DOI: 10.52131/pjhss.2024.v12i2.2006

Pakistan Journal of Humanities and Social Sciences

Volume 12, Number 02, 2024, Pages 951-958
Journal Homepage:
https://journals.internationalrasd.org/index.php/pjhss

Development Of Nonaka's Thought: A Critical Review

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ARTICLE INFO

Article History:
Received: April 02, 2024
Revised: May 16, 2024
Accepted: May 16, 2024
Available Online: May 17, 2024

Keywords:
Nonaka's Thought Evolution
Epistemology
Knowledge Conversion
SECI
Ba
Organizational-Enabling Conditions

Funding:
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

By focusing upon Nonaka's thought in his theory of knowledge creation, this paper presents relevant literature with critical evaluation and describes the dual nature of human knowledge (implicit and explicit). By the definition of Polanyi, explicit knowledge becomes the focus of attention, covering human skills and experiences. We infer that human values and human knowledge are inseparable companions. This leads us to re-examine the conversion of knowledge. Thus, epistemology and knowledge conversion came into the purview of organizational knowledge creation theory, where Nonaka made an unprecedented contribution. Different research papers of Nonaka, along with the book 'The Knowledge-Creating Company' have been used as a main source for this study along with the rich insights of other KM scholarship. This study will help in understanding the evolution of Nonaka's thought as well as the evolving path taken by the organizational knowledge creation theory, especially with reference to Nonaka's contribution.

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1. Introduction

1.1. Snapshot of Life and Career

Nonaka is being acknowledged worldwide for his work on knowledge creation and the glaring insights given to Japanese companies from his innovative ideas. The fundamental questions addressed by I. Nonaka (1994) include: What is knowledge? How can knowledge creation be promoted in an organization? This study covers the evolutionary path that Nonaka has adopted during the process of organizational knowledge creation theory. To address this purpose, this study reviews all the relevant milestones of Nonaka's main thinking, describing the evolutionary patterns of the intellectual journey of discovering the organic repository for intellectual capital.

Table 1: Snapshot of Nonaka's life and career

1935	Born
1958	Graduates from Waseda University
1995	Publication of The Knowledge-Creating Company
1995	Joins Japan Advanced Institute of Science and Technology (JAIST)
1997	Becomes dean of the School of Knowledge Science at JAIST
1997	Named Xerox Distinguished Fellow in Knowledge at Haas School of Business, Berkeley
2000	Appointed professor in the Graduate School of International Corporate Strategy, Hitotsubashi University

(Source: Movers & Shakers: The 100 Most Influential Figures in Modern Business, 2003)

This study not only helps in understanding the mental journey of Nonaka's thinking, but it also gives us an understanding about the nature of knowledge along with different modes of knowledge creation, especially in an organizational context. The contribution of Nonaka in the field of KM becomes evident when one spares some time to understand the last

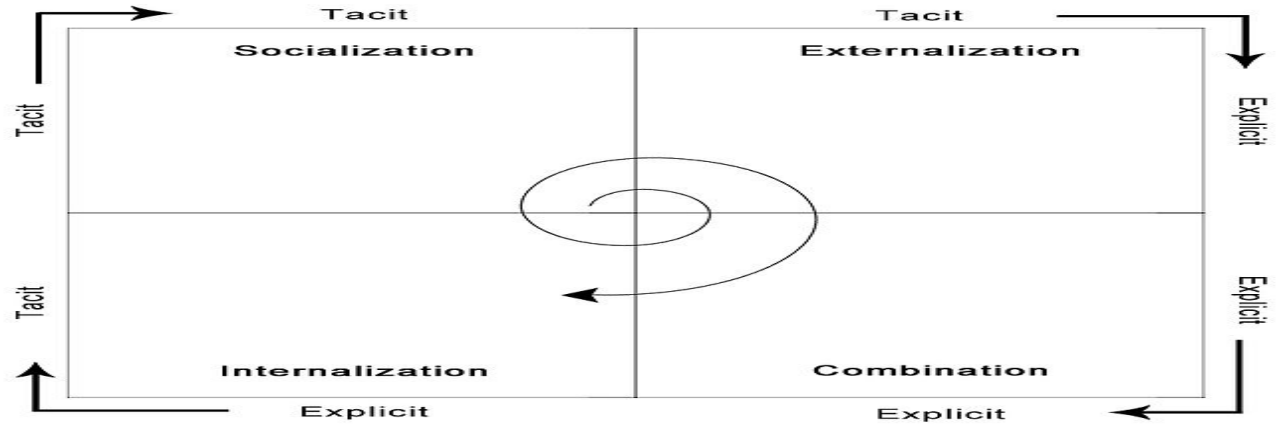
words of Isaac Barrow (advisor of Newton), Nonaka has been planting seeds all his life and those will be turned into a yield of a hundredfold harvests. Through this study, we want to know about knowledge seed, knowledge yield, and knowledge truth. "Oh Lord! Soon I will know solutions to all differential equations". Through this study, we hope you know that the seeds Nonaka planted all his life will yield a hundredfold harvest. Any other outcome would be unfair, ugly, and simply wrong, as the truth is always beautiful.

