Rules Customization: Correlation with Trust and Communication within the Tacit Knowledge Transfer Mechanism

Papadopoulos, P., *Avdimiotis, S.

Alexander Technological Educational Institute of Thessaloniki, Department of Tourism Management, Greece

*Corresponding author e-mail : rdoffice@gmail.com

Abstract*: It is widely accepted, that tacit knowledge is the cornerstone of businesses intellectual capital capacity, productivity and success, while many researchers argue that the competitive advantage of any company will not remain, if this solely depends, on explicit knowledge only. The basis of all knowledge is the tacit one and the efficient performance of the organization is strongly and positively correlated with efficient transfer and use of tacit knowledge. The aim of this paper is to focus on the tacit knowledge transfer among the individuals and group members employed in a hotel and highlight the value of customized rules and developed routines. The starting point is Nonaka's SECI model and more especially the stages of Socialization and Externalization. The primary scientific question is to acknowledge the mechanisms of transfer in those two stages, where personal tacit knowledge becomes explicit. The model designates thoroughly the process, but it doesn't outline how this process will be realized. According to Polanyi (1962) tacit knowledge cannot be easily transferred, simply because "We know more than we can tell". The contribution to knowledge of this paper is the use of customizes rules, which will allow the experiences members of the organization to develop personal routines which be more easily observed by the less experience ones. The scientific foundations of rules customization is fuzzy logic, a technique which will allow adjusting rules boundaries with the experience level of each employee.*
Keywords: *Tacit Knowledge Transfer, Customized Rules, SECI model, Fuzzy Logic*

INTRODUCTION

Running a hotel is not an easy job. Managers, personnel and customers, create an environment, absolutely unique, in such extent where one day cannot be the same with any other. This mainly happens because everyday business activities, tasks and procedures, involve many variables which can't be measured, commonly perceived and validated from managers, employees and customers. Successful hotel management requires multiple capabilities derived from both written and empirical knowledge as well. The question that we will try to answer is how tacit knowledge could be created and transferred among the staff and knowledge workers, under a hotel's complex and unstable environment, in order to utilize the untapped asset of empirical knowledge. With this conceptual paper it is argued that tacit knowledge transfer could be positively correlated with the development of customized rules, carefully applied on workers abilities, knowledge and experience.

LITERATURE REVIEW

1.1 The basics of knowledge Creation and Transfer: Discussion on Nonaka's SECI model.

But, let's take things from the scratch. Knowledge management and knowledge sharing, in tourism, as Shaw and Williams (2009) argued, it is still an emerging agenda. Tourism, as one of the most important pillars of global development, with massive social, environmental and economical impacts, is a field where knowledge is the cornerstone of flexible management, constantly trying to anticipate and meet the needs of guests. The literature, among the plethora of definitions regarding Knowledge Management, has developed two major categories of knowledge: a) Explicit and b) Tacit. Explicit knowledge is the kind of knowledge that is written and for that reason, easy to share, discuss, prove and transfer (Nonaka and Takeuchi, 1991), while tacit knowledge, according to Davenport and Prusak, (1998), cannot be found in written forms and it is tightly bonded with emotions and experience. Michael Polanyi (1966) wrote in his book: "The Tacit Dimension" that: "we know more than we can tell", arguing that tacit knowledge is subconscious, hidden in emotions and routines, therefore almost impossible to transfer (Choo and Bontis, 2002). Aadne, et al. (1996) argued that the basis of knowledge is the tacit one, while Polanyi (1969) underline, that explicit knowledge depends on tacit which has been understood and codified. Cavusgil et al. (2003); Inkpen and Dinur (1998), proposed that knowledge is a concrete spectrum moving from tacit to explicitness and reversely, according to its content, while Boisot (1998) argues that the achievement of competitive advantage and innovation depends in the extent of transformation of tacit knowledge to explicit. This whole dynamic structure competitiveness is widely based on those who can combine tacit knowledge and experience with explicit (written) knowledge that can be easily acquired in learning organizations. Delving furthermore, Nonaka (1995), developed the SECI model, to justify and imprint the theory of knowledge creation and evolution in innovative companies. For Nonaka and his

