Merja Karppinen

CULTURAL PATTERNS OF KNOWLEDGE CREATION

FINNS AND JAPANESE AS ENGINEERS AND POETS

HELSINKI SCHOOL OF ECONOMICS

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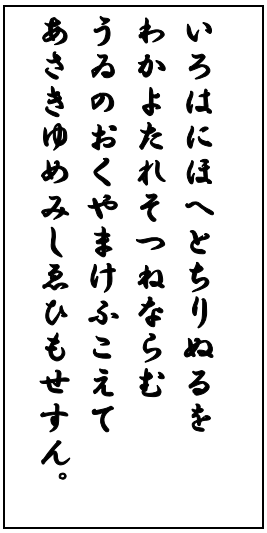
ISSN 1237-556X
ISBN-10: 952-488-010-5
ISBN-13: 978-952-488-010

E-version:
ISBN-10: 952-488-011-3
ISBN-13: 978-952-488-011-4

Helsinki School of Economics -
HSE Print 2006



Their colours are bright but still they fall:
who lasts forever in our world?
Today I cross the far peak of Transience:
no more shallow dreams, no drunkenness

Anon. (translation by Janine Beichman)

要旨

この研究は国際ビジネスでの知識創造の分析を行ったものであり、知識創造のどの観点が文化の影響を受けるかを探ることを目的としている。言語とコミュニケーションにあらわれる文化の違いは、この研究では異なった知識創造の型から始まるものであるということを前提としている。これらの型は言語と文字の本質の可変性、自己と理解力、コミュニケーションのプロセスの変幻自在な組み合わせである。本研究では文化にはそれぞれ独自の知識創造のスタイルがあることを示している。

本研究の調査方向としては文化との関連ではイーミックで、アプローチの点では説明的、解釈的であり、**複数の理論的枠組み**を適用している。本研究では、特にフィンランドと日本に焦点を当て、それぞれの文化に特有の知識創造のスタイルを**エンジニア**と**詩人**の知識創造と描写した。実証的データはフィンランド・日本ビジネスコミュニティのマネージャーたちにインタビューを行い集めたものである。

知識創造において**エンジニアとしてのフィンランド人**とは彼らの知識創造が機械的世界観を背景としていることを意味している。フィンランド語の表記はラテンアルファベットを基礎として書かれており、音標表記体系である。音と記号の対応度が高いので、文章は**透明度が高い**。このタイプの表音文字は**デジタル論理**を強化する。フィンランド語は左から右へと書かれ、視覚焦点を右目へと導き、**左脳**を刺激する。フィンランド語は単一方向で、正しい綴り方はひとつしかないため、そのような文字表記から学ばれた問題解決アプローチは**規則に基づく（機械的な）学習**を強化する。フィンランド語の知識のカテゴリー化は**抽象的**である。フィンランド人にとって、識字能力とは**理論的な学習**のスタート地点であり、**直線的論理**を強化する。

本研究の知識創造において**詩人である日本人**という概念は知識の詩的な処理プロセスが視覚映像と連想に基づいているというところから発している。日本で強調される世界観は**有機的**である。日本の書記体系はアラビア数字と、表語文字である**漢字**と２つの音節文字体系（ひらがなとカタカナ）、音標的な ラテンアルファベット（ローマ字）の組み合わせである。漢字は**具体的カテゴリー化**と**連想的論理**を可能とする概念体系を備えている。漢字を処理することは**左右対称に働く脳**（どちらか一方の側の脳に偏るのとは反対に）を育てると言われている。日本語の文章では文脈（背景）の絶え間ない解釈が必要となるため、問題解決はまた、**経験による学習**に焦点が与えられる。　漢字は視覚的な意味を持っており連想回路を生成するため、カテゴリー化は**具体的**で、**連想的**である。この複雑な書記体系は**不明瞭度が高く**（透明度が低い）、デジタル論理の使用とともにアナログ的な論理を強化する。
漢字の暗記は長期的に**体を使っての繰り返し**によってのみ可能となるため、日本人は**体を使っての学習**を採用している。これは**物理メモリー**（または運動記憶）とも言える。

キーワード：知識創造、暗黙的知識、文化、言語、文字、日本、フィンランド

Abstract

This study analyzes knowledge creation in international business, the aim being to determine which aspects of it vary cross-culturally. Cultural differences in language and communication are assumed here to launch different patterns of knowledge creation. These patterns are kaleidoscopic combinations of variability in the nature of language and script, in the concept of the self and receptivity, and in the communication process. It is claimed that each culture has its own unique knowledge-creation style.

The research orientation of the study is *emic* in relation to cultures, and *interpretative* or *hermeneutic* in approach, and a *multi-theoretical* framework is used. The specific focus is on Finland and Japan, and the knowledge-creation styles considered typical of these cultures are described as those of *Engineer* and *Poet*.
Empirical data was collected in interviews with managers in the Finnish-Japanese business community.

Finns as Engineers in knowledge creation means that the Finnish knowledge-creation style is linked to the underlying mechanistic world view. The script that is used to write Finnish is based on the Latin alphabet, which is a phonetic writing system. Since sound-to-sign correspondence is very high, the writing could be considered very *transparent*. This type of phonetic script enhances *digital logic*. Finnish is written horizontally from left to right, which directs visual focus to the right eye and stimulates the *left side of the brain*. Since there is *mono-direction* and only one correct spelling of words, the problem-solving approach learned from the script enhances *learning by rule*. Categorization of knowledge in Finnish is *abstract*. For Finns, literacy is the starting point for *theoretical learning,* and enhances *linear logic*.

The notion of *Japanese as Poets* in knowledge creation put forward here arises from the idea that the poetic processing of knowledge is based on visual images and associations. The underlying worldview in Japan is *organic*. The Japanese writing system is a combination of logographic Chinese characters (k*anji)* and two sets of syllabaries (*hiragana* and *katakana*), and the phonetic Latin alphabet (*rōmaji*) is used along with Arabic numerals. *Kanji* comprise a conceptual system allowing *concrete categorization* and *associative logic*. Processing *kanji* is said to promote a *symmetrical brain* (as opposed to bias towards either side). Because of the need for constant interpretation according to the context in Japanese writing, problem solving also focuses on *learning by experience*. Categorization is *concrete and associative* since *kanji* have a visual meaning and generate an associative network.This complicated writing system is highly *ambiguous* (low on transparency) and enhances analogue logic along with the use of digital logic. The Japanese adopt *learning by doing,* because memorizing *kanji* happens in the long run only by physical repetition: one could even talk about *physical memory* (or kinesthetic memory**).**

Keywords: *knowledge creation, tacit knowledge, culture, language, script, Japan, Finland*

Acknowledgements

I would like to start by expressing my gratitude to the Rotary Foundation for awarding me a two-year scholarship for travel to Japan in 1982-84. These two years changed not only my life but also my way of thinking, and sparked an intellectual curiosity that has guided me ever since. My most long-standing acquaintances in Japan are from that period and I feel proud to count them as my friends even today: Professor and Mrs. Yoshiro Koh, Professor Kazuhiro Nakaya and his family, Professor Toshio Kuroyanagi and the Okubo family. I am also greatly indebted to the Takada family in Abashiri for giving me many insights into the Japanese culture over the years. My newer friends in Japan have also contributed to my understanding of the changes in Japanese society. I am particularly grateful to Dr. Sari Hosoya for her support and for proving me with Japanese books!

I am greatly indebted to my advisor, Professor Reijo Luostarinen, for allowing me the academic freedom to pursue studies in a multi-disciplinary area. I have also been fortunate to have Professor Jean-Claude Usunier and Professor Allan Bird as preliminary examiners. Their deep understanding of cultural differences in international business has given justification to my untraditional approach in this dissertation.

There are a few people who have kindly taken the time to read the manuscript. Above all, I would like to thank Jaana Holvikivi for her encouragement and intellectual discussions, which have moved forward the whole process. I am also grateful to Professor Jarmo Eronen and Professor Marjatta Maula for their comments. In addition, I have gained insights from discussion with Professor Karl-Erik Sveiby. My warmest thanks are also due to Joan Nordlund for the English revision of the manuscript. Responsibility for the remaining errors rests with me.

At the International Business faculty, Professor Hannu Seristö and the Department Secretary Ann-Mari Wright-Hyttinen have been most helpful throughout the process. I would also like to thank many friends and colleagues there and in the Marketing Department. I am grateful to you all for your support and cooperation over the years, and in particular to Pirjo-Liisa Johansson, Annukka Jyrämä, Zuhair Al'Obaidi and Mai Anttila. Helsinki School of Economics has been an inspiring environment in which to dwell, and over the years I have come to know many wonderful people from different departments and faculties. I give special thanks to the personnel who keep the wheels running, including Maritta Kaskiala and Keijo Laukkanen! I would also like to thank Raimo Viitanen for his flexibility in the printing process.

This research process has been inspired by the work of Professor Ikujiro Nonaka and his theory of knowledge creation. The three years of full-time research that I have been able to devote to this study have been intellectually the most stimulating and rewarding of my life.

With passion I have read books by great thinkers such as 西田幾多郎 and Alexander R. Luria to the extent that they have become alive in my mind. I am grateful for their pioneering work, which has also facilitated my modest contribution. I am indebted to the work of Jack Goody, Chad Hansen and Robert E. Allinson, and my thinking has been influenced by Richard A. Shweder, Edward W. Said and Stephen W. Littlejohn. For access to this intellectual thought I would like to thank the Helsinki School of Economics library personnel for meeting even my weirdest wishes for distance loans over the years: without their professional skills and friendly service I could never have pursued this study. I give special thanks to Arja Viitanen!

Moreover, I would like to express my sincere gratitude to the Finnish-Japanese business community, both in Finland and Japan. I am grateful to the interviewees in this study. I have also gained a lot of understanding from my participation in the Finnish-Japanese Chamber of Commerce. Thank you, Risto Roto, for introducing me in the beginning! And thank you, Ilpo Kaislaniemi, Jukka Suomela, Heikki Masalin and Petteri Kostermaa and many other members of the FJCC for including me in your interesting discussions. I give also special thanks to Elina Junnila at Santen Ltd. I feel most indebted to Claes-Göran Bystedt in Tokyo, whose network opened many doors for me during the period of my empirical research.

The bicultural Finnish-Japanese community in Finland, and especially the Finnish Association for Teachers of Japanese Language and Culture and the friendship organization Japania ry, have provided many interesting forums in which to reflect on and test my ideas for this study. Thank you, Yuki, Piki, Pia, Riikka, Virpi, Midori, Mallat-san and many others!

