

Leadership Behaviors and Knowledge Sharing in Professional Service Firms Engaged in Strategic Alliances

Li Yueh Chen, Chungchou Institute of Technology
F. Barry Barnes, Nova Southeastern University

Executive Summary

This study investigates the influence of transformational and transactional leadership behaviors on knowledge sharing activities in professional service firms in Taiwan and the United States that are engaged in strategic alliances. Sixteen accounting firm branch offices in Taiwan and 135 branch offices in the U. S. were included in the sample population. Ninety-three valid surveys were returned from Taiwanese offices and 72 valid surveys from U. S. offices. The results of the hypothesis testing showed (1) transformational leadership behaviors are a significant predictor of internal knowledge sharing, and (2) contingent reward leadership behaviors are significantly and positively correlated with both internal and external knowledge sharing with customers. The results also showed laissez-faire leadership behavior to be significantly and negatively correlated with external knowledge sharing. Implications for leaders and decision makers are included along with suggestions for future research.

Introduction

Leadership, knowledge management, and strategic alliances are considered major business topics today. Research related to these topics can be found in professional journals, such as *Strategic Management Journal*, *Harvard Business Review*, *Organizational Science*, *Journal of Management*, *Journal of Marketing*, and *Academy of Management Journal*, from the past 20 years to the present. Recent studies have discussed alliances as important means of sharing, acquiring, and/or transferring knowledge among firms in today's increasingly challenging and difficult competitive environment (Inkpen, 1998; Stuart, 2000; Mowery, Oxley, & Silverman, 1996; Dyer & Nobeoka, 2000; Simonin, 1999). In addition, leadership has been considered an important factor in the success of knowledge-based alliances. For example, Hefner (1994) has noted the following.

Strategic alliances require a unique style of leadership. Leaders set the benchmarks for organizational performance. Leaders creating strategic alliances must have a vision of the benefits to be gained in cooperative ventures and help their organizations overcome inhibitions about risk taking and resource sharing (p. 14). Furthermore, Bollinger and Smith (2001) have pointed out that leadership should focus on establishing a culture that respects knowledge, reinforces its sharing, retains its people, and builds loyalty to the organization. Similarly, Bailey and Clarke (2000) have defined knowledge management as "how managers can generate, communicate and exploit knowledge for personal and organizational benefit" (p. 237).

Focus of the Study

In the historical development of leadership, much of the research covers leadership traits, behaviors, power and influence, and situational approaches (Yukl, 1989). In recent years, scholars have attempted to streamline and integrate these approaches, and many studies are focusing on identifying the characteristics and value of transformational and transactional leadership behaviors (Bass & Avolio, 1994). This study, therefore, focused on these two leadership models.

Prior related research has studied: (1) the relationships between leadership behaviors and knowledge management (Politis, 2001; Ribiere & Sitar, 2003), and (2) the knowledge-based approach in strategic alliance settings (Inkpen, 1996, 1998; Dyer & Nobeoka, 2000; Inkpen & Dinur, 1998; Lam, 1997; Mowery et al., 1996; Simonin, 1999; Parise & Henderson, 2001). Almost non-existent, however, is research on the relationship between leadership behavior, both transformational and transactional, and knowledge sharing. Therefore, the purpose of this study is to examine the relationship between transformational and transactional leadership behaviors and knowledge sharing in the strategic alliance setting.

Transformational and Transactional Leadership Behaviors

Transformational leadership is defined in terms of the leader's effect on followers: they feel trust, admiration, loyalty, and respect toward the leader, and they are motivated to do more than they originally expected to do (Yukl, 1998). Bass (1998) has identified four components of transformational leadership, which are: (1) idealized influence (attributes and behavior), (2) inspirational motivation, (3) intellectual stimulation, and (4) individualized consideration. Idealized influence refers to ways the leaders provide vision and sense of mission, instill pride, and behave as role models for their followers. Inspirational motivation refers to how the leaders are able to have followers involved in envisioning attractive futures with the company. Leaders create clearly communicated expectations that followers want to meet and demonstrate commitment to goals and shared vision. Intellectual stimulation refers to how the leaders arouse in subordinates an awareness of problems, recognition of their own beliefs and values, and an awareness of their own thoughts and imagination to promote intelligence, rationality, and careful problem solving. Individualized consideration refers to how leaders give personal attention, treat each employee individually, and coach and advise each employee.