colleagues, the creation of knowledge is a continuous process of dynamic interactions between tacit and explicit knowledge, leading to innovative processes and ideas. The four stages of SECI model are: Socialization, Externalization, Combination and Internalization. The Socialization stage explains the transfer of tacit knowledge. In this stage, most commonly, knowledge is passed on through practice, guidance, observation, and imitation. The Combination stage explains the transfer of explicit knowledge and it is considered as the most common and easy one. Knowledge is passed through books, memos, documents, etc. The Internalization stage explains the explicit to tacit conversion, where explicit sources are used and learned, modifying the user's existing tacit knowledge. The Externalization stage focuses on the conversion of tacit to explicit knowledge. This is deemed as a particularly difficult and often particularly important knowledge transfer mechanism, which was not thoroughly explained from the author, not as a stage, but as a mechanism. According to Nonaka, tacit knowledge is codified into documents, manuals, etc. so that it can be spread more easily through the organization, but since tacit knowledge is difficult- almost impossible- to codify, the justification of this knowledge conversion/transfer mechanism is debatable. Of course, there is no doubt, that the mechanisms of knowledge creation and transfer and especially the stages of Socialization and Externalization cannot be researched under ceteris paribus conditions. In practice, this constant and dynamic procedure is the core of knowledge creation and the cornerstone of competitive advantage (Boisot 1998) and therefore, the overall environment in which these stages takes place, should be examined and taken seriously into account.

1.2 Knowledge Creation and Transfer within the unstable environment of Hotel Enterprises.

Cummings and Teng (2003) argued that the precise definition of successful knowledge transfer is the ability to absorb the useful pieces of knowledge, adjust them to the company's micro level environment, according to the needs, scopes and personnel skills and use them appropriately. On the same route, Argote and Ingram (2000) and Nonaka (1994), argued, that knowledge management routines should be customized and thoroughly adjusted to the specific characteristics, tools and personnel abilities. On the other hand, Davenport and Prusak (1998) and Szulanski (2003), identified the factors of transfer stickiness, arguing that a negative environment could constrain the knowledge creation and transfer processes, weakening the organization's memory and intellectual capital. It is generally assumed, that the overall environment of the organization plays an imperative role in knowledge management processes, particularly in the anthropogenic and anthropocentric domain of tourism and hospitality. The environment in hotel business is rather complex and unstable, mainly because a. the organization shows certain inability to provide a strict model of programmed procedures of the overall working activities structure; b. data input seem to be constant and unplanned; c. the tasks of control and malfunctions debugging is mainly based on observation and not on written records; and d. finally the overall lack of mutual understanding and common perception of basic organizational concepts and scopes. It is our argument that in such situations with high uncertainty, standardization of procedures may even be harmful, simply because the human activity and response factor cannot be modeled, measured and standardized. The keyword in order to improve the predictability and controllability is to increase flexibility, allowing competent coping with the uncertainties. (Grote, Weichbrodt, 2007). If employees are flexible enough to deal with any new requirements, inputs or changes occurring in their working environments, tourism organizations will have more chances to survive in those unstable environments. What the hotel administration ought to do is to ensure that employees are equipped with appropriate experience, skills and behaviors to continually adapt to the environment (Milliman et al., 1991). One important aspect of this wide repertoire development is that a less experienced individual can acquire tacit knowledge and learn through non-verbal language, simply by observation, imitation, and practice. Thus, the key to acquiring tacit knowledge is experience through routines or another pattern of action (Nonaka, 1994). Within a hotel the aforementioned stages of Socialization and Externalization, the mechanisms of tacit knowledge transfer and tacit to explicit knowledge conversion, should be based on flexible environments gaining the most from employees experience and abilities. The question raised is the manner of delegating flexibility to those who can create and transfer tacit knowledge. What this conceptual paper suggests is that the development of customized rules will create personal routines and behaviors which will be the subject of imitation, observation and non verbal or written learning, enhancing the tacit knowledge creation and transfer (Diagram 1).
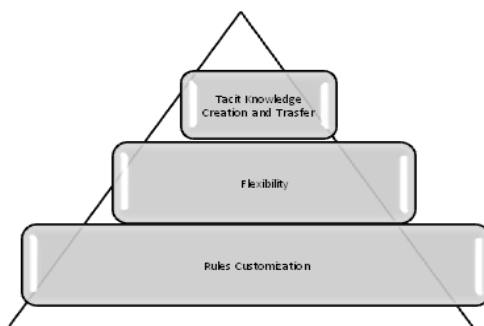