The Center for International Business Research (CIBR) at Eteläinen-Hesperiankatu 4 has provided me with a comfortable "second home" and an inspiring atmosphere. I would like to thank my colleagues there for their emotional support and encouragement. Thank you, Kalevi, Rauni, Viveca, Päivi, J-P, Päivi, Minna and many other researchers who have come by!

My present employer, Helsinki Business College, has been kind in granting a leave of absence that allowed me to pursue this study. I would also like to thank the Foundation for Economic Education and the HSE Foundation for partially funding the project.

There are many other people without whom I would not have been able to concentrate on this study. I would especially like to thank the personnel at the Floora day-care center for taking good care of my daughter, Liisa and Jarmo Haataja for taking good care of our dog, and the reflexologist Marja Leppälä for taking good care of me!

My family and friends around the world have provided a network of support and intellectual stimulation. Thank you, all! I am especially indebted to my mother, Annikki Karppinen, for her care and support over the years.

My children, Mikito and Karima, are and have been my greatest source of joy and happiness. Their existence has provided me with the courage and strength to continue even at difficult times. This work would not have been possible without them. However, there is one person above all others who deserves my deepest thanks and heartfelt respect for his continued support during the writing of this dissertation: my husband, Seppo Karppinen. I could not have done it without him.

My life seems to take drastic turns in Dog Years: we are now living in Dog Year 2006, I defended my licentiate thesis in Dog Year 1994, and most importantly, I began my endeavor to understand the Japanese culture as a Rotary exchange student in Dog Year 1982. Thus I must not forget to mention another two important members of my family: Jenni, a Pembroke corgi, who has stood by us through good and bad times for almost 13 years, and Luis, a charming stray dog who found his way to our home just a half year ago. They have both contributed to my understanding of tacit knowledge as a "black dog in the darkness".

March 10, Dog Year 2006, Helsinki

Merja Karppinen

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1 INTRODUCTION

1.1 Background of the Study

This study is about how cultural differences influence international business. I have selected to focus on the knowledge creation-process since this underlies all other aspects in international business: market research and management issues are all grounded on concepts of knowledge and knowledge creation. Moreover, knowledge-creation theory came into prominence in recent years in the academic field of international business. As companies become multinational, cooperation between people from various cultural backgrounds is inevitable and even desirable. In order to create new knowledge, multinational teams must be able to work fruitfully together, bringing into the teamwork different ways of thinking and communicating. This creates the need for the cross-cultural application of knowledge-creation theory.

Organizations are characterized by complexity, contradiction, and paradox, and international organizations even more so. When confronted with a contradiction or paradox we can use different problem-solving strategies. Quinn and McGrath (1985) suggest four different approaches: isolation and closure, accommodation, dominance, and transcendence. These correspond to some extent to cultural-adaptation strategies (Bochner 1982; Furnham and Bochner 1994): isolation and closure suggest segregation; accommodation is similar to integration as vacillation; dominance could be considered assimilation; and transcendence resembles integration as mediation, synthesis. *The aim of this study is to analyze the different knowledge-creation patterns in order to provide a paradox to be solved by transcendence in international organizations.*

Knowledge management and knowledge creation have become more and more important in international business during the past ten years. McGraw and

Barbison-Briggs (1989, 8) see knowledge acquisition as the most significant aspect of expert system development, but also the most problematic. Knowledge is the most vital asset in competition in today's business. Since the key players in global business are all multinational companies, there is need for an analysis of how the knowledge-creation-process model can be applied to the cross-cultural context.

It has been suggested that cultural differences are especially important in acquisitions (Kogut and Singh 1988). The match between administrative practices, cultural practices, and the personal characteristics of the target and parent firms is what Jemison and Sitkin (1986, 147) call their **organizational fit**. In order to find a fit in the knowledge-creation patterns of different companies one must understand which areas in knowledge processing and transfer are most affected by cultural differences. International research is needed to discover the underlying phenomena. Is international business research really international, however? Usunier (1998, 66), a French professor of International Marketing and Management and pioneer in taking a deeper interest in cultural differences answers this as follows:

> *"I do not believe so. Language barriers and differences in intellectual styles and academic systems are major deterrents for cross-border management research. It is human rather than technological field of knowledge, meaning must be constantly fine-tuned. The ability to take cultural diversity into account in international management research is nearly curtailed by the English-only bias. True international research, which is still quite rare, should always be the product of collaboration between native researchers coming from diverse cultural and linguistic contexts."*

Ideas from one culture can interact with and fertilize those of quite a different culture by means of creative dialogue (Clarke 1997, 106). It is believed in this study that by making explicit the different patterns of knowledge creation in Japan and Finland we can get new ideas of how we could develop our own ability to be more creative. It has been said that truth becomes visible only through the other (Clarke 1997, 13). Furthermore, to name a thing makes it exist. Hudson (1980, 99) gives an example of a practical experiment in which naming

objects helped to solve a problem.[1] He claims that one of the main social functions of speech is in the area of problem solving, to enable us to 'talk through a problem' with other people.

The relevance of the present study is in raising the issue of the existence of multiple worlds instead of only one universal world in the international business context. After identifying the key issues in the knowledge-creation process we can compare how the objective worlds differ, and by looking at the practical business world we can learn how international managers are able to bridge these worlds.

Form of Presentation

The study at hand is a doctoral dissertation proposed for acceptance in International Business at the Faculty of Marketing at Helsinki School of Economics in 2006. Because the audience is understood to be the wider academic community in International Business, the **language of the presentation** was selected to be English (although the native language of the researcher is Finnish); English is generally acknowledged to be the international language in the field, denoting that it is the most commonly understood language among researchers and thereby guaranteeing the widest possible dissemination.

However, I am also using secondary sources in Finnish and Japanese. In quoting Japanese sources, I made the decision to refer to both the source and the

[1] The subjects were given a candle, a box of tacks and two or three matches, and asked to find a way fixing of the candle to the wall in an upright position so that the wax would not drip. Some subjects were simply given the objects and told what to do, but others were also told what the objects were - a box, some tacks, some matches and a candle. Naming the objects drew attention to the box as a separate object, rather than just a container for the tacks, and this led those concerned to see the solution to the problem - tack the box to the wall and stand the candle on top of it. Those who were simply given the objects took an average of nearly fifteen times longer to solve the problem than those who had the objects named. Duncker 1980, 98 referring to Clark & Clark 1977, 556.

Japanese concepts in Japanese script. I use the Latin script transliteration for some Japanese words, such as *Ikebana* (flower arrangement), because these words have become settled in the English language. For example, when I refer to a book in Japanese by Nonaka, I use 野中 (1990), but when I refer to his publication in English, I use Nonaka (1994). This choice is defensible in that if the reader does not understand Japanese, he or she has no access to the original source either. The list of references for sources in the Japanese language follows the same logic; however, the English translation is also given for each source which is in Japanese or Finnish.

Since cultural analysis of the central concepts of knowledge-creation theory is an important part of this study, I use the original terms in Japanese, for example, 暗黙的知識. The transliteration of this term would be *anmokuteki chishiki*, but in phonetic writing it does not disclose any of the qualities necessary for understanding its meaning. I believe that it is useful for the non-Japanese-speaking reader to get used to seeing Japanese terms written in the native writing system.

Since the academic international business community predominantly consists of Western academics, there is a certain **bias in the focus and presentation** of the analysis in my study. I frequently refer to 'us' or 'our' as the common background of being brought up in Western industrialized societies shared by the target audience and myself. Therefore, I elaborate more on 'the different', the Japanese way, because I am assuming that 'we know less about it'. Had I been writing with my Japanese colleagues in mind, I would have skipped some of the detailed parts in describing the Japanese writing system. However, I believe that my findings and insights about the influence of the Japanese writing system on knowledge processing will also prove to be both novel and thought-provoking for the Japanese audience. I am focusing on the Western audience partly because I believe that the Japanese are already aware of Western models, and although we do not know how they write, they are already using our

writing system in addition to their indigenous scripts. Thus there exists an **asymmetry of knowledge** in this respect, and I am aiming at balancing it to some degree.

Background of the Researcher

My interest in Japan began when I studied as a Rotary international exchange student there in 1982-1984 at the International Christian University (ICU) in Tokyo and at Hokkaido University in Sapporo. After this I married a Japanese and lived and worked in Japan for several years. I gained insight and experience as a **marginal member** of Japanese society in different roles: an exchange student, a company employee, a university teacher, and an entrepreneur, but most important were the family roles of being a wife, a daughter-in-law and a mother. I felt completely accepted by the surrounding society, and at times it was only the reflection in the mirror of my own 'foreign' face that made me remember that I was 外人 *gaijin*, a foreigner. Interestingly, when I moved back to Finland I felt a marginal member of my native society as well. Usunier (1998, 65) suggested that the researcher in international management must be a cultural translator, that is he or she has to transfer meaning across cultures. In my role as a marginal member in Japan and Finland, I feel I have the potential of being a cultural translator, or a cultural mediator.

Since the present study concerns cultural differences in knowledge creation, I believe that my **learning of the Japanese** language has provided me with an insight into how language, and especially written language, affects our thought processes. Since I learned to read and write anew at the age of 22-23 years, I believe that I gained a fresh approach to the influence of the writing system on the way of thinking. Luria (1979) tells fascinating stories of how he observed a man with brain lesion learning to walk anew, another to write and yet another to recount a story. These skills that we take for granted in our lives become complicated sets of rules when we forget them and have to start learning them

again. We gain new insights by observing someone learning a skill or by learning new skills ourselves.

For me, learning written Japanese took place after I had mastered and had been using the alphabetical writing system for many years. Thus some unlearning was necessary (for example in how to hold a pen, how to fill a space, and in what direction to write), and there was some association between some signs in the different systems (for example, I was unsure later how the letter 'E' should be written, because of the similarity of sign 'ヨ', in *katakana*.) However, I was lucky in that the university in which I studied Japanese for about one year was very advanced in the methods used for teaching Japanese as a foreign language. Among other things, after the introduction of the two Japanese syllabaries (*hiragana* and *katakana*), which took place during the first week of the course, the instructor only used these scripts in teaching the Chinese characters (*kanji*) and the language in general. I believe this was important not only because it imposed the accurate pronunciation of words from the start, but also because it cut out the world of '*romaji*', the alphabetic script, and embraced the Japanese written world. Finally, the opening of the world of *kanji*, the logographic Chinese characters, became a formidable adventure that has certainly changed some of the ways in which I think.

Being a **member** of the Finnish-Japanese Chamber of Commerce for the past ten years has given me a great opportunity to be a **participant observer** in Finnish-Japanese business society. Over the years I have been able to establish trust and personal relationships with many of the members. Consequently, even during the years when I was not doing research officially, I accumulated knowledge about Finnish business operations in Japan and observed how Finnish and Japanese businessmen interacted together. I have also been running training programs in Finnish companies about the Japanese business culture, and I have heard several stories of both success and failure. My current position as the head of the Finnish Association for Teachers of Japanese Language and Culture (フイ

ンランド日本語・日本文化教師会の会長) in Finland also gives me access to an important bicultural community.

