KNOWLEDGE ACQUISITION BEHAVIOR OF U.S. AND INDIAN SERVICE MANAGERS: AN EMPIRICAL ANALYSIS

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The purpose of this study is to determine how U.S. and Indian service managers acquire knowledge of the external business environment to enhance competitive advantage, in the context of the emerging field of knowledge management. Questionnaire surveys of 148 U.S. managers and 135 Indian service managers are used to study differences in knowledge acquisition behaviors. The results of the study indicate important differences in information acquisition behavior between U.S. and Indian managers. In each of the four categories: sources of information, accessibility, uncertainty in the industry environment, and sharing information with others, we found certain factors that distinguished the two samples. Since information gathering is an integral part of the knowledge creation process, the findings of the study contributes to the field of knowledge management.

INTRODUCTION

Knowledge management (KM) is the most innovative, creative, and important management concept to come along in the last 25 years. Researchers are calling it the only solution for competitive advantage in the new century (Evans, 1997; Hedlund, 1994; Hibbard, 1997; Martinez, 1998; Trussler, 1998). According to Robert H. Buckman, CEO of Buckman Labs, the purpose of the KM and sharing system at his corporation is to "facilitate communication across all of the organization's boundaries, so that the entire company works together to help everyone to be the best they can be" (Buckman, 1998:11).

Many forward thinking companies are realizing the value in systematically capturing, analyzing, archiving, and distributing knowledge. From Motorola's Six Sigma program to the integrated KM systems of today, firms have derived substantial value from effectively managing their knowledge assets. A survey by Ernst & Young's Center for Business Innovation and Business Intelligence reports 94% of the respondents admit they could better use the knowledge in their companies through more effective management, 40% have KM systems up and running or in

development, and 25 % have plans to develop KM strategies in the next year (Hibbard, 1997:2; Evans, 1997:2).

Recent studies have also indicated that Indian organizations that practice knowledge management have created value by improving organizational effectiveness, delivering customer value, and improving product innovation and delivery. For example, at Tata Steel, India's biggest private sector steel manufacturer, KM initiative was started in 1999. The initial focus was basically on creating, capturing and deploying the knowledge gained by all employees in their day-to-day work, visits to other plants, and also through improvement projects. Over the years, a system has been developed to capture organization's knowledge including that of customers and suppliers (Khanna and Mitra, 2005). At Bharti Tele-Ventures, KM is what KM does for business results and for creating an organizational culture of uninhibited sharing and replication of knowledge. Bharti has seven categories of enablers of KM (Hariharan, 2005). The KM initiative at Wipro, an Indian information technology outsourcing company, has helped it to build up greater competitive advantage in its global market. The company has identified and focused its KM efforts on the top 4 business drivers: competitive responsiveness, collaborative work culture, shorter time to market, and capturing tacit knowledge (Anonymous, 2004; Chatzel, 2004).

Knowledge can be characterized in many ways. Popular taxonomies distinguish between tacit and explicit knowledge, general and situated context-specific knowledge, and individual and collective knowledge (Spender, 1996). Knowledge sources may lie within or outside the firm. Internal knowledge may reside within peoples' heads; embedded in behaviors, procedures, software, and equipment; recorded in various documents; or stored in databases and online repositories. Common sources of external knowledge include publications, universities, government agencies, consultants, knowledge brokers, among others (Zack, 1999).

There are two prominent themes dominating the field of KM: knowledge creation and knowledge use. The latter provided the initial spur for the field and still dominates academic and practical discourse. Interest in knowledge creation, however, is increasing noticeably. According to von Krogh (1998:133), "Knowledge creation is the key source of innovation in any company." How organizations obtain relevant information is crucial to the development of an empirical theory of organizations.

Specifically, this paper focuses on the process and tools whereby information can be captured, communicated and analyzed into useful knowledge. In this study, we look at how top mangers of U.S. and Indian Service companies acquire knowledge about the external business environment. We identify the variables that influence an individual manager's decision to use a particular information source for acquiring external information. The literature is equivocal on whether accessibility of information or the complexity of the task at hand is the key determinant of the source used (Culnan, 1983). This has particular importance to the field of KM because information collection is the first step in the process and the source of information may very well impact the quality of information collected and hence, the knowledge created by the organization.