2. Literature Reivew: Development of Nonaka's Thought

2.1. Knowledge Conversion

According to Nonaka, knowledge creation is a journey from 'being' to 'becoming' (I. Nonaka, Toyama, & Konno, 2000). Sharing and externalizing personal knowledge help in creating and developing organizational level knowledge (Arantes, Martinelli Junior, Viegas, & Rohenkoh, 2021). In the organizational world, the engine of knowledge creation passes through a four stage conversion process, as per Nonaka's SECI model figured below:

Figure 1: The "engine" of knowledge creation



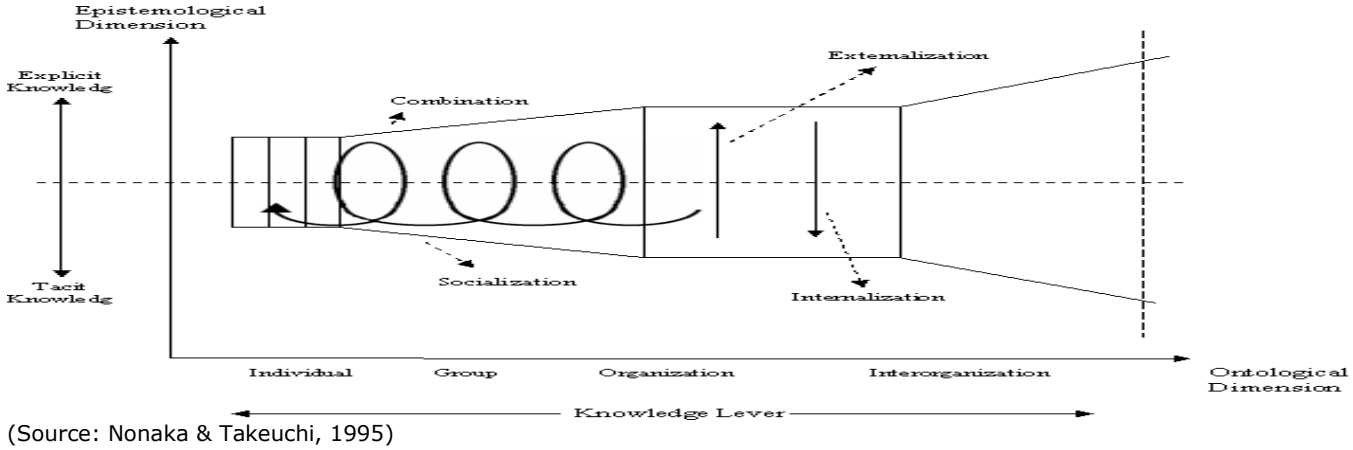
(Source: Nonaka & Takeuchi, 1995, pp. 62, 71)

The main aim of each component of the SECI model is as follows:

- Socialization – individuals share their tacit knowledge with each other
- Externalization – tacit knowledge is expressed, hence becomes explicit
- Combination – different concepts of explicit knowledge intermingle
- Internalization – explicit knowledge becomes the part of tacit knowledge

According to l. Nonaka, Takeuchi, and Umemoto (1996), the vision of the organization and the culture of the organization are the bedrock of knowledge from which comes tacit knowledge, whereas, on the other hand, technology provides explicit knowledge of the organization. Moreover, in the language of Swan, Newell, Scarbrough, and Hislop (1999), from both of these knowledge sources (implicit and explicit), created knowledge can be seen moving from individual to organizational to societal and network levels. The view given by Swan has been expressed by I. Nonaka (1994) in the "Spiral Model of Knowledge Creation".