Links with Previous Studies and the Contribution of this Study

Since this is a multidisciplinary study, there are links with several research traditions and previous studies. It seems that cultural studies are not very attractive to researchers in international business, as Usunier (1998, 65) noted: *"Culture is likely to appear non-mainstream and unattractive to researchers wishing to 'make it' professionally."* This may explain why there exists a research gap in the cross-cultural adaptation of theories developed in organizational learning and internationalization. However, it is precisely the international context that invites analysis of the impact of these different cultural contexts.

Organizational Learning

This study is principally linked with the field of organizational learning and management. Learning and the transfer of knowledge have traditionally been of interest in organizational studies. New ideas about the nature of knowledge and its transferability started to emerge in the 1980's. March and Olsen (1979) considered organizational intelligence, like individual intelligence, as being built on two fundamental processes: rational calculation and experience. Boisot (1986) made observations about the codification dimensions of knowledge.

Kogut was already showing interest in the **transfer of tacit knowledge** in joint ventures in 1988 and suggested:

> *"Joint ventures are not merely a matter of equity control, but represent a set of governance characteristics appropriate for certain strategic or transaction cost motivations or for the transfer of tacit knowledge" (Kogut 1988).*

he considered an advantage embedded in specific organizational routines less diffusible among firms, and one embedded culturally and institutionally less diffusible among countries (Kogut 1988; Kogut and Singh 1988).

Hamel's (1990) study of joint ventures between US American and Japanese companies came up with results showing that there was out-learning of American partners by the Japanese partners. He used the term **'transparency of knowledge'** to indicate the openness and accessibility of skills of one partner, which are fully susceptible to the intent to learn of the other partner, and noted that asymmetry of transparency was inevitable in partnerships (Hamel 1990, 17; 51). For me, this was a very important discovery because I could immediately relate the transparency of knowledge to cultural differences between the Japanese and the Americans. At that time I was also aware of the development of Nonaka's knowledge-creation theory (野中 1990), which later became the basic framework for my study of cultural differences in knowledge processing and transfer.

Nonaka's Knowledge Creation Model (野中 1990)

I met Professor Kujiro Nonaka for the first time in spring 1991 at Hitotsubashi University in Tokyo, and he presented me then with his Japanese book on knowledge creation. I intuitively felt that his model was very Japanese, although I could not clearly explain why. I saw immediately the importance of applying that model to the cross-cultural context, and conveyed my thoughts to Professor Nonaka. He encouraged me to go ahead with it. However, I was then working on my licentiate thesis (Karpinen-Takaca 1994), so I had to postpone further investigation into knowledge creation until later.

Imai, Nonaka and Takeuchi (1985) had earlier described how Japanese companies learn and unlearn in the new-product innovation process. Nonaka was also one of the writers in Kagono et al. (1989) comparing US and Japanese strategy and organization by contrasting what they called 'strategic versus

evolutionary management'. He also considered innovation management a self-renewing process (Nonaka and Yamanouchi 1989).

Although there were several English publications on the knowledge-creation process (Nonaka 1991a; 1991b; Nonaka and Nedungadi 1991; Nonaka 1994), the breakthrough for the Knowledge Creation theory or model was the English publication by Nonaka and Takeuchi that appeared in 1995. This started a growing interest in the knowledge-creation process and several researchers applied the model in their studies (for a full range see Dierkes et al. (eds.), 2001).

The present study is directly linked with this chain of studies in applying the theoretical framework of knowledge creation put forward by Nonaka. However, its contribution is **in analysing the extent to which the model could be considered applicable across cultures**. Nonaka and Takeuchi (1995) originally pointed out the huge differences between Japanese and Western companies in knowledge processing, but the model has nevertheless been interpreted in the West as a universal framework. It is the aim of this study to show that there are **several knowledge-creation patterns** and not one universal model.

International Studies

Organically this study is related to the tradition of internationalization studies in International Business at Helsinki School of Economics. It is also a natural continuation of my earlier research on learning in internationalization (Karppinen-Yakaca 1994).

Hymer (1960) was the initiator of a field of study focusing on the international operations of companies. Researchers in the Nordic countries have been especially keen on this topic, and there are two different Nordic schools of thought, one originating in Finland (Luostarinen 1979; 1991; Luostarinen and Welch 1990)) and the other in Sweden, the 'Uppsala School of Thought' (Johanson and Vahlne 1977, 1990; Johanson and Wiedersheim-Paul 1975; Börnell et al. 1973). Knowledge management in internationalization had an

important role even in these early studies. For example, Kostarinen (1979) introduced the concept of **lateral rigidity**: change in the degree of lateral rigidity is regarded as a function of the amount of experience and information flow, as well as of the nature of these flows. He also considered **experiential knowledge** more vital for internationalization than information.

The perception of cultural differences by key informants is the focus of interest in the empirical part of this study. This links it with the Nordic tradition of internationalization studies, which introduced the concept of psychological distance (Johanson and Vahlne 1977; Nordström 1991; Vahlne and Nordström 1991). The concept of business distance introduced in Kostarinen (1979) also encompassed the component of cultural distance.

The contribution of this study to the field of internationalization studies could be considered as conceptualizing the final stage of internationalization as **international internationalization**. After having learned to use multiple business operations in multiple markets, firms are finally developing the cultural skills necessary for managing foreign operations successfully. This was evident in the longitudinal observation of Finnish companies operating in Japan in 1991-2003. The development of cultural mediators is an important indicator of this type of internationalization.

Language and Communication Studies

Organizational learning and communication have been linked together in earlier studies (e.g., Farace et al. 1977; Mumby 1988), but usually from a monocultural perspective. Communication is considered in this study from a multicultural point of view - both in the comparison of culturally different communication styles and as cross-cultural communication.

Edward T. Hall was the founder of the field of intercultural communication and one of his major innovations was the concept of contextuality of communication (Hall 1977). He uses his concepts of **high-context** and **low-context**

communication here to further build a two-dimensional model of the contextuality of communication, which forms the basis for knowledge conversion on the group level.

There is also a link with other communication studies through the analysis of the **concept of the self** in different cultures (especially Kim 1995), and with comparative studies of **communication** (e.g., Kincaid 1987).

The link between **language and thought** became evident to me after reading Goody (1989; 1991). His inspirational analysis of the interface between oral and literal cultures guided me to understand the importance of written language and I immediately started to apply his ideas to Japanese. I have also gained a lot from reading Ong (1990) on orality and literacy, and returning to the insights offered by McLuhan (1962; 1987) who considered the phonetic script an important innovation in Western scientific history. I share with these writers a firm belief that language, and especially the script, influences the way we organize knowledge.

Taylor and Taylor (1990; 1995) have been a very useful source in helping me to understand exactly how this happens, although they have their reasons to believe that the script itself has nothing to with the logic and thinking process. Fortunately I became acquainted with Luria's (1973; 1976) studies of illiterate Russians, which made me convinced that achieving literacy gives us a tool for knowledge processing. Although this view has been challenged, the most recent neuroscientific studies have proved that language does indeed influence the way the brain processes knowledge (Tan et al. 2003).

An Emerging New Paradigm in Science

Finally, but not least importantly, in applying the idea of multiple objective worlds to studies on international management, this study is linked with a wider range of studies in different fields of science aiming at creating a new world paradigm. Some argue that there is a general logic of management, which has

applicability to both developed and developing countries, or that management fundamentals (i.e. concepts, theories, and principles) have universal applications in every kind of enterprise and at every level of enterprise. (Fukuda 1991, 25-26) It is also often thought that all cultures are part of the same evolution: at the end we will all be developed to the same (Fukuyama 1992). This view is not accepted by all; among others Iwai (2004) maintains that development from pre-industrial to industrial and post-industrial society is not a linear evolution, but that different stages of industrialization may coexist even within the same society.

Existence of multiple objective worlds means that we accept simultaneous existence of worlds based on different worldviews, different logics, as part of the present reality. Since the Western worldview is based on an idea of Universal truth, it will take a paradigm shift for us to fully understand the concept of multiple truths.

There seems to be profound change happening in the way we (in the West) see the world and ourselves. The atomistic worldview, which can be traced back to the ancient Greeks, has come to an end in physics, and this change has also affected how other sciences see the world. A new paradigm is currently emerging in the West in different fields: for example, in mathematics (Penrose 1990), in psychology (Nisbett 2003), in physics (Capra 1991; Zohar 1986; 1999), in neuroscience (Damasio 2001), and in philosophy Dennett (1999). This paradigm shift is reaching also management science (Reeding 1990).

In a pioneering work looking at the structure of scientific revolution Thomas Kuhn (1962) showed how the work of scientists is structured by a shared worldview, which he called a 'disciplinary paradigm'. This supplied a context within which people worked, often unaware of its shaping influence upon their perceptions and work. After routine puzzle solving the problems that could not be solved by the current paradigm accumulated. Following a period of radical

uncertainty the attempt to construct a new cultural paradigm commenced. (Beare and Slaughter 1993; see also Bozak 1999)

Part of the new world paradigm involves the realization that 'our way', the traditional Western way, is not the only way and not even necessarily the best. In its search for a new paradigm the West can look to the East - not to find a new model to replace the old one, but to learn and gain insights into different ways of organizing the world. Only by recognizing that there exist other valid approaches to the world can we start learning from these multiple solutions. If the world is thought of as being one and the same, we have only Fukuyama's (1992) 'the end of history' ahead of us as the evolution of societies continues.

The well-known American psychologist and a member of the National Academy of Sciences **Richard E. Nisbett** (2003) recently pushed forward a change in paradigm in cognitive psychology. He describes himself as having been 'a lifelong universalist concerning the nature of human thought':

> "*Marching in step with the long Western line, from the British empiricist philosophers such as Hume, Locke, and Mill to modern-day cognitive scientists, I believed that all human groups perceive and reason in the same way.*" (Nisbett 2003, xiii-xiv)

However, he has now come to realize that thinking processes differ radically across cultures, and that his earlier attempt to package the whole human world under the title 'human inference' (Nisbett and Ross 1980) was gravely mistaken. In the West a new inquiry into the fascinating notion of cultural differences in perception and thought has began and it is hoped that this will improve the mutual understanding of mental differences between East and West.

The present study continues this inquiry into differences in thought processes by contrasting two very different cultural traditions, Finland and Japan. By looking at language, and especially the script, as a tool for organizing knowledge and understanding the world, I hope to reveal some of the reasons why thinking is different in these two cultures. At best this recognition will lead to the bridging of cultural differences in knowledge creation in International Business with the help of cultural mediators.

