A Conceptual Model for Knowledge Sharing Among Small Groups Using Discussion Cases

Narumon Sriratanaviriyakul[1, 2] and Jamal El-Den[1]

[1]School of Engineering and Information Technology, Charles Darwin University, Australia

[2]School of Business IT & Logistics, RMIT University Vietnam, Vietnam

Abstract

Discussion cases are commonly used at business schools because of their pedagogical values as they expose students to real-life situations through a comprehensive interaction and collaboration among students and their instructors as well as enabling students to be proficient in communication, self-management, decision-making and problem-solving skills. In this research, discussion cases were developed by instructors in collaboration with the industry as educational supports to expose students to real-life business situations and challenges. The paper focuses on the knowledge capture, sharing, and retention during the students' group work in a semester-long project where they use these pedagogical discussion cases to solve problems, which had already been solved in real life. The paper introduces a conceptual framework for knowledge sharing behavior and its potential effects on the students' learning experience during a semester long project. The framework provides the infrastructure for the capture/sharing of knowledge during the students' quest of find solutions to the discussion cases as well as showing the effect of knowledge sharing on the students' intension to share what they know. It also examines the effects of the involvement of the instructors as well as representatives from local industry on improving the students' knowledge sharing. The paper also discusses the hypotheses which have been developed to test the validity of the framework. Little prior research has carried out with such an integrated analysis, especially in the educational context. This paper will have significant value in designing higher education class settings to involve students' teamwork and industry engagement to enhance knowledge sharing.

Keywords: Knowledge Capture, Knowledge Sharing, Discussion Cases, Students' Learning Experience, Learning Outcomes

1. Introduction

To prepare work-ready graduates, educational institutions constantly need to be innovative in their attempt to provide students with challenging tasks design and implement practical pedagogy, which could enhance their learning outcomes [1]. Discussion cases are considered as constructive pedagogical instruments, which improve the in-depth coverage and synthesis of theory and student's involvement [2].

In order to develop interesting, challenging and relevant discussion cases for the students and hence boost their engagement, localised real discussion cases, i.e. pedagogical discussion cases, are developed through the collaboration between a small group of lecturers and a number of both international and local organisations in Vietnam. In this research, case studies are educational support developed by instructors in collaboration with the industry to expose students to real-life business situations and challenges. This paper will investigate the knowledge capture, sharing during a semester long project where students use the cases to solve problems.

2. Knowledge Management (KM)

2.1 Defining Knowledge

Due to the complexity of knowledge, researchers are finding it challenging to reach consensus conclusion of what knowledge is; but they all agree to distinguish it from data and information and that the three terms are very much related.

Data are facts and figures while information is the data that has been processed and is meaningful, organised and/or structured and is useful [3, 4]. Knowledge is a higher level of information and is possessed in the mind of individuals as personalised information (which may or may not be new, unique, useful or accurate) related to facts, procedures, concepts, interpretations, ideas, observations, and judgements [5] while Tuomi [6], on the contrary, suggested that the hierarchy from data to knowledge is inverse as knowledge needs to exist before information can be formulated and before data can be measured to form information.

Although most researchers have similar views on data and information, there are no mutual agreements in defining knowledge. Tzortzaki and Mihiotis [7] stated that in economic literature, knowledge is an object embedded in organisational regulation and therefore this perspective focuses on the differences between information and knowledge. Nonaka [8] presented another point of view where he thinks that knowledge is beliefs, commitment, perspective, intention and action. Davenport, De Long [9]provided a common view to Nonaka's where Knowledge is information combined with experience, context, interpretation, and reflection. In the knowledge-based economy, knowledge is becoming the primary production factor on which competitive advantage rests.

