Knowledge sharing practices as a facilitating factor for improving organizational performance through human capital: A preliminary test

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Abstract

Organizational knowledge sharing, argued to be able to improve organizational performance and achieve competitive advantage, is often not induced successfully. How organizations should encourage and facilitate knowledge sharing to improve organizational performance is still an important research question. This study proposes and examines a model of organizational knowledge sharing that improves organizational performance. Organizational knowledge sharing practices are argued to be able to encourage and facilitate knowledge sharing, and are hypothesized to have a positive relationship with organizational human capital (employee competencies), which is hypothesized to have a positive relationship with organizational performance. Two organizational antecedents (innovation strategy and top management knowledge values) are hypothesized to lead to the implementation of organizational knowledge sharing practices. The hypotheses were examined with data collected from 256 companies in Taiwan. All the hypotheses are supported. This study has both theoretical and practical implications.

Keywords: Knowledge sharing; Performance; Human capital; Innovation strategy; Top management knowledge values

1. Introduction

In the knowledge-based economy, internal resources and competencies of companies have become a major focus of management literature (Barney, 1991; Teece, Pisano, & Shuen, 1997; Wernerfelt, 1984). The analysis of internal resources has transformed to a focus on intangible resources; knowledge is seen as a crucial type (Alavi, Kayworth, & Leidner, 2005–2006; Davenport et al., 1998; Drucker, 1993). However, knowledge is not symmetrically distributed within an organization. Thus, for an organization to develop competitive advantage, identifying, capturing, sharing and accumulating knowledge become crucial (Husted & Michailova, 2002; Michailova & Husted, 2003). An emphasis on knowledge has sparked a recent interest in performance implications of organizational knowledge management/sharing processes and practices (Becerra-Fernandez & Sabherwal, 2001; Hsu, 2006; Lee & Choi, 2003; Widén-Wulff & Soumi, 2007).

However, knowledge sharing is a test of human nature (Cabrera & Cabrera, 2002; French & Raven, 1959), and accessing knowledge from colleagues and unknown others can be difficult (Constant, Sproull, & Kiesler, 1996). As a result, knowledge sharing within organizations very often is not successful and organizational performance is not improved. Managerial interventions are needed to encourage and facilitate systematic knowledge sharing (Hsu, 2006; Husted & Michailova, 2002). Despite the growing interest in organizational knowledge sharing, empirical research on performance implications of knowledge sharing practices has not been sufficient and is called for (Choi & Lee, 2003). More importantly, researchers caution that...
organizational knowledge management/sharing practices do not directly lead to an improvement of organizational performance. Rather, organizational performance is improved through an improvement of intermediate (or individual) outcomes, following the implementation of knowledge management/sharing practices (Davenport et al., 1998; Liebowitz & Chen, 2001; Sabherwal & Bercerra-Fernandez, 2003). A major goal of this research is to better understand such a causal mechanism.

An organization within which knowledge sharing takes place will develop its human capital, i.e., competencies of human resources, through knowledge transfer and exchange (Quinn, Anderson, & Finkelstein, 1996; Widén-Wulff & Soumi, 2007). As organizational human capital is developed, human resources can improve their job performance and ultimately, organizational performance with new and relevant knowledge. This paper seeks to propose and examine a model of organizational knowledge sharing in which knowledge sharing practices contribute to organizational performance through the development of human capital. To this end, the importance of organizational human capital is first examined in the literature review section. If the importance of organizational human capital is established, the importance of organizational knowledge sharing practices is justified.

Further, although developing human capital is one of the key objectives of organizational knowledge sharing practices (Bartlett & Ghoshal, 2002), the relationship between these practices and human capital has not been examined. Also, the notion of human capital has been argued to lie at the core of business success in the 21st century (Hitt, 2000; Liebowitz, 2002). However, the link between organizational human capital and organizational performance has been prescriptive and requires empirical investigation (Lado & Wilson, 1994; Youndt, Subramanian, & Snell, 2004). Thus, investigating the effect of organizational knowledge sharing practices on organizational performance through the development of human capital will not only establish the importance of knowledge sharing practices but also result in findings that have both theoretical and practical implications.