Limitations

On the empirical level, this study is limited to analyzing cultural differences in the knowledge-creation process in and between Japan and Finland. Although some generalizations are made based on this, and a tentative theoretical model of knowledge-creation patterns is developed, its applicability to other cultural contexts has not been tested.

I am fully aware that my study contributes to a controversial argument concerning the uniqueness of the Japanese culture. There is a vast array of literature called 日本人論, literally 'discussion about Japanese' mostly by Japanese writers. Some Western critics are claiming that this is not serious empirical research, but could rather be defined as 'works of cultural nationalism concerned with the uniqueness of Japan in any aspect, and which are hostile to both individual experience and the notion of internal socio-historical diversity' (Dale 1990).

Although I feel that Japan is my 'other home country' I have no nationalistic purposes behind this study. In my view, the Japanese writing system is such a unique combination of both phonetic and logographic scripts that it entitles us to consider Japanese culture a specific case even compared with its next-door neighbors Korea and China. Moreover, I would hesitate to group together the Far East Asian countries although there are some similarities in their writing systems.

In this study Japan is compared generally to the West, and especially to Finland. In terms of script, the West in this case comprises industrialized countries cultures in Western Europe and North America that use the Latin alphabet. All these countries are also predominantly Christian. I believe they share a lot in their knowledge-creation styles, but there are also many differences. Finland is used in this study as a representative of a Western country.

Since it differs considerably linguistically and in its history of literacy from other European countries, it provides an interesting point of comparison.

This study does not aim at the quantification of cultural differences in the manner of Hofstede (1991), for example, but rather seeks to analyze the quality of these differences. It could be considered a limitation that no easy solutions to managing cultural differences in knowledge creation are found or recommended, and that, on the contrary, several questions remain open. However, this is a cognizant choice by the researcher and aims at motivating further investigation by both academics and practitioners.

Outline

This study comprises six chapters.

Chapter 1 gives the background and shows the links with previous research. The limitations are also discussed.

Chapter 2 outlines the research design, and describes the approach and methods used in both the theoretical and empirical parts of the study. The general research question is phrased: *"How Does Culture Influence the Knowledge-creation Process in International Business?"* A summary of the hermeneutic spiral of the research process is presented and issues of validity and reliability are discussed.

Chapter 3 begins with a theoretical discussion and analysis of Nonaka's knowledge-creation theory. This theory is the object of this study and the aim is to discover how cultural differences influence its application. Core concepts in the theory are analyzed on different levels, and their development in use is described. The meaning of tacit and explicit knowledge in knowledge creation is considered on different levels, and cross-cultural issues related to this are identified. It is suggested that tacit knowledge on the individual level is similar

to Jung's concept of unconscious knowledge, and explicit knowledge resembles conscious knowledge. The interaction between the two types creates new knowledge through feeling, intuition, thinking and sensing, which correspond to the SECI model in Nonaka's theory. Language is considered to play an important role in how these individual-level knowledge-creation processes vary in different cultures.

Cross-cultural differences in the knowledge-creation process are further examined. First, different concepts of the self and their relation to individualism and collectivism are discussed (orientation to the self and the other, and facets of individualism and collectivism). This helps us to understand differences in the socialization process between the Japanese and the generally more individualistic Westerners.

Relevant approaches to cross-cultural communication are then discussed. Orientation in communication and the high-context – low-context framework put forward by Hall (1977) are linked to the externalization and combination processes described in the SECI Model. Finally, a two-dimensional model of the contextuality of communication is presented.

The internalization process is linked here to the capacity to learn, which is discussed in terms of transparency of knowledge and receptivity. The issue of receptivity is considered in terms of differences in the development of sensory perception. There is evidence that we develop differences in using our senses in infancy. This later affects the way we scan the world, and what we pay attention to and consider meaningful information in the environment.

The influence of language on the development of cognitive capacities is analyzed in Chapter 4. The focus is on written language since it is a major tool in knowledge processing. Knowledge in science is acknowledged only after it has been written down (and published). In international business too, especially in the West, the written word plays an important role in decision-making. Since

written language or script is something concrete and visible, it is possible to analyze how language shapes our cognitive styles.

The alleged associative logic of the Japanese is a natural consequence of their writing system, in the same way as linear logic is born of the Latin script. Although I am not claiming that scripts explain all about our thinking processes, I will argue that throughout history people with a certain logic have developed certain types of script that were selected and or maintained by other people agreeing with this logic. A little schoolgirl in Finland or Japan has very little say in which script she would consider suitable for her logic: society has agreed upon it already. As a result, she will be conditioned to the logic of the script by becoming literate. Throughout my discussion on the influence of the writing system on cognitive style I will be using the cases of Finland and Japan in order to make the ideas more concrete.

A theoretical model of knowledge-creation patterns is summarized and discussed in Chapter 5. The context is an empirical case of the Finnish-Japanese business community. The Finnish knowledge-creation style is called the Engineer style, and it is characterized by a theoretical and abstract approach, and digital logic. The Japanese style is that of the Poet, implying something concrete and associative, based on analogue logic. Differences in the meaning of the key concepts in knowledge-creation theory in the Finnish and Japanese languages are also analyzed.

Finally, Chapter 6 presents the conclusions and major findings of the study, and the implications are discussed.

"In science as in love, an overemphasis on technique is quite likely to lead to impotence."
(Berger, Peter 1963, 13)

2 RESEARCH DESIGN

2.1 The Hermeneutic Spiral

Since the present study has evolved from a thinking process that started many years ago, the visible part of it is only the tip of an iceberg. What is considered a starting point here is actually already the result of *heuristic or hypotheses-generating research*. I observed and recorded some aspects and contexts of knowledge creation aiming at the discovery or description of patterns or relationships yet to be identified. As Seliger and Shohamy (1989, 29) note about heuristic research:

> *"There may be no complete theories or models to guide the researcher or to stimulate specific research questions at this point. Data are collected in an attempt to include as much of the contextual information as possible. These data may then be categorized or analyzed or written up descriptively. Often the result of such research may be the formulation of hypotheses."*

The approach in the preliminary part of this study was *synthetic*, which means that the phenomenon is viewed holistically as a composite of factors that might not be analyzable into separate parts easily or with validity. Data at the pre-understanding stage was collected both by participant observation and through secondary sources. My wide interest spread into multi-theoretical fields of study, including linguistics, cognitive psychology, cultural anthropology and communication studies, as well as to management studies. Long-term participant experience helped me to make sense of even the most detached survey data (Okely 1994, 21). Gradually it was possible to discover patterns and explanations, and to form questions and actual hypotheses for further research.

The primary assumption arising from the pre-understanding was that there are cultural differences in knowledge creation. This generated the research question: *How Does Culture Influence the Knowledge-creation Process in*

International Business? This marks the beginning of this written study, which aims at *theory building* and could be considered *basic research*.

The formation of the research questions moved the study on to a type of *deductive hypotheses-generating research*, which means testing hypotheses in order to develop a theory about the phenomena in question (Seliger and Shohamy 1989, 29-30). The process starts with a preconceived notion or expectation about the phenomena to be investigated. The formulation of a question or a theory narrows the focus of the research and allows systematic investigation. Figure 1 summarizes the end points and differences between heuristic and deductive research objectives as discussed by Seliger and Shohamy (1989). There are research formats that take in attributes from both sides. I combined these approaches in my selection of a hypothesis generated by synthetic-hermeneutic pre-research as the basis for investigation within an analytic-deductive design.

Heuristic ⟷	*Deductive*
Data-driven	Hypothesis-driven
No preconceptions	Makes predictions
Can generate hypotheses	Tests hypotheses
Product: description or hypotheses	Product: theory

Source: Seliger and Shohamy 1989, 31

Figure 1: Characteristics of Heuristic and Deductive Research

The present study employs an *analytic* approach in which one or several factors of the phenomenon under study are selected for further analysis (ibid, 54-56).

Deductive research may be driven by theories or questions developed in other fields of science. It could be said that a theory developed in another field has explanatory value that complements the heuristic approach in the pre-study. In this case the object of the study was the theoretical model of knowledge creation developed by Nonaka (野中 1990; Nonaka and Takeuchi 1995).

Communication theories were used to identify the cross-cultural variables in the knowledge-creation process, and a model of the process as communication was outlined.

A review of cross-cultural studies identified several key aspects of knowledge creation. Three issues in addition to language were selected for further analysis based on their importance in Finnish-Japanese interaction: the *concept of the self, communication, and receptivity*.

Secondary empirical sources comprising ethnographic studies on language and communication were used along with theoretical models in order to gain deeper understanding of the selected variables. Cultural patterns of knowledge creation began to emerge. *Language* was identified as an independent variable in the knowledge-creation process. Although language is a means of communication, it also has an important role as a tool for organizing knowledge. Theoretical analysis of the influence of language on the development of cognitive capacities was performed, and secondary data on script and literacy was combined in order to show how different cognitive capacities influence the knowledge-creation process.

After summarizing the theoretical findings concerning cultural differences in knowledge creation, I proceeded to test the model of cultural patterns by looking at the empirical context of the Finnish-Japanese business community. The perceptions of key persons in the target group were compared with the theoretical framework. Comparing the data collected in 1991 and 2003 allowed some longitudinal observations.

The study has followed an iterative process moving between theory and empirical data from secondary and primary sources. The development of my understanding of the phenomena under study could be considered a *hermeneutic spiral*, which is

> *"an iterative process whereby each stage of research provides us with knowledge: in other words, we take a different level of pre-understanding to each stage of the process"* (Gummesson 1991, 62).

The hermeneutic cycle of this study is portrayed in Figure 2. The research questions were focused on at each stage, and the methodological choices were reassessed in the transition from theory to empirical data at different stages. Finally, the iterative interplay of data collection and analysis led to the theory development. The outcome of this study is a theoretical model of cultural differences in knowledge creation and its application in the Finnish-Japanese business community that reveals cultural patterns followed by Engineers and Poets.