Figure 2: "Spiral of Organizational Knowledge Creation"



(Source: Nonaka & Takeuchi, 1995)

2.2. Spiral Model of Knowledge Creation

Interactions between tacit and explicit knowledge get momentum when a number of actors from all levels of organizations are involved. After traveling from the individual towards the group and then towards the organization, knowledge finally turns into a spiral. For instance, resources, including both tangible and intangible, turn into innovative products and services, which is an important function of knowledge creation (Hameed, Arshed, Yazdani, & Munir, 2021). There is a need to support this spiral process on the part of organizations. Here Nonaka introduces the following knowledge-creating enablers. There are

2.3. Human Intention and Commitment of Human Autonomy

Creation in the form of chaos redundancy and requisite variety Epistemology and knowledge conversions implies the design and processes of an organization, which will be illustrated in the coming section. From this onward, a number of academicians started thinking about those conditions which enable an organization to be a place of knowledge creation. And they hold high opinions specifically about knowledge vision, organizational forms, activism, and leadership due to their impact on organizational knowledge creation (I. Nonaka, Takeuchi, & Umemoto, 1996).

2.4. Organization-Enabling Conditions and '*Ba*'

Following Nonaka's definitions, "…organizational knowledge creating is contingent upon context, which Nonaka called 'ba'. The origin of this concept is Japan, and in English language, it is translated as space. Philosopher Nishida (1992) gave this concept of '*Ba*', and later on Shimizu (1995) illuminated and refined this concept to the last extent. '*Ba*' is such a shared space where relationships emerge. '*Ba*' can be in different spaces, namely physical, mental, and virtual spaces, but knowledge is the common ingredient in all types of spaces. Knowledge can be acquired from different experiences of individuals and by pondering upon others' experiences. As a way of illustration, when a product is developed, different project team members brainstorm together to develop their design in a *ba* and, come to the common interpretation of data and develop a common agenda and common sense. Participation in *BA means becoming part of knowledge creation, showing the potential power of dialogue during participation, and acclimatizing to* knowledge practices. In this way, one can leave his assumptions aside and transcend beyond his own limitations.

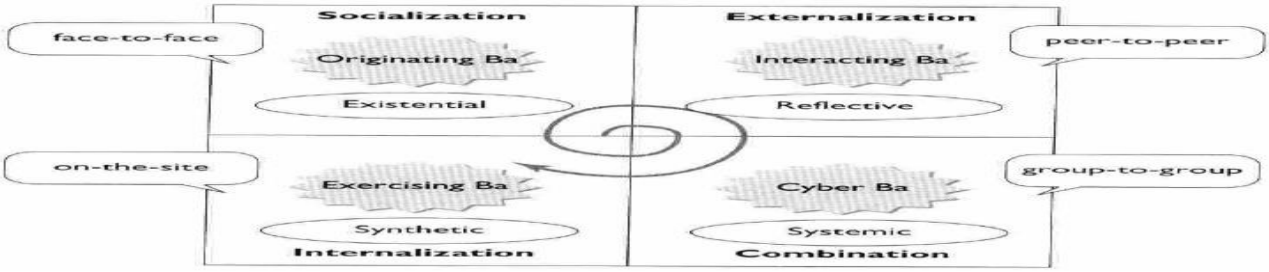
2.5. Characteristics of 'Ba'

A number of characteristics are suitable for the conversion of knowledge (Nonaka and Konno, 1998).

- "Originating *Ba"*
- "Interacting *Ba"*
- "Cyber *Ba"*
- "Exercising *Ba"*

In "interacting ba" the knowledge becomes externalized in peer-to-peer mode, while in "cyber ba" different types of concepts combine together via group-to-group interactions. Here, the virtual world plays a vital role instead of the physical world. In "exercising ba" through training and instructions, knowledge becomes an internal part of the self with on-the-site training and mentoring. "Originating "ba" happens to take place when individuals socialize and interact with each other". For ease of understanding, different kinds of "bas" and their characteristics have been diagrammatically conceptualized below:

Figure 3: The Four Characteristics of 'Ba'



(Source: Nonaka & Takeuchi, 1998, pp. 46)

Organizations are information processing engines; without the fuel of knowledge, these engines stop working and start declining towards their natural death.