Finally, for organizational knowledge sharing practices to effectively develop human capital, influencing factors in the organization must be understood (Demarest, 1997; Malhotra, 2004; O’Dell & Grayson, 1999). These factors, or antecedents, serve as infrastructure to improve the effectiveness of organizational knowledge sharing (Holsapple & Joshi, 2000; Lee & Choi, 2003). This research investigates the relationships between two important and yet neglected antecedents (organizational strategy and top management knowledge values) and knowledge sharing practices. From a range of literatures, these two antecedents were identified to underlie and drive knowledge sharing to develop and exploit knowledge assets (including human capital) for perpetual survival and growth of organizations (Alavi et al., 2005–2006; Hamel & Prahalad, 1993, 2005; Ruggles, 1998; Teece & Pisano, 1994; Teece et al., 1997).

2. Literature review

2.1. Organizational human capital

The prevailing definition of organizational human capital adopts a competence perspective (Elias & Scarbrough, 2004). Flamholtz and Lacey (1981) emphasized employee skills in their theory of human capital. Later researchers expanded this notion of human capital to include the knowledge, skills and capabilities of employees that create performance differentials for organizations (Nahapiet & Ghoshal, 1998; Snell & Dean, 1992; Youndt et al., 2004). Parnes (1984, p. 32) defined human capital as that which “... embraces the abilities and know-how of men and women that have been acquired at some cost and that can command a price in the labor market because they are useful in the productive process.” Thus, seen from the competence perspective, the central tenet of human capital is the purported contributions of human capital to positive outcomes of organizations. Following this line of thinking, organizational human capital is defined in this paper as competencies of employees. Employee competencies can lead to effective job performance (Becerra-Fernandez & Sabherwal, 2001; Davenport et al., 1998). They can also help in improving financial performance of organizations (Davenport et al., 1998).

The resource-based view of the firm portends how organizational human capital may help develop a competitive advantage of an organization. According to this view, intangible resources or capabilities that are valuable, rare and difficult to imitate are sources of sustained competitive advantage of organizations (Barney, 1991; Grant, 1991; Peteraf, 1993; Teece et al., 1997). In particular, a competitive advantage based on a single resource or capability is easier to imitate than one derived from multiple resources or capabilities (Barney, 1991; Ulrich & Lake, 1991; Wernerfelt, 1984). Organizational human capital constitutes bundles of unique resources that are valuable, rare, and inimitable for an organization’s competitive advantage.

According to De Saá-Pérez and García-Falcón (2002), Lado and Wilson (1994), and Wright, McMahan, and McWilliams (1994), organizational human capital is valuable because human resources differ in their knowledge, skills, and capabilities, and they are amenable to value-creation activities guided and coordinated by organizational strategies and managerial practices. Organizational human capital is rare because it is difficult to find human resources that can always guarantee high performance levels for an organization. This is due to information asymmetry in the job market. More importantly, human resources with various types of knowledge, skills and capabilities are configured in a way that is heterogeneous across organizations. This makes organizational human capital not just rare but also inimitable. Finally, the process by which human resources create performance differentials requires complex patterns of coordination and input of other types of resources. Each depends on the unique context of a given
organization. The causal ambiguity and social complexity inherent in the process have made organizational human capital non-substitutable and inimitable.

Thus, the above theoretical arguments recognize the importance of human capital and its development. In addition, in recent years, studies have started to examine the relationship between organizational human capital and financial performance of companies. Findings generally support that companies with a higher level of human capital tend to have better financial performance (Youndt, Snell, Dean, & Lepak, 1996; Youndt et al., 2004). However, as argued by previous literatures, it is worth noting that a high level of human capital can achieve various other kinds of positive outcomes, such as innovativeness (Subramaniam & Youndt, 2005) and coping capabilities of organizations in fast-changing environments (Wright et al., 1994). Based on the above discussion,

**Hypothesis 1.** Organizational human capital is positively associated with organizational performance.

### 2.2 Knowledge sharing and organizational knowledge sharing practices

Organizational knowledge has been commonly defined as “justified true belief” (Nonaka & Takeuchi, 1995, p. 21). It is disseminated within an organization as “information of which validity has been established through tests of proof” (Liebeskind, 1996, p. 94). This information can guide organizational members in their judgments (Tsoukas & Vladiimirou, 2001), and can improve their job performance and ultimately, competitive advantage of organizations (Hsu, 2006).