Burns (1978) argued that transactional leadership involves an exchange between leader and follower. Further, Bass and Avolio (1994) point out that Transactional leadership emphasizes the transaction or exchange that takes place among leaders, colleagues, and followers. This exchange is based on the leader discussing with others what is required and specifying the conditions and rewards these others will receive if they fulfill those requirements (p. 3).

Bass (1998) summarizes several different types of behavior inherent in transactional leadership: (1) contingent reward, (2) management by exception (active and passive), and (3) laissez-faire. Contingent reward refers to ways the leader assigns or obtains agreement on what needs to be done by promising rewards or actually rewarding others in exchange for satisfactorily carrying out the assignment. Management by exception (active) refers to how leaders watch and search for deviations from rules and standards. Management by exception

(passive) behavior involves intervening only if standards are not met, while laissez-faire refers to leaders avoiding decision-making and abdicating responsibilities.

Knowledge Sharing

Lee (2001) has defined knowledge sharing as “activities of transferring or disseminating knowledge from one person, group, or organization to another” (p. 324). Nonaka and Takeuchi (1995) have explored knowledge sharing and firm performance. They found creating knowledge and using this knowledge to develop successful products, services and systems is the key to firms sustaining their competitive advantage. A poll of over 1,600 U.S. managers revealed that knowledge sharing is one important process of knowledge management (Wah, 1999), and the focus of this present study.

In noting the value of knowledge sharing, Riesenberger (1998) cites the following reasons for using knowledge sharing: (1) to learn about customers, (2) to seek best practices, (3) to recognize internal competencies and products, (4) to discover emerging market trends, and (5) to find competitive intelligence. This present study, however, broadly defines knowledge sharing as the activities that involve gathering, absorbing, and/or transferring product and/or service information between organizations and customers, alliance partners, and/or employees. This information is taken by organizations which then create and develop it into organizational knowledge which can be used to meet the organizations’ goals and strategies for success and gain a competitive advantage in the marketplace.

Professional Service Firms and Strategic Alliances

Professional service firms, e.g. accounting, law, advertising, consulting, and engineering firms, have followed the trend of providing a “one-stop-shop” experience to their clients. Baker emphasizes that “to align your firm with a network that gives you access to a broader range of services...in the future...the most viable form of structure for professional service firms will be through formal networks” (Dunn & Baker, 2003, p. 105). The formation of networks has been widely practiced by the large international accounting firms. Baker emphasizes, “The major accounting firms, in response to the needs of their global customers who required quality and consistency in the level of service, globalized through forming alliances” (Dunn & Baker, 2003, p. 102). Thus, firms, such as KPMG International, Pricewaterhouse Coopers International (PwC), Deloitte Touche Tohmatsu (DTT), Ernst & Young (E&Y), and BDO International provide no professional services directly to clients. Instead, they have member firms, which are separate, and independent legal entities worldwide, to provide professional services to their clients. Additionally, these member firms of large international accounting firms are strategically aligned with organizations such as financial services, insurance, or law firms (Herman, 1999; Baker, Hanson, & Smith, 2000; Higgins, 2002) that can provide a “one-stop-shop” experience for their clients.

Knowledge Management and Strategic Alliances

Strategic management researchers (See *SMJ 1996 Special Issue*) have recognized that knowledge is a critical factor affecting an organization’s ability to remain competitive in the new global marketplace. According to the resource-based view, organizational knowledge is a

strategic resource of an organization (Wernerfelt, 1984). Strategic alliances have been adopted as *platforms* for members to collect and create the “resources” that a firm cannot create independently. Customer value creation is considered to be the major objective of knowledge management (Bukowitz & Williams, 1999). It has been suggested that building knowledge bases to serve customers and synthesize skills of network partners is often a leverage point for the alliance of firms (McKenna, 1991). The following statement by Badaracco (1991) may bring a better understanding to the relationship between knowledge and alliance. “Alliances are both a cause and an effect of knowledge-intensive competition. Collaboration helps firms learn from each other and thus accelerates the movement of knowledge” (p. 10). Additionally, Badaracco proposes a concept of knowledge links that are defined by the learning and creation of knowledge in the strategic alliance setting. ...when a company creates a multitude of knowledge links with customers, suppliers, labor organizations, universities, and other organizations, and when these alliances strengthen each other and support the company’s long-term objectives, then knowledge links are genuinely strategic (Badaracco, 1991, p. 107).

