Job Characteristics and the Creativity of Frontline Service Employees

Filipe Coelho[1] and Mário Augusto[1]

Abstract

This study investigates the main and interactive effects of job characteristics on the creativity of frontline service employees. Past research investigates the link between job complexity, an index measure of job characteristics, and employee creativity. This study follows a component-wise approach in studying the influence of each job characteristic on the creativity of employees. The approach overcomes a number of limitations such as the sole reliance on the intrinsic motivation rationale. In addition, we conduct this research in services, whereas past research has focused primarily on other settings. The study tests a model with 460 employees from a service setting and shows that consideration of the effects of each job characteristic has an explanatory power beyond that of job complexity. Furthermore, the results show that job characteristics interact with each other to affect creativity. Finally, the results also indicate that the component-wise approach is useful for managers for prioritizing efforts. In particular, the results indicate that to promote creative behaviors, service managers should consider increasing employee job autonomy, variety, feedback, and identity. However, the interactions between job characteristics also reveal that to build an environment that stimulates creative performance, it is important to find the right balance between job characteristics.

Introduction

Building an appropriate context for innovation to happen is paramount (Auh and Menguc 2005; Baker and Sinkula 1999; Day 1994; Slater and Narver 1995). At the heart of innovation, however, lies the creativity of employees. Creative employees develop new ideas and suggest novel products and procedures which, in turn, can be subsequently implemented and used to promote the organization's survival and effectiveness (Oldham and Cummings 1996). Not surprisingly, the creativity of employees is necessary for the competitive advantage of organizations (Amabile 1996; Shalley 1995; Shalley, Zhou, and Oldham 2004; Woodman, Sawyer, and Griffin 1993).

Creativity is "the development of ideas about products, practices, services, or procedures that are (a) novel and (b) potentially useful to the organization" (Shalley, Zhou, and Oldham 2004, p. 934). Ideas are considered novel when they entail a substantial recombination of existing materials or the development of materials that are completely new (Oldham and Cummings 1996, p. 608). They are useful when they can provide direct or indirect value to an organization in the short or long term (Shalley, Zhou, and Oldham 2004).

The creativity of employees is attracting growing attention from scholars, seeking to understand how it can be promoted and sustained. In this study, we investigate the additive and interactive effects of job characteristics on the creativity of frontline service employees. Past research has already established a link between job complexity, an index measure of job characteristics, and employee creativity (e.g., Oldham and Cummings 1996). The effect of job characteristics on creativity emerges from the employee motivation that such characteristics can generate. Basically, jobs that are complex (i.e., rich in variety, identity, autonomy, feedback, and significance) enhance "individuals' excitement about their work activities and their interest in completing these activities, and this excitement should foster creativity" (Shalley, Zhou, and Oldham 2004, p. 938). Explicit in this research effort is a composite, aggregate approach to study the influences of job characteristics.

Our study adds to the literature in a number of ways. First, consider that the extant literature relies solely on the intrinsic motivation perspective, together with the composite approach to job characteristics, to explain the relationship between job design and creativity. This is a rather limiting perspective to explain the role played by job characteristics, particularly considering their multidimensional nature. Each job characteristic has its own locus of interest and involves different cognitive

[1] Faculdade de Economia da Universidade de Coimbra, Coimbra, Portugal

Corresponding Author:
Filipe Coelho, Faculdade de Economia da Universidade de Coimbra, Av. Dias da Silva 165, 3004-512 Coimbra, Portugal
Email: fcoelho@fe.uc.pt

activities. This suggests that each job characteristic influence creativity through different mechanisms. In summary, relying solely on the intrinsic motivation rationale and on the composite approach to job characteristics neglects other consequences that can be associated with job characteristics. Accordingly, we aim to expand this by testing the effect of each job characteristic on creativity. In addition, we advance (but do not test) new mechanisms through which different job characteristics may impact on creativity.

Evidence from several studies seems to support our approach. Oldham and Cummings (1996), for instance, obtained a relatively low median alpha reliability for the job complexity measure. This suggests that the degree of overlap or correlation between job characteristics is not that strong, and that possibly each job characteristic, apart from the intrinsic motivation link, also has some other effects on creative performance. Furthermore, Hackman and Oldham (1980, p. 79) contend that an employee with a below average significance in his or her job may find it meaningful if it is high on skill variety and task identity. This implies that a composite approach may lead to a cancellation of specific effects. Several studies also report a low explanatory power associated with job complexity (e.g., Oldham and Cummings 1996). Moreover, a number of researchers (e.g., Farmer, Tierney, and Kung-McIntyre 2003; Tierney and Farmer 2004) observe no support for a direct link between job complexity and employee creativity. These results can probably be attributed, at least in part, to the composite approach, thus also questioning its adequacy.

Second, extant literature on job characteristics has been neglecting any interactions between them. However, there are theoretical and empirical precedents to consider that job characteristics interact with each other to influence employee attitudes and behaviors (e.g., Dodd and Ganster 1996), and this study addresses this notion. Third, it is also likely that each job characteristic has differential importance in explaining creativity, and this will be especially true across business sectors. With this knowledge, managers will be in a better position to prioritize efforts in order to maximally influence creativity. Consequently, consideration of a component-wise approach also enables us to identify the relative importance of each job characteristic.

Fourth, studies on creativity primarily focus on settings other than services, yet services dominate the economic activity of developed countries, commanding, in many economies, over 60% and even 70% of employment and gross domestic production (GDP). Consequently, it is still not very well known how well the previous findings relating to job complexity apply to service settings. Frontline service employees in particular, given their boundary spanning position and the distinguishing features of services, have jobs that tend to be unstructured, nonroutine, and that present many challenges. As these are characteristics that make jobs amenable for creativity, frontline employees can play a pivotal role in an organization's innovativeness. Customers' needs in services tend to be heterogeneous, and this suggests that addressing the unique needs of each customer requires creative behaviors from frontline employees. In particular, creative employees are more likely to interact with the customer in a way that better enables him or her to discover the needs of customers, to communicate with customers in customized ways, and to craft the service in a way that meets the specific needs of each customer. This suggests that organizational performance might be highly dependent on the creative efforts exhibited by frontline employees. Not surprisingly, Bitner, Booms, and Tetreault (1990) observed that the experience of customers during service encounters was enhanced when employees were able to meet customers' special needs and requests. Therefore, researching the drivers of creativity in service settings seems to be of the utmost importance. This is further reinforced by Mumford's (2003) contentions that different task demands may require different backgrounds, motivations, and cognitive strategies.

In summary, following a component-wise rather than a composite approach and considering an interactionist model to study the influence of job characteristics on the creative performance of frontline service employees permits the investigation of a number of issues that have not yet been dealt with theoretically and empirically.

Research Model

Research Background

Following Amabile's (1983, 1996) componential framework of creativity, the production of creative work requires three types of antecedents, these being domain-relevant skills, creativity-relevant skills, and task motivation. Domain-relevant skills involve the skills to perform competently in a specific domain, including factual knowledge about the domain, special domain-relevant talents, and technical skills. Creativity-relevant skills contribute to creativity across domains (Amabile 1996) and include an appropriate cognitive style, a conducive work style, and implicit or explicit knowledge of heuristics for generating novel ideas. Task motivation refers to motivational variables determining the way an individual approaches a certain task. This includes, for example, the individual's intrinsic motivation toward the task.