Knowledge sharing involves the transfer or dissemination of knowledge from one person, or group to another. Organizational knowledge sharing connects organizational members with external knowledge sources (Garvin, 1993). Organizational members benefit from networking with external knowledge sources for new information, expertise, and ideas that may not be obtained inside the organization (Hamel & Prahalad, 1993; Wasko & Faraj, 2005). Organizational innovation can be derived from knowledge exchange and learning from network connections across organizational boundaries (Nooteboom, 2000). Further, organizational knowledge sharing helps pass down idiosyncratic, competency-enhancing knowledge from the organization to individuals or from one individual to another. For example, in a community of practice, collective problem diagnosis and resolution improves interpersonal relationships and knowledge sharing (Wenger & Snyder, 2000). The immediate benefit is the enhancement of the task effectiveness (Sabherwal & Bercerra-Fernandez, 2003) and innovativeness of individuals (Calantone, Cavusgil, & Zhao, 2002). As Quinn et al. (1996, p. 8) put it, “As one shares knowledge with other units, not only do those units gain information (linear growth); they share it with others and feed back questions, amplifications, and modifications that add further value for the original sender, creating exponential total growth.” Thus, organizational knowledge sharing is an important way to develop organizational human capital.

Organizational knowledge sharing can be the backbone of organizational learning and bring enormous benefits to an organization (Argote, 1999; Garvin, 1993; Liebowitz & Chen, 2001). However, employee knowledge sharing can be difficult because of the costs perceived by the knowledge contributor. Two types of costs are discussed in the literature (Kankanhalli, Tan, & Wei, 2005). First, tacit knowledge has to be codified or articulated before it can be transferred to others (Nonaka & Takeuchi, 1995). Knowledge codification and transfer takes time and resources. Second, in an organizational context, the knowledge contributor can be seen as foregoing potential rewards for performing alternative tasks in order to engage in knowledge sharing. There are opportunity costs associated with knowledge sharing (Molm, 1997). Thus, employee knowledge sharing should be facilitated if the costs associated with it can be justified or reduced.

Further, according to social exchange theory, people do others a favor with a general expectation of some future return but without a clear expectation of exact future return (Blau, 1964; Kankanhalli et al., 2005). However, in addition to the costs associated with knowledge sharing, knowledge sharing may result in a loss of power or unique value of the contributor in the organization (French & Raven, 1959; Szulanski, 1996). Thus, a reward mechanism should be designed and implemented in an organization in order to reduce the costs associated with knowledge sharing and avoid the potential loss of value on the part of the knowledge contributor. More importantly, one should benefit from one’s own knowledge sharing behavior. For example, one may be able to see that one’s requests for knowledge are reciprocally answered by colleagues to improve one’s task performance, after sharing one’s knowledge (Connolly & Thorn, 1990; Wasko & Faraj, 2000). Under such circumstances, employee knowledge sharing is encouraged.

Organizational knowledge sharing practices facilitate knowledge sharing because they are initiated and implemented to diffuse knowledge and individual learning within organizations (Calantone et al., 2002). Each individual in the organization gains from knowledge sharing under the condition that the organization takes the responsibility of coding the usable knowledge for its employees (Husted & Michailova, 2002). In this way, the costs of knowledge sharing are incurred by the organization. However, not all knowledge is codifiable. Knowledge can be embedded in action, contextualized in practice and subjected to actors’ interpretation (Davenport et al., 1998; Lepak & Snell, 1999). To achieve best possible gains in knowledge sharing, social environments can be created within an organization so that individuals can interact with one another for the sake of knowledge sharing and learning (Currie & Kerrin, 2003; Liebowitz, 1999; Scarbrough & Carter,
Also, an organization can provide incentives to encourage employee knowledge sharing (Beer & Nohria, 2000; Gupta & Govindarajan, 2000; Hsu, 2006; Liebowitz, 1999). The knowledge contributor’s future return is met and knowledge sharing will continue to occur. Employees do not only benefit from the deliberate dissemination of knowledge to them, but they also benefit from employees sharing knowledge with one another.

Consequently, organizational knowledge sharing practices develop organizational human capital (Liebowitz, 2003–2004, 2004). Employees’ knowledge, skills and abilities are enhanced. Calantone et al. (2002) proposed that an organization should disseminate lessons learned from past failure to its members. An organization can also use interdependent arrangements such as work teams, to enhance the exchange of tacit knowledge and expertise (Becker, 1964; Lepak & Snell, 1999). Organizational knowledge sharing practices also include training and development programs (Becker, 1976; Liebowitz, 1999) and mentoring programs (Lepak & Snell, 1999), which equip employees with idiosyncratic knowledge that is more valuable to the organization than to its competitors. Further, information technology (IT) systems are important in organizational knowledge sharing (Alavi & Leidner, 2001). Finally, the use of incentive systems should increase benefits as measured by cost-benefit equations of social exchange theory. Employee knowledge sharing will be encouraged and human capital will be developed.