2.6. Knowledge Vision and Activism

The idea of knowledge activism has been developed in different case studies by Siemens, Skandia, Shiseido, and General Electric (Von Krogh, Ichijo, & Nonaka, 2000; Von Krogh, Nonaka, & Ichijo, 1997). These case studies reflect different forms of knowledge activism. CEO or project managers or, middle-level managers or any other can become knowledge activists. They perform the following roles:

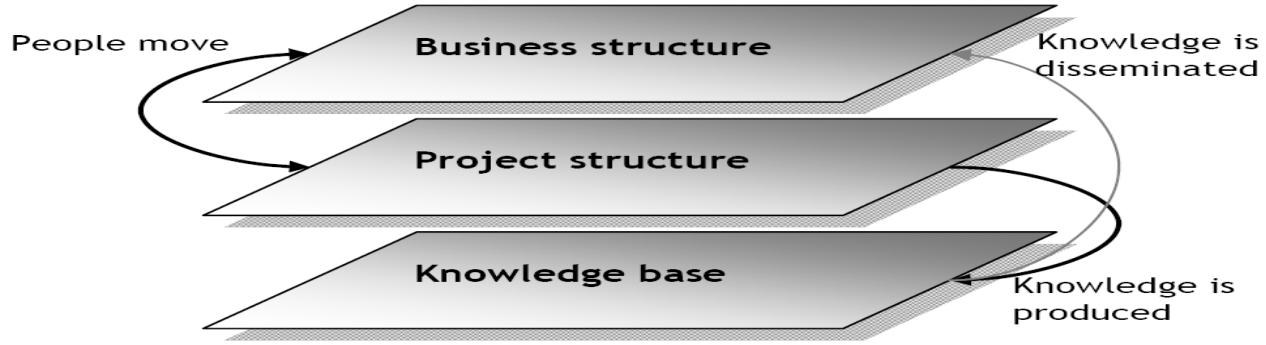
1. Catalyzing and coordinating knowledge creation
2. Transferring and communicating /conveying future prospects and future trends
3. Providing new thought material for creating knowledge input for knowledge creation
4. Helping their team to think out of the box
5. Identify knowledge gaps and guide them on how to fill them.

A knowledge vision refers to a potentiality of being (I. Nonaka, Peltokorpi, & Tomae, 2005): from the current state of knowledge and future state of knowledge, knowledge vision provides a way to move ahead without fear of making mistakes. Its importance is a very self-evident truth because, in the organizational world, means are uncertain, and roads are slippery in the web of complexity and uncertainty.

2.7. Organizational Forms

According to Hedlund (1994), there is a stark difference between Japanese and Western organizations. The focus of Western organizations is on the division of labor and specialization. They create knowledge with the help of hierarchy, which we come across in the form of different units or departments. The focus of Japanese organizations is on both tacit and explicit knowledge, which we came across in formal (project) and informal groups. They are not rigid but more flexible than Western organizations. Credit goes to Hedlund by proposing 'heterarchy' as superior form of knowledge creation to hierarchy. According to Hedlund (1986), in the heterarchical form, all kinds of assets and talents are dispersed. We see horizontal communication and informal coordination. Both forms of heterarchy and hierarchy have the potential to solve coordination problems. Hypertext organization is meant for creating knowledge smoothly and it captures the layeredstructure of organizational activities as can be seen in the figure 4. In short, one can easily see the best form of coordinationa dn knowledge creation is point of amalgamation where all the layers or systems work together: business, project and knowledge system.

Figure 4: The Knowledge-Creating Company



(Source: Nonaka & Takeuchi, 1991)

2.8. Middle-up-down management style

According to Nonaka and Takeuchi the two traditional Western management styles, 'top-down' and 'bottom-up', are just drastic failure for the healthy, fruitful and dynamic interaction necessary for organizational knowledge creation. It is only first time Japanese organizations pay heed to middle managers who take the vision from top and make its real sense with frontline employees. They act as facilitators for both top and bottom-level management and are rightly labelled as knowledge engineers in knowledge-creating organizations. They have an in-depth understanding of what should be and what is. In this

way they play their pivotal role in organizational innovation and creativity. A 'hypertext' organization is an ideal form for knowledge creation. It combines two traditional structures-the hierarchy and the task force. This organizational form is the US military, which is bureaucratic during peacetime but highly task-oriented in war. Nonaka and Takeuchi, through two case studies of Japanese organizations (Kao and Sharp) tried to illuminate the concept of hypertext organizations that attempted to implement a hypertext structure.