Leadership and Knowledge Management

The professional service firms that are the research focus of this study are classified as knowledge-intensive business services (Larsen, 2000). According to Larsen (2000), these kinds of firms share common features, including the generally intangible nature of their products, markets that, in most cases, are dominated by professional customers and a large proportion of staff with university degrees. Bukowitz and Williams (1999) stress that, in a knowledge intensive organization, leaders are no longer the source of knowledge and are no longer perched at the top of the organization but rather in the center. They need to have an ability to grasp value-creating knowledge for potential organizational uses. Thus, Drucker (2002) has argued that the only way to achieve leadership in a knowledge-based organization is “to spend time with promising knowledge professionals; to know them and to be known by them; to mentor them and to listen to them; to challenge them and to encourage them” (p. 12). However, the question remains: what kind of leadership behavior would be appropriate for knowledge intensive organizations, especially in a strategic alliance setting?

This study proposes the answer can be found in transformational and transactional leadership behaviors (Bass & Avolio, 1994). Although there is no direct empirical evidence suggesting a relationship between transformational/transactional leadership behaviors and knowledge sharing in strategic alliance settings, several prior studies imply such a relationship (e.g. Dubinsky, Yammarino & Spangler, 1995; Savery, 1991; Bass, 1985; Bass, Avolio & Goodheim, 1987; Yammarino & Bass, 1990; Chen, 2002; Chen & Barnes, 2003_a, 2003_b). Politis’s (2001, 2002) most recent studies examining the relationship of various leadership behaviors to knowledge acquisition attributes (Mykytyn, Mykytyn & Raja, 1994) would be the most appropriate studies to support this research hypothesis. Politis (2001) has found that overall self-management, and transformational and transactional leadership styles are positively correlated with some dimensions of knowledge acquisition attributes. Politis (2002) also found that, generally, the dimension of attributed charismatic leadership has a most positive and significant relationship on knowledge acquisition of knowledge workers. Therefore, this study proposes that transformational and transactional leadership behaviors have a significant relationship on the sharing of knowledge in strategic alliance settings and then results in the following hypotheses:

- H1₁: Leaders' transformational behavior is positively correlated with the sharing of knowledge in the strategic alliance setting.
- H2₁: Leaders' transactional behavior is positively correlated with the sharing of knowledge in the strategic alliance setting.

Sample and Data Collection

The large-sized accounting firms – the member firms of the “Big Four Accounting Firms” in Taiwan and the top 20 accounting firms in the United States that are listed in Bowman's 2003 top 100 accounting/consulting firms (Bowman, 2003) – were the sample population for this study. Data collection involved a series of contacts that consisted of email, phone calls, and face to face meetings, over a two-month period. In Taiwan, 7 out of 16 branch offices agreed to participate in this study. A total of 150 surveys were sent to these participating offices, from which 98 were returned, and 93 were found to be valid for a useable response rate of 62.0%. In the United States, 34 out of 135 branch offices agreed to participate in this study. A total of 210 surveys were sent to these participating offices, in which 74 were returned, and 72 were found to be valid for a useable response rate of 34.3%. Overall, surveys were distributed to 360 knowledge workers; 172 were returned and 165 were found to be valid for an overall useable response rate of 45.8%. Invalid responses were defined as those questionnaires with questions left unanswered or those with identical responses to every question.

Measure

To answer the research questions, two instruments were used: (1) multifactor leadership questionnaire (MLQ – 5X Short Form) (Bass & Avolio, 2000) and (2) questionnaire of knowledge sharing in strategic alliance setting. Note that this study integrated these questionnaires with the demographic questions required for data collection. Since some of the survey respondents are citizens of the Republic of China, the questionnaire was translated into Chinese.