Hypothesis 2. Organizational knowledge sharing practices are positively associated with organizational human capital.

2.3. Organizational strategy

The focal organizational strategy entails differentiating one company from its competitors through product innovation (innovation strategy). Organizational knowledge sharing practices are deliberate undertakings of management to develop organizational human capital as important to competitive advantage. Consequently, organizational knowledge sharing practices depend greatly on the strategy an organization pursues for competitive advantage.

Organizational strategies strongly affect how an organization promotes learning and knowledge sharing, and the build-up of knowledge assets (including human capital) within the organization, and ultimately, determines its competitive advantage (Hamel & Prahalad, 1993, 2005). Calantone et al. (2002) argued that firms with great innovation capabilities and high innovative performance start with a shared strategic vision that stresses the importance of innovation and that guides the creation of innovation capabilities through organizational knowledge sharing practices. Grover and Davenport (2001) claimed that a company’s strategy will be enhanced and supported by an effective use of knowledge. Thus, knowledge management and sharing practices should be integrated with business strategy. Knott (2004) further argued that a company in pursuit of product innovation should direct the implementation of knowledge-updating practices to facilitate knowledge sharing and creation. Bae and Lawler (2000) and Bae, Chen, Wan, Lawler, and Walumbwa (2003) argued that an organizational strategy that aims to differentiate one company from others through quality and product or service innovation will support the use of high performance work systems, which include a variety of practices aimed at information and knowledge sharing. Therefore,

Hypothesis 3. Organizations that pursue an organizational strategy characterized by product innovation are more likely to implement organizational knowledge sharing practices.

2.4. Top management knowledge values

Values held by top management prescribe how organizational members should conduct themselves, how they should run the business, and what kind of organization they should build. Top management values are seen as the cornerstone of an organization’s culture (Alavi et al., 2005–2006; Collins & Porras, 1996; Van Maanen & Barley, 1985). Also, top management values underlie organizational culture that drives organizational knowledge sharing (Alavi et al., 2005–2006; Ruggles, 1998). Thus, the initiation and implementation of organizational knowledge sharing practices should start with a top management value that sees knowledge as a source of competitive advantage (Bartlett & Ghoshal, 2002; Grover & Davenport, 2001). Davenport and Prusak (2000) reported that when top managers perceive knowledge as a key strategic resource and knowledge sharing as the foundation for value creation, they will support a range of knowledge management practices that aim to facilitate knowledge sharing within organizations. Hsu’s case study (Hsu, 2006) revealed that companies that are dedicated to establishing organizational knowledge sharing practices are observed to have top management support. Such support stems from a top management value that sees knowledge as an important source of competitive advantage. Thus,

Hypothesis 4. Organizations with upper-level managers that see knowledge as sources of competitive advantage are more likely to implement organizational knowledge sharing practices.

3. Research methods

3.1. Procedures and sources of data

A cross-sectional survey was conducted in 2004 with a sampling frame derived from a senior manager database provided by The Ministry of Economic Affairs (MOEA), Taiwan. The MOEA, Taiwan, invites senior managers of...
business enterprises to participate in an association initiated by the ministry to serve as advisors for other indigenous companies in Taiwan to improve knowledge sharing between indigenous companies and thereby their competitive advantage. Each company is allowed only one participant in the association. Via this program, the participant companies obtain access to government advisors, funding and training programs. Under the promotion of the ministry, the senior manager participants in the association were aware of the importance of knowledge sharing. Thus, the MOEA database offers a promising opportunity for this knowledge sharing study.

Questionnaires were sent to a total of 1486 managers enlisted as advisors for business enterprises. After follow-up telephone calls to these managers, 256 usable questionnaires were collected from 256 respective companies, representing a response rate of 17.2%. The 256 respondents averaged 47.5 years in age and had 23 years of work experience; the male-to-female ratio was approximately 6.4–1. They were either top managers (general managers and chairmen of boards of directors) or functional managers. The former accounted for 77.7% of the respondents and the remaining were functional managers. The responding companies varied in size and industries, and had an average of 369 employees and 18.7 years of history. Appendix A reports profiles of the responding companies.