2.9. Leadership

In the language of I. Nonaka, Toyama, and Konno (2000), the spirit of leadership is a way of promoting the process of SECI as illustrated above and the role of middle managers is interpretation as well as support of the knowledge vision by promoting and facilitating four modes of knowledge conversion. In a nutshell, they externalize knowledge in the *board and blend* tacit knowledge across the board. They make new concepts in the form of new brands, new technologies, and new products or systems. They also expand knowledge to the various levels of organizations. The role of leadership becomes just creating such conditions which are helpful in knowledge creation and not command and control. The role of middle managers is to put together whatever they take from the higher visionary leadership. This is reminiscent of Weick (2015) idea that strategic change is not perceived as 'act as planned', but 'plan as enacted'. "The organization is in a state of becoming, moving between cycles of sense-giving from the top and sense-making in the middle, to sense-giving in the middle and sense-making at the top", as stated by Gioia and Chittipeddi (1991). According to Barney (1991); Penrose (2009); Wernerfelt (1984) and the knowledge-based view of the firm was the development of the resource-based view only because of the special features of knowledge, which are the cause of competitive advantage. One can infer very easily that knowledge assets are the result of dialogues and different practices in *BA, which are intangible and dynamic and* are not easy to transact (Teece, 1998, 2000). Knowledge assets can be defined in terms of intention routines, human knowledge, human use of innovative technologies, and making new brands. The creative routines of firms are a source of inspiration for people to review and improve their operational styles. Knowledge vision guides them, and with the help of creative routines, people mature their personal styles of working. These routines act like special knowledge assets, and without them, it becomes almost impossible to adapt to changes in the external environment (I. Nonaka & Reinmoeller, 2017; I. Nonaka & Toyama, 2002, 2005).

"Organizations are dialectic phenomena that cannot be analyzed through a simple set of premises about behavior, be it profitable and utility maximization, bounded rationality, altruism, human values and social norms", stated by Von Krogh, Nonaka, and Ichijo (1997). Its knowledge management can be seen in the organization as well as on the civilization level. The power of explanation becomes evident when we combine rich insights from different theories and research that are based upon different rich premises. In this way, we understand the organization from different perspectives. Therefore, it is a complex concept to understand why firms differ from each other. Drew (1999) is a proponent of incorporating knowledge management as an integral part of business strategy formulation. He divided business knowledge into the following four categories:

1. What we know, we know.
2. What we know, we don't know.
3. What we don't know, we know.
4. What we don't know, we don't know.

Table 2: At the organizational level (*A Knowledge Portfolio*)(Adopted from Drew, 1999)

At Organizational Level (A Knowledge Portfolio)				
Knowledge awareness/knowledge content	1. What we know, we know	2. What we know we don't know	3. What we don't know we know	4. What we don't know we don't know
Emphasis	Knowledge sharing, access and inventory	Knowledge seeking and creation	Uncovering hidden or tacit knowledge	Discovering key risks, exposure and opportunities
Tools	Benchmarking, Communities of practice	R&D market research, competitive intelligence	Knowledge maps, audits, training and networks	Creative tension, audits, dilemmas, complexity science

3. How knowledge is created globally?

The final part of the book *The Knowledge-Creating Company* illustrates the difference between Japanese and the US and the cultural environments of European and Japanese traffic environments. Here, we get stunning insights that only through cross-cultural socialization can we overcome those obstacles that come into being due to differences in tacit knowledge and values. Only by experiencing foreign culture and living with foreigners can cross-cultural socialization happen. The transfer of knowledge can also take place at a global level. One example of Shin Caterpillar Mitsubishi, a US-Japanese alliance, describes how knowledge can be created across organizations as well as beyond national boundaries. When Mitsubishi (Japan) and Caterpillar (United States) shared their resources in the business of hydraulic shovels, they protected the damaging clashes of culture with their alliance. With the help of their alliance, they not only covered each other's weaknesses but also effectively created knowledge with co-understanding and co-existence. The same phenomena of knowledge creation can take place at the Civilizational level, which is emphasized by Irani President Khatami at UN General Assembly in New York, Kofi Annan at Seton Hall University in 2001, Spanish Prime Minister Jose Luis Rodriguez Zaparto at UN General Assembly in 2004 – league of civilizations and an alliance of civilizations. In the words of Zamin Abbas and Ghaffari (2011): Human civilizations are divided into four parts: Indian, Chinese, Western, and Muslim. These four civilizations are in fact four civilizations on the slate of time and space. Four drives of human nature (learn, acquire, bond and defend) are working behind the aforementioned civilizations. A brief snapshot of their values, disciplines, consciousness and convictions can be seen below in Table 3.

