

Knowledge Management: Conceptual Aspects And An Exploratory Study On The Practices Of Brazilian Companies¹

José Cláudio Cyrineu Terra, Ph.D
University of São Paulo, Brazil

Abstract:

This paper discusses various managerial practices that constitute Knowledge Management and makes an exploratory evaluation of these elements within the context of companies active in Brasil. The best managerial practices identified are used to effect field research with 587 managers of large and medium-sized companies active in Brazil. The answers indicate the existence of three clusters of companies: 1) the Companies that Learn; 2) The Traditional Companies and 3) The Small Laggards. The conclusions of this thesis suggest that the management practices which are related to effective Knowledge Management are strongly associated with better business performance.

Key words: Knowledge Management, Creativity, Learning Organizations, Performance

Introduction

There is nothing new about the fact that the knowledge resource plays a pivotal role in human, business and national development. What is new, however, is the speed with which companies must gather, generate, disseminate and store new knowledge. In a not too distant past, the challenge was simply to produce more, better and cheaper. Now companies almost inevitably have to make innovation a permanent mission. “Knowledge Management” involves, thus, the management of all the organizational processes and functions that can have an impact on the innovation process and on the leverage of different sources of knowledge to respond to customer needs. The literature on organizational development presents numerous approaches to “Knowledge Management”:

- Individual and organizational learning (organizational culture);
- Relationships between employees, different areas of the company, different companies and the environment;
- Development of individual and organizational competencies;
- Mapping, codification and sharing of organizational information;
- Connectivity among employees;
- Leveraging of recent advances in IT and telecommunications;
- Measurement of the intellectual capital of the company.

It is also important to highlight some of the taxonomy (Nonaka & Takeuchi, 1995) for knowledge in organizations. According to the most recent literature, knowledge can be:

- Individual or collective;

¹ This paper summarizes the results of our Ph.D dissertation with same title defended at the University of São Paulo on March 26th, 1999 (Terra, J.C., 1999).

- Implicit (tacit) or explicit;
- Internal or external;
- Stock or flow.

We believe that these various approaches and taxonomies complement each other. This article acknowledges their different contributions and seeks to highlight management practices that are in line with the main conclusions of theories about learning, creativity, intuition and tacit knowledge. In our opinion, the main findings related to these theories that practitioners should pay attention to are: the relationship between emotion and reason, the need to experiment and the importance of being exposed to different perspectives (Amabile, 1998; Damásio, 1996; De Masi, 1999; Kneller, 1978; Polanyi, 1997).

“Knowledge Management”, on the other hand, is intrinsically connected to the capacity of companies to use and combine the various sources and types of organizational knowledge to develop specific competencies and innovative capacities, which translate permanently into new products, processes, management systems, customer responsiveness and market leadership. Having said that, we believe that the main source of knowledge and competitive advantage of companies is their human capital, the tacit knowledge of their employees. Tacit knowledge is difficult to imitate, copy or “re-engineer”. It is both individual and collective, takes time to build and is, in a sense, invisible, since it resides inside “people’s heads”.