Diagram 1: Knowledge Creation and Transfer Mechanism

ESTABLISHING CUSTOMIZED RULES AND DEVELOPING ROUTINES

At this point we need to define the terms "rule", "rules customization" and "routines". According to Hodgson (1995), rules are patterns of thought or behavior, which can or cannot be adopted either consciously or unconsciously, by individuals. Hodgson shows that the main characteristic of rules can be defined by the logical structure of condition and action: in circumstances X, do Y. The formal rules' contribution to the organization is to specify tasks and decision competencies for organization members, regulating hierarchical relationships and work procedures. For managers, rules offer a considerable legal protection function for the company. For them, rules are not only behavior regulating and coordination mechanisms, but also a way to assure that the organization is hedged towards claims from the outside: Since we wrote the rule, it is the worker's fault if he or she didn't adhere to it. (Grote, Weichbrodt, 2007). Winter (1995b) also argues that the organization imposes a system of rules to face numerous constraints and to lead the staff not only to do a good job, but to do a better job, by reducing complexity and uncertainty for decision makers. Cohen et al, (1995) considers that a rule is a relationship which allows individuals to trigger an action when a condition of it appears. The process of responding to this condition can be either automatic or deliberate and conscious. The extent of the conscious or not adherence of the rules is directly correlated and depending on their structure and flexibility. The core notion of this concept is that in organizations like hotels, with a variety of workplaces and employees, in each department a different degree of standardization or flexibility is needed. This can only be achieved by carefully selecting the type of rules for each process and the individuals that will implement them. What is important to clarify about rules is that they determine the ground on which, individual routines will grow. Reynaud (1997) argues that a routine is a pragmatic mean for the resolution of a problem to which the rule gives a theoretical, abstract and general answer. In this definition rules form the background of routines, whilst it is not possible to adopt routines without having rules. Routines are rule based behaviors. The stricter the rule is, the ground for individual repertoire development is narrow, producing poor routines and behaviors. On the other hand, flexible rules, offer the required space for individuals to develop a wide spectrum of organizational behaviors and routines. This is what the terms "customization" is about. Allowing employees to produce non verbal manners of knowledge transfer, but this will occur only if there is a logical analogy of experience towards the limits of flexibility and customization.

Another aspect of the proposed "customization" is the framework of rules establishment. Marchington and Wilkinson, (2005) outline that the "depth" to which employees have to say about organizational rules usually, directly or indirectly, can influence the decisions that are normally reserved for management. The other end of the continuum may be shallow depth and involvement in the task rules setup, evident when employees are simply informed about the rules establishment. The latter is based on unbending, non flexible and strict management, which is not indicated as the appropriate in turbulent, unstable and uncertain hotel business environment. On the contrary, rules (customized and at the same time flexible) as managerial decisions, should be codetermined with the experienced personnel, leaving all the necessary space for personal routines development. The frequent rules co-determination, will also increase the employees participation and commitment. Likewise, this practice will enable common understanding and perception of circumstances and needs, enhancing at the same time the factors of Trust, Communication, Personal pertinence, Perceived Use of Knowledge etc.