There are two dimensions of knowledge, tacit knowledge and explicit knowledge. Polanyi quoted, "We can know more than we can tell." He further elaborated that explicit knowledge is knowledge that can be transferred through systematic language while tacit knowledge involves personal quality, therefore, making it harder to communicate or transfer. Nonaka [8] added that tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context. Because tacit knowledge is highly personal and hard to formalize and communicate, it is best transferred through experiences, learning by doing, observations, communications and face-to-face interactions. Since knowledge is the most valuable assets for organisations, knowledge transfer and creation is critical in the prospectus of growth and development as it enhances employees' capabilities and creativity and hence can lead to organisations' competitive advantages. According to Jacobs (1996) as cited in Roelof [10], there are four stages in the development of the knowledge-based economy, which are the increasing importance of information as information and communication technology are being broadly applied; the shortening of the life cycle of products and technologies; the observed immaterialisation of the economy; and the rising of the network economy.

The challenges in knowledge-based economy to organizations are making information productive, handling the uncertainty of knowledge in a globalized world, and coming to terms with the growing importance of consumers and their individual wishes and therefore, knowledge management is believed to enable organisations to face the complexities accompanying the emergence of the knowledge-based economy

2.2 Defining Knowledge Management (KM)

According to Roelof [10], knowledge management is achieving organisational goals through the strategy-driven motivation and facilitation of knowledge-workers to develop, enhance and use their capability to interpret data and information (by using available sources of information, experience, skills, culture, character, etc.) through a process of giving meaning to data and information.

Realising the importance of knowledge, Davenport, De Long, and De Beer [9] studied 31 KM projects in 24 organisations and identified four objectives of KM.

1. To capture knowledge through creating KM repositories where knowledge can be retrieved easily. Most organisations are using one or more of repositories in the form of external knowledge, e.g. competitive intelligence; structured internal knowledge; and/or informal internal knowledge.

2. To improve knowledge access through providing and facilitating the process of knowledge transfer between individuals through incentives and encouragements for the action of knowledge seeking and knowledge sharing.
3. To enhance the knowledge environment by initiating an environment that encourages knowledge creation, transfer and use which includes compensations.
4. To manage knowledge as any other asset in the organisations as intellectual property, which involves money value.

2.3 Knowledge Creation

The concept of the spiral of knowledge for knowledge creation [11]is widely recognised throughout KM discipline. Nonaka explained how both tacit knowledge and explicit knowledge could be converted in four modes: (1) from tacit knowledge to tacit knowledge, (2) from explicit knowledge to explicit knowledge, (3) from tacit knowledge to explicit knowledge, and (4) from explicit knowledge to tacit knowledge.

Firstly, tacit knowledge is transferred through interaction between individuals through observation, imitation and practice. This process does not require languages but relies heavily on shared experience of the individuals and is called "Socialization".

Secondly, through exchanging and combining of knowledge via meetings, conversations, and/or reports, new knowledge can be created through the synthesising of information from existing information and is called "Combination".

Next, by articulating the foundation of one's tacit knowledge and converts it into a new approach or new product is called "Externalization".

Finally, "Internalization" is happening when new explicit knowledge is shared throughout the organisation and so other employees begin to internalise, broaden, extend and reframe their own tacit knowledge. This process also associates with organisational learning.

Nonaka [8] further added that socialization, combination and internalization is profoundly linked to existing organisation behaviour which may results in less development of externalization in an organisation whereas externalization is critical in innovation.

Alternative views on knowledge creation include a research from Gourlay [12], in which his idea developed from Dewey [13]and Schutz and Luckmann [14]. Gourlay stated that knowledge is emerged from managing two modes of behavior. One is non-reflectional experience [13] or actions in every day's life [14]where we act both consciously and unconsciously with respect to the objects of our conscious and unconscious attention and the other is reflective experience where we act with conscious thoughts and attempts to analyze and describe some other experience or observed events with a view to communicating something to others, and perhaps for controlling those events.