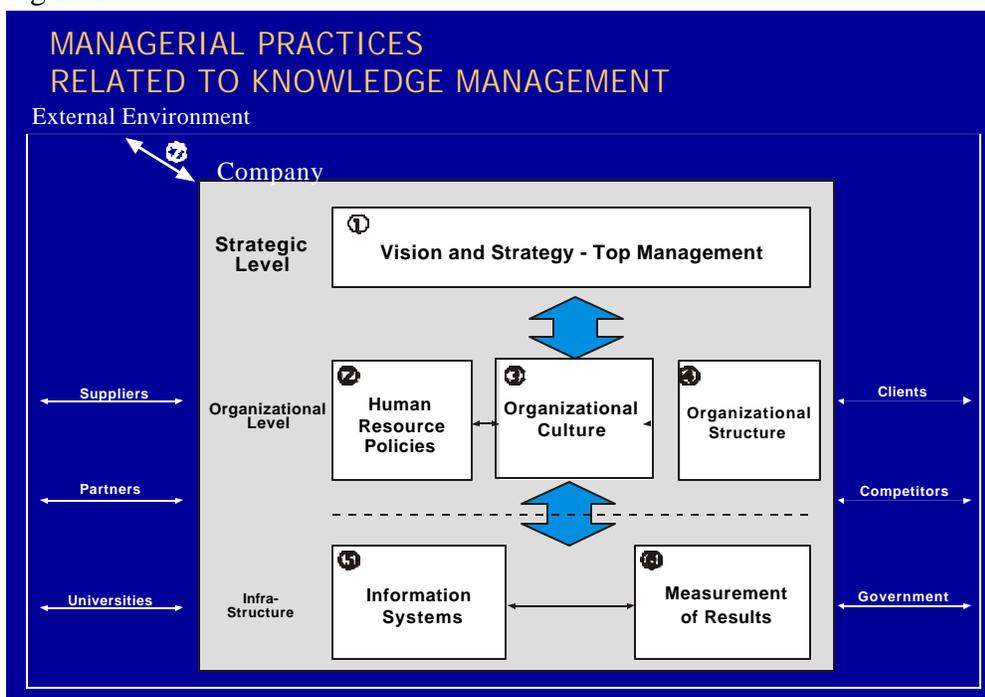
“Knowledge Management” implies, according to this view, the adoption of management practices compatible with the principal findings about individual learning and creative processes and the systemic coordination of efforts at various levels: organizational and individual; strategic and operational; formal and informal. Figure 1, below, highlights several levels and dimensions of management practice that we relate to “Knowledge Management” (Nonaka & Takeuchi, 1995). According to this model, “Knowledge Management” may be understood through seven dimensions of management practice:

1. The critical role of top management in defining the knowledge fields in which the organization should concentrate their learning efforts, clarifying business strategy and establishing challenging goals (Nonaka & Takeuchi, 1995 & Senge, 1990);
2. The development of an organizational culture geared towards innovation, experimentation and continuous learning and committed to long-term results and the optimization of all areas of the company should be one of the fundamental concerns of top management. In this sense, decisions regarding which formal and informal norms are to be encouraged and supported become highly strategic.
3. New organizational structures and work organization practices are emerging to overcome the limits to innovation, learning and the generation of new knowledge that are imposed by the traditional hierarchical-bureaucratic structures. Several leading companies in various sectors and different countries are adopting innovative organizational structures that are based, to a large extent, on the work of multidisciplinary groups with a high degree of autonomy;
4. Human resources management policies. In particular the following initiatives stand out:

- Improving the capacity of organizations to attract and keep people with abilities, behaviors and competencies that add to their (value) knowledge stocks and flows. This occurs from the moment that companies adopt extremely strict selection processes (Sveiby, 1997) and seek to increase the diversity (Leonard-Barton, 1995; De Masi, 1999) of backgrounds in hiring;
 - Encouraging behavior attuned to the requirements of individual and collective learning processes, as well as those that safeguard the strategic and long-term interests of the company with respect to the strengthening of its core competencies. Thus, the singling out of career plans and training that expand experiences, as well as contacts and interaction with other people in and outside the companies;
 - Adopting wage structures associated with the improvement of individual competencies and the performance of the group and the company as a whole in both the short- and long-terms;
- 5. Advances in computing, telecommunication technologies and information systems are affecting knowledge generation, dissemination and storage processes within organizations. The importance of opportunities made available by technological progress is recognized, but the role of personal contacts and tacit knowledge in the organizational learning processes and the maintenance of an environment with a high level of confidence, transparency and collaboration are still considered to be essential;
- 6. Recent efforts to measure results from various perspectives and their dissemination throughout the organization. Current findings and efforts of authors and companies concerned with assessing various dimensions of intellectual capital should be especially emphasized (Edvinsson & Malone, 1997; Sveiby, 1997);
- 7. The growing need of companies to engage in processes of learning with the environment, particularly, through alliances with other companies (Alcorta & Plonski & Rimoli, 1998; Lastres, 1993) and closer relationships with clients (Marquis & Myers, 1969; von Hippel, 1981 apud Kanter, 1996).

Elaborating on the logic, coherence and systemic nature (Senge, 1990) of the premises associated with each of the plans and dimensions mentioned above would be an endless exercise and beyond the scope of this article. We contend, however, that an overlap exists between “micro” (individual and group), “meso” (organization) and “macro” (environment) analyses.