The literature on creativity has followed two major streams. One focuses on the personal characteristics that influence creativity, investigating in particular the determining role of personality and cognitive style. The other focuses on 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, p. 935). Some of the context factors investigated include, for example, rewards (e.g., George and Zhou 2002), job complexity (e.g., Tierney and Farmer 2004), relationships with supervisor (e.g., Zhou 2003), and relationships with coworkers (e.g., Zhou and George 2001). Job characteristics, the focus of this study, concern the latter research approach. Extant literature justifies a relationship between

job characteristics and creativity using an intrinsic motivation perspective. Intrinsic motivation can be defined as the degree to which an employee is excited by a work activity and is motivated to engage in it for the sake of the activity itself (Oldham and Cummings 1996). From a cognitive evaluation theory perspective, work environment factors have informational and controlling aspects (Shalley, Zhou, and Oldham 2004). When the informational aspects prevail, employees perceive that there is little pressure to undertake job tasks in externally determined ways. This is encouraging for employees, building their intrinsic motivation. However, when the controlling aspect is more salient, employees feel pressured to undertake job tasks in conformance with the external factor, and hence experience a reduction in their motivation. Creativity requires individuals to have a heightened interest in a certain problem and in discovering ways to solve it. In this context, intrinsic motivation has the important role of controlling the attention that individuals attach to the heuristic issues of creative tasks (Woodman, Sawyer, and Griffin 1993). In summary, complex jobs increase employees' excitement in connection with their jobs, an outcome that should result in creative behaviors (Oldham and Cummings 1996).

Research Hypotheses

The Job Characteristics Model of Hackman and Oldham (1975) has been widely used to investigate the effects of job characteristics (see, e.g., de Jong, de Ruyter, and Lemmink 2004; Frese, Garst, and Fay 2007; Jonge and Schaufeli 1998; Singh 1998; Van Mierlo et al. 2007). The job characteristics in this framework are associated with several work-related outcomes, such as employee satisfaction, motivation, and performance (e.g., Dubinsky and Skinner 1984; Tyagi 1985). The positive influence of job characteristics, that is of job complexity on creativity also has support in several studies (e.g., Hatcher, Ross, and Collins 1989; Tierney and Farmer 2002).

Following the componential model of creativity, job characteristics impact on creative performance through their effects on intrinsic motivation. Notwithstanding, this study proposes that job characteristics also impact on domain-task skills, thus further influencing creativity. In order to discuss the unique influences of each job characteristic on creative performance, this study follows a component-wise rather than a composite approach to job design. In this model (see Figure 1), autonomy has a pivotal role in fostering creativity, as it provides employees with the resources to experiment and, thus, to be creative. More specifically, the model predicts that autonomy interacts with the remaining job characteristics. Of the five job characteristics, autonomy has probably been the most widely studied. At the organizational level, empowerment can be considered an element of the organizational structure that is considered paramount for the implementation of a customer orientation organization-wide (Kennedy, Goolsby, and Arnould 2003). In this regard, Jaworski and Kohli (1993) obtained evidence that centralization, the reverse of empowerment, limits information
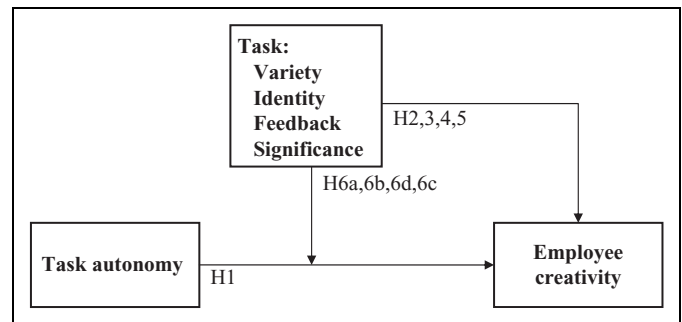
Figure 1. A Model of the Influence of Job Characteristics on Employee Creativity

generation, dissemination, and responsiveness, thus curtailing the delivery of innovative efforts directed at customers' needs.

The services literature also stresses the role of autonomy in these settings. Bowen and Lawler (1992), for example, advance a number of benefits accruing from providing autonomy to frontline employees. These include more enthusiastic and warm employee interactions with customers during service delivery, innovative service ideas, quicker responses to customers' needs and to service recovery situations, word-of-mouth advertising, and more positive feelings toward the job. Furthermore, Conger and Kanungo (1988) contend that one of the key outcomes of empowerment is self-efficacy, which refers to "beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Wood and Bandura 1989, p. 408). Thus, autonomy appears to be pivotal for effective employee performance in service settings.

Main Effects

Task autonomy. Autonomy is the degree to which employees are free to determine the schedule of their work and the procedures and equipment they will use to carry out their assignments. Autonomy contributes to intrinsic motivation, and thus to creativity, because it provides a sense of freedom and also of responsibility and control for work outcomes, making the job more exciting (Amabile et al. 1996; Hackman and Oldham 1980; Tyagi 1985). Bowen and Lawler (1992, p. 33) pinpoint that autonomy gives employees the confidence that they have the resources to respond appropriately to customers' requests and that it "can lead to the sort of spontaneous, creative rule-breaking that can turn a potentially frustrated or angry customer into a satisfied one."

However, autonomy should also impact on the domain-relevant skills of service employees. The intangibility, heterogeneity, inseparability, and perishability of services create many problems in the service delivery process (Zeithaml, Bitner, and Gremler 2006), and this requires frontline employees to be flexible and innovative in performing their jobs (cf. Chebat and Kollias 2000; Dubinsky et al. 1986). Generally, autonomy allows employees to approach customers and their jobs "in ways that make the most of their expertise and their

creative-thinking skills" (Amabile 1998, p. 82). Consequently, autonomy motivates and enables employees to try new ideas and learn from the consequences, and this expands their domain-relevant skills, regardless of the effect on intrinsic motivation. We thus predict the following.

> *Hypothesis 1*: There is a positive association between task autonomy and employee creativity.

Task variety. Variety is the extent to which an employee has to perform a wide range of activities and/or operate with a variety of equipment and procedures, involving the utilization of diverse skills (Hackman and Oldham 1980; Sims, Szilagyi, and Keller 1976). Jobs high in variety increase intrinsic motivation because they provide employees with the feeling that their assignments are meaningful and worthwhile. Thus, and according to the componential model of creativity, variety contributes to creative performance. Furthermore, employees in jobs with these characteristics have more opportunities "to explore and manipulate their environments and to gain a sense of efficacy by testing and using their skills" (Hackman and Oldham 1980, p. 78). Consequently, varied jobs stretch the skills and abilities of employees. Therefore, apart from impacting on employee task motivation, job variety also affects the domain-relevant skills of employees. This further induces an increase in creativity, as there is a strong relationship between domain proficiency and creativity (Amabile 1996). We thus propose the following.

> *Hypothesis 2*: There is a positive association between task variety and employee creativity.

Task identity. Identity concerns the extent to which employees complete a whole and identifiable piece of work and can identify the results of their efforts (Hackman and Oldham, 1980). Similar to job variety, identity also promotes the feeling that the job is meaningful and worthwhile, increasing intrinsic motivation and, thus, employee creativity. However, identity should also promote the domain-relevant skills of frontline service employees. In a service context, frontline employees with jobs high on identity are responsible for tasks from "prospecting through post sale-service" (Becherer, Morgan, and Richard 1982, p. 127). Consequently, employees deal with customers across the service delivery process and are able to develop a better understanding of customers' needs. By improving knowledge about customers and about the service delivery process, identity increases the domain-relevant skills of employees, thus fostering their creativity.

In fact, creative skills involve the ability to be flexible and imaginative in approaching problems (Amabile 1998). By developing a more complete understanding of customers' needs and of the stages of the service delivery process, employees will have an increased likelihood to explore and transform conceptual spaces, resulting in the emergence of new associations between knowledge structures. They will thus be in a better position to take advantage of their creative skills. In summary, identity enables employees to be more creative in serving customers and to develop more interesting service ideas. Therefore, we hypothesize the following.