This comparative look at knowledge acquisition is aimed at relating the process to the national and cultural variables that impact it. India and the U.S. differ vastly in terms of resource endowments, management practices and national culture. Yet, India is a rare exception among developing countries in its strength in information technology that can be expected to have a significant relationship to knowledge acquisition behavior. In addition, the 1991 economic liberalization program opened India's markets to foreign competition and brought in a number of multinational companies. Thus, India is similar to, yet different from the U.S. in its business milieu. As such, comparing the knowledge acquisition process in these countries is likely to offer interesting pointers that are of practical and theoretical usefulness.

The paper is organized into the following parts: the next section describes the KM literature with particular reference to the process of collecting information. The subsequent section focuses on the study methodology and results. The final section of the paper discusses the study's findings.

THEORETICAL FRAMEWORK ON KM

The existing literature on KM, especially the knowledge creation literature, can be classified based on the perspectives of the various management disciplines (strategic management, organizational behavior, production management, and information management). Below is an overview of how these disciplines view KM.

Strategic Management Perspective

Winter (1993) argues that organizational knowledge and competence are forms of strategic asset that appropriately deployed; enhance the firm's long run adaptation in the face of competitive and other environmental contingencies. The strategic management perspective of KM creation literature centers on the resource-based theory of the firm (Wong, 2000).

The resource-based strategy paradigm emphasizes distinctive, firm specific and thus hard-to-copy assets, skills and knowledge. They are referred to generically as core competencies or distinctive capabilities that confer competitive advantage on the firm that possesses them. Proponents of resource-based theory suggest that knowledge-based advantages are difficult to imitate when the reasons for superior performance cannot be identified or controlled (Dierickx and Cool, 1989; Gulati et al., 2000; Lippman and Rumelt, 1982). Advocates of the theory maintain that resources that are well protected from imitation can be a durable source of advantage, and several authors have discussed numerous mechanisms that increase the cost of replication (Barney, 1991; Ghemawat, 1986; Mahoney and Pandian, 1992), and classes of resources that are inherently tough to copy (Barney and Hansen, 1994; Castanias and Helfat, 1991).

Causal ambiguities (Teece, 1998, Winter, 1987), concepts of knowledge base and intellectual capital (Grant, 1996; Tsoukas, 1996; Stewart, 1997; Teece, 2000; Sullivan, 1999), and the occurrence of knowledge creation in strategic alliances (Contractor and Lorange, 1998; Kogut, 1988' Pan and Scarbrough, 1999; Phan and Peridis, 2000) have also been a focus in studies of knowledge resources in the strategic management field.

Organizational Behavior Perspective

The field of organizational behavior views knowledge creation from the perspective of organizational learning (March, 1991; Nelson and Winter, 1982, Nonaka, 1994; Spender, 1996). Organizational learning is about how organizations can gain a better action repertoire in increasingly complex and dynamic environments by expanding their knowledge base (De Geus, 1988; Fiol and Lyles, 1985; Nonaka and Takeuchi, 1995). For these environments it is not the knowledge itself, but the learning capabilities that determine effectiveness (Grant, 1996).

Although many authors on organizational learning show the importance of organizational learning, surprisingly the learning needs concept has not been explicitly defined. Four approaches to learning needs are recognized here: (1) knowledge gap analysis for identifying strategic knowledge needs (Helleloid and Simonin, 1994), (2) classification of problems to select operationally required knowledge and skills (Tampoe, 1994), (3) coping with organizational tremors and jolts by anticipation, response and adjustments of behavioral repertoires (Meyer, 1982), and (4) decisional uncertainty (contingency) measurement (Duncan and Weiss, 1979).

Production Management Perspective

Knowledge acquired by an organization over long periods of time is a valuable asset of the organization concerned. In the world of manufacturing, design knowledge of the products is vital for the manufacturers in maintaining its competitive advantage and the commercial success of the enterprises. Leveraging the design knowledge associated with their products is especially critical for SMEs who operate under difficult conditions.