Figure 1



Source: Developed by author

Methodology used in field research

The conceptual model used in the field research is shown in Figure 2. According to this model, 41 characteristics² of effective “Knowledge Management” (listed, further on, in tables 1-A and 1-B and grouped according to the dimensions of the model shown in Figure 1) are correlated with better business results (measured by market position and recent performance in terms of changes in market share). In our study we also evaluated the extent to which the answers about management practices related to “Knowledge Management” are affected by the characteristics of the respondents (area of work, length of experience and position), the type of company (origin of capital, size and level of exporting activities) and the market in which the company operates (business sector and degree of market concentration and of the impact of the opening of the economy).

To conduct this field study we sought help from several institutions³ operating in Brazil that focus on enhancing the management skills of companies’ middle managers and top management (directors). Although this procedure was clearly not probabilistic, it allowed us to reach a highly qualified public that is probably representative of the universe of middle- and large-sized companies that operate in Brazil⁴. The questionnaires⁵ were filled out individually by the respondents:

² Each of these 41 characteristics were widely discussed in our Ph.D dissertation

³ This research benefitted from the help of the following institutions: ANPEI, Business School São Paulo, CENEX, ESPM/ITA, FEA-MBA/USP, Fundação Dom Cabral, Michigan University-Amcham/MBA, PUC-MG/IEA, UFMG

⁴ Close to 60% of all respondents worked in companies with revenues in excess of US\$ 100 million.

⁵ The questionnaires were answered between November 9th and December 18th, 1998, usually in the presence of the author or a university professor

- In the first part of the questionnaire we sought to qualify the profile of the respondent (3 questions) and the company (10 questions), using closed multiple-choice questions.
- The second part of the questionnaire had 41 questions that sought to qualify “Knowledge Management” in the company. In this section a five-point Likert scale was used (an odd number was chosen to provide a neutral value).

Subsequently, we carried out several descriptive and multivariate statistical analyses of the data:

- Descriptive frequency analysis;
- Cluster analysis;
- Independence tests between the control variables (profile of the respondent and the company) and the resulting clusters⁶.

The reliability of the research instrument was evaluated with partial statistical analyses: in other words, as we received the questionnaires, we carried out statistical analyses. The first analysis occurred with 88 questionnaires, the second with 244 questionnaires, the third with 535 and the fourth with 587 questionnaires. The results remained similar on all occasions. We could not, however, measure the value of the sampling error, since it was not a probabilistic sampling.

Results

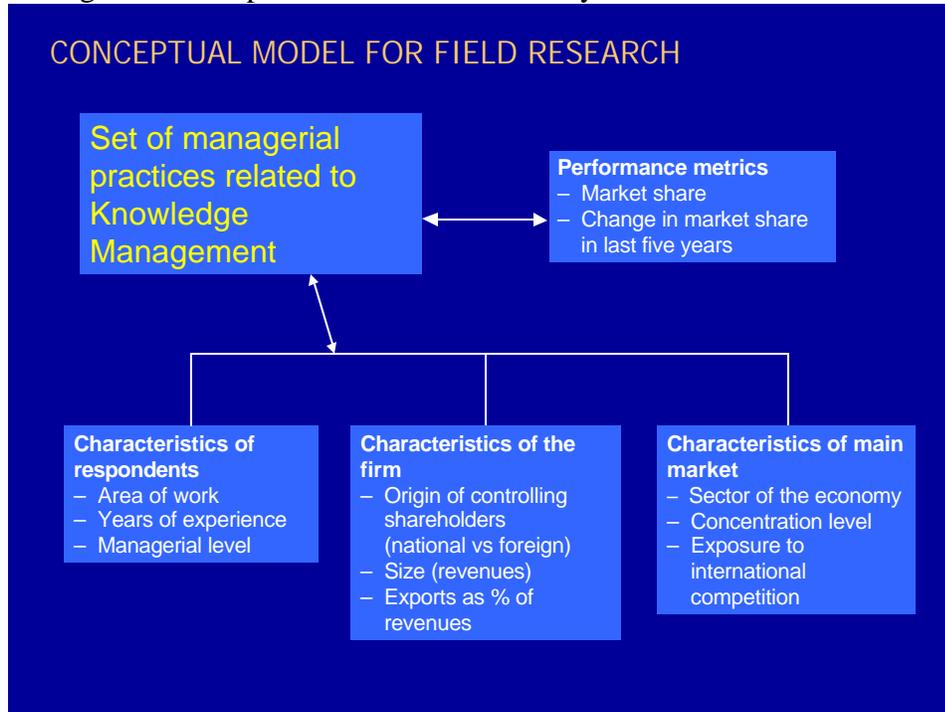
Using the procedures described above, we carried out the cluster analysis and arrived at a solution with three groups involving a total of 571 cases:

- The first group (G1), which we named Learning Organizations, comprises 166 cases and is characterized by having, in general, a greater degree of agreement with respect to the 41 sentences related to “Knowledge Management”. According to the respondents, companies in this cluster performed better recently, export more than companies in the other two clusters, are among the largest companies included in the research and are predominantly market leaders. Furthermore, this cluster has the greatest concentration of companies with foreign controlled capital and that operate in technology- and knowledge-intensive sectors (the electronic, computing and pharmaceutical sectors).
- The second group (G2), which we called Traditional Companies, includes 266 cases that, in comparison to the first group, have not had such favorable recent performance, are less committed to foreign markets and have predominantly domestically controlled capital (private and state-owned). Their profile also shows less conformity than the “Learning Organizations” cluster with respect to the answers on “Knowledge Management” practices.
- The third group (G3), which we named Small Laggards, comprises 139 cases that demonstrate a high-level of disagreement with the practices associated with “Knowledge Management”. These companies are almost opposite to the companies in the first cluster: they are predominantly

⁶ The following non-parametric tests were used: tau de Kendall, Gama, Spearman for ordinal variables and Phi, Cramer e Coeficiente de Contingência for nominal variables. This procedure is recommended by Hair et alii.(1995)

nationally-owned; show the smallest recent gains in market share; are most frequently in third place or lower in terms of their market position; are among the smallest companies in the research; and the great majority do not partake in exporting activities.

Figure 2: Conceptual model of the field study



Source: Developed by author

In Table 1, below, we compare the profiles of the companies of the two most distinct clusters: the “Learning Organizations” and the “Small Laggards”. We have selected only the variables with statistically significant differences that proved to be relevant for developing the conclusions about the field research.