Bass and Avolio (2000) developed the MLQ based on Burns's (1978) work. Since 1982, there have been many revised versions of the MLQ. A five-point Likert-type scale, ranging from “not at all” valued as a “1” to “frequently if not always” valued as a “5,” was used. This study examined the “full range” of transformational leadership and transactional leadership behaviors. The transformational leadership behaviors measured by the MLQ are idealized influence attributed, idealized influence behavior, inspirational motivation, intellectual stimulation, and individualized consideration. Twenty items relating to transformational leadership behaviors are included in the MLQ – 5X Short Form (Bass & Avolio, 2000). Due to the results of confirmatory factor analysis and exploratory factor analysis, 16 items were extracted in this study. Based upon the suggestions of prior researchers (Bycio, Hackett & Allen, 1995) and the results of correlation analysis, this study integrated these 16 items into a single index of transformational leadership. The reliability of the transformational leadership was found to be 0.92 (See Table 1).

The transactional leadership behaviors measured by the MLQ are contingent reward, passive management by exception, active management by exception, and laissez-faire. Sixteen items relating to transactional leadership behaviors are included in the MLQ – 5X

Short Form (Bass & Avolio, 2000). The results of confirmatory factor analysis and exploratory factor analysis showed that the collected data were consistent with the theoretical model. Additionally, 13 items associated with each specific dimension were extracted. The reliabilities of the transactional leadership were found to be 0.73, 0.66, 0.53, and 0.62 respectively (See Table 1).

There has been a lack of empirical research studies on knowledge sharing in strategic alliance settings, but recently Chen (2004) developed a new questionnaire that was based on the knowledge sharing activities and management practices of the knowledge-based alliance. This new questionnaire was used in this present study and consists of 18 items for examining how companies implement the sharing of knowledge, both within and between organizations, in a strategic alliance setting. A five-point Likert scale, ranging from "strongly disagree" valued as a "1" to "strongly agree" valued as a "5," was used. Using exploratory factor analysis and prior research studies, four dimensions were defined. These dimensions are: (1) the strategies of internal organization knowledge sharing, (2) external organization knowledge sharing with strategic alliance organizations, (3) techniques for supplementing of internal organization knowledge sharing, and (4) external organization knowledge sharing with customers. Additionally, 14 out of 18 items were extracted and then assigned to their specific dimension. The reliabilities of these four dimensions were found to be 0.88, 0.87, 0.76, and 0.51 respectively (See Table 2).

The demographic questions for this study consisted of gender, age, job level in the organization, educational level, and tenure (See Table 3). More than 50% of respondents were female, with 61.2% of respondents being female and 38.8% of respondents being male. Overall, most accounting professionals were between 25 to 29 years old and between 30 to 34 years old, accounting for 38.2% and 27.3% of respondents respectively. The bachelor's degree was the highest educational degree received for approximately 73.3% of the respondents. Approximately 71.5% of respondents have worked for their companies anywhere from 1 to 5 years.

Results

Table 4 displays means, standard deviations, and correlations for all variables. Both transformational leadership and contingent reward leadership behaviors were found to be significantly and positively correlated with knowledge sharing. Laissez-faire leadership behavior was found to be significantly and negatively correlated with external organization knowledge sharing with customers.

Table 5 summarizes the regression results of the first hypothesis test. Using a simple regression analysis, the coefficient of correlation, R and coefficient of determination, R^2 were found to be 0.316 and 0.100 respectively. A valid regression model was found, with an F -value of 18.063, a Sig. F of 0.000, a t -value of 4.250, and a Sig. t of 0.000. To examine how transformational leadership behaviors affect each dimension of the knowledge sharing construct, a second analysis was performed. The dimension of the strategies of internal organization knowledge sharing was found to be most affected by transformational leadership behaviors, in which the coefficient of correlation, R , and coefficient of determination, R^2 , were found to be 0.372 and 0.138 respectively. This study, therefore, finds that transformational leadership behaviors are a significant predictor of knowledge sharing, especially for the dimension relating to strategies of internal organization knowledge sharing.