3.2. Questionnaire development

Measures of the focal constructs in this paper were developed from existing literature. Two rounds of questionnaire pretesting were conducted. In the first round, five senior managers with more than 20 years of work experience were provided with the survey. Ambiguities and sources of confusion in the questionnaire were removed in light of the comments and suggestions of senior managers. During the second round of pretesting, a revised questionnaire was given to a different group of five managers with a similar work tenure. Appendix B reports the questionnaire items.

The seven-point Likert-type scales ranging from “1” (totally disagree) to “7” (totally agree) were used throughout the questionnaire. A six-item scale of organizational human capital was developed by reference to a range of studies (Delaney & Huselid, 1996; Edvinsson & Malone, 1997; Roos, Roos, Edvinsson, & Dragonetti, 1998; Snell & Dean, 1992; Youndt et al., 2004). The scale contained aspects of relative competencies of employees compared to competitors and the employees’ use of their competencies to achieve organizational goals. Organizational performance was measured by six items developed from Khandwalla (1977). The scale reflected a range of performance measures and included long-run profitability, growth rate of revenues, employee satisfaction, employee productivity, goodwill and product (or service) quality.

Organizational knowledge sharing practices are measured by seven items. They included the company’s use of the following practices for knowledge sharing: (1) mentoring programs (Lepak & Snell, 1999), (2) work teams (Becker, 1964; Lepak & Snell, 1999), (3) training and development programs (Becker, 1976; Liebowitz, 1999), (4) IT systems (Alavi & Leidner, 2001), (5) knowledge-sharing mechanisms (Calantone et al., 2002; Liebowitz, 1999), and (6) incentive systems to encourage knowledge sharing (Delaney & Huselid, 1996; Gupta & Govindarajan, 2000; Liebowitz, 1999). The seventh item is the company disseminating lessons learned from past failure to its members (Calantone et al., 2002).

The measurement of top management knowledge values contained six items. Top management: (1) emphasizes knowledge sharing within the company, (2) believes that its support is key to employee knowledge sharing (Davenport et al., 1998; Davenport & Prusak, 2000), (3) sees through the establishment of knowledge sharing mechanisms (Hsu, 2006), (4) regards knowledge sharing policies and practices as contributing to company performance, and (5) profitability (Hauschild, Licht, & Stein, 2001; Husted & Michailova, 2002), and (6) regards firm-specific knowledge as a source of competitive advantage (Cabrera & Cabrera, 2002). Finally, a six-item scale for innovation strategy was developed from Miller’s (1988) measurement of innovative differentiation, i.e., Porter’s (1980) differentiation strategy that emphasizes product and service innovation. The scale reflected such aspects of organizational strategy as the speed and performance of new product (or service) introduction, and cost of new product (or service) development.

4. Results

4.1. Measurement model

A confirmatory factor analysis using Amos 4.0 was conducted to test the measurement model. Six model-fit measures were used to assess the model’s overall appropriateness of fit: the ratio of chi-square to degrees-of-freedom, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). Following the recommendation of previous literature (Fitzgerald, Drasgow, Hulin, Gelfand, & Magley, 1997; Robert, Probst, Martocchio, Drasgow, & Cabrera, 1998; Becker, 1964; Lepak & Snell, 1999), three indicators were formed from original measuring items for each of the latent constructs on the basis of the items’ psychometric properties and substantive content. This procedure maximizes the degree to which the indicators of each construct share variance. The model resulting from the confirmatory factor analysis showed adequate fit (chi-square/df. = 2.46, GFI = 0.91, AGFI = 0.86, NFI = 0.94, CFI = 0.96, RMSEA = 0.08). Table 1 presents descriptive statistics and bivariate Pearson correlations for the five construct scales.

Reliability of our construct scales was estimated through composite reliability (Hair, Anderson, Tatham, & Black,
The composite reliability can be calculated as follows: 
\[
\text{Composite Reliability} = \frac{(\text{the square of the summation of the factor loadings})}{(\text{the square of the summation of the factor loadings}) + (\text{the summation of item measurement error})}
\]

The composite reliabilities for the five constructs scales suggested acceptable reliability of the scales for further analysis (top management knowledge values: 0.90, innovation strategy: 0.85, organizational knowledge sharing practices: 0.91, organizational human capital: 0.92, and organizational performance: 0.89). Convergent validity was evaluated by examining the factor loadings of indicators and their squared multiple correlations (see Table 2). Following Hair et al.’s (1998) recommendation, factor loadings greater than 0.50 are considered to be very significant. All factor loadings reported in Table 2 are greater than 0.50. Consequently, squared multiple correlations between these individual indicators and their a priori constructs are also high. Therefore, all constructs in the measurement model were judged as having adequate convergent validity.