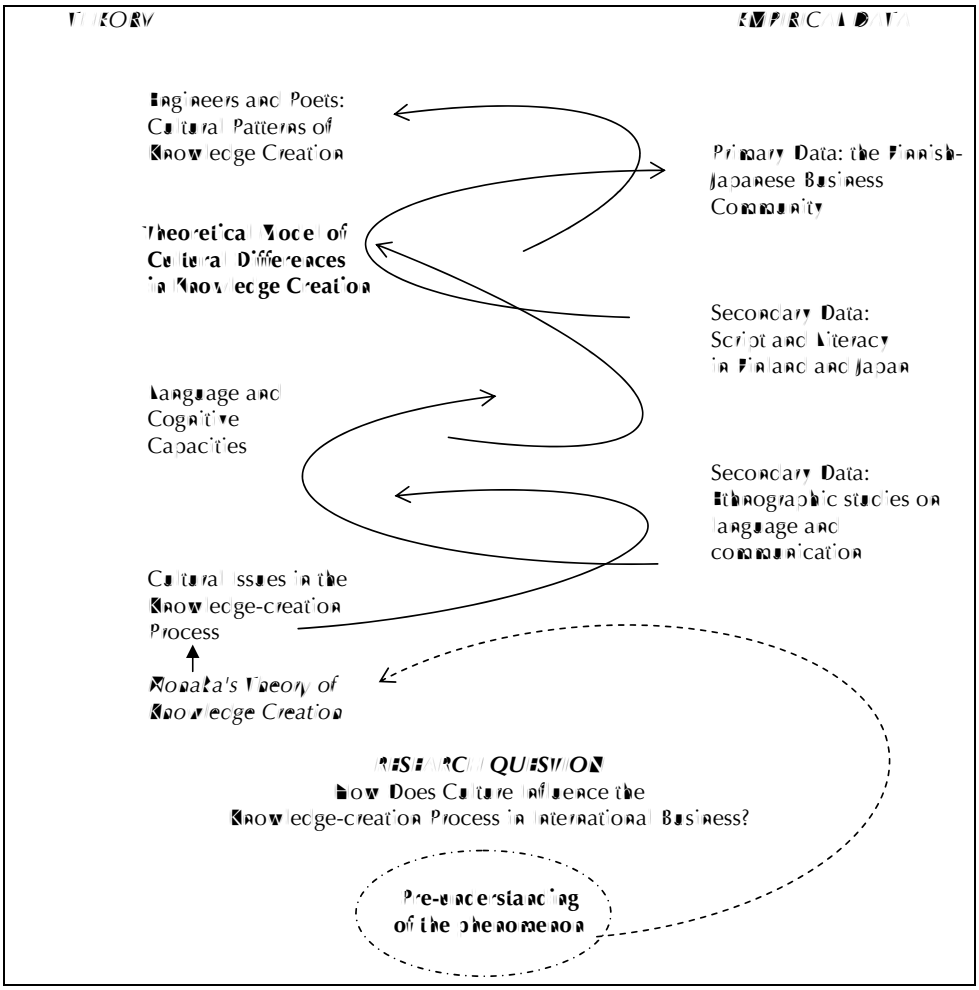

Figure 2: The Hermeneutic Spiral of Theory Building in this Study

2.2 Pre-understanding of the Phenomena

The research design of this study entailed continuous comparison of data and theory throughout the process. It began with the development of a rough working framework based on the existing literature and pre-understanding of the case contexts. There was movement back and forth between the emerging model and the evidence throughout the data gathering and analysis.

Gummesson (1991, 56-57) suggests that researchers use their pre-understanding but are not its slave: it is therefore important that pre-understanding is subject to change, and that the researcher is aware of paradigms, selective perception, and his or her own personal defense mechanisms.

My pre-understanding came from primary and secondary sources, which were the same as were used in the research process to gain further understanding. I had personal experience of the phenomena under study and secondary access to the experience of others via books, written reports and other literary sources.

Glaser and Strauss (1967, 254) refer to pre-understanding gained from **personal experience** as "insight" and consider it "*of no use to the theorist unless he converts it from being simply an anecdote to being an element of theory*". My personal experience was an important source of understanding in two major ways.

(1) **My experience** as a member of the business community and my cooperation with companies allowed me to test the emerging hypotheses along the way. For example, teaching teams of engineers and managers about Japanese culture in a large multinational company gave me access to the practical problems involved in cooperation between the Japanese and the Finns.

What this experience told me was that Finns and the Japanese have some similarities in communication that allow them to feel at ease with each other in informal situations. For example, it was noted that "A Finn and a Japanese

businessman could sit quietly together when driving all the way from Helsinki to Tampere (200 km)'. There were more misunderstandings in formal meetings, especially when the Finns were in a position to give directions to the Japanese. A Finnish manufacturer subcontracting from a Japanese company had difficulties trying to make the Japanese understand that they wanted to have precisely what they had ordered, not some 'improved version' of it.

(2) **My personal feelings** when operating in the two contexts and using the local languages brought insight and empathy into my understanding of the different ways of thinking. Usunier (1998, 65) noted that the ability to cross cultural borders is a rare talent in international business research. It was a talent utilized to its full extent.

I observed myself using different languages, and I noticed, for example, that the tone was higher in Japanese than in Finnish, and the communication style suddenly changed along with the language, even over the telephone (the famous 'bowing' on the telephone). The thinking process also seemed to change when I switched language. However, I did not understand why this should happen or what it was based on.

I used books, articles and narratives to **access the experience of others**. There was a boom in publications on the *Japanese management style* in the 1980's, and many Western companies adopted selected aspects of it, such as quality-control management. Thus the typical characteristics of the Japanese organizational culture are well recorded. Japanese management is described as the 'organic type', which is based on group strength and an emphasis on human relations, whereas American management is considered a 'system type, focusing on individual strengths and functional relationships. (See Fukuda 1991 for a review.)

Interest in Japanese-style management faded in the 1990's when economic recession also hit Japanese companies. Japan was no longer seen as a model for improvement, but was rather considered an experiment that had failed. This was

also reflected in publications on Japan. Characteristics of Japanese organizations, such as long-term employment, became synonymous with inefficiency, even to the extent that some Japanese companies started applying Anglo-Saxon-style reforms and drastically reduced their personnel. By now this strategy has already proved its fallibility (Iwai 2004).

Studies on *intercultural communication* have often used the Japanese communication style to represent 'the other' with which the American or Western style is compared. There are several field studies describing how the Japanese communicate, and the differences between Americans and Japanese. The intellectual style of the Japanese is described as ambiguous, emotional, subjective, situational, and silent, whereas the American style is logical, rational, objective, rigid, and talkative (see, for example, Dale 1990 on stereotypical images). However, communication studies are descriptive and seldom explore the reasons behind the communicative behavior. Thus the question why the Japanese are so ambiguous remains unanswered, and occasional vague reference is made to 'historical reasons'.

General assumptions about knowledge creation in Japan based on the literature and 'public opinion' include the belief that *'the Japanese only copy'*. It seems that the image with which Japan was stamped after the Second World War sits hard. A recent article in a Finnish daily newspaper noted that Japan's success was based on copying technical innovations from Western countries, and that now China was doing the same.[2] Although the Japanese seem to like learning from others, it is another issue to evaluate the extent to which all late industrialized countries use the ready-made solutions created by pioneering countries. When license agreements for paper machinery expired in Finland the Second World War, the Finns started developing their own machines based on the same idea.[3]

[2] Helsingin Sanomat 14.3.2004, Päivi Isotalus, Japani aista mallia etsimässä (In Search of the Japanese Model).
[3] Based on key-informant interviews.

Conversely, it is commonly thought that 'Finns are very creative', and Finnish originality in design is often cited as evidence of this. Interestingly, however, it is especially in the area of art and design that the Finnish and the Japanese sense of aesthetics coincide, and there are well-established connections between artists and designers in these two countries, including institutional exchange. Perhaps from the European point of view the Finns seem original and unique, but for those who can recognize it, there is clear evidence of Japanese influence.

There was also contradictory evidence of the Japanese knowledge-processing style in the literature. Whereas most writers seemed to think that the Japanese have either no logic or one that is very different from the Western one, van Wolferen (1990, 236) reports that:

> *"…in Japan one meets intelligent people who claim that 'logic' is something invented in the West to allow Westerners to win discussions. Indeed, the belief is so widespread that the Japanese can happily go without logic now as they supposedly have done for centuries past. That is of course untrue. Japanese engineers and scientists are as familiar with logical thinking as their counterparts anywhere else, and some have received Nobel prizes for it."*

Research Orientation

The research orientation in this study could be summarized as *emic* in relation to cultures, and as *interpretive or hermeneutic in approach*. The study is also eclectic in the sense that it applies a *multi-theoretical framework*.

The *emic* versus the *etic* cross-cultural research orientation is a classic distinction in cognitive anthropology originating from Sapir (1921) and further developed by others, and applied from linguistics to other areas of culture by Goodenough (1956) (Usunier 1998, 34; Bernard 1994, 238). According to Usunier (1998), the emic approach assumes that attitudinal or behavioral phenomena are expressed in a unique way in each culture which, taken to the extreme, means that no comparisons are possible. On the other hand, the etic

approach aims at identifying universals and considers constructs applicable to all cultures.

Usunier (1998) compares research strategies in terms of underlying theories developed and visions gained (Table 1). Within this framework, the strategy adopted in the present study is *emic, concerned with differences in nature*.

	Underlying Theories	
Expected Picture	Universal	Specific
Similarity	Assumed universality	Assumed universality
Differences	Etic with differences in degree	Emic position *Differences in nature* Polycentric research
Source: Usunier 1998, 37		

Table 1: Comparative Research Strategies

The underlying assumptions in several scientific fields have started to change. Western scientists have finally realized that their assumed universality has been a fallacy. Nisbett (2003, xiv) recalls with irony a book he co-authored years ago, entitled *Human Inference* - not 'Western inference' or 'American college student inference', *human* inference. This book had a typical universalist approach, which had been, and perhaps still is, dominating cross-cultural management research. If we were to accept a paradigm shift leading us to understand that there are profound differences in people's worldviews and cognitive processes, there would no longer be any dispute over the emic versus the etic. We could take a synergistic approach not as a way to create universality, but rather as a way towards bringing coexisting worlds.

Knowledge creation in the cross-cultural context is defined here as a process, and thus it is impossible to develop a single unifying theory. The process consists of communication involving the transformation and transfer of knowledge both within individuals and between people in different contexts. Since it is such a multifaceted, multidisciplinary subject, it requires a **multi-theoretical approach**. (Littlejohn 1978, 374-376) Putting it in a cross-cultural context adds even more complications. By taking a multi-theoretical approach

we can understand this process through a variety of theoretical and methodological viewpoints. The *eclectic approach* enables us to develop a framework within which the work of many disciplines may be integrated around a single issue, problem, or theme.

Drawing on notions about the communication process described by Littlejohn (1978, 375), I support my arguments for using a multi-theoretical approach to the study of knowledge creation in the cross-cultural context as follows.

(1) Knowledge creation is a *dialectic and complex process*. There is no consensus about the concept of knowledge to start with, and the definitions vary both in history and across cultural traditions in different contexts. In order to fully understand the knowledge-creation process, we have to view it from different perspectives, of which the cross-cultural is an obvious and fruitful example. This focus on the cross-cultural context is also useful in that it naturally calls for a multi-theoretical approach.