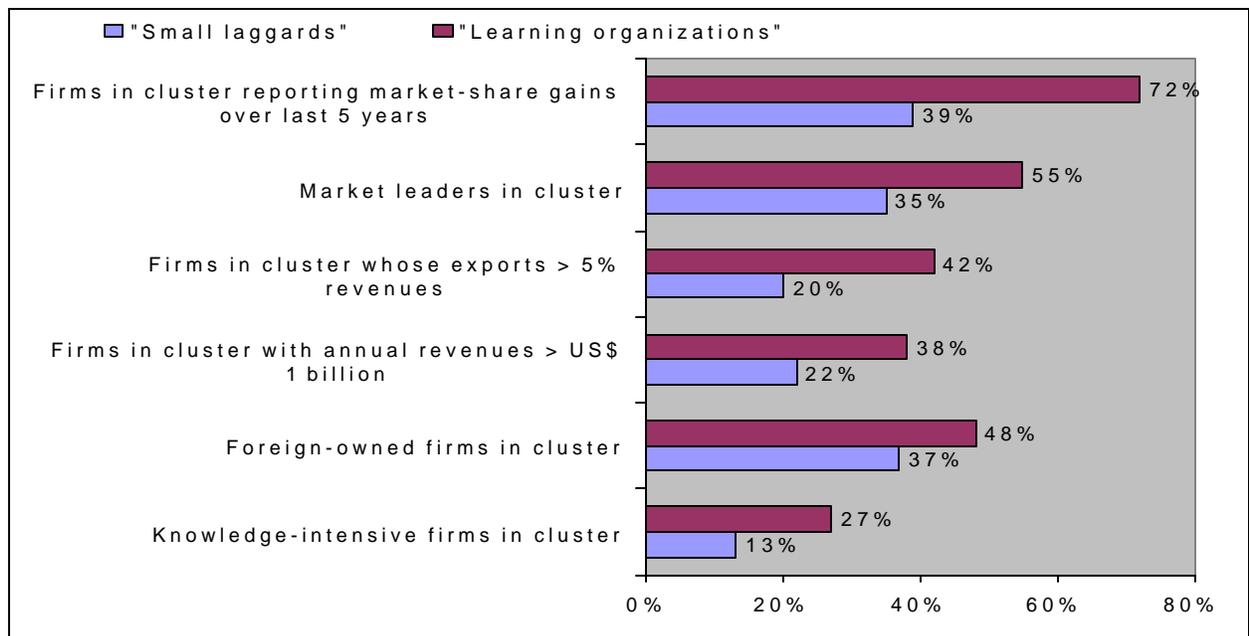


Table 1: Profile of the companies in the clusters

But, what were the management practices evaluated (second part of the questionnaire)? And what was the profile of answers for each cluster? To answer these questions we will only compare, due to space constraints, the profile of the two clusters (defined by the centroids of each of the questions), with the most distinct answers: the “Learning Organizations” and the “Small Laggards” (see Tables 2-A and 2-B, below). The centroids of the “Traditional Companies” were located at an intermediate point for all questions.

Tables 2-A and 2-B demonstrate how, generally speaking, the respondents of the “Learning Organizations” agreed that the management practices associated with effective Knowledge Management are prevalent in their respective companies, while managers and directors of the “Small Laggards” did not believe that these same practices are widely disseminated throughout their companies.

The results of the independence tests for the variables that define the companies’ profiles (as discussed in the section on methodology) strongly indicate that the companies’ recent performance variable was what most influenced the division of the clusters. This variable was closely followed in importance by the variables relating to company participation in exports, market position and size. Furthermore, there were important signs that both the origin of a company’s controlling capital and the economic sector where it belongs also influenced the separation of the companies into distinct clusters, although not as strongly as the previous variables.

The length of the respondent’s professional experience and their hierarchical position also influenced the profile of the answers and, therefore, the separation of the companies into groups. Although less significant than the above-mentioned variables related to the general performance of the companies, the influence of the respondent’s profile cannot be ignored. It was found that the higher the seniority of the respondent, the greater their tendency to make a more positive analysis of their company’s “Knowledge Management” practices. The functional area of work of the respondents did not have a relevant impact on group formation, nor did the two variables related to the prevailing conditions of the market sector in which the company operates (degree of impact of the opening of the economy and of market concentration).

Conclusions: final comments on the challenges related to “Knowledge Management”

In this paper we sought to associate “Knowledge Management” with the evolution of organizational theory itself. Our approach to “Knowledge Management” involves more than suggesting the adoption of a few management practices, several of which are listed or described throughout this paper. It also emphasizes that organizations must cultivate a high degree of understanding, encouragement and even empathy with the basic human processes of creation and learning, both individual and collective.

As final conclusions to this study, we would like to highlight that:

- The management practices that are related to effective “Knowledge Management” and consequently, to encouraging learning, creativity and innovation in an organizational context were strongly associated with improved business performance;
- “Knowledge Management”, as defined in this paper and illustrated by the various management practices evaluated, seems to be particularly relevant and more prevalent in the knowledge-intensive sectors and those geared more towards foreign markets;
- The management practices of nationally-owned companies seem to be less aligned with those associated with effective “Knowledge Management”.

Table 2-A: Comparison of the profile of the answers about management practices of the “Learning Organizations” and “Small Laggards” clusters