> *Hypothesis 3*: There is a positive association between task identity and employee creativity.

Task feedback. Feedback is the degree to which employees obtain, while in work, clear and direct information regarding their job performance (Hackman and Oldham, 1980). In the absence of performance feedback, employees have no grounds for feeling good or bad about their performance, and this reduces their internal motivation. This, in turn, and according to the componential model of creativity, adversely affects creativity. Additionally, as feedback provides information that can be used to evaluate current efforts, it stimulates the employee to explore different courses of action in the pursuit of a better result (Earley et al. 1990), and this should affect creative performance. As employees obtain information about the results of their actions and are stimulated to pursue different work routes, they learn and obtain a better understanding of their jobs, and this fosters their domain-relevant skills. We thus propose the following:

> *Hypothesis 4*: There is a positive association between task feedback and employee creativity.

Task significance. Significance is the extent to which the employee perceives the job to make a substantial contribution to the organization or other people (Hackman and Oldham, 1980). When the work that is undertaken affects the health or happiness of other people, employees will care more about it. Significance thus increases intrinsic motivation and, therefore, according to the componential model of creativity, drives creative performance. We thus propose the following:

> *Hypothesis 5*: There is a positive association between task significance and employee creativity.

Interactive Effects

Interactive effects between job characteristics have rarely been considered in the literature, one of the rare examples being Dodd and Ganster (1996) who, based on a review, identify both theoretical and empirical support for considering such effects. Theoretical support is provided by the Motivating Potential Score (MPS) index proposed by Hackman and Oldham (1980), which has frequently been used to assess job complexity (e.g., Oldham and Cummings 1996). The score is computed as follows: MPS = Autonomy × Feedback × (Variety + Identity + Significance)/3. This formulation clearly postulates that job characteristics interact with each other to affect attitudinal and behavioral job outcomes. Dodd and Ganster (1996) also derive theoretical support for the interactive effects using the control theory from Carver and Scheier (1981). Accordingly, Dodd and Ganster reason that feedback, which motivates

employees to think about their performance levels and, subsequently, further strategy development (Campbell 1988), should not produce such effects in the absence of autonomy, since employees will be unable to change their behavior. Further support comes from Karasek's (1979) job demands-decision latitude model, in which the job decision latitude comprises a combination of skill variety and autonomy (Dodd and Ganster, 1996). Empirical support for the existence of interactive effects is provided by Campbell and Gingrich (1986) and Dodd and Ganster (1996). Therefore, sufficient support seems to exist for considering the interactive effects of job characteristics on job creativity.

In summary, we argue that the potential benefits associated with autonomy should be maximized only when the remaining job characteristics are at certain levels. In addition, we also consider that the effects of the other characteristics depend on the level of autonomy that employees are allowed to exercise. Empirical support for this is provided by Dodd and Ganster (1996), who tested whether job characteristics interacted with each other to influence performance and job satisfaction and only obtained significant interactions between job characteristics when autonomy was involved.

Autonomy and variety. In narrowly focused jobs involving a small number of skills, employees have control over a restricted number of activities. Furthermore, they will have fewer opportunities to manipulate their environments and to stretch their skills. For employees with autonomy but placed in jobs with a small variety of tasks, the flexibility and sense of freedom arising from autonomy become constrained by the range of activities commanded by employees, therefore curtailing the positive effects of autonomy on creativity. Likewise, employees without autonomy and placed in jobs with a wide variety of tasks, will not be able to accumulate much knowledge and experience, given that they have to carry out their tasks in externally determined ways. The low autonomy constrains the extent to which employees in varied jobs can explore and manipulate their environments and test their skills. For higher levels of variety and autonomy, however, employees have room to maneuver through the different tasks, enjoying greater flexibility in deciding how to address the unique needs of customers. This observation accords with Campbell and Gingrich (1986), who determined that for simple tasks, participating in defining the way to accomplish them had no meaningful effect on performance. We thus propose the following:

Hypothesis 6a: The autonomy-employee creativity relationship will be stronger when variety is high than when it is low.

Autonomy and identity. In a job high on autonomy and low on identity, the sense of freedom, flexibility, and the potential for experimentation associated with autonomy is severely hampered by the limited contact with customers and by the restricted command over, and comprehension of, the service delivery process. This adversely affects employee motivation, task-related learning, and, therefore, creative performance. Likewise, when employees have a job high on identity but low on autonomy, they will not be able to use their knowledge of the service stages and customers' requirements in order to creatively address those needs. Therefore, creativity should be maximized when both autonomy and identity are high. We, therefore, expect the following:

Hypothesis 6b: The autonomy-employee creativity relationship will be stronger when identity is high than when it is low.

Autonomy and feedback. Feedback allows employees to compare their performance with goals, and therefore determine the need for changes in behavior. In this context, feedback contributes to the subsequent information search and development of task strategies (Earley et al. 1990). However, the lack of autonomy, which curtails the possibility that employees might adjust their behavior, should reduce employees' motivation to think about, and change, their work conduct (Dodd and Ganster 1996). This, in turn, also reduces the extent to which employees learn about their jobs and recombine knowledge structures. This reduced intrinsic motivation and learning should detrimentally affect creativity. Likewise, empowered employees with no or low amounts of task feedback, will not be able to evaluate the consequences of their decisions, and this reduces their learning and the potential for expanding their domain-relevant skills. Therefore, we expect that feedback coupled with autonomy will motivate employees to think about alternative courses of action, and to learn with the consequences of their decisions, thereby increasing creativity. In this context, we propose the following:

Hypothesis 6c: The autonomy-employee creativity relationship will be stronger when feedback is high than when it is low.

Autonomy and significance. As significance increases the intrinsic motivation of employees, an empowered employee in a highly significant job will explore more exhaustively new ideas and solutions to problems, and will feel more excited and personally challenged to explore and pursue risk-taking avenues. We thus offer the following:

Hypothesis 6d: The autonomy-employee creativity relationship will be stronger when significance is high than when it is low.

Finally, as the above discussion suggests, enriching jobs is likely to fuel creative employee behaviors. However, such jobs may not be appropriate for every employee. Hackman and Oldham (1980) indicate that employees with low personal

growth needs and with a low knowledge and skill base may feel overstretched in enriched jobs. This is likely to reduce creative behaviors and produce detrimental results both for employees and for the employer. This is also likely to yield negative outcomes for customers.

Method

Sample Selection and Data Collection

This work investigates the impact of job characteristics on the creativity of frontline service employees. As employees react to their perceptions rather than to the objective characteristics of the work environment, the frontline employee is the appropriate unit of analysis, and this is consistent with previous research (e.g., Dubinsky and Skinner 1984; Farmer, Tierney, and Kung-McIntyre 2003; Oldham and Cummings 1996). Data were collected with the collaboration of three hospitals with a total of 2,279 frontline employees. The health industry is an important economic sector that is under growing pressure to become more productive, given cost escalation. It also faces mounting budgetary constraints. Resource-scarce environments create pressure to perform effectively (Licata et al. 2003), and consequently employee creativity becomes more important in such contexts.