Discriminant validity was assessed by examining whether the confidence interval around the correlation between any two latent constructs includes one (Anderson & Gerbing, 1988). No confidence interval around the correlation in the measurement model included one, which indicated discriminant validity of the model. A more prudent test of discriminant test requires comparing an unconstrained model that estimates the correlation between a pair of constructs and a constrained model that fixes the value of the construct correlation to 1 (Chiou, 2004). A significant difference in chi-square values between these models (larger than 3.84) was observed. This implied that the unconstrained model is a better fit for the data – supporting the existence of discriminant validity.

### 4.2. Structural model

A similar set of fit indices were used to examine the structural model as shown in Fig. 1. This model’s fit indices showed good fit (Chi-square/df. = 2.75, GFI = 0.90, AGFI = 0.86, NFI = 0.92, CFI = 0.95, and RMSEA = 0.08). The structural model helped to examine the predictive power of innovation strategy and top management team values on organizational knowledge sharing practices, the predictive power of organizational knowledge sharing practices on organizational human capital, and the influence of organizational human capital on organizational performance.

Hypotheses 3 and 4 investigate the influences of innovation strategy and top management knowledge values on organizational knowledge sharing practices. As expected, innovation strategy (\(\beta = 0.42, t\text{-value} = 5.66, p < 0.001\)) and top management knowledge values (\(\beta = 0.46, t\text{-value} = 6.73, p < 0.001\)) showed strong associations with organizational knowledge sharing practices. Thus, Hypotheses 3 and 4 were supported. The proposed model explained 61% of the variance in organizational knowledge sharing practices.

Hypothesis 2 examines the path from organizational knowledge sharing practices to organizational human capital. The analysis suggested that organizational knowledge sharing practices (\(\beta = 0.83, t\text{-value} = 14.52, p < 0.001\)) showed a strong, positive association with organizational human capital. Hypothesis 2 was supported. The proposed model accounted for 68% of the variance in organizational human capital.

Hypothesis 1 examines the path from organizational human capital to organizational performance. The analysis
suggested that organizational human capital ($\beta = 0.74$, $t$-value = 13.56, $p < 0.001$) showed a strong, positive association with organizational performance. Hypothesis 1 was supported. The proposed model accounted for 55% of the variance in organizational performance.

5. Discussion and implications

5.1. Implications for theory

This study shows the importance of organizational human capital by providing supporting evidence on its positive effect on organizational performance. Previously the importance of organizational human capital was emphasized, but its effect on organizational performance has not been thoroughly explored. Instead of using financial performance as the only measurement of organizational performance, this study uses a wider range of indicators to measure performance. The data were provided by top or senior managers of the surveyed companies. The study results bring insight into the effects of organizational human capital. Organizational human capital does not just affect both top-line and bottom-line figures, but also affect a range of performance indicators, such as quality of products and services and growth potential of companies.

This study also provides a possible mechanism by which organizational knowledge sharing practices contribute to organizational performance. Knowledge sharing practices improve organizational performance through the development of human capital. Activity-based measurement is developed for organizational knowledge sharing practices. The practices combine both technical (e.g., IT systems) and human management systems (e.g., work teams). The findings support arguments in the previous literature that organizational arrangements for employees that support knowledge sharing will develop organizational human capital (Lepak & Snell, 1999). As human capital helps improve organizational performance, the importance of organizational knowledge sharing practices cannot be emphasized too highly.

Innovation strategy is an important predictor of the implementation of organizational knowledge sharing practices. Organizational knowledge sharing supports a company in its pursuit of innovative outcomes. However, an overarching strategy should precede knowledge sharing practices to guide them. In particular, organizational knowledge sharing practices, under the guide of the strategy, can help companies develop firm-specific human capital that will serve as a basis for competitive advantage. The effect of organizational strategy on the implementation of knowledge sharing practices has rarely been examined. This study contributes to theory building efforts in the field of knowledge management research by examining such an effect.