For the second hypothesis, multiple regression and canonical correlation analyses were conducted to determine whether transactional leadership behaviors are significant predictors of knowledge sharing. Table 6 summarizes the multiple regression results of the second hypothesis test. The coefficient of multiple correlation, R , and coefficient of multiple determination, R^2 , were found to be 0.396 and 0.157 respectively. An analysis of variance (ANOVA) was conducted, with a 0.05 significance level; the F -value and p value were found to be 7.456 and 0.00 respectively. The null hypothesis was rejected; therefore, logically, transactional leadership behaviors have a great bearing on the sharing of knowledge. Four factors were included in the construct of transactional leadership behaviors. The t value and p value results are shown in Table 6, and indicate that only contingent reward leadership is a significant predictor of knowledge sharing. In this case, therefore, the independent variables of management by exception active (MBEA), management by exception passive (MBEP), and laissez-faire leadership (LF) should be removed from the results.

To conduct the canonical correlation analysis, Figure 1 displays the linear combination of the relationship between transactional leadership behaviors and knowledge sharing. Figure 1 shows the most important variable for the transactional leadership variate is contingent reward leadership, in which its canonical loading was found to be .977. Contingent reward leadership (CR) appeared to have the most important effect on the sharing of knowledge within the organization and between organizations. The most important variable for the knowledge sharing variate was the strategies of internal organization knowledge sharing (INKSS), in which the canonical loading was found to be .971. The variable strategies of internal organization knowledge sharing (INKSS) was found to be the variable most affected in the relationship between transactional leadership behaviors and knowledge sharing. In summary, the null hypothesis was rejected in this case. Therefore, the transactional leadership behaviors, especially contingent reward leadership (CR), were found to be significant predictors of the sharing of knowledge within the organization and between organizations.

Discussion & Summary

This study has examined the influence of transformational and transactional leadership on knowledge sharing in professional service firms in Taiwan and the United States that are engaged in strategic alliances. From 16 accounting firm branch offices in Taiwan, 93 valid surveys were used along with 72 valid surveys from 135 branch offices in the U.S. The results of the hypothesis testing showed (1) transformational leadership behaviors are a significant predictor of internal knowledge sharing and (2) contingent reward leadership behaviors are significantly and positively correlated with both internal and external knowledge sharing. The results also showed laissez-faire leadership behavior to be significantly and negatively correlated with the dimension of external knowledge sharing with customers. These results go beyond earlier studies of Dubinsky, Yammarino and Spangler (1995), Savery (1991), Bass (1985), Bass, Avolio and Goodheim (1987), Yammarino and Bass (1990) that confirmed the relationship between leadership behaviors and knowledge sharing in strategic alliances that was only implied in those studies. The results of this study have several implications for leaders and decision makers in today's increasingly knowledge-based, global world. First, leadership behavior has an impact on how effectively knowledge is shared *within* an organization. This means that leaders and decision makers would be well advised to recognize the positive effect of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration on the

sharing of internal knowledge. Thus, leaders who communicate a strong vision and create buy-in through jointly envisioning a positive future are likely to improve knowledge sharing as will those who communicate clear expectations and create an awareness of organizational problems. In addition, leaders who promote careful problem solving and provide personal attention to employees will also be more likely to improve knowledge sharing. Second, leadership behavior affects the sharing of knowledge between partners in strategic alliances. In this case, leaders and decision makers should understand how important it is to clearly create agreement on knowledge sharing goals along with the rewards for achieving those goals. Thus, the findings in this study support Drucker's (2002) and Hefner's (1994) views on leadership in organizations as described earlier.

Future research could deepen the understanding of knowledge sharing activities and management practices in knowledge-based alliances by using the new questionnaire developed by Chen (2004) and build on the results found in this study and Chen's 2004 study. Future research could also examine other types of professional service firms such as law firms, architectural firms, advertising agencies, etc, to confirm the generalizability of the current result.