The frontline employees of the three hospitals received a pack containing a cover letter, a self-administered questionnaire, and a stamped self-addressed envelope. To maximize the response rate, these employees could either post the stamped self-addressed envelope or deposit it in a ballot box that was left in a central location in each of the three hospitals. Of the 2,279 frontline employees that were surveyed, 525 responded to the questionnaire. Due to missing data, 65 surveys were eliminated, thus obtaining 460 usable questionnaires, a 20.2% net response rate. The sample is 64% female and 58% are between 31 and 50 years old. The sample includes nurses, doctors, health technicians, administrative staff, and other job categories of frontline employees. The most frequent respondents are nurses (55%) and doctors (15%), and this is broadly in line with the composition of the staff in the three hospitals. This diversity of jobs contributes to the generalization of the findings. In addition, focusing on a narrow spectrum of job positions might diminish the variability of responses, and this could reduce the capacity to detect associations between variables and, thus, test the study's hypotheses. Not surprisingly, other studies have followed a similar strategy in terms of sample composition (e.g., de Jong, de Ruyter, and Lemmink 2004; Peccei and Rosenthal 2001). In addition to collecting this quantitative data, we also interviewed five frontline service employees, three nurses and two employees, each working for a different large retail chain, seeking qualitative feedback to further enlighten the research findings.

Measures

The items for measuring job characteristics are from the Job Diagnostic Survey (Hackman and Oldham 1980). The five items concerning job creativity are from Ganesan and Weitz (1996), who adapted the scale from Scott and Bruce (1994). Similar measures have also been used, for example, by Rice (2006). The questionnaire was built with multiple-item 7-point scales ranging from *strongly disagree* (1) to *strongly agree* (7). Pretests were subsequently conducted with 16 frontline employees from other health organizations. Based on the interviews, minor adjustments were made to the items, to improve clarity.

A preliminary data analysis to detect ill-fitting items included item-to-total correlations and exploratory factor analysis, searching for items that were poorly correlated with the remaining items in each scale, and that had cross-loadings. Subsequently, the remaining items were submitted to a 6-factor confirmatory analysis to further examine the psychometric properties of the scales. The initial analysis indicated that some items had correlated errors. This led to a step-by-step process for refining the measurement model, under which a number of items were eliminated. The chi-square of the final model is statistically significant ($\chi^2 = 460.18$; $df = 155$) but the remaining measures indicate good fit (Goodness of Fit Index [GFI] = .91; Tucker-Lewis Index [TLI] = .91; Comparative Fit Index [CFI] = .93; and Root Mean Square Error of Approximation [RMSEA] = .07). The reliability of each scale equals or exceeds the .8 threshold, except for task identity, which has a coefficient alpha of .68. The composite reliability of each scale also exceeds the .8 level, except for task identity (.68). As to the average variance extracted, the scales meet the .5 target, the exceptions being task identity (.42) and creativity (.48). Overall, these results provide evidence that the scales are internally consistent. The results also support the unidimensionality and convergent validity of the scales, as all items load on their specified constructs, with each standardized loading exceeding 0.5 (but one) and being highly significant, with all *t* statistics above 10. To test for discriminant validity, we compared the square of the correlation coefficient with the average variance extracted for each pair of variables, and observed that in all cases, the average variance extracted was larger than the respective squared correlation. This provides evidence of discriminant validity (Fornell and Larcker 1981). Therefore, the results support the psychometric properties of the scales. The Appendix presents univariate statistics, correlation coefficients, Cronbach's αs, as well as details of the scales' items.

Results

Estimations

This study uses multiple regression analysis to investigate the main and moderating effects of job characteristics on employee

Table 1. Results: The Influence of Job Characteristics on Employee Creativity

| | Model 1 | | Model 2 | | |
| | Coefficient | | Coefficient | | |
	Unstand.	Stand.	Unstand.	Stand.	Hyp.
Constant	5.36	**	5.33	**	
Autonomy	.07	.10*	.07	.10*	H1 (+)
Variety	.25	.32**	.20	.25**	H2 (+)
Identity	.13	.16**	.17	.21**	H3 (+)
Feedback	.13	.16**	.15	.18**	H4 (+)
Significance	−.02	−.03	−.02	−.04	H5 (+)
Interactions					
Autonomy × Variety			−.07	−.13**	H6a (+)
Autonomy × Identity			.06	.09*	H6b (+)
Autonomy × Feedback			.05	.08*	H6c (+)
Autonomy × Significance			.00	.00	H6d (+)
R^2	.295		.322		
F	37.96**		23.72**		

Note. *$p < .05$.**$p < .01$ (one-tail tests).

creativity. Because higher order terms (the interactions, in this case) should only be introduced in equations when they improve significantly the explanation provided by their first-order terms (Aiken and West 1991), we first estimated an equation that omitted the interaction terms. The results reveal that the R^2 of this model is 29.5% (Model 1, Table 1).

We subsequently estimated the predicted model. Given the presence of multiplicative terms in the equation, the variables are centered to reduce the resulting nonessential ill-conditioning multicolinearity (Aiken and West 1991). Table 1 presents the estimation of the predicted model (Model 2). Overall, the results indicate that the predicted model explains a significant amount of variance ($R^2 = 32.2\%$). Therefore, the addition of the interaction terms resulted in an improvement in the explanation of creativity that amounts to 2.7%, an improvement which is statistically significant ($p < .01$).

Subsequently, a new regression equation was estimated solely with the MPS, which was formed according to the procedure suggested by Hackman and Oldham (1980). This is an aggregate measure for job complexity that has been used in several studies (e.g., Oldham and Cummings 1996). In this separate estimation, sole consideration of the composite measure of job complexity explains 22% of the variation in employee creativity. Thus, by considering the separate effects of each job characteristic and including the moderating effects, the explanatory power increased from 22% to 32.2%, an improvement of about 46%.

The model in this study only predicts two-way interactions between job characteristics. However, consideration of a disaggregated model of job characteristics enables the testing of three-way interactions, along with four-way interactions, and one five-way interaction. Therefore, and as a further test to the predicted model, we estimated new regression equations with the additional interactions (for parsimony, the results are not shown). To ensure that the new models are hierarchically correct (see Aiken and West 1991), we started by adding to the predicted model, all the three-way interactions. The resulting increase in the R^2 was not significant. Subsequently, we added to the latter model all four-way interactions. The resulting change in the R^2 was also not significant. Finally, we added the five-way interaction, which was also not significant. Of all the three-way, four-way, and five-way interactions, only one obtained significance. Overall, it is evident that there are no systematic interactions at higher order levels. These results suggest that the predicted model adequately captures the inter-relationships between job characteristics.

Before proceeding with hypotheses testing, we investigated the potential for multicolinearity and heteroskedasticity. The largest variance inflation factor (1.5) and condition index (2.6) are both below the threshold of 10 and 30, respectively (Hair et al. 1998). We, hence, conclude that there are no multicolinearity problems. In addition, heteroskedasticity was rejected by the White, and the Breusch-Pagan/Cook-Weisberg tests ($p > .05$).

Hypotheses Testing

The results obtained indicate that the coefficients are broadly in accordance with the majority of the predictions put forward in this work. Autonomy, variety, identity, and feedback have a positive association with job creativity. This provides support for hypotheses Hypothesis 1, Hypothesis 2, Hypothesis 3, and Hypothesis 4. Against predictions, task significance is not related to creative performance, thus not supporting Hypothesis 5. Of the four interactions, three are statistically significant. The coefficient for the interaction between autonomy and variety is significant and negative, and this contradicts the positive sign predicted in Hypothesis 6a. The interactions associated with identity and feedback are significant and positive. Thus, and according to the predictions of Hypothesis 6b and Hypothesis 6c, autonomy interacts with both identity and feedback in such a way that creativity is highest for higher levels of the variables involved in each interaction. Task significance does not interact with autonomy. Therefore, no support is obtained for Hypothesis 6d.