(2) Knowledge creation as communication is a *complex process of psychological and social events involving symbolic interaction* in the form of coding, meaning, thinking, and persuasion. All these events and behaviors are embedded in culture, and thus the process of knowledge creation varies accordingly. There is no single theory to explain this process within one culture, not to mention the cross-cultural context, and it is enriching to learn about different theories and approaches.

(3) *Theories are constructions of reality, and it seems that language affects the way we perceive this reality. Thus it could be said that, in fact, we live in different realities.* There are multiple ways of perceiving the same sensory experience. It is no wonder, then, that we have a cornucopia of descriptions of these realities. Inevitably, a single theory will represent only one viewpoint, and a multi-theoretical and multicultural approach is needed in order to gain understanding of the variety of meanings in a knowledge-creation event.

(4) There is no single methodology that could lead directly to full understanding. The method selected will automatically guide the theory development. Thus a multi-theoretical approach needs to be combined with a *multi-method approach*, which provides some kind of convergent validity in terms of what we know about knowledge creation in the cross-cultural context.

(5) Knowledge creation is an area of study that is *in the interest of many disciplines* and thus calls for a truly multidisciplinary approach. Studies in knowledge creation and knowledge management belong to the social sciences in areas such as psychology, sociology, and management studies. According the cross-cultural perspective also brings in cultural anthropology. It is impossible for any single theory to accommodate the valuable work of the many disciplines that are dealing with knowledge creation in the cross-cultural context. A multi-theoretical approach is therefore justified.

2.3 Research Methodology

This is qualitative research using a multi-method approach in order to analyze the research problem from a relativist position. One of the major aims of qualitative research is the generation of concepts that can form building blocks of theory (Glaser and Strauss 1967).

Knowledge-creation patterns are analyzed here through dependent variables such as written language, the concept of the self, receptivity, and communication orientation and contextuality that are part of culture. These variables are strongly linked with national language and educational systems. Both Finland and Japan could be considered relatively homogeneous in these respects: education is centrally planned in both countries by Ministries of Education, and government-approved textbooks and curriculums are used throughout both nations. They both have culturally dominant national languages (Finnish and Japanese) that draw boundaries around them and isolate them from their neighboring countries. Another common factor is that the native languages are not related to the languages used in the geographically close countries (for

Finland meaning Russia and Sweden; for Japan meaning China and Korea). Japan was isolated for over 250 years before the Meiji Restoration in 1868, and established a homogeneous and unique culture and language during that time. Finland became independent only in 1917 after having been ruled by the Swedes and the Russians for centuries, but her native language maintained its ethnic identity throughout.

Despite the existence of minorities (e.g., Korean, Ainu, *burakumin*[4]) in Japan, the homogenous programming of the mind is guaranteed by one national language, which is used in education and the mass media. Finland is officially a bilingual country with six percent of the population being Swedish speakers with their own schools and even universities. The existence of the 'Finnish-Swedish' world is very interesting from a cultural point of view, however it is beyond the scope of this study to analyze further how this world differs from the conceptual world of the Finnish-speaking majority. The Finnish language is taken here to represent Finnish culture. More generally, the case of Finland is used as an example of Western culture due to the fact that the script used in Finnish is the Latin script. The case of Japan is not generalized here to cover other East Asian cultures because, despite some similarities, there are also differences in the writing systems, but some comments on possible similarities in knowledge-processing styles are made.

Finally, there is the question of culture as a dependent or independent variable. Since cultural dimensions are difficult not only to measure but also to define in the first place, it is not easy to hypothesize clearly specified relationships between measurable dependent and independent variables (Usunier 1998, 65). Culture is used here as an <u>independent variable</u>. It is operationalized as the national language, and especially the writing system. The aim of this study is to explain how culture influences the knowledge-creation process, so there is no danger of using culture as a residual variable.

[4] These are 'outcasts' of a sort in Japan, people who were traditionally involved in 'unclean' professions such as butchery.

The present study analyzes the theory (or model) of knowledge creation and aims at finding out which aspects of it vary across cultures. The selection of two distinctively different cultures and writing systems serves to highlight the cultural specificity.

Research Questions and the Aim of the Study

The experience and interests of the researcher guided the formulation of the **research questions**. At first I was generally interested in the impact of cultural differences on international business. After reading other research in this and in other fields I narrowed down the phenomena to organizational learning and knowledge since these were considered to underlie all other aspects of international business: different management styles are based on different concepts of knowledge and learning.

The object of this study is the theoretical model of the knowledge-creation process by Nonaka (野中 1990; Nonaka and Takeuchi 1995). The aim is to find out how knowledge-creation theory can be applied in different cultural contexts. The general question addressed in the research was:

> *How Does Culture Influence the Knowledge-creation Process in International Business?*

In terms of feasibility, evaluation focused on this general question: the research questions were assessed at each stage of the study, and methodological choices were made accordingly, as recommended by Seliger and Shohamy (1989, 52).

This resulted in the following sub-questions:

- *How Do the Concepts of Tacit and Explicit Knowledge Differ in Different Cultures?*

- *How Does the Conversion of Tacit Knowledge into Tacit Knowledge (Socialization in the Knowledge-creation Process) Differ in Different Cultures?*
- *How Does the Conversion of Tacit Knowledge into Explicit Knowledge (Externalization in the Knowledge-creation Process) Differ in Different Cultures?*
- *How Does the Conversion of Explicit Knowledge into Explicit Knowledge (Combination in the Knowledge-creation Process)) Differ in Different Cultures?*
- *How Does the Conversion of Explicit Knowledge into Tacit Knowledge (Internalization in the Knowledge-creation Process)) Differ in Different Cultures?*

Analysis of the cultural dimensions of knowledge-creation theory generated more focused research questions:

LANGUAGE
(a1) How do the concepts of tacit and explicit knowledge differ in different languages and cultures?

(a2) How does language, especially the script and achieving literacy, influence the development of cognitive capacities?

CONCEPT OF SELF
(a3) How do the culturally different concepts of the self influence the knowledge-creation process?

COMMUNICATION
(a4) How do the culturally different communication orientations influence the knowledge-creation process?

(a5) How does contextuality of communication affect the knowledge-creation process?

RECEPTIVITY
(a6) How do cultural differences in receptivity affect the knowledge-creation process?

Several approaches could have been used in addressing these questions. Earlier studies have analyzed data on how knowledge is created in multinational

companies in mono-cultural contexts. All these together give some idea of what kind of cultural differences exist, but they do not provide deeper understanding of the phenomena and, moreover, cannot explain why these differences have come about. It was thus considered meaningful to take an analytical approach by using theories from other fields.

The Empirical Research Questions were defined as follows:

> *(b) How and why does the knowledge-creation process in Finnish and Japanese companies differ?*
>
> (b1) *How do the concepts of tacit and explicit knowledge differ in Finnish and Japanese?*
>
> (b2) *How do the Finnish and Japanese languages, especially the script and acquiring literacy, influence the development of cognitive capacities in Finland and Japan?*
>
> (b3) *How do the concepts of the self differ in Finland and Japan, and what is their influence the knowledge-creation process?*
>
> (b4) *How do the communication orientations differ in Finland and Japan, and how do they influence the knowledge-creation process?*
>
> (b5) *How does contextuality of communication differ in Finland and Japan, and does it affect the knowledge-creation process?*
>
> (b6) *How do the Finns and Japanese differ in receptivity, and how does that affect the knowledge-creation process?*

The objective of this study is to move the discussion on cultural differences in international business to a new level. The starting point is that we live in multiple objective worlds. It is shown that there are cultural differences at a very deep level (world-view level), and that the knowledge-creation process follows a different pattern in different cultures. This means, in practice, that there are logical and conceptual differences across cultures. The realization that knowledge-creation patterns vary culturally will give us new insights into knowledge management and creation within multinational companies.

Nisbett (2003, xvii-xviii) declares,

> *"If people really differ profoundly in their systems of thought - their worldviews and cognitive processes- then differences in people's attitudes and beliefs, and even their values and preferences, might not be a matter merely of different inputs and teachings, but rather an inevitable consequence of using different tools to understand the world. And if that's true, then efforts to improve international understanding may be less likely to pay off than one might hope."*

However, the aim of this study is to improve understanding of different types of knowledge creation in international business. Making visible the cultural differences in organizational learning is the first step towards bridging them.

Research Data

The research design, the data collection and the analysis are often simultaneous and continuous processes in qualitative research (Bryman and Burgess 1994b, 217). Usunier (1998, 65) notes that, although culture is omnipresent, it is also difficult to provide recipes for taking that dimension into account.

Pre-understanding of the research field guided the data-collection process in this study: data was collected from multiple sources using different techniques. For the **theoretical part**, pre-understanding of the phenomena and longitudinal participant observation were important sources, along with theoretical and secondary empirical studies from multidisciplinary fields. The primary methods used in the **empirical part** were participant observation and focused key-informant interviews.

Participant observation is also called ethnographic fieldwork and it involves establishing rapport with the community understudy. Bernard (1994, 140-141) notes that it makes it possible to collect different kinds of data, and reduces the problems of reactivity. It also helps to formulate sensitive questions in the native language. Naturally, the use of participant observation presumes native-language ability.

Participant observation as a data-collection method was a natural choice here because of the researcher's background as a marginal member of the Japanese and Finnish societies. It has also been suggested by Seliger and Shohamy (1989) that in second-language research, the researcher can be a participant observer of language acquisition by recording (e.g., by keeping a diary) her own foreign-language acquisition process. This kind of historical and current data was used in the present study. For example, the researcher could well recall her own process of learning to read and write Japanese as an adult. As the study processed and as the mother of a primary-school first-grader, she was also able to observe how her daughter learned to read and write Finnish.

In the same way as key informants can be 'deviant' members who are at the same time both outcasts and yet 'social insiders' (Agar 1980), so researchers as participant observers can be what anthropologists usually call a **'marginal native'** (Freilich 1977).

Self-identity as a marginal member of society could be part of the researcher's personality before he or she becomes an anthropologist, and that could be an important motive (often unconscious) in career selection. Keles (1984) found several excerpts in writings by well-known anthropologists demonstrating that marginality is characteristic of them.

How does marginality influence the research? It may be a research approach, which means that you will be intellectually curious, not seeking ready answers. The researcher as a marginal member or 'intellectual exile' sees things in 'a double perspective that never sees things in isolation'. Said (1996, 60) summarizes this as follows:

> *"Intellectually this means that an idea or experience is always counterposed with another, therefore making them both appear in a sometimes new and unpredictable light"*.