Various research scholars interested in the process of technological innovation have also initiated research pertaining to the process of knowledge creation in the production management field. According to Wong (2000:193), "the process of knowledge creation is intimately linked to the process for its use and transformation into products and services through the concept of innovation."

Innovation research demonstrates the need for firms to have complementary assets or other receptive technical capacity in order to translate new technology into commercial success (Pitt and Clarke, 1999; Thorburn, 2000). These assets are both formal and informal, or tacit, and need to be embedded in an organization if it is to build its core competencies (Lei et al., 1997). Also, the success of formal technology licensing can be increased when tacit knowledge is transferred at the same time (Wong, 2000).

Information Systems Perspective

Advances in information technology have propelled much of the excitement around KM. Information technology has provided new tools to better perform

the activity of building knowledge capital. Two important areas in particular have contributed to the birth of modern KM systems: communication (or network technologies) and relational databases (Sarvary, 1999). When these tools are employed, people start thinking explicitly about the underlying business processes. Where does information originate? What parts of the process can be or should be automated? Is the process as it stands today worth automating, or should a new process be built? Essentially, information technology has a critical role in raising this consciousness because its use requires the firm to re-evaluate the entire KM process and its role within the firm.

The combination of information technology and co-aligned organizational processes can significantly enhance learning and competitive advantage. Knowing how to create, select, interpret, and integrate information into a usable body of knowledge is the focus of this discipline (Borghoff and Pareschi, 1998; Liebowitz, 1999; Liebowitz and Wilcox, 1997; Slater and Narver, 1997).

According to Teece (2000), there are three broad objectives advanced by information system scholars pertaining to KM. These are (1) The creation of knowledge repositories (data warehouses) for external information, particularly competitive intelligence; internal information, such as internal research reports; and informal internal knowledge, like discussion databases. (2) The delivery of improved knowledge access and hence reuses through the development of user-friendly analytical tools. (3) The enhancement of the organization's knowledge environment, including the willingness of individuals to freely share their knowledge and experiences.

In conclusion, the extant literature on KM reiterates the importance of organizational variables that impact the collection of information that is subsequently transformed into knowledge.

METHODOLOGY

Sample

Data was collected by means of a questionnaire which is described in the next section. U.S. data was collected by administering the questionnaire to managers who were enrolled in the evening MBA program of a university in the mid-west. Multiple sections of employed part-time students formed

the population. The questionnaire was administered at two different intervals. Eighty three managers working for service organizations completed questionnaires the first time. Another sixty five managers responded to the survey when it was administered the second time. A total of 148 U.S. service managers formed the total U.S. database sample. The authors tested for response bias comparing the results of the first survey respondents with those of second survey respondents using chi-square tests of independence (Armstrong and Overton, 1977). The comparisons were made using a few demographic variables. No significant differences were found.

The data of the Indian sample was also collected in two phases. First, a professional market research company was hired to collect data in Chennai, India. The research agency specializing in field data collection administered the survey. The usable sample size, obtained from administering the questionnaire, was a total of 90 in India. The original survey administered in the USA was not modified for use in India, since English in widely spoken in India. A quota-sampling plan was employed for the data collection phase in India (see Malhotra, 2000). Marketing managers and other senior executives were identified as the survey respondents, all of who were extremely knowledgeable about information acquisition behaviors. In the second phase, the surveys were administered by the author in 10 Indian service companies in India. A total of 45 additional responses were obtained, making it a total Indian sample of 135.

Survey Measures Used in the Study

The questionnaire titled "Managerial Information Acquisition Behavior Survey" was divided into five primary sections. Section 1 focuses on the "source of information" used by managers to acquire industry information. Nine separate items were used to capture this construct. Five-point Likert scales were used to measure the frequency of use of various "sources of information." A score of 1 indicated the "source of information" was never used, while 5 indicated the source was used once a week. Section 2 of the survey queries respondents about the degree of accessibility of various sources of information. Section 3 addresses the uncertainty faced by managers with reference to multiple publics like customers, suppliers, competitors, in addition to several environmental factors. In the next section of the survey, managers are asked to report about their "information sharing

habits," with peers and significant others in the workplace. Finally, demographic questions focus on the following: length of employment, level of highest education attained, age of manager, line versus staff responsibilities, and type of organization that the respondent works for. The questions on the survey instrument were drawn from Culnan's survey (1983) updated to reflect recent changes in sources of information.