RULES CUSTOMIZATION MATHEMATICAL BACKGROUND

The whole customization mechanism is based on the Fuzzy Logic theory. The foundations of the Fuzzy Logic theory were developed in 1965 by Lotfi Zadeh, questioning the sufficiency of the Boolean Logic of true or false and introducing the notion of partially true or partially false, covering the "middle grey" zones in the process of problem solving or decision making. This binary method of evaluating a fact or a state is based on the Aristotle's logic, using only the two arithmetic digits of I (true) and O (false), dissuading the recognition and the evaluation of all intermediate values between these limits. On the other hand, Fuzzy Logic takes into account all possible ranging values, offering the possibility of simultaneous evaluation of the ranging states between the I/O limits, corresponding to a degree, or a part of truth. The theoretical structure of Fuzzy Logic facilitates a more "natural" manner of data-processing, offering at the same time the possibility to the decision maker to adjust the evaluation rules to the specific characteristics of internal and external environment. In other words, the Fuzzy Logic's main concern and scope is to represent, manipulate and draw inferences from statements that are imprecise, vague or fuzzy. E.g., the description of a human characteristic as healthy, the classification of people by age such as old, the classification of certain objects as large, a driving rule such as "if an obstacle is close, then brake immediately". In the sentences above, terms such as healthy, old, large, close, immediately, are fuzzy in the sense that they cannot be sharply and commonly defined. However, as humans, we do make sense of this kind of information and use during all the levels of the decision making process, by classifying the degree of being healthy, old, large etc, in subsets, in a given set of people under given circumstances or variables (Nguyen and Walker, 2002). These sets are characterized by a membership degree function which maps the percentage of truth - based on personal and, therefore, subjective criteria into the interval [0-1]. In order to confront the problem of diverse- uncommon and subjective classification of values into specific datasets, the tool of Fuzzy Rules was developed to represent and exploit this algorithm of human thinking. Fuzzy logic with fuzzy rules has the potential to add subjective reasoning capabilities to decision making processes by using verbal terms and mapping the knowledge – mainly the tacit – of humans. Fuzzy Rules have two distinctive parts, the IF (hypothesis) and THEN (inference) part, i.e. "If the room gets hotter, then spin the fan blades faster", where the temperature

of the room and speed of fan blades are both imprecisely defined quantities and hotter and faster are both fuzzy terms. Defining these terms by using Fuzzy Logic, we could develop (exponential) rules such as "if the room gets a temperature more than 26 degrees, then you should increase the blades spin speed by 10%". Fuzzy logic systems have been widely used in Multi-Criteria Decision Making Processes, in control development systems, regarding aircrafts, vehicles, air-conditioning systems and so on, quite successfully during the last decade. The aim of this paper is to examine whether the development of rules based on fuzzy logic could effectively affect the knowledge transfer mechanism in a hotel, taking into account that the whole process of knowledge transfer within the sector seems to be linear, unstable and complicated.

THE RESEARCH MODEL

As noted above, the primary aim of the paper is to investigate the stimulation extent of tacit knowledge transfer and dissemination among staff members in a hotel, where the guesses, hunches, imaginings and passion − as forms and expressions of tacit knowledge − could be converted to explicit knowledge. In order to achieve this, we use the tool of Fuzzy Logic, combined with the development of a certain dynamic set of rules, built and based on democratic management structures, where constant dialogue is taking place, starting from the top management to the front line personnel. To facilitate the operationalization of the research problem the following research hypothesis is formulated : "the development of customized rules is positively correlated with the tacit knowledge factors of Trust and Communication." To prove the accuracy of the hypothesis, a model was developed:

Figure 1: The overall hypothesis

RESEARCH METHOD

The primary research was conducted during the second half of 2010, realizing 120 semi structured interviews in 80 four and five star hotels, in Thessaloniki, Halkidiki, Athens and Rhodes, employing more than 20 employees each. For the acquired data, a descriptive analysis was conducted. The reliability of the questionnaire was tested, by the use of internal consistency and the Cronbach α test of reliability . Then a multiple linear regression analysis was contacted between the dependent (Trust, Communication and Knowledge Transfer) and independent (Customized Rules Development) variables. The complexity of the model was reduced by using the factor analysis method and the resulted factors were again correlated with the construct of "Customized Rules" to confirm the initial results.