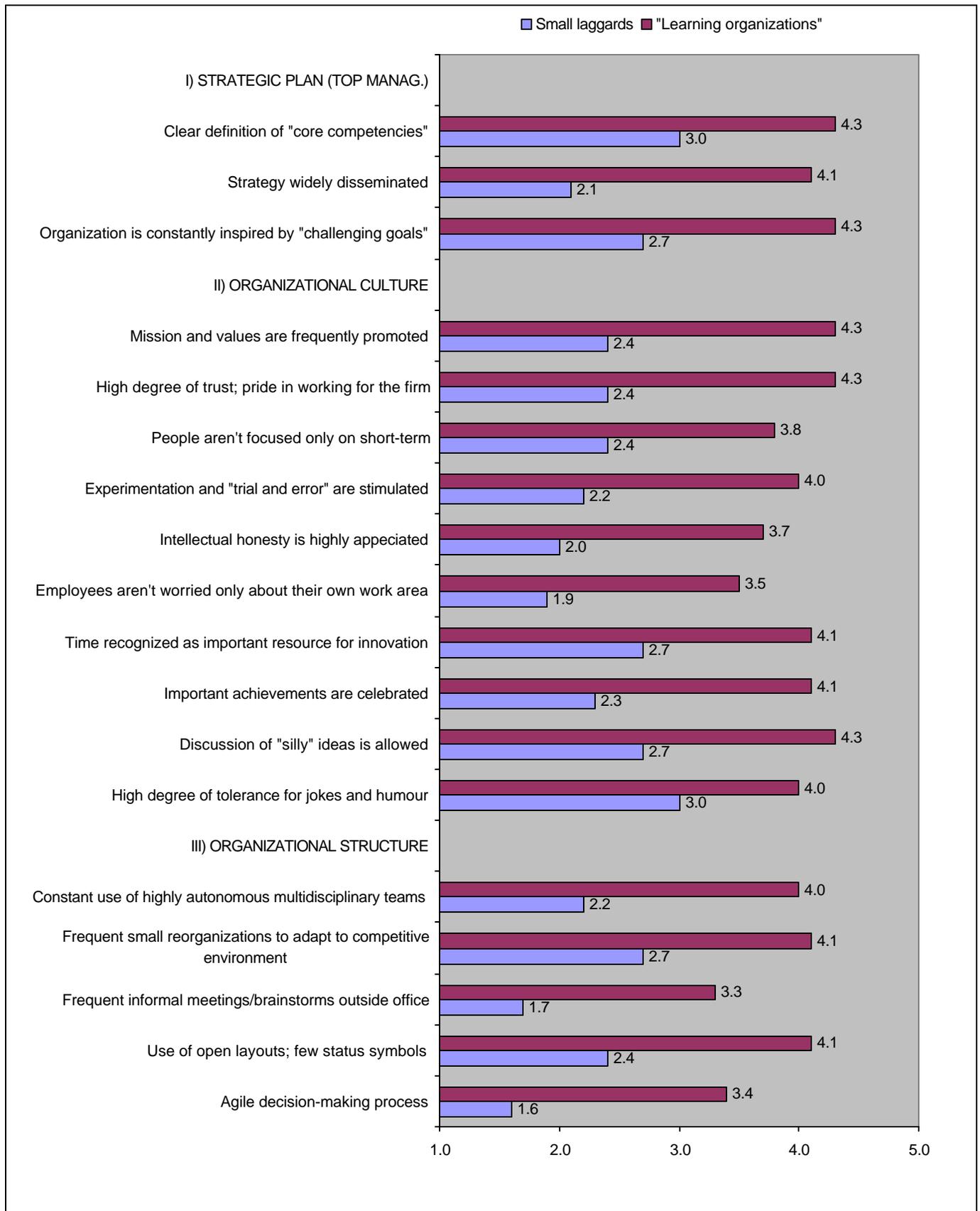
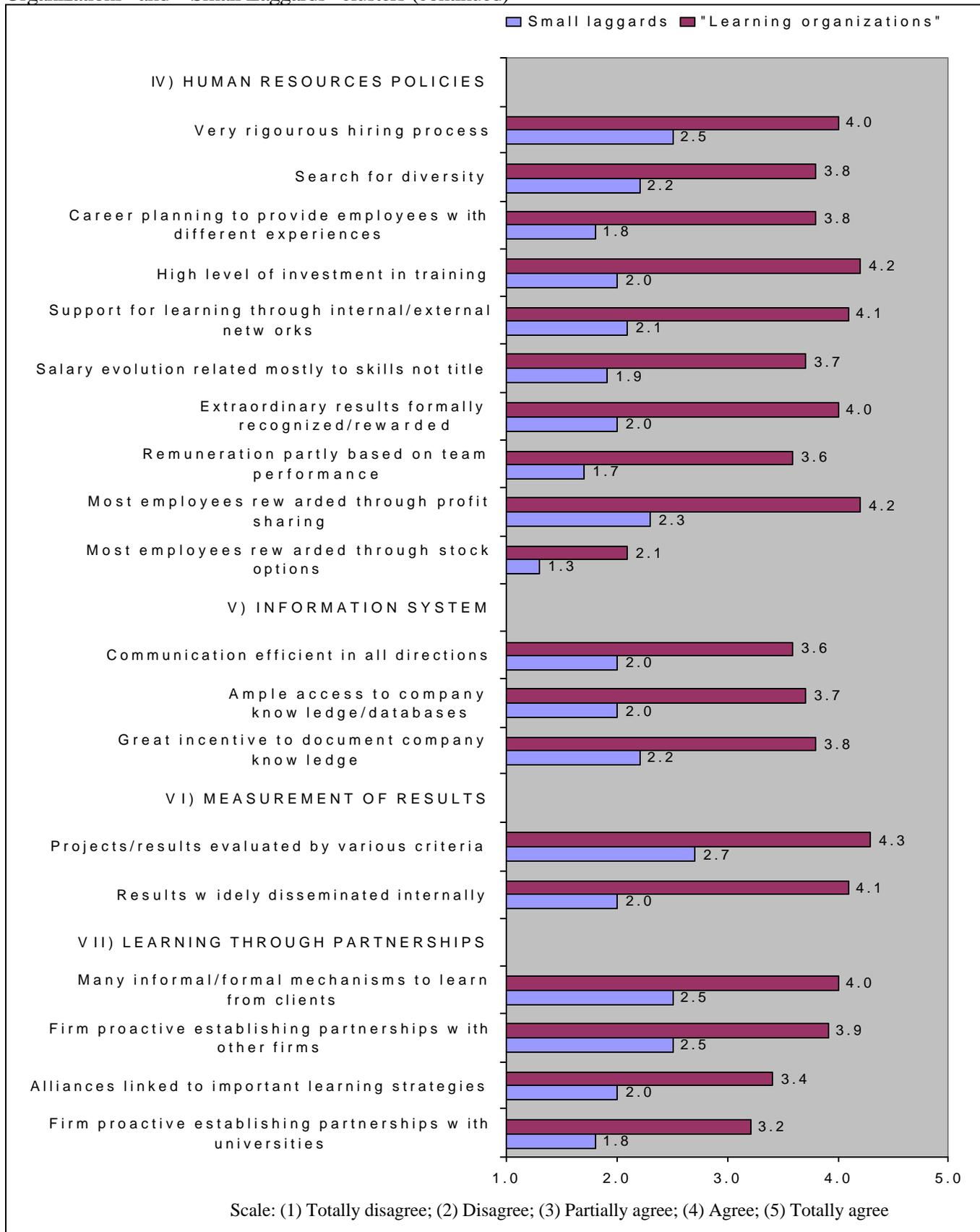


Table 2-B: Comparison of the profile of the answers about management practices of the “Learning Organizations” and “Small Laggards” clusters (continued)



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Short Bio of Author: José Cláudio Terra, jcterra@excite.com

CAREER HIGHLIGHTS

- Five years spent working with the key players in the Brazilian media industry
- Played leading role in the introduction of the first internet over cable services in Brazil. Currently employed with a leading Silicon Valley corporation.
- Top management consulting with McKinsey & Company
- Working experience in Brazil, Canada and USA
- One of youngest professors ever hired at the University of São Paulo
- Various articles published in the field of general and innovation management in Brazil

EDUCATION

- Doctor in Production Engineering, University of São Paulo 1999
- Dissertation on “Knowledge Management”
- Master of Science in Business Administration, University of São Paulo 1992
- Master’s thesis awarded first-class honors
- Thesis chosen as second best in its field in Latin America by CYTED (a special committee organized and funded by the Spanish government to celebrate the 500th anniversary of the discovery of America)
- Awarded the Sasakawa Young Leaders Scholarship (Japanese fellowship fund)
- Bachelor of Arts in Economics, University of São Paulo 1988
- Professional Engineer in Production Engineering, University of São Paulo 1987