To facilitate the interpretation of the interactions, these are depicted graphically using the procedure suggested by Aiken and West (1991). Figure 2A presents the complex relationship of how autonomy and variety interact to affect creative performance. When variety is small, the more employees are autonomous, the more they are creative. However, as indicated in Figure 2A, when variety is high, an increase in autonomy produces no effect on creativity. Figure 2B and C also indicate that there is a positive relationship between autonomy and creative performance when employees have a job high in identity and feedback. However, in the presence of jobs low in identity and feedback, increasing the level of autonomy does not produce much effect on creativity.
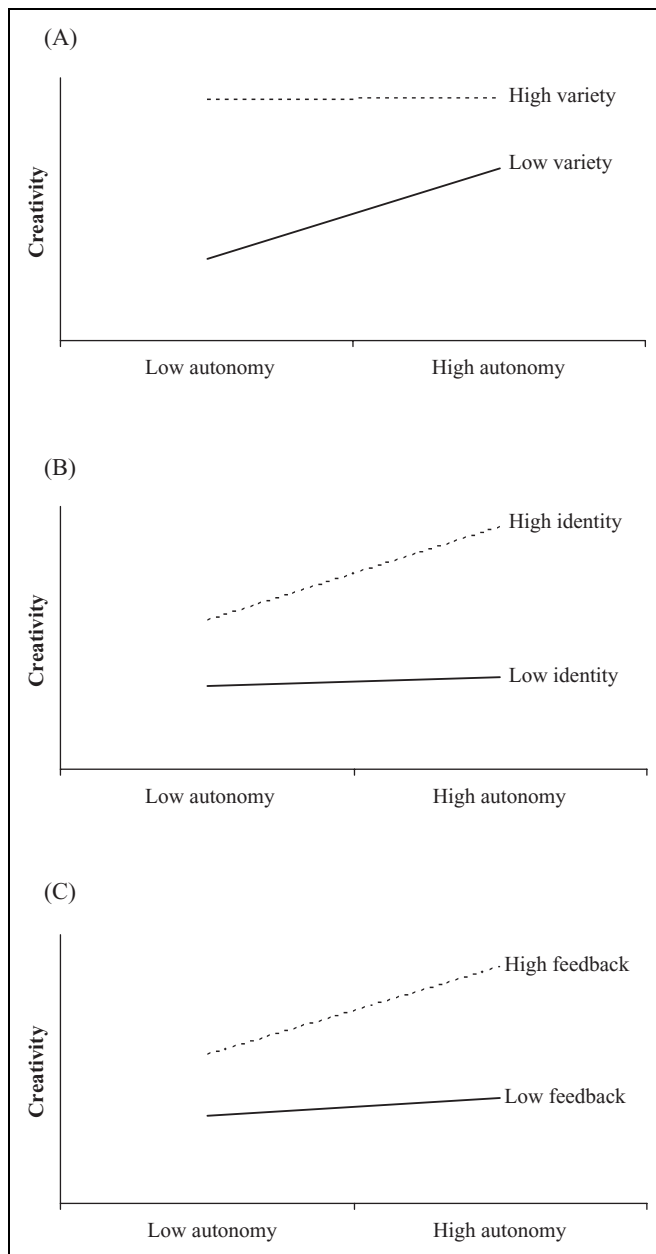
Figure 2. Moderating effects. A, Interaction between autonomy and variety. B, Interaction between autonomy and identity. C, Interaction between autonomy and feedback.

Discussion and Implications

Discussion of Hypotheses Testing

Consistent with our hypotheses, autonomy, variety, identity, and feedback have positive main effects on creativity. Task significance, however, has no significant main effect on creativity. This indicates that each job characteristic tends to have its own effects on creativity. This is not surprising, as each characteristic involves different cognitive processes, affecting creativity in unique ways through intrinsic motivation and domain-relevant skills.

Of the five job characteristics, autonomy has been the individual characteristic most studied. Amabile et al. (1996) conclude, in

their study, that autonomy plays a less prominent role in fuelling creativity. However, the positive link between autonomy and creativity obtained in this study reinforces the idea that to be creative, employees need some degree of discretion over the execution of their tasks in order to produce creative outcomes (Shalley and Gilson 2004). The employees we interviewed stressed the importance of having a voice in how things were achieved, otherwise, no one would venture into supplying new ideas.

Furthermore, the results indicate that the influence of autonomy on creative performance is further exercised through the interactive effects with other characteristics. When variety is low, autonomy is positively related with creativity. However, for high levels of variety, the effect of autonomy on creativity becomes irrelevant. It is possible that a varied job might be rather stimulating and enable the development of competencies, given the diversity of skills that are exercised in such jobs, regardless of autonomy.

Autonomy, when accompanied by high identity, exerts a positive effect on creativity. However, the link between autonomy and creativity becomes irrelevant in the presence of low task identity. Low identity implies limited contact with customers and partial knowledge of their needs and of the service delivery process. Consequently, the extent to which autonomy can be exercised and result in the expansion of domain-relevant skills becomes severely restricted, thus eroding its effects on creativity. Similarly, when autonomy is low, a high identity should not have much effect on creativity, given employees' limited capacity to use their customer knowledge to address the unique needs of customers.

The study indicates that autonomy only positively influences creativity in jobs rich in feedback. With autonomy, employees view their work outcomes as the result of their own efforts. The lack of feedback, however, implies that employees have difficulties in identifying the results of their work. Without this knowledge, employees have no stimuli or directions to guide their behavior and cannot learn through the process of trial and error. This curtails their intrinsic motivation and learning, impedes the expansion of domain-relevant skills, and builds up their frustration.

Regarding identity and feedback, the discussion with the employee working for the retail clothing chain demonstrated the following situation to occur:

> Accompanying the customer to the fitting room provides further feedback about customers' needs and feelings, improving employees' knowledge about the customer. This additional feedback frequently led the employee to seek new pieces of clothing or combinations. Furthermore, failing to accompany the customer to the fitting room frequently leads to losing sales, as unaccompanied customers often simply leave the store when the clothing they have tried on does not fit.

One of the nurses working for a local health service explained that:

> Upon the reorganization of the local health service, the nurse started following a set of patients across different health issues,

including, for example, diabetes, pregnancy, and vaccination. As a result, this nurse accumulated greater knowledge of each patient's needs and more feedback, namely through the larger number of interactions with each patient. Consequently, she now feels much more equipped to serve the specific needs of each patient.

This study further shows that task significance is not related to creativity. Significance has an intrinsic motivation link with creativity, which is shared with the other characteristics of jobs. This redundancy possibly explains the lack of significant results. Another possible explanation relates to the hospital context in which this study is conducted. Most of the surveyed jobs have implications in the survival or well-being of patients. This suggests that in samples with a greater diversity in terms of job significance, this characteristic might have a more substantive role.

Finally, the results indicate that autonomy has the lowest main effect compared to the remaining significant main effects of variety, identity, and feedback. There are two possible explanations for this. One is that this small effect is caused by the presence of autonomy in several interactions. The other is that, following Bowen and Lawler (1992), different people may react differently to autonomy, thus reducing the explanatory power of the variable. Bowen and Lawler (1992, p. 39) advance that a positive response to empowerment will take place to the extent to which employees "have strong needs to grow and to deepen and test their abilities—at work."

In summary, the results of this study indicate that, in a hospital context, in order to build a social environment that stimulates creative performance, it is important to find the right balance between job characteristics.

General Discussion

The influence of job characteristics on creativity is established. Notwithstanding, by following a component-wise approach to investigate the effects of job characteristics on creativity, this work intends to overcome some of the limitations associated with previous studies. Overall, the results seem to support the major concerns of this research. The composite approach provides an incomplete account of the effects associated with job characteristics. It obscures the possibility of each characteristic exerting a specific effect on creative performance. Furthermore, it omits the possibility of effects canceling each other out due to the averaging approach. The component-wise perspective yielded an explanatory power considerably above that associated with the MPS. This result demonstrates the relevance of considering job design in a disaggregated fashion.