Bathelt, Malmberg [15] suggested that firms can create new knowledge when formed into clusters with other organizations in similar or related types of activities through local high quality buzz and global pipelines since updated and valuable knowledge will always be created in other parts of the world and those who can build pipelines to such sites of global excellence will gain competitive advantage. At the same time, information that one cluster firm can acquire through its pipelines will spill over to other firms in the cluster through local buzz.

2.4 Knowledge Transfer (KT), Knowledge Sharing (KS) and Knowledge Barriers (KB)

Paulin and Suneson [16] found that many researchers often used the term knowledge transfer and knowledge sharing interchangeably with predominance towards knowledge transfer. They further discussed that both KT and KS refer to the exchange of knowledge with the difference on level of analysis used. KS is used more frequently when refer to individual levels [17]and KT is used when focusing on groups, departments, organizations or even businesses [18, 19]. Wang and Noe [20] also asserted that KT involves both the sharing of knowledge by the knowledge source and the acquisition and application of knowledge by the recipient while Fernie, Green [17] believed that that knowledge is highly individualistic and that it is context-specific subjective. Ipe [21] identified four factors that can influence KS: (1) The nature of

knowledge, (2) The motivation to share, (3) The opportunities to share and (4) The culture and the work environment.

Knowledge barriers refer to a set of factors that make the knowledge unable to transfer [22]. In Szulanski's earlier work, he discussed three factors, which were considered as knowledge barriers: the absorptive capacity of the recipient, casual ambiguity and an arduous relationship between source and the recipient.

Paulin and Suneson [16] further stated that knowledge barriers had been viewed in three different perspectives. One, there is a lack of knowledge about something depending on barriers for knowledge sharing or transfer. Secondly, there is not enough knowledge depending on level of education in a certain area or about a particular topic. Finally, the perceptual system in a specific human or group of humans does not contain enough contact points, or does not fit incoming information to utilize it and convert the information to knowledge.

The main focus of this research will be on the KS and KT among students, instructors and the industry during the semester long project using discussion cases. The paper will identify the factors which might affect such transfer and sharing. In addition, it will focus on the capture of this knowledge and its retention for later use.

3. Discussion cases in learning & teaching and knowledge creation

3.1 Students' learning through discussion cases

According to Gill [24], discussion cases serve as the basis for discussions, most commonly in higher education class settings, where students have to come up with solutions to real-life problems identified in the cases and to make decisions to solve these problems. Students are exposed to genuine and authentic situations using these discussion cases through a comprehensive interaction between students and their instructors [25].

Learning through discussion cases is often set out for students to tackle common issues in the real business world, while students are required to connect theories and applications. At the same time students' interaction are enhanced and they feel more engaged [26-28] which leads to significantly higher students' perceptions of the materials and concepts being taught and provide students with satisfaction, and usefulness of the course content [29].

Based on Jean Piaget's (1967)concept of constructivism where humans generate knowledge and meaning from an interaction between their experiences and their ideas, students' knowledge is constructed when they use past knowledge and understandings of the world to experience new things and reflect on those experiences. Discussion cases enable students to exchange their points of view and use their prior knowledge when discussing and finding solutions to the problem situation in the case. In doing so, they also learn from each other's.

3.2 Teaching through discussion cases

Discussion cases particularly rely on the instructors to lead and facilitate the students learning as well as the development of new knowledge [30]. Instructors must consistently signal openness to students' opinions and recognize their role in contributing to students' success [31].

Teaching using discussion cases have long been used to deliver complex theories as students can usually relate and understand difficult concepts through inductive reasoning. They learn through examples introduced in the case studies and therefore discussion cases are considered one of the very effective classroom techniques for students' learning as well as students' knowledge acquisition.

3.3 Students' learning through discussion cases and the role of knowledge sharing (KS)

One of the most common frameworks used in understanding students' learning is that introduced by Bloom's (1956) Taxonomy of Education Objectives. The framework consists of six major categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.
The framework suggests that:

 1) Problem solving, as one of characteristics in discussion cases, involves a number of diverse activities that enable higher level of learning, and
2) Localized real-world problem provides the platform for students to engage in all lower level of learning activities to be able to achieve "Evaluation" level.