We used T-tests to test for differences between the two groups – U.S. and India, since our interest was in comparing the means of two distinct populations. In the following paragraphs we highlight some differences across the two country samples.

RESULTS

Table 1 presents the mean frequency and corresponding ranks of "use of information sources" by managers in the service industries.

Table 1: Sources of Information

	India		U.S.A		
Degree of accessibility of the sources of information	*Mean*	*Rank*	*Mean*	*Rank*	*Sig. (2- Tailed)*
Personal subscription to periodicals etc.	4.37	2	4.48	2	.389
Company library or other information resources	3.73	6	3.67	7	.756
Databases or other information services	3.56	7	3.87	5	.007*
Superiors	4.12	3	4.07	4	.845
Subordinates	4.76	1	4.54	1	.537
Peers	3.92	5	4.35	3	.000*
Internal documents (originating within the organization)	4.03	4	3.78	6	.095
Consultants/experts hired by organization	3.23	8	2.98	9	.264
Other persons not employed by the organization	3.04	9	3.24	8	.188

* Significant p < .05
Scale
1 = Never
3 = 4-5 Times a year
5 = Once a week

The mean ranking of information sources used in the U.S. is as follows. Internal documents were ranked as the most important source, followed by "superiors" and then "peers." On the other hand, the Indian service managers ranked "personal subscriptions" as the most important source of information, followed by superiors and then internal documents.

As far as t-tests are concerned, there were "significant differences" discovered between Indian managers and their American counterparts in their use of the following five sources of information. First, as far as personal subscription to periodicals, newspapers, etc. is concerned, Indian managers use these sources of information more often than their American counterparts (prob.<. 05). Indian managers use company library or other company information sources more often than U.S. managers (prob. <. 05). A surprising difference between the two sets of managers was evidenced by the use of "peers" as sources of information. The results show that U.S. managers rely upon their peers as sources more so than Indian managers do (prob. <. 05). The two other sources of information that displayed significant differences across the two country samples was the use of "internal documents" and "other persons not employed by the organization." Again, U.S. managers' rely on the use of these two more than the Indian managers (prob. <. 05).

Table 2 contains the mean ranking and t-test results for accessibility of sources of information. The three top "accessibility of information sources" by U.S. service managers were: "subordinates", "personal subscriptions to periodicals," and "peers." On the other hand, the Indian service managers ranked "subordinates" and "personal subscriptions" as the two most accessible sources of information, followed by "superiors".

Table 2: Accessibility of Sources of Information

	India		U.S.A		
Degree of accessibility of the sources of information	*Mean*	*Rank*	*Mean*	*Rank*	*Sig. (2- Tailed)*
Personal subscription to periodicals etc.	4.37	2	4.48	2	.389
Company library or other information resources	3.73	6	3.67	7	.756
Databases or other information services	3.56	7	3.87	5	.007*
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Subordinates	4.76	1	4.54	1	.537
Peers	3.92	5	4.35	3	.000*
Internal documents (Originating within the organization)	4.03	4	3.78	6	.095
Consultants/experts hired by Organization	3.23	8	2.98	9	.264
Other persons not employed by the organization	3.04	9	3.24	8	.188

* Significant $p < .05$
Scale
1 = Totally Inaccessible
3 = Somewhat Inaccessible
5 = Totally Accessible

Among the group of nine items only two were found to be significantly different across the samples. American managers believe that databases or information services are far more accessible to them than to their Indian counterparts (prob. < .05). Also, U.S. managers have greater access to peers than Indian managers do (prob. < .05).

The mean ranking and T-test results for the relevance of potential sources of uncertainty related to decision making are presented in Table 3. This part of the survey was about the changes in the different aspects of the industry environment and their degree of relevance as potential sources of uncertainty for managers trying to make decisions related to their jobs. 12 items make up this section of the survey.