Table 1: The Constituents of Transformational and Transactional Leadership

Dimension and Items	Factor Loading	Mean	SD	Cronbach alpha
Transformational Leadership				0.92
1. Gets me to look at problems from many different angles.	0.748	3.61	0.65	
2. Helps me to develop my strengths.	0.735	3.61	0.97	
3. Suggests new ways of looking at how to complete assignments.	0.687	3.50	0.99	
4. Specifies the importance of having a strong sense of purpose.	0.687	3.40	1.03	
5. Spends time teaching and coaching.	0.687	3.69	0.93	
6. Expresses confidence that goals will be achieved.	0.657	3.74	1.04	
7. Considers me as having different needs, abilities and aspirations from others.	0.553	3.87	0.81	
8. Articulates a compelling vision of the future.	0.772	3.36	1.01	
9. Talks enthusiastically about what needs to be accomplished.	0.634	3.49	0.94	
10. Talks enthusiastically about what needs to be accomplished.	0.615	3.58	0.98	
11. Displays a sense of power and confidence.	0.582	3.68	0.90	
12. Talks about their most important values and beliefs.	0.564	3.95	0.78	
13. Treats me as an individual rather than just as a member of a group.	0.723	3.21	1.08	
14. Acts in ways that build my respect.	0.718	3.73	1.02	
15. Considers the moral and ethical consequences of decisions.	0.503	3.59	1.04	
16. Seeks differing perspectives when solving problems.	0.681	3.72	0.88	
Transactional Leadership				
Contingent reward				0.73
1. Makes clear what one can expect to receive when performance goals are achieved.	0.754	3.55	0.67	
2. Expresses satisfaction when I meet expectations.	0.732	3.03	1.05	
3. Discusses in specific terms who is responsible for achieving performance targets.	0.700	3.62	0.89	
4. Provides me with assistance in exchange for my efforts.	0.687	3.79	0.86	
Management-by-exception passive				0.53
5. Fails to interfere until problems become serious.	0.762	2.44	0.78	
6. Shows that he/she is a firm believer in "If it ain't broke, don't fix it."	0.731	2.45	0.92	
		2.43	0.98	

Table 1: The Constituents of Transformational and Transactional Leadership (Continue)

Dimension and Items	Factor Loading	Mean	SD	Cronbach alpha
Management-by-exception active		3.04	0.74	0.66
7. Keeps track of all mistakes.	0.775	3.07	1.16	
8. Focuses attention on irregularities, mistakes, exceptions and deviations from standards.	0.677	3.24	0.99	
9. Concentrates his/her full attention on dealing with mistakes, complaints and failures.	0.669	3.07	1.04	
10. Directs my attention toward failures to meet standards.	0.649	2.79	1.04	
Laissez-faire		2.18	0.71	0.62
11. Delays responding to urgent questions.	0.802	2.39	1.00	
12. Avoids making decisions.	0.626	2.01	0.92	
13. Is absent when needed.	0.581	2.16	0.90	

Table 2: The Constituents of Knowledge Sharing

Dimension and Items	Factor Loading	Mean	SD	Cronbach alpha
The Strategies of Internal Organization Knowledge Sharing		3.86	0.67	0.88
1. My organization encourages employees to share their working experiences, such as their experiences in interacting with customers.	0.772	3.80	0.89	
2. My organization's leadership supports the activities related to knowledge sharing.	0.733	4.02	0.76	
3. My organization transfers employees' working experiences into "resources" that can be used by employees.	0.727	3.70	0.89	
4. My organization encourages employees to work together and share knowledge with our strategic alliance partners.	0.694	3.77	0.86	
5. My organization has job training programs, conferences, or internal consulting for the purpose of knowledge transferring and sharing.	0.604	4.03	0.74	
External Organization Knowledge Sharing with Strategic Alliance Organizations		3.68	0.67	0.87
6. My organization and strategic alliance partners have visited each regularly for the purpose of knowledge sharing and learning.	0.807	3.48	0.85	

Table 2: The Constituents of Knowledge Sharing (Continue)