Table 1 shows the process of learning through discussion cases, from two perspectives; Bloom's taxonomy and Nonaka's spiral of knowledge concepts. We posit that these concepts aligns well through problem solving, a higher order of learning, which many students often miss. The table shows our interpretations of the two concepts in terms of their alignment with students' learning through discussion cases. The results of newly developed business cases may sometimes be used in the next cohort of students where the new process starts again.

However, for learning to be successful, we believe that intensive knowledge sharing must take place among students, lecturers and business representatives.

Bloom's Taxonomy (Bloom, 1956)	Learning through Discussion Cases	Spiral of Knowledge Creation (Nonaka, 1991)
Knowledge – recall facts and basic concepts	1. New theories are introduced to students during the 1-hour lecture.	Internalization
Comprehension – explain ideas or concepts	2. Students test their understanding of the theories learnt through answering the questions given on the worksheets.	Combination
Application – use information in new situation	3. Outside of the class, discussion cases are given to students and in (initial) groups of 3 to 4; students analyse and choose the best decision for the organisation from the case based on theories learnt and provide justifications to present in the next class.	Socialization & Combination
Analysis – draw connections among ideas		
Evaluation – justify a stand or decision	4. Representatives from initial groups form new groups and present their initial groups' findings where he/she has to present, justify and defend the decision the group made earlier.	Socialization & Combination
Creation – produce new or original work	5. Together as a large class discussion, students, lecturers and organizations representatives (case protagonists) share their point of views and form new idea of original work.	Externalization
	6. Students identify and develop their own hypothetical business cases on existing local organisation of their choices (with lecturer's agreement), solve the problems and present to organisations.	

Table 1: The process of learning through discussion cases in comparison to Bloom's taxonomy and Nonaka's Spiral of Knowledge
(Sriratanaviriyakul& El-Den, 2016)

4. Using pedagogical discussion cases in the higher education classrooms at RMIT University Vietnam

In this research, pedagogical discussion cases are developed by the instructors and industry representatives as educational support to enhance the students learning process by exposing them to real-life situations. The discussion case development process starts when an instructor seeks a potential contact of a local or international organisation in Vietnam. During the first interview, recent management issues, the key decision-makers, the decisions taken, and the solution reached are captured and mapped with suitable module in the curriculum taught as part of the Internet for Business subject as part of an Information Systems (IS) course for senior students in the Bachelor of Commerce program at RMIT University Vietnam. The instructor gathers additional background information from the local organisation regarding their solution to the problems in the case and the adopted solution as well as key decisions made in order to develop the case's context to the students to properly triangulate findings acquired from the interview. Upon completion, the lecturer introduces the problems and challenges the case protagonist faced to the students as a typed handout, which include three alternative solutions of the case where one of these solutions is the one adopted in real life.

The students work on the case both inside and outside the classroom and the lecturer main objectives is to assess the students' abilities to apply the theories introduced to them during the lectures. Exposing the students to such real-life situations challenges their abilities to analyse such situations as well as their problem solving and decisions making skills in finding the most effective solutions for the case.

One week after a particular module is introduced in the lecture, outside the class, students are organised into groups of 3-4 to read the case, identify issues emerged from the case, conduct additional background research on the relevant topics, suggest possible alternatives to the business and analyse the impacts these alternatives may have to the organisation in the case. Students have one-week timeframe to complete this task.

In the first half of the following two-hour discussion class, each student acts as a representative from his previous group to share his results with representatives from other groups. At this stage, each student needs to justify, debate and evaluate potential solutions for the business.

In the second half of the class, the instructor, acting as facilitator for the class discussion, and, whenever possible, a representative from the organisation being discussed are also present in the class to share his point of views, solution the organisation has made, and answer additional questions students may have, the whole class share opinions and discuss to yield the best-informed decisions.