Table 3: Conflict of faiths-the real cause of civilization clash adopted from waheed's PhD Dissertation, 2007: p.74

At Civilizational Level: Sources of Knowledge and Causes of Civilizational Clash				
	Indian Civilization	Chinese Civilization	Western Civilization	Muslim Civilization
Crisis of Value	Peace	Equality	Freedom	Justice
Confrontation of Prevailing Disciplines	Culture as discipline	History as discipline	Science as discipline	Religion as discipline
Overlapping of Forms of Consciousness	Aesthetics driven of Consciousness	Morality driven Consciousness	Speculative driven Consciousness	God driven Consciousness
Divergence of essential convictions	Belief in Earth	Belief in Past	Belief in Present	Belief in Future

The book "The Knowledge Creating Company" finishes by synthesizing the primary arguments inherent in paired notions.

Table 3

Tacit/explicit	→	[spiral of conversion]
Body/mind	→	[oneness]
Individual / organization Top-down/bottom-up	→	[middle-up-down]
Bureaucracy/task force	→	[hyper text]
Relay/rugby	→	[American football]
Eastern/western	→	[cross-socialization]

4. Practical Implications

Nonaka concludes by providing advice for Western corporations to transform into knowledge-creating organizations. They ought to: Develop a strategic vision for knowledge management, where senior management establishes the parameters of organizational knowledge and specifies the types of information that should be generated. Establish a team of individuals with a wide range of skills and expertise. Create a densely populated area of engagement (a setting where frequent and intense interactions occur) in the forefront. Leverage the new product development process. Implement a middle-up-down management approach and transition to a hypertext organization. Establish a knowledge network that connects with external stakeholders, like as customers, to exchange information and insights.

4.1. Ikujiro Nonaka In Perspective

First time, Peter Drucker used the terms 'knowledge worker' and 'knowledge society' in the 1960s and more recently stated that knowledge has become the only meaningful resource. Nonaka acknowledges Drucker's contribution and takes it a stage further by looking at how knowledge is created and examining the processes involved. In fact, Nonaka has changed the microscope of KM, covering a broader and more comprehensive view of knowledge and made an unprecedented contribution to the organizational knowledge creation among academics and managers alike over the last 15 years.

4.2. Promising Directions for Future Research

Nonaka's thought about Western (predominantly explicit), and Eastern (predominantly tacit) knowledge types can be researched further with the help of Martin Heidegger's theory of knowledge, which can provide valuable insights about the Eastern conception of knowledge and can bridge the great divide between Western and Eastern knowledge concepts.

1. Nonaka's ideas might be further clarified by considering how an entrepreneurial mindset generates knowledge within businesses.
2. Nonaka's views can also provide insights into the study of organizational failures. Exploring how individuals might transform themselves into success stories by leveraging the insights of Nonaka could be a potential area of future research.
3. Exploring how a leader effectively formulates and implements knowledge strategies while balancing exploration and exploitation might pave the way for future research opportunities.
4. The advancement of knowledge management research can be furthered by the development of various knowledge management discourses, including neo-functionalist discourse, constructivist discourse, critical discourse, and dialogic discourse, with reference to Nonaka's valuable ideas.

5. Conclusion

Starting from the snapshot of Nonaka's life and career (Table 1), this paper reviewed the central elements of Nonaka's main thinking as an unprecedented contribution to the development of organizational knowledge creation theory, namely epistemology and knowledge conversion. It described his concepts of knowledge conversion (Figure 1), SECI model, spiral of organizational knowledge creation (Figure 2), *ba*, knowledge vision, knowledge activism, organizational forms (Figure 4), leadership, middle-up-down management style, knowledge activist, characteristics of *ba* (Figure 3), organizational-enabling conditions, heterarchy, hierarchy, hypertext organization, knowledge creation at organizational level (Table 2) and civilizational level (Table 3), directions that appear promising for future research and finally concluded that undoubtedly the elements of Nonaka's main thoughts reflect the potentiality in explaining both the nature of knowledge and the process of knowledge creation at the different levels: individual, organizational, global and civilizational but there is still a dire need of incorporating the foresaken views of world's major civilization into the Nonaka's thoughts for indepth understanding of human self, human values, human civilizations, human disciplines , human cultures and human belief- systems. Finally, one possible limitation of this study is the need to establish empirical contextual validation of the SECI model. Moreover, practical implications can also be synthesized in future studies.

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