The structure of the questionnaire was based on reference items determining each independent variable of effective knowledge transfer as shown in the following table:

Knowledge Transfer factors	item reference source
Communication	3 Items based on Becerra and Gupta (2003), Hansen, Nohria and Tierney (1999)
Trust	5 Items based on Levin and Cross (2004)
Knowledge Transfer	9 items based on Szulanski (2003), Pierce, Kostova and Dirks (2002),

Table 6: References of items per variable

RESEARCH FINDINGS
1.1 Descriptive Statistical Analysis

According to the results of descriptive statistical analysis, with the development of customized rules, there is a significant positive correlation and improvement regarding the constructs trust and communication. Trust is significantly influenced, mainly because customized rules improve personal competence and increase the employees' professionalism, a fact that finally creates a strong climate of trust in the hotel environment.

Communication, also, becomes more effective, as messages transmitted among members are more well-defined and clear. This improvement is observed not only on departmental level but also on the entirety of the business.

The knowledge transfer process is greatly facilitated, due to the fact of employees' ability to solve problems on the spot and more easily, increase of confidence, better use or prior knowledge and better acknowledgment of position's demand.

1.2 Factor Analysis

The internal consistency of the questionnaire was checked using the coefficient alpha (α), to calculate the internal coherence of the scale. For the constructs (i) Trust, (ii) Communication, (iii) Perceived use of knowledge and (iv) Knowledge Transfer, which achieved a reliability score over > 0.80, there is high internal consistency which is a priori criterion before proceeding to the multivariate factor analysis method. In each construct the correlations were statistically significant and moreover, in all cases the significance of Bartlett test of sphericity was ,000 and the Measure of Sampling Adequecy was over ,65.

Regarding the Factor Analysis, the extraction method was based on Principal Component Analysis (PCA) and as rotation method was used Varimax with Kaiser Normalization.

More specifically, from the construct of Trust, two factors were extracted: "personal pertinence and professionalism" (1,2,3), "and "trust culture" (4,5)

From the construct of communication, one factor were extracted "Overall Communication Improvement" (1,2,3)

1.3 Regressions

The outcomes of the factor analysis were further analyzed in order to reach the most positively correlated variable. For that reason, a multiple Linear Regression Analysis was performed.

More specifically, the factors of **Trust** had an assessment rate R^2=0,765 which means that the percentage of correlation is approximately 76%. The test is generally valid due to the fact that the Sig.= ,000 and the regression rates is -3,506 for the independent variable and 1,126 and 0,618 for each factor. The outcome is statistically important due to the fact of the sig=0,000 of the coefficients

The Factor of **Communication** had an assessment rate R^2=0,669 which means that the percentage of correlation is approximately 69%. The test is generally valid due to the fact that the Sig.= ,000 and the regression rates is -0,189 for the independent variable and 1,075 for the dependent variable. The outcome is statistically important due to the fact of the sig=0,000 of the coefficients.

The factors of Knowledge Transfer had an assessment rate of R^2=0,561, meaning that the percentage of correlation is approximately 56%. The test is generally valid due to the fact that Sig=0,000 and the regression rates is -4,882 for the independent variable, 0,550 for the variable of better decision making, 0,358 for the variable of cooperation reinforcement and 1,315 for the third variable of better use of already existing knowledge. The outcome statistically important (0,15) taking into account the large number of variables.