A second advantage of the exile standpoint for an intellectual is that he or she can see things 'not simply as they are, but as they have come to be that way':

> *"Look at situations as contingent, not as inevitable, look at them as the result of series of historical choices made by men and women, as facts of society made by human beings, and not as natural or god-given, therefore unchangeable, permanent, irreversible." (Saic 1996, 60-61)*

Empirical data was collected using the **key-informant technique**, which is traditionally used by ethnographers who define good informants as people who you can talk to easily, who understand the information you need, and who are glad to give it to you or get it for you (Bernard 1994, 166). Careful selection, and possible training and assessment of key-informant competence are important parts of anthropological study. Bernard (1990, 179) suggests that the best informants are the people who are critical about their own culture. They claim to feel somewhat marginal and they are always observant, reflective, and articulate.

The key informants in this study were defined as key persons involved in business between Finland and Japan. Two informants from the European-Japanese business community were also interviewed. Since the focus was on the perception of cultural differences in knowledge creation, the *snowball sampling* technique was considered the most appropriate for the selection of the key informants. There were two main reasons for this.

> (1) It was known prior to the empirical data collection that the Finnish-Japanese business society was relatively small and the key persons knew each other. It was thus left for the first key persons to decide who would be other important players in the field.
>
> (2) It allowed what Schatzman and Strauss (1973) call 'mapping' the social scene, that is, getting down the names of the key players and charting their relationships. This facilitated understanding the role of key persons as cultural mediators.

Often a key informant is also the person who helps the researcher to enter the society. In this case, the president of the Finnish-Japanese Chamber of Commerce recommended the first key informants to me. This also worked as my introduction to the business community in Japan. The access gained allowed me

to participate in the activities of the Finnish Chamber of Commerce in Japan: I was able to join their monthly luncheon meetings, for example.

In the pursuance of a deeper understanding of the knowledge-creation process in a Finnish-Japanese business context, I selected a Japanese company with a subsidiary in Finland as a case. Access to it was gained through the president of the subsidiary, who was a member of the Finnish-Japanese Chamber of Commerce. A matching sample of managers was selected from the Finnish subsidiary and the Japanese parent company, and a total of eight managers were interviewed in Japan and Finland. Since these managers were not key informants in terms of Finnish-Japanese cultural differences, it allowed comparison of the knowledge and perceptions between novices and experienced persons.

To gain a better theoretical understanding of the cultural differences in the knowledge-creation process, and to test my pre-understanding of the Japanese knowledge-creation style, two Japanese experts on intercultural communication were interviewed. The two interviewees are professors at a Japanese university and have both lived longer periods of time outside Japan.

Focused interviews

I interviewed *26 persons* altogether (15 Finns, 10 Japanese and one third-country national). Eleven of the interviewees were female and 15 male, and all held managerial positions or had had a supervisory position. They ranged in age between 30 to 70 yrs. Two were 60-70 yrs., eight were 50-60 yrs., 13 were 40-50 yrs., and three were 30-40 yrs. I inquired about their impressions of Finnish-Japanese cultural differences, especially in terms of knowledge creation and communication, and used probes to help them to focus on the topic. Each interview lasted 30-180 minutes. I tape-recorded them and transcribed them in order to allow direct quoting. The critical factors in Finnish-Japanese communication were analyzed based on the theoretical framework developed

in the study. The empirical material provided support for the theoretical assumptions.

The language of the interviews depended on the language fluency and mother tongue of the interviewee. Generally, Japanese informants were interviewed in English in order to test their foreign-language ability and to get more direct answers than is possible in the Japanese language. However, in some cases the discussion continued in Japanese because that was felt to be more comfortable for the interviewee. The Finns were interviewed in Finnish with one exception, when the informant felt more confident speaking English.

Bernard (1994, 149) suggests trying to develop the skill of being a novice by maintaining naiveté, which can be difficult if you are familiar with the culture. I tried to avoid making statements about the topics in the interviews in order not to influence the perceptions of the interviewees. In one case this led to a defensive and almost hostile reaction by the interviewee. For example, when discussing the meaning of silence in the Japanese and Finnish cultures, I asked "*Is a Finnish person able to interpret silence?*" and the informant replied:

> "*I am surprised by this question ... if you are a Finn then I think that it's completely unnecessary to answer because in Finland this kind of question never emerges ... it's not disturbing and that is the point that we can also be silent sometimes*" (Interview 4).

I collected data for my earlier study (Karjaluoto-Takada 1994) by interviewing 62 persons in 42 business operations in Japan controlled by 26 Finnish parent companies. This data was collected in 1991 in Japan and it was used in the present study to observe longitudinal changes in the Finnish-Japanese business community. It also included perceptions of cultural distance between Finland and Japan, and descriptions of major cultural issues in business. The respondents in the earlier study were key persons selected by their own companies, most often subsidiary managers, both Japanese and Finnish.

Since patterns and priorities impose themselves during fieldwork, researchers cannot separate the act of gathering data from that of its continuing interpretation:

> *"Ideas and hunches emerge during the encounter and are explored or eventually discarded as fieldwork progresses. The ensuing analysis is creative, demanding and all consuming." (Okely 1994, 21)*

In the present study too, analysis of the data took place at all stages of the research process.

Reliability and Validity

The degree of reliability of a study can be evaluated in terms of the extent to which the results would be the same if the study were replicated by another researcher (Yin 1986, 40). Most researchers seek generality in their studies. However, as Usunier (1998) points out, in cross-cultural research the key words are 'complexity' and 'emergent reality'. Any attempt at generalizing about culture is seen by Brannen (1996) as a monolithic whole leading to reductionism and incomplete meaning. Usunier (1998, 39) suggests that general knowledge is better 'shared' than 'true' in cross-cultural context:

> *"Complexity reduces the chance of getting any full generalization from a single study, however informed and well designed. The realities emergent of cross-cultural generalization can only appear at the multi-study level, involving researchers from different cultures and multiple research perspectives, using an orientation towards knowledge as a shared meaning rather than merely towards science as external truth. Emergent realities are generalized through a complete increase in shared meaning: the comprehension of certain phenomena is enlarged while more and more people worldwide share this understanding. Cross-culturally, general knowledge is better 'shared' than 'true'."*

Empirical reliability was affected by the reliability of the key informants and the researcher herself. Often a foreign researcher relies on third persons (interpreter, translator, and guide) in the collection of data through personal interviews. This is usually the case when a Western researcher is doing a study on Japan. It was I,

as a marginal member of the society, who assessed the reliability of the key informants in this study.

The key informant is more than a person who has a lot of knowledge about the culture or the phenomenon and who is willing to talk (Bernard 1990, 177). He or she is in a key position in terms of how the researcher forms the total picture. Thus the selection of key informants affects the reliability of the study. The objective is often to compose a representative sample of the population under study, but one should remember that a key informant must also be qualified, and not only the representative sample unit. Snowball sampling increased the key-informant reliability in this study.

There is natural interaction between the key informant and the researcher: the researcher is able to set the information given by the informant against the informant's background; for example, he or she can perceive that 'this is something that would have gone unnoticed by him'.
It could be said that whatever data-collection methods are used, participant observation maximizes the chances of making valid statements (Bernard 1994, 142). The validity of the empirical data collected in key-person interviews can be assessed by evaluating both construct validity and external validity (Yin 1986).

Construct validity means establishing correct operational measures for the concepts being studied (Yin 1986, 36). In this study, the construct involving multiple sources of evidence increased the validity: participant observation, secondary data from multidisciplinary fields, and key-informant interviews. Combining other data-collection methods with participant observation helps in the formulation of sensible questions in the native language, and increases the problem of reactivity. One of the major reasons for using participant observation in cultural studies is that it gives the researcher an intuitive understanding of what is going on in a culture and allows him or her to speak with confidence about the meaning of the data:

> *"It lets you make strong statements about cultural facts that you've collected. It extends both the internal and external validity of what you learn from interviewing and watching people. In short, it helps you understand the meaning of your observations." (Bernard 1994, 141)*

External validity concerns the extent to which the study's findings can be generalized (Yin 1986, 38-40). In a case study this means analytical rather than statistical generalization. The case contexts in this study are two different cultural environments (Japan and Finland), and the results of comparing the knowledge-creation process in these two cases are generalized to a broader theoretical model of knowledge-creation patterns. The final validity of the study can thus be evaluated only after the model has been tested in other cultural environments.

Mumby (1988, 127-128) notes that the search for generalizability, replication, and prediction and control reflects the prevalence of a perspective that views the establishment of human 'essences' as the end goal of science. Positivists conceive of such an approach as essentially value-free in that researchers claim to make purely ontological statements about the world, arrived at through rigorously tested methods that minimize researcher influence on the object of study. However, the interpretative approach taken in this study reflects the search for understanding rather than generalizability as the major objective.

2.4 The Concept of Culture in This Study

In everyday vocabulary the term culture in many languages refers both to 'high culture' such as painting and classical music, and also to all products of human life such as pop music and fashion. According to Berry et al. (1992, 165), the term *culture* was first used in an anthropological work by Tylor in 1871, who defined it as "*that complex whole which includes knowledge, belief, art, morals, laws, customs and any other capabilities and habits acquired by man as a member of society*"; Herskovits (1948) later proposed a shorter definition, which

became quite popular: "*Culture is the man-made part of the human environment*".

Culture was compared to a map by Kroeber and Kluckhohn (1952; Berry et al. 166): "*If a map is accurate and you can read it, you won't get lost; if you know a culture, you will know your way around in the life of a society.*" There is no agreement among anthropologists on a single definition of culture. Kroeber and Kluckhohn found more than a hundred and fifty definitions of the concept and classified them under the following six categories: *descriptive* (listing all aspects), *historical* (stressing accumulation), *normative* (emphasizing shared rules), *psychological* (focusing on the variety of psychological features), *structural* (the pattern or organization of culture), and *genetic* (stressing the origin) (Foster 1965, 10).

Kroeber and Kluckhohn (1952) concluded their review of conceptualizations of culture by proposing their own description:

> "*Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; cultural systems may on the one hand be considered as products of action, on the other as conditioning elements of further action*". (Berry et al. 1992, 166)

The terms explicit and implicit were used in this concise definition. *Explicit culture* refers to the set of observable acts and products regularly found in a group, while *implicit culture* consists of the organizing principles that are inferred to lie behind these regularities on the basis of consistent patterns of explicit culture. Implicit culture cannot be observed directly by an outsider, and often cannot even be articulated by the persons exhibiting these regularities. Learning attitude and the cognitive processing of knowledge are examples of implicit culture. To some extent, neuroscience has made it possible to observe the physical dimensions of cognition, such as the location and volume of brain activity when processing written text, but the biological process does not increase our understanding of culturally different patterns of knowledge creation.

It is important to note that culture is not synonymous with 'civilization'. The ethnocentric categorization into 'civilized' and 'primitive' are remnants of social Darwinism. All human groups have culture. Moreover, culture is not the same as *society*, although they are closely linked. *Society* is composed of people, while *culture* is the way of life they hold in common. (Berry et al. 1992, 167) This distinction is often blurred in ethnographic writing.