Dimension and Items	Factor Loading	Mean	SD	Cronbach alpha
7. My organization regularly conducts meetings with strategic alliance partners for the purpose of communication and knowledge developing and sharing.	0.780	3.71	0.80	
8. My organization and strategic alliance partners create a "community" that allows strategic alliance members to share and create knowledge.	0.779	3.64	0.82	
9. In order to develop competitive products or services, my organization creates and shares knowledge with strategic alliance partners.	0.666	3.89	0.72	
Techniques for Supplementing Internal Organization Knowledge Sharing		3.94	0.68	0.76
10. My organization develops enough appropriate repositories for knowledge collection.	0.826	3.99	0.82	
11. My organization creates techniques for collecting and sharing the knowledge from customers and strategic alliance partners.	0.621	3.99	0.86	
12. My organization creates a process for managing customer data and translating data into knowledge.	0.591	3.85	0.82	
External Organization Knowledge Sharing with Customers		3.92	0.65	0.51
13. My organization focuses on the most valued customers and captures the knowledge from interactions (or "socialization") with customers.	0.830	3.84	0.78	
14. My organization creates a workplace culture that is moving toward the customer-centric.	0.565	3.99	0.82	

Table 3: Demographics of All Valid Participation

Items	Respondents	Percentage	Items	Respondents	Percentage
Gender			Educational level		
Male	64	38.8%	Associate	12	7.3%
Female	101	61.2%	Bachelor	121	73.3%
Age			Master's	32	19.4%
20 ~ 24	15	9.1%	Job level in the organization		
25 ~ 29	63	38.2%	Senior manager	22	13.3%
30 ~ 34	45	27.3%	Manager	29	17.6%
35 ~ 39	15	9.1%	Supervisor	50	30.3%
40 & Over	27	16.4%	Staff	64	38.8%
Tenure					
1 ~ 5 Years	118	71.5%			
6 ~ 10 Years	33	20.0%			
11 ~ 15 Years	9	5.5%			
16 ~ 20 Years	4	2.4%			
21 & Years over	1	0.6%			

Table 4: Means, Standard Deviations, and Correlation among All Variables

	Mean	S.D.	1	2	3	4	5	6	7	8	9
1 Transformational leadership	3.61	0.65									
2 Contingent reward	3.55	0.67	.772**								
3 Management-by-exception passive	2.44	0.78	-.238**	-.087							
4 Laissez-faire	2.18	0.71	-.384**	-.377**	.263**						
5 Management-by-exception active	3.04	0.74	.135	.059	-.022	.085					
6 The strategies of internal knowledge sharing	3.86	0.67	.372**	.416**	-.002	-.152	.063				
7 External knowledge sharing with strategic alliance organizations	3.68	0.67	.157*	.244**	.002	-.126	.141	.602**			
8 Techniques for supplementing of internal knowledge sharing	3.94	0.68	.249**	.285**	-.029	-.073	.109	.633**	.593**		
9 External knowledge sharing with customers	3.92	0.65	.194*	.229**	.088	-.246**	.026	.425**	.406**	.421**	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Table 5: Results of Regression Analysis of Knowledge Sharing on Transformational Leadership Behaviors

Independent Variables	R	R ²	ANOVA		Coefficients				
			F	Sig.	B	Beta	t	Sig.	
(Constant)					2.862			12.297	.000
TF → KS	.316	.100	18.063	.000	.270	.316		4.250	.000
TF → EXKSSAO	.157	.025	4.100	.045	.164	.157		2.025	.045
TF → INKSS	.372	.138	26.157	.000	.388	.372		5.114	.000
TF → INKSTS	.249	.062	10.811	.001	.264	.249		3.288	.001
TF → EXKSC	.194	.038	6.383	.012	.197	.194		2.526	.012

Note: Transformational leadership (TF), knowledge sharing (KS), the strategies of internal organization knowledge sharing (INKSS), external organization knowledge sharing with strategic alliance organizations (EXKSSAO), techniques for supplementing internal organization knowledge sharing (INKSTS), and external organization knowledge sharing with customers (EXKSC).