The values top managers hold toward knowledge are another important predictor of the implementation of organizational knowledge sharing practices. Organizational cultural factors have been demonstrated to be associated with organizational knowledge creation processes (Lee & Choi, 2003). However, values underlie the events, activities and human relationships (Alavi et al., 2005–2006; Van Maanen & Barley, 1985) that constitute organizational cultures. This study demonstrates the positive relationship between a precursor of organizational culture and organizational knowledge sharing practices. It demonstrates the importance of leadership in its construction of a knowledge culture within an organization to facilitate knowledge sharing and develop human capital.

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The overall model examines the enabler–practice–outcome (Alavi et al., 2005–2006) or enabler–process–outcome (Lee & Choi, 2003) relationship that was proposed to guide empirical research in the field. Top management knowledge values and innovation strategy can be said to be two enablers of organizational knowledge sharing practices. Organizational human capital is an important outcome of the knowledge sharing practices. The examination of the overall model also serves to provide supporting evidence for Lado and Wilson’s (1994) philosophical claims. They claimed that strategy, cultural values, and human capital developing practices should be in place to effectively develop organizational human capital and promote competitive advantage of an organization. The examination of the effectiveness of organizational knowledge management/sharing practices had been insufficient prior to this.
study. This study bridges such a gap by supporting the hypotheses that the organizational knowledge sharing practices develop organizational human capital, which in turn improves organizational performance.

5.2. Implications for practices

This study has practical implications. First, the relationships among organizational antecedents, organizational knowledge sharing practices, organizational human capital and performance may provide a guide as to how companies should achieve competitive advantage by using knowledge sharing practices to develop human capital. Second, companies are advised of the important antecedents that lead to the success of knowledge sharing practices in developing human capital. Third, the scale of organizational knowledge sharing practices offers a checklist for companies to evaluate themselves according to the degree to which they implement the practices necessary to develop organizational human capital.

6. Conclusions

This study has limitations. First, potential common method variance may result from the use of self-report data. Second, the senior manager database used for the survey may be biased. For example, only senior managers with good company performance are confident enough to be included in the database. However, Taiwanese business people share a long tradition of emphasizing guanxi (positive connections) in business operations. Participating in the association means an extension of a manager’s social network and access to government funding and training. Since the MOEA did not use company performance as a selection criterion for those applying to join the association, many company senior managers are eager to join the association. Thus, the selection bias may not be an important limitation for this study.

Third, the cross-sectional data did not allow a longitudinal investigation of the conceptual framework examined in this paper. However, this study has opened up a line of inquiry by examining the causal links between organizational antecedents, organizational knowledge sharing practices, organizational human capital and performance. The findings have implications for theory and practice. Future research is encouraged to follow this line of inquiry to bring more insight into how organizations should enhance their performance with well-conceived knowledge sharing strategies and practices. Such research can broaden the scope by investigating the relationships between knowledge management processes, which include acquisition, sharing, integration, and retention of knowledge, and organizational human capital (Hsu, 2005). Financial performance measured by objective indicators should also be included in the investigation.

Appendix A. Profiles of responding companies

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<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td><strong>Industry type</strong></td>
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<td><strong>(main)</strong></td>
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<tr>
<td>Manufacturing</td>
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<tr>
<td>Information and communications</td>
<td>13</td>
<td>5.1</td>
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<tr>
<td>Electronics</td>
<td>25</td>
<td>9.8</td>
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<tr>
<td>Mechatronics and optoelectronics</td>
<td>32</td>
<td>12.5</td>
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<tr>
<td>Metals</td>
<td>12</td>
<td>4.7</td>
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<tr>
<td>Transportation vehicles and components</td>
<td>23</td>
<td>9.0</td>
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<tr>
<td>Petrochemicals and plastics</td>
<td>16</td>
<td>6.3</td>
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<tr>
<td>Food and drinks</td>
<td>26</td>
<td>10.2</td>
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<tr>
<td>Others (textile, wood, chemicals, medical and mechanical equipments, etc.)</td>
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<td>Service</td>
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<td>Information and communications vendors</td>
<td>22</td>
<td>8.6</td>
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<td>Management and financial services</td>
<td>25</td>
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<tr>
<td>Retailing and wholesaling</td>
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<tr>
<td>Construction</td>
<td>32</td>
<td>12.5</td>
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<td>Others (logistics, transportation, publication, technical services, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Not reported</strong></td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>256</td>
<td>100</td>
</tr>
</tbody>
</table>