Another important outcome relates to the interactionist model. The composite approach of the creativity literature impedes the consideration of any interaction between job characteristics. Furthermore, most empirical studies have assumed job characteristics to be independent of one another. This research, however, shows that this is not always the case, at least when it comes to explaining the creativity of frontline service employees, with autonomy interacting with variety, identity, and feedback. Consequently, it seems appropriate for academics and managers to consider how changes in one job characteristic might interplay with other job characteristics to influence the psychological and behavioral responses of employees. The approach of this study also enables the identification of each job characteristic's relative importance. Analysis of the standardized effects indicates that the five job characteristics are not equally important drivers of creativity, and this has clear implications for managers.

Consequently, promoting the creativity of frontline employees should have important payoffs (cf. Wang and Netemeyer 2004). In services, employee creativity can be exhibited in the discovery of the latent needs of customers, in crafting and delivering the service that addresses those needs, in communicating with customers, in building customer rapport, and in dealing with complaints. These creative efforts should be particularly relevant in personal and customizable services, due to the closer and more intensive interactions between customers and service providers.

Notwithstanding, employee creativity should also have some importance in services directed at possessions, or that are more standard. One reason is that the experience of consumers in such services also depends, to some extent, on the interaction between the customer and the service provider. In this respect, Brown and Lam (2008, p. 243), state that "high quality interactions with service providers often result in customer satisfaction despite problems with other aspects of service delivery, whereas dissatisfying experiences with service providers have the potential to ruin otherwise pleasant service encounters." The employee working in the electronics department (selling hardware and software) of a large retail chain dealing with household appliances and electronics commented:

> Each working day is an adventure. We do the same things every day, but serving customers is always a surprise. Each customer is a different situation, even when they are looking for exactly the same product, with the same colours and characteristics . . . no two customers are the same, they are all different, some are nicer than others, some chat more than others, some even joke . . . each customer is a surprise.

Frontline employees can also deploy creative efforts in performing their "internal work," from paperwork to coordinated actions and mechanisms with other departments and to suggestions for new services and procedures. Creative efforts in this area are likely to take place regardless of the type of service and/or job. From the discussion with a frontline employee working for an international clothing store chain, the following emerged:

> Employees at the store frequently complained about colleagues. Then, one experienced employee came up with the idea of creating a box where each employee could anonymously put in the reasons for their own dissatisfaction, along with suggestions for

improvements. One of the problems reported was related with the inexperience of newly hired employees. This store chain hires many part-time employees, frequently university students, which originates a high turnover ratio. Employees new to the company are usually accompanied by an experienced employee for about 2 weeks. However, this was not enough for them to learn how to manage their work time. At the end of the day the sections where newly hired employees worked were not tidied up and so, the others, who were ready to go home, had to help, and this caused disputes and comments like "he/she is new, but I am not guilty of that" and "I earn my wage, not his/hers." The idea that was implemented in the store involved an experienced employee accompanying each new recruit for a longer period, and this helped in improving the work environment.

From an interview with a nurse working in the operating room for maxillar surgery, and who had a routine job with limited customer interaction, we were able to establish the following:

> Most of the working time is spent in the operating room assisting the surgery. The day before each surgery, however, it is necessary to talk with the patient for about 10 minutes to obtain and provide information. Dealing creatively with patients, particularly children, cancer patients, and patients with mental disabilities is extremely important. With children, for example, if the nurse manages to gain their empathy, this helps in inserting the catheter and the electrodes the following day just before the surgery, speeding the process and increasing productivity.

Implications for Managers

The results obtained in this study indicate that managers working in interpersonal services seeking to promote the satisfaction of customers should design the tasks of their frontline employees in a way that increases their creativity. In particular, managers should consider increasing the autonomy of their employees, namely by reducing the need to consult superiors, and giving them latitude in deciding about work organization and schedules. Variety should also be incorporated into job tasks by enlarging the set of activities performed by employees.

Managers can also spur creativity by providing task identity, that is by designing jobs requiring the employee to complete an entire piece of work. This can be accomplished by enabling employees to follow their customers from the beginning to the end of the service delivery process. This enables employees to build a much better knowledge of customers' needs, which should influence the development of more creative solutions to customer problems. Managers can also fuel creativity by providing higher task feedback. This enables employees to learn about their jobs and stimulates them to try alternative courses of action to obtain better results. Feedback can be provided by having customers evaluate employees and providing the latter with such information and also through frequent performance appraisals by supervisors (Dubinsky and Skinner

1984). Finally, although our results do not support a relationship between task significance and creativity, considering past evidence regarding the role of task significance, it does not seem reasonable to neglect this job facet. Developing jobs in which tasks are grouped into natural units contribute to task identity but also to task significance, as employees are more likely to perceive the impact they have on others (Hackman and Oldham 1980).

Finally, managers should consider that these indications are not universal assuming, in particular, employees with strong growth needs and with the competencies to deal with job demands (cf. Hackman and Oldham 1980). In addition, firms dealing with interpersonal services probably have more to win from developing complex jobs. Following Bowen and Lawler (1992), who advanced a number of conditions under which the provision of autonomy (which enriches jobs) to frontline employees might work best, we further add that the design of complex jobs in order to improve creativity should provide more benefits for firms pursuing a customized strategy, serving customers who seek a personalized solution, looking for long-term relationships with customers, and working in uncertain environments.

Limitations and Directions for Future Research

This study addresses a number of shortcomings in past research by considering, using an interactionist model, a component-wise approach to investigate the effects of job characteristics on the creative performance of frontline service employees. Nevertheless, this contribution must be considered with an appropriate understanding of its limitations, which should be addressed in future research. The study considered the highly specific health sector, and this implies that some of the results may not apply in other settings. Consequently, it would be interesting to conduct similar research, for example, in other service activities and also in R&D-related samples. Nevertheless, the closeness of the findings to general theoretical predictions is noteworthy.

Moreover, the sample considered in this study consists of frontline employees occupying different positions in a hospital setting. However, it is possible that employees with different jobs may respond differently to job characteristics. Therefore, it would be interesting to assess the extent to which employees with different tasks respond to the same job characteristics. That said, the advantage of pooling the subjects is that it facilitates the generalizability of the results. Not surprisingly, many studies in the past also considered samples of employees occupying a variety of positions (e.g., de Jong, de Ruyter, and Lemmink 2004; Hartline and Ferrel 1996; Hartline, Maxham, and McKee 2000; Peccei and Rosenthal 2001). Moreover, as stated before, concentrating on a single position would possibly lower sample variability, therefore reducing the variance of job characteristics, causing hypotheses testing to be virtually meaningless.

The measure of creativity in this study is based on employee perceptions. Some past studies also use this type of measure

(e.g., Ganesan and Weitz 1996; Rice 2006). Nonetheless, it is worthwhile to ascertain the extent to which the results replicate with objective measures of creativity. This study also assumes a causation mechanism from job design to creativity. This implies the suitableness of a longitudinal design, but this work relies instead on cross-sectional data.

Another limitation of this research involves the exclusive utilization of self-reported perceptual measures. Despite being commonly used, this approach heightens the likelihood of common method variance affecting the results. To mitigate this possibility, and in line with Podsakoff et al. (2003), respondents were not told of the specific purpose of the research, and the construct items were mixed so that respondents should not have been able to associate particular items with specific factors. In addition, we ran a single factor confirmatory analysis, with all items loading on a single common method variance factor. The fit indices of the resulting model were unacceptable, indicating that respondents were able to differentiate the constructs, implying that the results should not be much affected by common method variance.