Table 6: Results of Multiple Regression Analysis of Knowledge Sharing on Transactional Leadership Behaviors

Independent Variables	R	R ²	ANOVA		Coefficients				
			F	Sig.	B	Beta	t	Sig.	
(Constant)					2.584			7.455	.000
CR,					.294	.357		4.537	.000
MBEP,					.039	.056		.742	.459
LF					-.046	-.060		-.732	.465
& MBEA	.396	.157	7.456	.000	.071	.095		1.302	.195

Note: Contingent reward (CR), management by exception active (MBEA), management by exception passive (MBEP), and laissez-faire (LF).

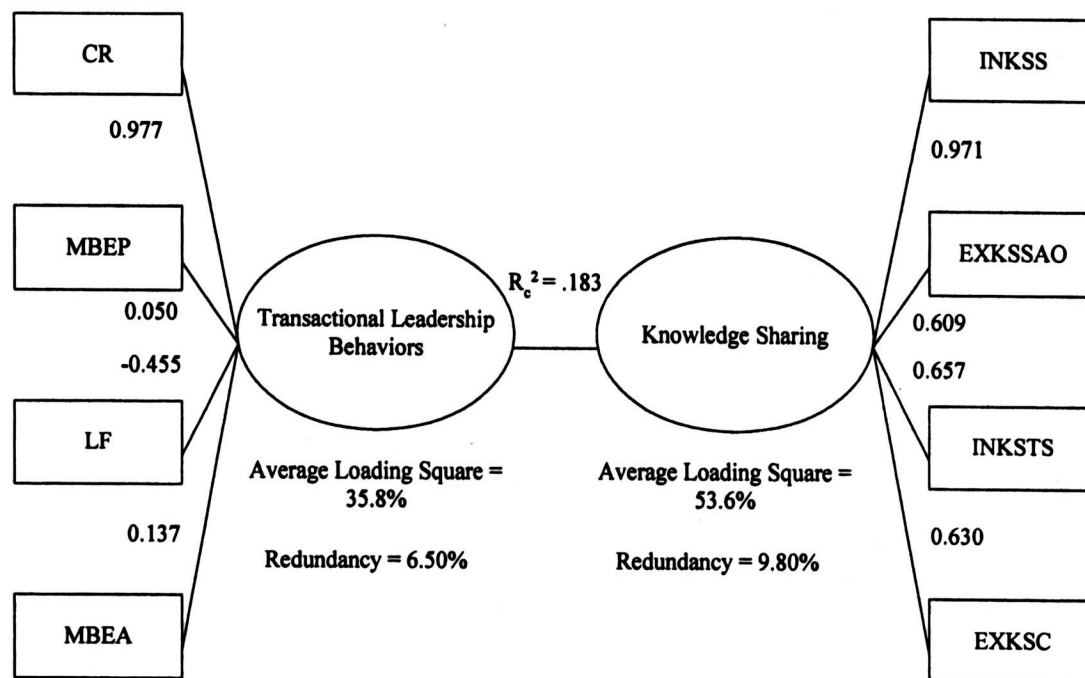


Figure 1: Linear combination of the relationship between transactional leadership behaviors and knowledge sharing

Note: The strategies of internal organization knowledge sharing (INKSS), external organization knowledge sharing with strategic alliance organizations (EXKSSAO), techniques for supplementing internal organization knowledge sharing (INKSTS), external organization knowledge sharing with customers (EXKSC), contingent reward (CR), management by exception active (MBEA), management by exception passive (MBEP), and laissez-faire (LF).

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About the Authors

Li-Yueh Chen is Chair and Assistant Professor at the Department of Business Administration at Chungcho Institute of Thecnology in Taiwan. Li-Yueh has a DBA degree from Nova Southeastern University and teaches undergraduate and graduate-level courses in marketing management, consumer behavior, customer relationship management, and strategic management. His research interests are leadership behavior, customer relationship management, marketing effectiveness, and knowledge management.

F. Barry Barnes is Chair and Professor of Management at the H. Wayne Huizenga School of Business and Entrepreneurship at Nova Southeastern University in Fort Lauderdale

where he has taught since 1997. Dr. Barnes has a Ph. D. in Business from the University of Kansas and teaches graduate-level courses in leadership, strategic decision-making, and organizational behavior. He was selected as Faculty Member of the year in 1999 at the Huizenga School. His research interests are organization change and development, organizational learning, team development, and collective improvisation.