**Number of employees**

<table>
<thead>
<tr>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td>173</td>
<td>67.6</td>
</tr>
<tr>
<td>100 to &lt;500</td>
<td>43</td>
<td>16.8</td>
</tr>
<tr>
<td>500 to &lt;1000</td>
<td>17</td>
<td>6.6</td>
</tr>
<tr>
<td>1000 to &lt;5000</td>
<td>12</td>
<td>4.7</td>
</tr>
<tr>
<td>&gt;= 5000</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Not reported</strong></td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>256</td>
<td>100</td>
</tr>
</tbody>
</table>

**Annual sales (in USD)**

<table>
<thead>
<tr>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100,000</td>
<td>8</td>
<td>3.1</td>
</tr>
<tr>
<td>100,000 to &lt; 500,000</td>
<td>21</td>
<td>8.2</td>
</tr>
<tr>
<td>500,000 to &lt; 1,000,000</td>
<td>25</td>
<td>9.8</td>
</tr>
<tr>
<td>1 to &lt; 100,000</td>
<td>148</td>
<td>57.8</td>
</tr>
<tr>
<td>100 to &lt; 500,000</td>
<td>12</td>
<td>4.7</td>
</tr>
<tr>
<td>&gt;= 500,000</td>
<td>4</td>
<td>1.6</td>
</tr>
</tbody>
</table>

(Continued on next page)
Appendix A (continued)

Characteristics | Frequency | Percentage |
--- | --- | --- |
Not reported | 38 | 14.8 |
Total | 256 | 100 |

**Capital (in USD)**

<table>
<thead>
<tr>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100,000</td>
<td>20</td>
<td>7.8</td>
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<tr>
<td>100,000 to &lt;500,000</td>
<td>79</td>
<td>30.9</td>
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<tr>
<td>500,000 to &lt;1,000,000</td>
<td>79</td>
<td>15.2</td>
</tr>
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<td>1 to &lt;100,000</td>
<td>86</td>
<td>33.6</td>
</tr>
<tr>
<td>100 to &lt;500,000</td>
<td>7</td>
<td>2.7</td>
</tr>
<tr>
<td>&gt;=500,000</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>Not reported</td>
<td>23</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note:* The exchange rate between USD and New Taiwan Dollars is about 1:34.

Appendix B. Survey items

**Top management knowledge values:**

1. Top management emphasizes knowledge sharing within the company.
2. Top management believes that its support is key to employee knowledge sharing.
3. Top management sees through the establishment of knowledge sharing mechanisms in the company.
4. Top management regards knowledge sharing policies and practices as contributing to company performance.
5. Top management regards knowledge sharing policies and practices as helpful for the company to earn profits.
6. Top management regards firm-specific knowledge as a source of competitive advantage.

**Innovation strategy:**

1. The company sees innovation as the key to perpetual survival.
2. The company keeps launching new products or services.
3. The company is one step ahead of its major competitors in introducing its products or services to the market.
4. If the company is one step ahead of its major competitors in introducing its products or services to the market, usually these products or services make good profits.
5. The company pursues its own successful business model.
6. The company has higher R & D expenses as a percentage of sales than its competitors.

**Organizational knowledge sharing practices:**

1. The company uses senior personnel to mentor junior employees.
2. The company groups employees in work teams.
3. The company analyzes its past failure and disseminates the lessons learned among its employees.
4. The company invests in IT systems that facilitate knowledge sharing.
5. The company develops knowledge sharing mechanisms.
6. The company offers incentives to encourage knowledge sharing.
7. The company offers a variety of training and development programs.

**Organizational human capital**

1. The company’s employees identify themselves with company values and vision.
2. The company’s employees exert their best efforts to achieve organizational goals and objectives.
3. The company’s employees are better than those of competitors at innovation and R & D.
4. The company’s employees are better than those of competitors at reducing the company’s operating costs.
5. The company’s employees are better than those of competitors at responding to customer demands.
6. The company’s employees outperform those of competitors.

**Perceived performance:**

1. The company has higher long-run profitability than its competitors.
2. The company has higher growth prospect in sales than its competitors.
3. The company’s employees have higher job satisfaction than those of competitors.
4. The company’s employees have higher productivity than those of competitors.
5. The company has better goodwill than its competitors.
6. The company has better quality products or services than its competitors.

References


