Zhou, and Oldham 2004). Following previous research, we have also adopted creativity as a unitary construct. It follows that the drivers of creativity treated in this research may have had a differential effect had the focus been on a specific type of creativity. Thus, investigating the antecedents of different types of creativity constitutes a valuable research topic. This study relied on cross-sectional data. Accordingly, assertions about causality cannot be derived from this study. A central contention of this paper is that intrinsic motivation affects creativity and that it mediates the effects of the context on creativity. However, it is likely that some non-recursive effects may take place. It is possible that self-perceptions of creativity may enhance one's intrinsic motivation. Nevertheless, the approach taken in this study is that some level of intrinsic motivation must be engendered so that creative efforts can take place. This approach is well established in the literature, which includes several laboratory studies (for a review see Shalley, Zhou, and Oldham 2004). Future research, however, is advised to pursue longitudinal designs, to shed further light on the underlying causation mechanisms. The study has some gender imbalance. Demographic variables impact upon creativity, but research in this realm has focused on personal characteristics such as personality and cognitive style (Shalley, Zhou, and Oldham 2004). Future research could pay further attention to demographic variables, and how they interact with other variables to affect creativity. We examined the thoughts and practices of employees in health care. Therefore, some of the findings may not apply in other settings. Consequently, it would be useful to conduct similar research in other settings. Our sample also covers a variety of occupations. Although this contributes to the generalization of findings, it is possible that different occupations may respond differently to certain elements of the organizational environment, and this could be the focus of future investigation. Nevertheless, it is worthwhile noting that we obtained support for most hypotheses, which were theory driven. This contributes to the robustness of our findings, suggesting that they should also apply to other jobs and retail settings. Future research should investigate the means through which context factors directly influence creativity, as their effects are only partially mediated by intrinsic motivation and role stress. Researchers should also look for other variables mediating the effects of the work context. In addition, it will be beneficial to consider how creativity impacts upon employee performance, as well as upon customer satisfaction and customer relationship quality. This will help calibrate the various contextual factors to help produce the desired levels of creativity.

Measurement model for job characteristics.

Items	Stand. loads.	C.R.
Task variety		
This job gives me the opportunity to do many different things	.794	19.06
I perform different tasks during a typical work day	.837	20.43
This job requires me to use a number of skills and talents	.796	19.12
Task feedback		
I can easily ascertain whether I am performing well or poorly in this job	.737	17.12
I easily identify how well I am doing in the job I am working on	.895	22.08
I have many opportunities to find out how well I am doing in my job	.699	16.03
Task autonomy		
I have many opportunities for independent thought and action in my job	.891	23.07
I have many opportunities to take the initiative in this job	.895	23.22
I am encouraged to find solutions to problems	.569	12.73
I have a great deal of control over the pace of my work	.586	13.19
Task identity		
I have many opportunities to complete the work I started	.538	10.76
In this job I can see the entire piece of work	.704	14.56
I have many opportunities to do a job from beginning to end (i.e., the chance to do a whole job)	.692	14.30
Task significance		
My work significantly affects the lives and well-being of other people	.783	11.76
A lot of other people can be affected by how well the work gets done	.940	12.75

Measurement model fit: $\chi^2 = 272.3$, $df = 80$; IFI, .94; TLI, .92; CFI, .94; RMSEA, .07.

Measurement model for main constructs.

Items	Stand. loads.	C.R.
Role conflict		
I receive assignments without enough resources and materials to complete them	.519	10.64
I work with two or more groups that operate quite differently	.687	14.80
I receive incompatible requests from two or more people	.688	17.10
I do things that are apt to be accepted by one person and not accepted by another	.687	16.12
Role ambiguity		
I receive clear instructions about my job duties (rev)	.607	13.15
I know what my responsibilities are (rev)	.684	19.28
I know exactly what is expected of me (rev)	.821	12.50
I have divided my time properly (rev)	.536	15.28
Intrinsic motivation		
Doing this job gives me pleasure	.842	20.71
If I started over, I would still choose to do the kind of work I am doing now	.824	20.11
My job is one of the parts of my life that gives me more satisfaction	.792	16.28

Appendix A Continued

Items	Stand. loads.	C.R.
Employee creativity		
I try to be as creative as I can in my job	.820	19.76
I experiment with new approaches in performing my job	.746	17.50
On the job I am inventive in overcoming barriers	.965	20.36
Relationship with supervisor		
Supervisor really looks for our ideas	.639	23.28
Supervisor has been fair in dealings with me	.917	25.62
Supervisor gives me credit and praise for work well done	.911	25.32
Supervisor helps me solving work-related problems	.911	25.32
I have good relationships with my supervisor	.835	21.91
I receive good work support from my supervisor	.899	28.96
Relationship with co-workers		
Fellow workers are loyal	.818	21.02
Fellow workers are pleasant	.932	25.77
Fellow workers are friendly	.929	25.66
Relationship with customers		
Customers are trustworthy	.827	21.25
Customers live up to their promises	.891	29.68
Customers are loyal	.937	25.77
Job complexity		
Motivating potential score*	.938	-
Team-level experiential knowledge		
"Prior to the project, compared to firms in our industry, the team members generally had."	.365	25.24
A great deal of knowledge about the foreign market(s).	.789	24.36
A great deal of experience in the foreign market(s).	.897	21.54
A great deal of familiarity in the foreign market(s).	.988	21.69
Firm-level experiential knowledge		
Number of countries in which the firm has operations.	.987	22.65
Foreign sales over total sales	.968	22.54
Project performance		
Net profits relative to expectations.	.684	23.69
Growth in sales relative to expectations.	.698	24.65
Net profits relative to competitors.	.684	24.89
Growth in sales relative to competitors.	.698	24.89
Overall performance in net profits and growth	.986	24.36

Measurement model fit: $\chi^2 = 504.2$, $df = 297$; IFI, .97; TLI, .97; CFI, .97; RMSEA, .04.

* Parameters were fixed according to the procedure suggested by Anderson and Gerbing (1988).

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