Current research on creativity postulates that job characteristics, and contextual factors in general, impact on creativity through intrinsic motivation. However, research on creativity has neglected this mediating link, testing instead the direct relationship between contextual factors and creative behaviors. Therefore, future research should investigate the extent to which intrinsic motivation does indeed mediate the effects of job characteristics on creativity (Shalley, Zhou, and Oldham 2004). In this study, we advanced the argument that job characteristics also impact on creativity by building employee competencies, but we did not test this mediating effect, and this should be addressed in the future.

Finally, future research should also further explore the potential for interactions between job characteristics. In this study, such moderating effects are considered in an employee creativity context, but the rationale underlying these interactions can easily be extended to other research domains, such as employee role stress and turnover intentions. Furthermore, it would be interesting to investigate the extent to which the effects of different job characteristics are affected by personal characteristics. It is quite likely, for example, that some people will be more tolerant concerning the lack of feedback than others. Thus, investigation concerning how different cognitive styles and other person-related characteristics moderate the effects of job characteristics on creativity and other employee behaviors can result in the significant addition of knowledge.

Declaration of Conflicting Interests

Funding

Appendix

Table A1. Scale Items

Construct	Items	Standardized Loadings	Critical Ratio
Employee creativity	I try to be as creative as I can in my job	.81	19.75
	I experiment with new approaches in performing my job	.75	17.91
	When new trends develop, I am usually the first to get on board	.55	11.89
	My boss feels that I am creative in performing my job	.47	10.03
	On the job I am inventive in overcoming barriers	.82	20.24
Task autonomy	I have many opportunities for independent thought and action in my job	.89	23.07
	I have many opportunities to take the initiative in this job	.90	23.27
	I am encouraged to find solutions to problems	.57	12.72
	I have a great deal of control over the pace of my work	.59	13.17
Task variety	I do many different things in this job	.80	19.29
	I perform different tasks during a typical work day	.84	20.56
	This job requires me to use a number of skills and talents	.79	19.07
Task identity	I have many opportunities to complete the work I started	.52	10.47
	In this job I can see the entire piece of work	.73	15.30
	I have many opportunities to do a job from beginning to end (i.e., the chance to do a whole job)	.67	13.87
Task feedback	I easily identify how well I am doing in the job I am working on	.74	17.17
	I can easily ascertain whether I am performing well or poorly in this job	.90	22.17
	I have many opportunities to find out how well I am doing in my job	.70	16.01
Task significance	My work significantly affects the lives and well-being of other people	.78	11.80
	A lot of other people can be affected by how well the work gets done	.94	12.79

Table A2. Descriptive Statistics, Correlation Matrix, Reliability, and Variance Extracted Estimates

	Stand. Dev.	X_1	X_2	X_3	X_4	X_5	X_6	CR	AVE
Identity (X_1)	0.76	**.68**						.68	.42
Variety (X_2)	0.95	.47	**.85**					.85	.66
Feedback (X_3)	0.91	.62	.42	**.81**				.82	.61
Autonomy (X_4)	1.20	.56	.36	.51	**.82**			.83	.57
Significance (X_5)	1.48	.14	.26	.01	−.04	**.84**		.85	.75
Creativity (X_6)	0.77	.53	.53	.45	.40	.08	**.80**	.82	.48

Note. CR = composite reliability; AVE = average variance extracted. Diagonal entries in boldface are Cronbach's α coefficients.

References

Aiken, Leona S. and Stephen G. West (1991), *Multiple Regression: Testing and Interpreting Interactions*. London: SAGE.

Amabile, Teresa M. (1998), "How to Kill Creativity: Keep Doing what you're Doing or, if you want to Spark Innovation, Rethink how you Motivate, Reward, and Assign Work to People," *Harvard Business Review*, 76 (5), 77-87.

Amabile, Teresa M. (1996), *Creativity in Context*. Boulder, CO: West View Press Inc.

Amabile, Teresa M., Regina Conti, Heather Coon, Jeffrey Lazenby, and Michael Herron (1996), "Assessing the Work Environment for Creativity," *Academy of Management Journal*, 39 (5), 1154-1184.

Amabile, Teresa M. (1983), "Social Psychology of Creativity: A Componential Conceptualization," *Journal of Personality and Social Psychology*, 45 (2), 357-376.

Auh, Seigyoung and Bulent Menguc (2005), "Top Management Team Diversity and Innovativeness: The Moderating Role of Interfunctional Coordination," *Industrial Marketing Management*, 34 (3), 249-261.

Baker, William E. and James M. Sinkula (1999), "The Synergistic Effect of Market Orientation and Learning Orientation on Organizational Performance" *Journal of Academy of Marketing Science*, 27 (4), 411-427.

Becherer, Richard C., Fred W. Morgan, and Lawrence M. Richard (1982), "The Job Characteristics of Industrial Salespersons: Relationships to Motivation and Satisfaction," *Journal of Marketing*, 46 (4), 125-135.

Bitner, Mary J., Booms H. Booms, and Mary S. Tetreault (1990), "The Service Encounter: Diagnosing Favorable and Unfavorable Incidents," *Journal of Marketing*, 54 (1), 71-84.

Bowen, David E. and Edward E. Lawler (1992), "The Empowerment of Service Workers: What, Why, and When," *Sloan Management Review*, 33 (3), 31-39.

Brown, Steven P. and Son K. Lam (2008), "A Meta-Analysis of Relationships Linking Employee Satisfaction to Customer Responses," *Journal of Retailing*, 84 (3), 243-255.

Campbell, Donald J. (1988), "Task Complexity: A Review and Analysis," *Academy of Management Review*, 13 (1), 40-52.

Campbell, Donald J. and Karl F. Gingrich (1986), "The Interactive Effects of Task Complexity and Participation on Task Performance," *Organizational Behavior and Human Decision Processes*, 38 (2), 40-52.

Carver, Charles S. and Michael F. Scheier (1981), *Attention and Self-Regulation: A Control-Theory Approach to Human Behavior*. New York: Springer-Verlag.

Chebat, Jean-Charles and Paul Kollias (2000), "The Impact of Empowerment on Customer Contact Employees' Roles in Service Organizations," *Journal of Service Research*, 3 (1), 66-81.

Conger, Jay A. and Rabindra N. Kanungo (1988), "The Empowerment Process: Integrating Theory and Practice," *Academy of Management Review*, 13 (3), 471-82.

Day, George S. (1994), "The Capabilities of Market-Driven Organizations," *Journal of Marketing*, 58 (4), 37-52.

de Jong, Ad, Ko de Ruyter, and Jos Lemmink (2004), "Antecedents and Consequences of the Service Climate in Boundary-Spanning Self-Managing Teams," *Journal of Marketing*, 68 (2), 18-35.

Dodd, Nancy G. and Daniel C. Gangster (1996), "The Interactive Effects of Variety, Autonomy, and Feedback on Attitudes and Performance," *Journal of Organizational Behavior*, 17 (4), 329-347.

Dubinsky, Alan J., Roy D. Howell, Thomas N. Ingram, and Danny N. Bellenger, (1986), "Sales Force Socialization," *Journal of Marketing*, 50 (4), 192-207.

Dubinsky, Alan J. and Steven J. Skinner (1984), "Impact of Job Characteristics on Retail Salespeople's Reactions to their Jobs," *Journal of Retailing*, 60 (2), 35-62.

Earley, P. Cristopher, Gregory B Northeraft, Cynthia Lee, and Terri R. Lituchy (1990), "Impact of Process and Outcome Feedback on the Relation of Goal Setting to Task Performance," *Academy of Management Journal*, 33 (1), 87-105.

Farmer, Steven M., Palmela Tierney, and Kate Kung-McIntyre (2003), "Employee Creativity in Taiwan: An Application of Role Identity Theory," *Academy of Management Journal*, 46 (5), 618-630.