The instructor collects additional information found by students along with responses from organisation representatives and the case study is revised upon permission of the organisation. The newly edited version of the discussion case is used in the next cohort of students.

In this 12-week course, students have the opportunity to work on three discussion cases based on three different modules which varies every semester, e.g. digital marketing, supply chain and logistics of an e-commerce business, strategic planning, for instance, before moving on to their assessment 2 towards the end of their semester where students must select (with instructor's agreement) and identify an issue of a local established e-commerce business or a brick-and-mortar business where Internet technology can add values and improve the business process and develop a hypothetical business case to help solving the specified challenge. The result of these newly developed business cases are presented in class with the presence of the representative of the chosen organisation and the instructor.

5. Predictors of students' knowledge sharing behavior: The conceptual framework

Wang and Noe [20]reviewed concepts found in past knowledge sharing research and identified areas that needed further investigation. Adapting the ideas from existing research gaps , and combining them with Cummings [32]previous research model on how work groups and structural diversity is used as a mediator between knowledge sharing and work performance, we propose our conceptual model (Figure 1). The

model describes how knowledge sharing among students, lecturers and participating organizations takes place through the use of pedagogical discussion cases as mediators. The model includes predictors that contribute to students' intention to share their knowledge with their peers, lecturers and organizations and through this process of knowledge sharing; it is hypothesised that students will improve their learning outcomes.
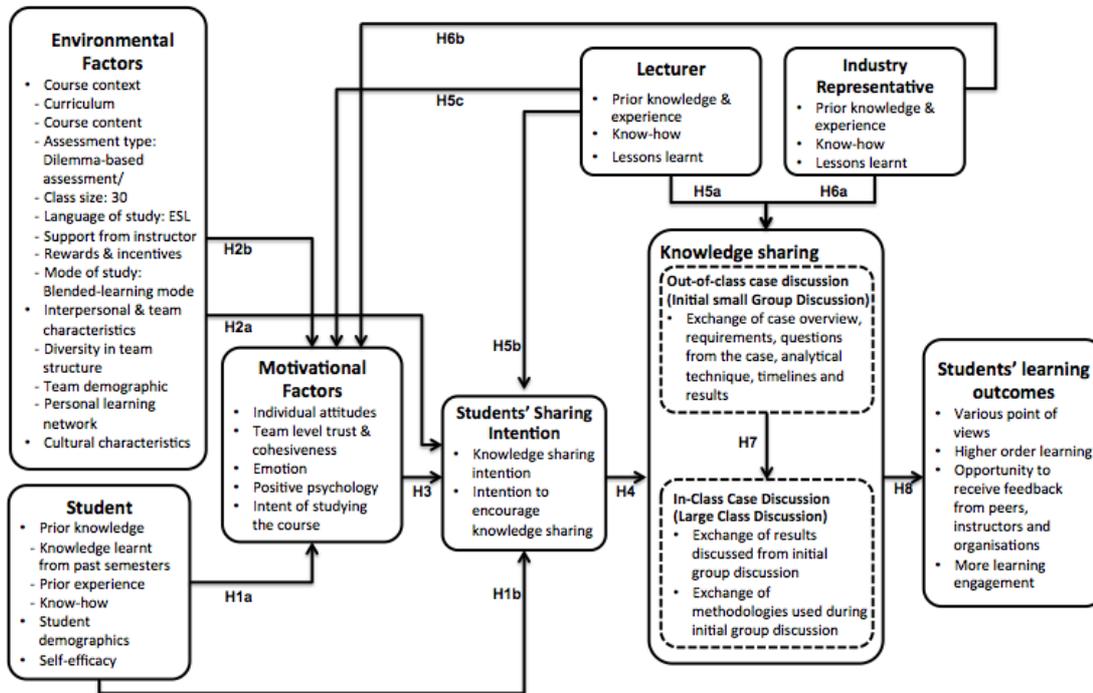
*Adapted from Wang & Noe (2010) and Cummings (2004)