Table 3: Uncertainty in the Industry Environment

Relevance of potential sources of uncertainty related to decision making	India		U.S.A		
	Mean	Rank	Mean	Rank	Sig. (2- Tailed)
Uncertainty about customers	4.23	1	4.57	1	.008*
Uncertainty about competitors	4.03	2	4.17	3	.192
Uncertainty about suppliers (raw materials, services)	3.30	9	3.31	8	.890
Uncertainty about labor supply	3.46	7	3.83	6	.303
Uncertainty about government regulations	3.73	4	3.57	7	.562
Uncertainty about public opinion	3.31	8	3.24	9	.916
Uncertainty about technology	3.95	3	4.23	2	.011*
Uncertainty about economic issues	3.67	5	3.87	5	.182
Uncertainty about political issues	3.23	10	3.14	11	.567
Uncertainty about social issues	3.17	11	3.04	12	.537
Uncertainty about merger and acquisitions	3.11	12	3.27	10	.200
Uncertainty about general industry data and events	3.58	6	3.89	4	.013*

* Significant $p < .05$
Scale
1 = Completely Irrelevant
3 = Somewhat Irrelevant
5 = Very Relevant

There appears to be an agreement in the top three rankings of "the relevance of potential sources of uncertainty related to decision making" between the U.S. and Indian service managers. The top three rankings for the U.S. managers were as follows. "Uncertainty about customers" was ranked as the most important, followed by "uncertainty about technology" and then "uncertainty about competitors." On the other hand, the Indian service managers ranked "uncertainty about customers" as the most important, followed by "uncertainty about competitors: and then "uncertainty about technology".

As far as t-test results are concerned, significant differences were detected across 3 of those. Uncertainty about customers is more relevant (mean=4.57) to U.S. managers in comparison with Indian managers (mean=4.23, p <. 05). Uncertainty about technology is also more relevant (mean=4.23) to U.S. managers in comparison with Indian managers (mean=3.95, p <. 05). Lastly, Uncertainty about general industry data and events is more relevant to U.S. managers than Indian managers (mean for U.S. sample=3.89, mean for Indian sample=3.58; p < .05).

Table 4 contains the mean ranking and t-test results for information acquisition and sharing. The two highest ranked professional activity for both groups were: "number of times during the last month fellow employees sought advice from you," and the "number of times during the last month you gave advice to fellow employees."

Table 4: Information Acquisition and Sharing

Professional activities contributing to information acquisition and sharing	India		U.S.A		
	Mean	*Rank*	*Mean*	*Rank*	*Sig. (2- Tailed)*
Magazines etc. related to job that are read regularly	6.18	3	4.06	5	.000*
Number of job-related professional organizations to which you belong	3.23	4	2.12	6	.015*
Number of times during the last month your gave advice to fellow employees	6.23	2	6.01	2	.875
Number of times during the last month fellow employees sought advice from you	8.36	1	12.98	1	.011*
Number of times during the last month you sought advice from persons who are not full-time employees of your company	2.89	5	4.46	3	.009*
Number of times during the last month persons who are not full-time employees of your company sought advice from you	2.15	6	4.33	4	.009*

* Significant p < .05

A total of six items comprised this section of the survey. With the exception of "average number of times during the last month you recommended work-related information," all the other items were significantly different for the two samples. Item 1, "the total number of magazines, journals, and newspapers related to your job that you read and scan somewhat regularly" was found to be significantly different across the two samples. Indian managers scan 4 professional journals regularly while American managers scan 6 regularly. The number of professional organizations to which one belonged is significantly different across the

two country samples (Indian sample average=3.23, U.S. sample average=2.12). American managers felt that fellow employees sought job related information from them on average 13 times, while Indian managers sought advice an average of 8.36 times. Job related advice sought by the managers from persons who were not full-time employees was 4 .46 times for the American sample and almost 3 times for the Indian sample. Part-time employees in the U.S. sample sought advice almost 4.5 times regularly in comparison to a meager 2 times for the Indian sample.

DISCUSSION

This study examined the relationship among perceived accessibility, perceived task complexity, and the information gathering behavior of managers in service organizations in the U.S. and in India. Since information gathering is an integral part of the knowledge creation process, the findings of the study contributes to the field of knowledge management.