Fornell, Claes and David F. Larcker (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, 18 (1), 39–50.

Frese, Michael, Harry Garst, and Dories Fay (2007), "Making Things Happen: Reciprocal Relationships Between Work Characteristics and Personal Initiative in a Four-Wave Longitudinal Structural Equation Model," *Journal of Applied Psychology*, 92 (4), 1084-1102.

Ganesan, Shankar and Barton Weitz (1996), "The Impact of Staffing Policies on Retail Buyer Job Attitudes and Behaviors," *Journal of Retailing*, 72 (1), 31-56.

George, Jennifer M. and Jing Zhou (2002), "Understanding When Bad Moods Foster Creativity and Good Ones Don't: The Role of Context and Clarity of Feelings," *Journal of Applied Psychology*, 87 (4), 687-697.

Hackman, J. R. and Greg R. Oldham (1980), *Work Redesign*. London: Addison-Wesley.

Hackman, J. R. and Greg R. Oldham (1975), "Development of the Job Diagnostic Survey," *Journal of Applied Psychology*, 60 (2), 159-170.

Hair, Joseph F. Jr., Rolph E. Anderson, Ronald L. Tatham, and William C. Black (1998), *Multivariate Data Analysis*. Englewood Cliffs, NJ: Prentice Hall.

Hartline, Michael D., James G. Maxham, and Daryl O. McKee (2000), "Corridors of Influence in the Dissemination of Customer-Oriented Strategy to Customer Contact Service Employees," *Journal of Marketing*, 64 (4), 35-50.

Hartline, Michael D. and O. C. Ferrell (1996), "The Management of Customer-Contact Service Employees: An Empirical investigation," *Journal of Marketing*, 60 (4), 52-70.

Hatcher, Larry, Timothy L. Ross, and Denis Collins (1989), "Prosocial Behavior, Job Complexity, and Suggestion Contribution Under Gainsharing Plans," *Journal of Applied Behavioral Science*, 25 (3), 231-248.

Jaworski, Bernard and Ajay Kohli (1993), "Market Orientation: Antecedents and Consequences," *Journal of Marketing* 57 (3), 53-70.

Jonge, Jan De and Wilmar B. Schaufeli (1998), "Job Characteristics and Employee Well-Being: A Test of Warr's Vitamin Model in Health Care Workers Using Structural Equation Modelling," *Journal of Organizational Behavior*, 19 (4), 387-407.

Karasek, Robert A. Jr. (1979), "Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign," *Administrative Science Quarterly*, 24 (2), 285-308.

Kennedy, Karen N., Jerry R. Goolsby, and Eric J. Arnould (2003), "Implementing a Customer orientation: Extension of theory and application," *Journal of Marketing*, 67 (4), 67-81.

Licata, Jane W., John C. Mowen, Eric G. Harris, and Tom J. Brown (2003), "On the Trait Antecedents and Outcomes of Service Worker Job Resourcefulness: A Hierarchical Model Approach," *Journal of the Academy of Marketing Science*, 31 (3), 256-271.

Mumford, Michael D. (2003), "Where Have We Been, Where Are We Going? Taking Stock in Creativity Research," *Creativity Research Journal*, 15 (2/3), 107-20.

Oldham, Greg R. and Anne Cummings (1996), "Employee Creativity: Personal and Contextual Factors at Work," *Academy of Management Journal*, 39 (3), 607-634.

Peccei, Riccardo and Patrice Rosenthal (2001), "Delivering Customer-Oriented Behaviour Through Empowerment: An Empirical Test of HRM Assumptions," *Journal of Management Studies*, 38 (6), 831-857.

Podsakoff, Philip M., Scott B. MacKenzie, Jeong-Yeon Lee, and Nathan P. Podsakoff (2003), "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, 88 (5), 879-903.

Rice, Gillian (2006), "Individual Values, Organizational Context, and Self-Perceptions of Employee Creativity: Evidence from Egyptian Organizations," *Journal of Business Research*, 59 (2), 233-241.

Scott, Susanne G. and Reginald A. Bruce (1994), "Determinants of Innovative Behaviour: A Path Model of Individual Innovation in the Workplace," *Academy of Management Journal*, 37 (3), 580-607.

Shalley, Christina E. and Lucy L. Gilson (2004), "What Leaders Need to Know: A Review of Social and Contextual Factors that Can Foster or Hinder Creativity," *The Leadership Quarterly*, 15, 33-53.

Shalley, Christina E., Jing Zhou, and Greg R. Oldham (2004), "The Effects of Personal and Contextual Characteristics on Creativity: Where Should we go from Here?" *Journal of Management*, 30 (6), 933-958.

Shalley, Christina E. (1995), "Effects of Coaction, Expected Evaluation, and Goal Setting on Creativity and Productivity," *Academy of Management Journal*, 38 (2), 483-503.

Sims, Henry P., Andrew D. Szilagyi, and Robert T. Keller (1976), "The Measurement of Job Characteristics," *Academy of Management Journal*, 19 (2), 195-212.

Singh, Jagdip (1998), "Striking a Balance in Boundary-Spanning Positions: An Investigation of Some Unconventional Influences of Role Stressors and Job Characteristics on Job Outcomes of Salespeople," *Journal of Marketing*, 62 (3), 69-86.

Slater, Stanley F. and John C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing*, 59 (3), 63-74.

Tierney, Pamela and Steven M. Farmer (2004), "The Pygmalion Process and Employee Creativity," *Journal of Management*, 30 (3), 413-432.

Tierney, Pamela and Steven M. Farmer (2002), "Creative Self-Efficacy: Potential Antecedents and Relationship to Creative Performance," *Academy of Management Journal*, 45 (6), 1137-1148.

Tyagi, Pradeep K. (1985), "Relative Importance of Key Job Dimensions and Leadership Behaviors in Motivating Salesperson Work Performance," *Journal of Marketing*, 49 (3), 76-86.

Van Mierlo, Heleen, Christee G. Rute, J. K. Vermunt, M. A. J. Kompier, and J. A. C. M. Dooreward (2007), "A Multi-Level Mediation Model of the Relationships Between Team Autonomy Individual Task Design, and Psychological Well Being," *Journal of Occupational and Organizational Psychology*, 80 (4), 647-664.

Wang, Guangping and Richard G. Netemeyer (2004), "Salesperson Creative Performance: Conceptualization, Measurement, and Nomological Validity," *Journal of Business Research*, 57 (8), 805-812.

Wood, Robert and Albert Bandura (1989), "Impact of Conceptions of Ability on Self-regulatory Mechanisms and Complex Decision Making," *Journal of Personality and Social Psychology*, 56 (3), 407-415.

Woodman, Richard W., John E. Sawyer, and Ricky W. Griffin (1993), "Toward a Theory of Organizational Creativity," *Academy of Management Review*, 18 (2), 293-321.

Zeithaml, Valarie, Mary J. Bitner, and Dwayne D. Gremler (2006), *Services Marketing*. London: McGraw-Hill.

Zhou, Jing (2003), "When the Presence of Creative Workers is Related to Creativity: Role of Supervisor Close Monitoring," *Journal of Applied Psychology*, 88 (3), 413-422.

Zhou, Jing and Jennifer M. George (2001), "When Job Dissatisfaction Leads to Creativity: Encouraging the Expression of Voice," *Academy of Management Journal*, 44 (4), 682-696.

Bios

Filipe Coelho is assistant professor and his current research interests include the behavior of frontline employees, namely their creativity, customer orientation, and psychological contracts.

Mário Augusto is assistant professor and his research interests are in the field of firm performance and in the interface between marketing and finance.