Figure 1 The Conceptual Model (Sriratanaviriyakul & El-Den, 2016)

5.1 Student's Individual Characteristics

Prior research showed that work experience (prior to 2010) and self-efficacy (2013, 2014 and 2015) has been examined and found to have positive correlations to motivational factor, but these factors have not been tested in a classroom setting. In the educational setting as will be tested in the proposed research, student's prior knowledge will be replacing work experience, and will include knowledge learnt from past semesters, student's previous experience and his/her know-how. Moreover, student's demographics and self-efficacy have been investigated to contribute to knowledge sharing but the positive correlation to motivational factors and intention to knowledge sharing has yet to be explored. The model shows such correlations and introduces two hypotheses:

H1a Student's individual characteristics have positive correlation to motivational factor.

H1b Student's individual characteristics have positive correlation to students' intention to share knowledge.

5.2 Environmental Factors

A number of researches have investigated organisational context, interpersonal and team characteristics, and cultural characteristics but they have, again, been conducted in corporate culture and not in an educational context in a classroom with groups of students. The proposed model will investigate the course context, which includes course curriculum, content, assessment type, class size, language of study, support and encouragement from instructors, rewards and incentives and mode of study, along with, interpersonal & team characteristics in terms of diversity of team structure, team demographic, and personal learning network. Finally the cultural characteristics would also be explored. Cummings [32] investigated team structural diversity as a mediator between knowledge sharing and work performance but not as a factor that

links to intention to knowledge sharing. Moreover, the class context is a lot different from corporate culture as competition is not as intense.

H2a Environmental factors have positive correlation to motivational factor.

H2b Environmental factors have positive correlation to students' intention to knowledge sharing

5.3 Motivational Factors

Masoumeh [33]suggested similar models to that of Wang and Noe [18]. He reviewed the relationship of trust, management support, individual attitude, and reward systems with university lecturers' knowledge sharing but suggested that quantitative research should be further developed. Moreover, past research only focused on knowledge sharing among lecturers but not in a three-way interaction among students, lecturers and industry representatives. There is a need to investigate further on howstudents' individual attitudes, team level trust and cohesiveness, students' emotion, positive psychology, and students' intent of studying the course effect on intention of students' knowledge sharing as facilitated by the lecturer and industry representatives. The model shows such interactions and introduces the following hypothesis:

H3 Motivational factors have positive correlation to students' intention to knowledge sharing.

5.4 Students' Sharing Intention

A study by Reychav and Weisberg [34] showed positive relationship between intention to share and knowledge sharing both in explicit and implicit knowledge. They found that intention to share explicit knowledge influences explicit knowledge-sharing behavior to an equal extent both directly and indirectly. On the contrary, tacit knowledge-sharing behavior is influenced directly to a greater extent by the intention to share know-how and expertise and less indirectly by the intention to share explicit knowledge.

This study will investigate if the same behavior is true in the classroom context.

H4 Students' intention to share what they know has positive correlation to Knowledge Sharing.

5.5 The role of lecturer and organisation

Lecturer and organisations' representatives play an important role in pedagogical discussion cases as lecturer facilitates the discussion and the representatives provide additional expertise and insights from real-life situations. It is hypothesized that contributing their prior knowledge & experience and know-how strengthen the effectiveness of the knowledge sharing among students in the classroom as well as influence students' intention to share.

Lecturer's role:

H5a Lecturer has positive correlation to knowledge sharing in classroom.

H5b Lecturer has positive correlation to students' intention to share.

H5c Lecturer has positive correlation to motivational factor.

Organisation's role:

H6aIndustry representatives (case protagonists) have positive correlation to students' knowledge sharing.

H6bIndustry representatives (case protagonists) have positive correlation to motivational factor.