The results of the study indicate important differences in information acquisition behavior between U.S. and Indian managers. In each of the four categories: sources of information, accessibility, uncertainty in the industry environment, and sharing information with others, we found certain factors that distinguished the two samples. Indian managers tend to use more hard sources of information such as periodicals, newspapers, etc. In contrast, U.S. managers showed a preference for soft sources, namely peers inside the organization and experts outside the organization. A possible reason for this difference is that the Indian business culture tends to be less trustworthy of peers and others and more trusting of published material.

There is a greater degree of formality and structure in Indian organizations than in their U.S. counterparts. The informal, free-flowing structure of many U.S. organizations promotes constant and continuous interaction among employees which promotes information sharing. While India is fast becoming a leading player in information technology, in relative terms the U.S. is significantly ahead of it. The abundance of industry-specific data, whether it be from private vendors such as Standard and Poors, or industry trade associations, allows U.S. managers to access them in a timely and cost effective manner. In contrast, there is a dearth of such data in India. This may explain why information databases are seen as more accessible by U.S. managers, in contrast to their Indian counterparts.

The dynamic and competitive U.S. marketplace has probably no peer anywhere else in the world. The Indian market, in contrast, was a protected market till the economic liberalization program of 1991. It is only recently that Indian businesses have faced competition. It is understandable, then, that Indian managers perceive their industry environment as less uncertain than their U.S. counterparts as shown in the differences between the two samples on this variable.

Finally, the study found support for greater sharing of information among U.S. managers than the Indian sample. Knowledge management has likely to have a greater acceptance in the U.S. than in India. This in turn, very likely reiterates the importance of sharing information among peers as a prelude to creating a knowledge database. Knowledge is regarded as a critical organizational resource in the U.S. that leads to an advantage in the marketplace. India is very likely behind on the learning curve in this regard, which may explain the difference in this variable. The fact that the other variables of interest were not significantly different across the two samples is not surprising. The dissemination of Western managerial practices is widespread in India, both because of Indian managers' felicity with the English language and the fact that since 1991 a number of Western multi-national companies operate in India. The advent of foreign firms has created an active labor market in a hitherto passive milieu. An active labor market has likely helped in speedy dissemination of best practices, which may very well include sources of information used to gather knowledge about the external environment. This may be a plausible explanation for many variables to be statistically insignificant in terms of their difference across the sample of U.S. and Indian managers.

A main contribution of this study is the finding that it is the accessibility of an information source and not the perceived complexity of the task at hand that influences the choice of source used. This is consistent with early research in the field, but contradicts Culnan's (1983) assertion. A possible reason for this finding is that accessibility is paramount. If a particular information is inaccessible or difficult to access, then regardless of the complexity of the task at hand, it is unlikely to be used. This underscores the relative importance of task complexity and brings into sharp focus the accessibility of an information source. This has important implications both for users of as well as providers of information.

"Staff" employees in organizations perform a "boundary-spanning" role. They perform a gatekeeping function by acquiring information from outside the organization and disseminating this information to others in the organization. This is in contrast to "line" employees who are typically more insulated from the external environment. A priori it would appear that staff employees would tend to use outside sources of information more than line employees. This is only partially supported by the results of this study. Of all the information sources examined in the study, only "databases" appear to be used more by staff than by line. This is consistent with extant theory because databases typically emanate from outside an organization. However, there were no significant differences between line and staff employees on other external information sources such as library and publications. It is likely that organizations no longer want to insulate line employees from the outside world. By forcing line employees to interact with the external environment, organizations may become more competitive by exhibiting a higher degree of market orientation.

The current study extends prior work on information use by managers. Replications and extensions would allow us to better understand the factors that influence the choice of various sources of information. This is important because information collection puts the organization on the path to knowledge management.

FUTURE RESEARCH DIRECTIONS

While this study adds to the growing body of literature on knowledge management, subsequent research should contribute to a more complete understanding of the entire process of knowledge acquisition and use. For example, it is possible that there are certain factors that moderate the knowledge acquisition process, such as organizational resources, industry type, and competitive intensity. The impact of these factors has to be empirically established. Similarly, certain factors may mediate the knowledge acquisition process. These factors may be size of the organization, age, and technological intensity of the industry. Practical implications of these mediating factors would help organizations develop a plan for knowledge management.

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