CONCLUSION

Malhorta (2002) argues "The best information environments will take advantage of the ability of IT to overcome geography but will also acknowledge that the highest bandwidth network of all is found between the water fountain and the coffee machine" meaning that the assignees and the face to face meeting are by far the most important channels for generating, reusing and transferring knowledge. Santoro and Bierly (2006) support the argument that knowledge transfer is an inherently social processes of the workplace in many ways, not easy to formalize, codify, visualize and express, highly dependent upon interactions among team members (Joshi, Sarker and Sarker, 2007). Tacit knowledge is considered as the "body of the iceberg" of the intellectual capital, which, according to Druker (1993), is the most valuable asset of the organization. Hence, the initial scientific question is the exploitation manner of tacit knowledge, acknowledging the fact that the key factors of tacit knowledge transfer process seem to be mostly psychographic. The intangibility of tacit knowledge must be handled with also intangible factors, such as communication, trust, perception, etc. Researchers such as Szulanski (2003), Malhorta (2002), Nonaka (1998), Drucker (1993), Polayni (1969), and many others, agree that tacit knowledge depends on the extent of communication, trust, ability to express and culture. This research paper argues that the development of customized rules, could strongly improve communication and individual pertinence, enhancing the level of trust and tacit knowledge transfer.

REFERENCES

Aadne, J., von Krogh, G., & Roos, J. (1996). Representationism: The traditional approach to cooperative strategies. In G. von Krogh & J. Roos (Eds.), *Managing knowledge: Perspectives on cooperation and competition* (pp. 9-31). London: Sage.

Ahmed, E., & Dwyer, L. (2010). The Role of Knowledge-based networks in sustainable tourism development – A conceptual framework. In BEST EN Think Tank X: Networking for Sustainable Tourism.

Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes,* 82, 150–169.

Baggio, R., & Cooper, C. (2008). Knowledge management and transfer in tourism: An Italian case. Proceedings of the IASK ATR2008 (Advances in Tourism Research), Aveiro, Portugal, 26-28 May, 44-53.

Becerra, M., & Gupta, A.K. (2003). Perceived trustworthiness within the organization: The moderating impact of communication frequency on trustor and trustee effects. *Organization Science, 14 (1),* 32-44.

Bennett, R., & Gabriel, H. (1999). Organisational factors and knowledge management within large marketing departments: An empirical study. *Journal of Knowledge Management, 3(3),* 212-225.

Bentler, P. M. & Chou, C. P. (1987). Practical issues in structural modeling *Sociological Methods and Research*, 16(1), 78-117.

Birkinshaw J., Nobel R., Ridderstrale J (2002), "knowledge as a Contingency Variable: Do the characteristics of knowledge predict organizational structure", Organization Science, Vol. 13, No. 3, p. 274-289

Bock, G.W., Zmud, R.W., Kim, Y., & Lee, J. (2005). Behavioral intention formation knowledge sharing: Examining roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly, 29(1),* 87–111.

Boisot, M.H. (1998) *Knowledge assets: Securing competitive advantage in the information economy.* New York, NY: Oxford University Press.

Brachos, D., Kostopoulos, K., Soderquist K., & Prastacos, G. (2007). Knowledge effectiveness, social context and innovation. *Journal of Knowledge Management*, *11(5),* pp.31-44.

Camisón, C. & *Forés*, B. (2010). Knowledge creation and absorptive capacity: The effect of intra-district shared competences. *Scandinavian Journal of Management,* In Press, Corrected Proof, Available online 23 December 2010, ISSN 0956-5221, DOI: 10.1016/j.scaman.2010.11.006.

Cavusgil, S., Calantone, R. & Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of Business and Industrial Marketing, 18(1),* 6-21.

Choo, C.W., & Bontis N. (2002). *The strategic management of intellectual capital and organizational knowledge.* New York, N.Y.: Oxford University Press.

Christensen C. M. (2003). Beyond the innovators dilemma: Is innovation a gamble, or can the right strategic framework lead to predictable results? *Strategy and Innovation - a newsletter from Harvard Business School Publishing and Innosight,* *1 (1),* 1-4.

Christou E. (2004). The impact of trust on brand loyalty: Evidence from the hospitality industry. *Tourist Scientific Review, 1(1),* 63-74.