Through knowledge sharing, it is expected that students' will achieve their learning outcomes, as they will be exposed to diverse perspectives from lecturers, representatives and peers. Through knowledge sharing, not only the knowledge about the course content is anticipated to be transferred, students need to first apply the knowledge before they can share and by building up on each other's ideas, students might achieve higher order of learning. Moreover, through knowledge sharing, students will have opportunity to receive feedback from all the three parties (Nonaka's Socialization concept). Finally, more knowledge sharing could lead to more learning engagement. It is proven that more learning engagement leads to better learning outcomes so it is hypothesized that knowledge sharing using pedagogical discussion cases will boost students' learning outcomes.

In addition, students discussed the case studies outside the classroom before they can develop a case study analysis paper and share in the large class with representatives from other groups so it is hypothesized that through this process, intra-group discussion also contribute to external group discussion.

H7 Knowledge sharing during initial small group discussion has a positive correlation with knowledge sharing in the large class discussion.

H8 Knowledge sharing using pedagogical discussion cases is positively correlated to students' learning outcomes.

6. Conclusion

The research's framework was developed based on Wang and Noe and Cummings models. We have made changes to these models and introduced additional novel constructs to best fit higher education classrooms where pedagogical discussion cases were used as educational support.

This approach utilizes three factors predicting students' knowledge sharing intention and behavior namely, individual characteristics (prior knowledge and self-efficacy), environmental/external factors (course context, interpersonal and team characteristics along with cultural characteristics), motivational factors (individual attitude, team-level trust and cohesiveness, positive psychology and personality), which believes to impact the intention or willingness to share knowledge with their peers. These constructs were not addressed previously in the literature. The authors also include additional precedents which are industry representative and instructor in the case studies' knowledge sharing process, where it is believed that this process will improve students' learning experience and learning outcomes.

The paper contributes to the knowledge management literature by offering a different perspective on examining knowledge sharing behavior in higher education course where there is an involvement from industry and instructor. Therefore, for future research, it is recommended to validate and examine the predictive power of the proposed model and the associated hypotheses introduced in the paper.

References

[1] Hu, S. and G.D. Kuh, Maximizing what students get out of college: Testing a learning productivity model. Journal of College Student Development, 2003. 44(2): p. 185-203.

[2] Sudzina, M.R., Case study as a constructivist pedagogy for teaching educational psychology. Educational Psychology Review, 1997. 9(2): p. 199-260.

[3] Dretske, F., Knowledge and the Flow of Information. 1981: MIT Press.

[4] Machlup, F., Knowledge: its creation, distribution and economic significance, Volume I: Knowledge and knowledge production. Vol. 1. 2014: Princeton university press.

[5] Alavi, M. and D.E. Leidner, Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. MIS Quarterly, 2001. 25(1): p. 107-136.

[6] Tuomi, I. Data is more than knowledge: Implications of the reversed knowledge hierarchy for knowledge management and organizational memory. in Systems Sciences, 1999. HICSS-32. Proceedings of the 32nd Annual Hawaii International Conference on. 1999. IEEE.

[7] Tzortzaki, A.M. and A. Mihiotis, A Review of Knowledge Management Theory and Future Directions. Knowledge and Process Management, 2014. 21(1): p. 29-41.

[8] Nonaka, I., A Dynamic Theory of Organizational Knowledge Creation. Organization Science, 1994. 5(1): p. 14-37.

[9] Davenport, T.H., D.W. De Long, and M.C. Beers, Successful knowledge management projects. Sloan Management Review, 1998. 39(2): p. 43-57.

[10] Roelof, P.u.B., Questions in knowledge management: defining and conceptualising a phenomenon. Journal of Knowledge Management, 1999. 3(2): p. 94-110.

[11] Nonaka, I., The Knowledge-Creating Company. Harvard Business Review, 1991. 69(6): p. 96-104.