Cohen, M. (1995). Individual learning and organizational routine. In: M. Cohen & L. S. Sproull (Eds.), *Organizational Learning* (pp. 188-94). London: Sage.

Cooper, C. (2006). "Knowledge management and tourism". Annals of Tourism Research, 33(1), pp. 47–64.

Cummings J., & Teng B. (2003). Transferring R&D knowledge: The key factors affecting knowledge transfer success. *Journal of Engineering and Technology Management, 20,* pp. 39-68.

Davenport, T., & Prusak, L. (1998), *Working knowledge: How organisations manage what they know.* Boston MA.: Harvard Business School Press.

Drucker, P.F. (1993). *Post-Capitalist Society.* New York, N.Y.: HarperCollins.

Dwyer, L. (2005). Relevance of Triple Bottom Line reporting to sustainable tourism: a scoping study. *Tourism Review International, 9(1),* 79-94.

Dwyer, L., & Edwards, D. (2009). Tourism product and service innovation to avoid 'strategic drift'. *International Journal of Tourism Research, 11,* 321-335.

Frazier, J. (1997). Sustainable development: modern elixir or sack dress? *Environmental Conservation, 24,* 182-193.

Galvin, R. (1996). Managing knowledge towards wisdom. *European Management Journal, 14(4),* 374-378.

Gilbert, M., & Cordey-Hayes, M. (1996). Understanding the process of knowledge transfer to achieve successful technological innovation. *Technovation, 16(6),* 301- 312.

Haldin-Herrgard, T. (2000). Difficulties in diffusion of tacit knowledge in organizations. *Journal of Intellectual Capital, 1(4),* 357-365.

Hansen, M., Nohria, N. & Tierney, T. (1999). What's your strategy for managing knowledge?. *Harvard Business Review,* 77(2), 106-116.

Hislop, D., Newell, S., Scarborough, H., & Swan, J. (1997). Innovation and networks: Linking diffusion and implementation. *International Journal of Innovation Management, 1(4),* 427- 448.

Hodgson, G. (1995). The necessity of habits and rules. *University of Cambridge. Research Papers in Management Studies. No. 5.*

Inkpen, A.C. & Dinur, A. (1998). Knowledge management processes and international joint ventures. *Organization Science, 9(4),* 454-468.

Joshi, K. D., Sarker, S., & Sarker, S. (2007). Knowledge transfer among face-to-face information systems development team members. *Decision Support Systems,* 43(2), 322-335.

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation - The construct, research propositions, and managerial implications. *Journal of Marketing 54(2),* 1-18.

Kyriakopoulos K., & de Ruyter, K. (2004). Knowledge Stocks and Information Flows in New Product Development. *Journal of Management Studies,* 41(8), 1469-1498.

Lane, P.J., Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. *Strategic Management Journal, 19,* 461-477.

Levin, B.Z. & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science, 50(*11), 1477- 1490.

Levinson, S. C., Kita, S., Haun, D. B. & Rasch, B. H. (2002). Returning the tables: Language affects spatial reasoning. *Cognition, 84,* 155–188.

Lovelace, K., Shapiro, D. L., & Weingart, L. R. (2001). Maximizing cross-functional new product team's innovativeness and constraint adherence: A conflict communications perspective. *The Academy of Management Journal, 44,* 779-793.

MacLellan, L. (1997). The tourism and the environment debate: From idealism to cynicism. In M. Foley, J. Lennon & G. Maxwell (Eds.), *Hospitality, tourism and leisure management: Issues in strategy and culture* (pp. 177-194). London: Cassel.

Malhotra, Y. (2002). Why knowledge management systems fail? Enablers and constraints of knowledge management in human enterprises. In C. Holsapple (Ed.), *Handbook on Knowledge Management* (1) (pp. 577–599). Heidelberg: Springer Verlag.

Mowforth, M., & Munt, I. (1998). *Tourism and Sustainability: New Tourism in the Third World.* London: Routledge.

Mowery, D. C., Oxley, J.L. & Silverman, B.S., (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal, 17 (Winter Special Issue,* 77- 91.

Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review, 69(6),* 96-104.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5(1),* 14-37.

Nonaka, I., & Konno, N. (1998). The concept of "Ba": Building a foundation for knowledge creation. *California Management Review, 40(3),* 40-55.

Nonaka, I., & Takeuchi, H. (1991). The knowledge creating company, *Harvard Business Review, 69,* 96-104.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford University Press.

Nguyen, H.T., Walker, E.A., 2000. A first course in fuzzy logic 2nd edn., Boca Raton, Fl: Chapman & Hall/CRC

Papoutsakis, H. (2006). Integrating IT adoptions with knowledge management projects: Lessons from a case study. *Journal of the Knowledge Management Professional Society,* 3(20), 8-19.

Pierce, J. L., Kostova, T., & Dirks, K. T. (2003). The state of psychological ownership: integrating and extending a century of research. *Review of General Psychology, 7,* 84–107.

Polanyi, M. (1966). *The tacit dimension.* New York, N.Y.: Anchor Day Books.

Polanyi, M. (1969). *Knowing and being.* Edited with an introduction by Marjorie Grene. Chicago: University of Chicago Press.

Reagans, R., & McEvilly, B. (2003). Network Structure and Knowledge Transfer: The Transfer Problem Revisited. *Working paper,* Columbia University, New York.

Santoro, M., & Bierly, P. (2006). Facilitators of knowledge transfer in university industry collaborations: A knowledge-based perspective. *IEEE Transactions on Engineering Management, 53(4),* 495-507.

Santoro, M., & Saparito, P. (2006). Self-interest assumption and relational trust in university industry knowledge transfers. *IEEE Transactions on Engineering Management,* 53(3), 335-347.

Shaw, G., & Williams, A. (2009). Knowledge transfer and management in tourism organizations: An emerging research agenda. *Tourism Management, 30,* 325-335.

Sinkula, J. M., Baker, W. E., & Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge, and behavior. *Journal of the Academy of Marketing Science, 25(4),* 305-318.

Sveiby, K. E. (1996). Transfer of knowledge and the information processing professions. *European Management Journal, 14(4),* 379-88.

Szulanski, G. (2003). *Sticky knowledge: Barriers to knowing in the firm.* London: Sage.

Szulanski, G. (2004). Incumbents' framing: How three established firms responded to the emergence of the Internet, JAI Press

Szulanski, G. (2005). Strategy process. Advances in Strategic Management, JAI Press

Tippins, M. J., & Sohi, R. S. (2003). IT competency and firm performance: Is organizational learning a missing link? *Strategic Management Journal, 24,* 745- 761.

Weaver, D. (2006). *Sustainable tourism: Theory and practice.* Oxford: Elsevier Ltd.

Weaver, D., & Lawton, L. (2006). *Tourism Management,* 3rd ed. Brisbane, Australia: *John Wiley & Sons Australia*, *Ltd*.

Wheeller, B. (1993). Sustaining the ego. *Journal of Sustainable Tourism, 1,* 121-9.

Winter, S. (1995b) Organizing for continuous improvement. In: M. Cohen &   L.   S. Sproull (Eds.), *Organizational Learning* (pp. 460-483). London: Sage.

Vera, D., & Crossan, M. (2004). Strategic leadership and organizational learning.   *Academy of Management Review, 29(2),* 222-240.

Zadeh L. (1965). Fuzzy sets. *Information and control, 8,* 338-353.

Zadeh L. (2002). Toward a perception-based theory of probabilistic reasoning with   imprecise probabilities. Journal of Statistical Planning and Inference*, 105,* 233-   264.

Zadeh L. (2006). Generalized theory of uncertainty − principal concepts and ideas.   *Computational Statistics & Data Analysis,* 51, 15-46.

Zahra, S. A. & George, G. (2002). Absorptive capacity: A review, reconceptualization,   and extension. *Academy of Management Review,* 27(2), 185-203.