[12] Gourlay, S., Conceptualizing Knowledge Creation: A Critique of Nonaka's Theory*. Journal of Management Studies, 2006. 43(7): p. 1415-1436.

[13] Dewey, J., Education and democracy. New York, 1916.

[14] Schutz, A. and T. Luckmann, The Structures of theLife-World. London: Heine-mann, 1974.

[15] Bathelt, H., A. Malmberg, and P. Maskell, Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. Progress in Human Geography, 2004. 28(1): p. 31-56.

[16] Paulin, D. and K. Suneson, Knowledge transfer, knowledge sharing and knowledge barriers-Three blurry terms in KM. The Electronic Journal of Knowledge Management, 2012. 10(1): p. 81-91.

[17] Fernie, S., et al., Knowledge sharing: context, confusion and controversy. International Journal of Project Management, 2003. 21(3): p. 177-187.

[18] Argote, L. and P. Ingram, Knowledge transfer: A basis for competitive advantage in firms. Organizational behavior and human decision processes, 2000. 82(1): p. 150-169.

[19] Szulanski, G., R. Cappetta, and R.J. Jensen, When and how trustworthiness matters: Knowledge transfer and the moderating effect of causal ambiguity. Organization science, 2004. 15(5): p. 600-613.

[20] Wang, S. and A.R. Noe, Knowledge sharing: A review and directions for future research. Human Resource Management Review, 2010. 20(2): p. 115-131.

[21] Ipe, M., Knowledge sharing in organizations: A conceptual framework. Human Resource Development Review, 2003. 2(4): p. 337-359.

[22] Szulanski, G. and R. Cappetta, Stickiness: Conceptualizing, measuring, and predicting difficulties in the transfer of knowledge within organizations. The Blackwell Handbook of Organizational Learning and Knowledge Management. Malden, MA & Oxford: Blackwell, 2003: p. 513-534.

[23] Szulanski, G., Exploring internal stickiness: Impediments to the transfer of best practice within the firm. Strategic management journal, 1996. 17(S2): p. 27-43.

[24] Gill, T.G., Informing with the case method. 2011, Santa Rosa: Informing Science Press.

[25] Barnes, L.B., Teaching and the Case Method. Text, Cases, and Readings. 1994: ERIC.

[26] Kardash, C.M. and M.L. Wallace, The Perceptions of Science Classes Survey: What undergraduate science reform efforts really need to address. Journal of Educational Psychology, 2001. 93(1): p. 199.

[27] Prince, M., Does active learning work? A review of the research. Journal of Engineering Education-Washington, 2004. 93: p. 223-232.

[28] Yadav, A., et al., Teaching science with case studies: A national survey of faculty perceptions of the benefits and challenges of using cases. Journal of College Science Teaching, 2007. 37(1): p. 34.

[29] Jeong Kim, H., S. Pederson, and M. Baldwin, Improving user satisfaction via a case-enhanced e-learning environment. Education+ Training, 2012. 54(2/3): p. 204-218.

[30] Wassermann, S., Introduction to Case Method Teaching. A Guide to the Galaxy. 1994: ERIC.

[31] Gasiewski, J.A., et al., From gatekeeping to engagement: A multicontextual, mixed method study of student academic engagement in introductory STEM courses. Research in higher education, 2012. 53(2): p. 229-261.

[32] Cummings, J.N., Work Groups, Structural Diversity, and Knowledge Sharing in a Global Organizations. Management Science, 2004. 50(3): p. 352-364.

[33] Masoumeh, K., Moderating Role of the Perceived Justice in the Relationship of Trust, Management Support, Individual Attitude, and Reward System with Universities' Lecturers KnowledgeSharing. Interdisciplinary Journal of Contemporary Research in Business, 2014. 6(3): p. 132-158.

[34] Reychav, I. and J. Weisberg, Bridging intention and behavior of knowledge sharing. Journal of Knowledge Management, 2010. 14(2): p. 285-300