Characteristics of Culture

Members of a particular society agree quite unconsciously on the basic rules for living together. "Culture" is the shorthand term for these rules which guide the way of life of the members of a social group, and according to Foster (1965, 11), *"...culture can be thought of as the common, learned way of life shared by the members of a society, consisting of the totality of tools, techniques, social institutions, attitudes, beliefs, motivations, and systems of value known to the people."* Society means people and culture means the behavior of those people.

The following four typical aspects of culture are among those suggested by Foster (1965):

1. Culture is learned. This implies that it is not genetically or biologically determined, but is a kind of human social heritage. Every normal infant has the potential to learn any culture. When Japanese researchers first discovered that Japanese persons processed different sounds in a different side of the brain than Europeans (Tsunoda 1985), it was thought that this was a genetic trait. However, they soon found out that a child born to Japanese parents living in the US and speaking English would develop a Western style of processing sounds, whereas a child of foreign parents in Japan speaking Japanese would develop a Japanese style of sound processing. It was therefore suspected that language had something to do with it.

2. A culture is a logically integrated, functional, sense-making whole. Each culture makes sense within its own context. The fact that there is no one

uniform objective reality does not mean that there are no objective realities. The Japanese cannot be dubbed 'illogical' just because they have a different logic from our own.

3. All cultures are constantly changing; no culture is completely static. Since cultures are changing and parts of a culture change at different speeds, it is impossible to integrate perfectly. Cultures adopt the ways of other people over time, but the meaning of imported ways, such as 'eating at a hamburger restaurant', is consistent with the original context.

4. Every culture has a "value system". We are not neutral in our attitude to our own culture, but tend to attach labels of 'good' and 'bad', 'right' and 'wrong' to elements of it. The particular ways in which we, as individuals, classify reflects the cultural orientation of the group in which we have been socialized. (Foster 1965, 18)

However, values seem to change more slowly than other aspects of culture. Although the reluctance to change in the face of rapid technological advances often induces serious stress, at the same time this essential conservatism of values serves as a brake on uncontrolled change, usually slowing the process to the point at which a society can assimilate innovations without threatening its basic structure. (Foster 1965, 19)

5. Culture makes possible the reasonably efficient, largely automatic interaction between individuals that is a prerequisite of social life. Language has an important role as a tool for communication and for organizing knowledge. Culture could be thought of as a memory bank in which knowledge is stored, and is available immediately and usually without conscious effort to guide us in situations in which we routinely find ourselves. It supplies us with the 'tips' or 'cues' that enable us to understand and anticipate the behavior of other people and to know how to respond to it. (Foster 1965, 19-20)

Culture as Software

There is no single definition of culture accepted by management researchers either (Adler 1983b, 40). In a pioneering work on cultures in the field of organizational studies, Hofstede (1991, 5) uses the analogy of computer programming and calls patterns of thinking, feeling, and acting *mental programs, or the software of the mind*. According to him, *culture is the collective programming of the mind, which distinguishes the members of one group or category of people from those of another*.

Although this is an interesting analogy, there is a profound difference between computer hardware and the human brain: the latter is organic and capable of change. In fact, the human being is born with a 'half-fabricated' brain and only through use do its various parts assume specialized roles. According to the latest research, growth and specialization are not confined to the first years of an individual's life, but continue throughout his or her lifetime. Recent studies show that the adult brain can grow new cells: Harvard investigators produced the first evidence that the brain tries to repair itself after injury (Nature 2000, 405: 951-955).

Culture is defined in the present study as consisting of *learned patterns of thinking and behaving*. Language is an important tool for organizing knowledge along these cultural patterns, and communication reflects behavior in a culturally patterned way.

3 A THEORETICAL ANALYSIS OF KNOWLEDGE CREATION

3.1 Nonaka's Theory of Knowledge Creation

Knowledge creation and knowledge management as a field of study in business is of relatively recent origin. Masuda (1980) introduced the concept of the Information Society as the post-industrial society. For him knowledge creation meant the creation of intellectual values in terms of problem solving and opportunity development. Although organizational learning and information management had attracted interest earlier, it was not until the 1990's that knowledge management became a hot topic in business research. Sveiby (1990) was one of the pioneers in introducing the term Knowledge Management (*Kunskapsledning* in Swedish) into the discussion on organizational learning. He defines it as: "*Kunskapsledning är ett sätt att se på om företag och sin egen organisation.*" (ibid, 37) (Knowledge management is a way of seeing the world and one's organization.)

Interestingly, it was a Japanese professor, Ikujiro Nonaka, who developed the first basic *model of knowledge creation*. He used concepts from Western research, such as Polanyi's 'tacit knowledge'. The model of knowledge creation in which tacit knowledge had an essential role was then transferred to the West. As with the boom in Japanese management studies in the West, this new model was adopted and used without regard to the context from which it had arisen. In fact, the original book written in Japanese by Nonaka (野中 1990) had the subtitle 日本企業の エピステモロジー ('The Epistemology of the Japanese Enterprise'), but it was soon forgotten that the specific context of Japan might need to be considered when the model was applied outside.

Nonaka and Takeuchi (1995, 226) point out that the interaction between tacit knowledge and explicit knowledge tends to take place mainly on the individual level in Western methodology, whereas in Japanese methodology it also takes

place on the group level. Knowledge creation on both levels is discussed below. Although knowledge is created only by individuals, in the sense that an organization cannot create knowledge on its own without individuals, the organizational knowledge-creation process takes place on the group level through dialogue, discussion, experience sharing, and observation (Nonaka and Takeuchi 1995, 239).

Nonaka's theory of Knowledge Creation (野中 1990; Nonaka 1991a, 1991b; Nonaka and Reich 1991; Reich and Nonaka 1993; Nonaka 1994; Nonaka and Takeuchi 1995) specifically targets the interaction between explicit and tacit knowledge. Spencer (1996, 50-51) criticized the theory for focusing

> *"on the transformation and communication of what is already known tacitly by employees, i.e., on the way other employees learn what an individual has discovered rather than on Nelson and Winter's notion of the firm itself learning by accruing better routines. For Nonaka and Takeuchi (1995, 62; 239), organizational knowledge is the knowledge shared by individuals, albeit transformed and amplified by the two modes of knowing around the firm. Their theory of the firm, in the sense of explaining (a) how individuals generate tacit knowledge, and (b) how the obvious agency problems are resolved, remains unexplained."*

This brings us to the basic question of *what organizational learning is*. In order to answer this, we have to define what we mean by an organization or a company. In the West, a company is a legal entity that can exist without people. It follows that the Western concept of organizational learning focuses on explicit knowledge that can be stored in the company regardless of the changing personnel. Nelson and Winter, as quoted in Spencer (1996, 51), presume that the firm has an ability to know independently of its employees. A notable exception to this is the view put forward by Sveiby (1990; 1997; 2001): he considers knowledge a human facility, and something that can only be "managed" by the individual him herself.

In Japan, a company consists of people. Japan has no native concept of 'organization' abstracted or divorced from actual man: 'organization' is perceived as a kind of succession of direct and concrete relationships between

man and man (Nakane 1984). Consequently, the Japanese associate organizational learning with people. For them an organization is not a machine for processing information, but a 'living organism' (Takeuchi 2001, 321). Thus Spender's criticism could be considered a result of a different worldview.

If we accept that *organizational learning is based on individual people*, it does not necessarily follow that organizational knowledge is just the sum of the knowledge vested in individuals. "The sum is more than its parts", and in the same sense *interaction between individuals* in an organization generates new knowledge. This is exactly what Knowledge Creation Theory is all about. Organizational knowledge creation is a process that 'organizationally' amplifies the knowledge created by individuals, and crystallizes it as a part of the knowledge network of the organization (Nonaka 1994, 17). Exposure to other people and to the environment creates new knowledge. The organization can support creative individuals or provide a context for such individuals to create knowledge.

In addition, *knowledge can exist in relationships*: a chain of overlapped common experience can be constituted from the project members. The direct opposite of archival-based knowledge is *system knowledge*, which means the integration of specialized knowledge with other information, and its application to specific contexts. (Aoshima 2002, 606)

It seems that Japanese researchers are willing to limit the application of their findings or models to the Japanese context, for example by making explicit comments that the companies under study have been Japanese. On the other hand, there is a tendency among Western writers to omit the national (or cultural) background of the companies, and to present the findings as if they were naturally applicable all around the world. Thus it seems that there is *asymmetry in terms of perceiving the influence of cultural differences* among researchers in international business. This may affect not only the conduct and interpretation of the studies, but also the selection of research topics.

Given the assumption that knowledge is created through interaction between tacit and explicit knowledge, knowledge creation could be described in terms of four modes of knowledge conversion (Nonaka and Takeuchi 1995). This is called the SECI model and it consists of the following knowledge-conversion processes: (1) Socialization: from tacit knowledge to tacit knowledge; (2) Externalization: from tacit knowledge to explicit knowledge; (3) Combination: from explicit knowledge to explicit knowledge; (4) Internalization: from explicit knowledge to tacit knowledge (Figure 3). I will refer to this process as 'SECI model' from now on.

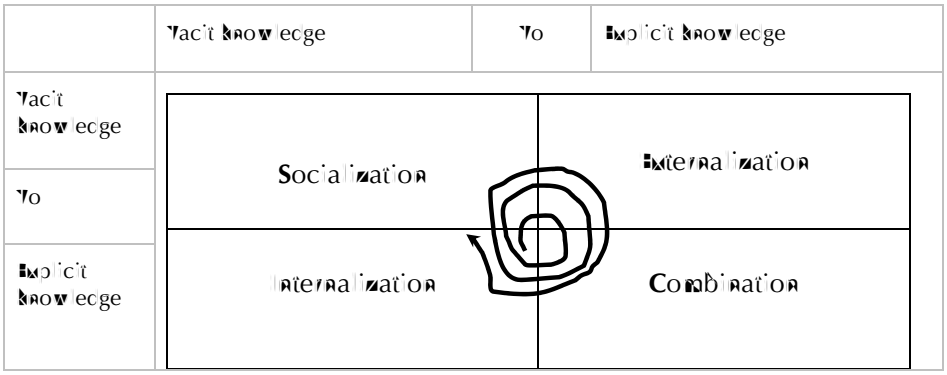

Figure 3: The SECI Model - Modes of Knowledge Creation

Organizational knowledge is continuous and dynamic interaction between tacit and explicit knowledge, and the contents of the knowledge created by each mode of knowledge conversion interact with each other in the spiral of creation. Socialization yields what could be called 'sympathized knowledge', externalization outputs 'conceptual knowledge', combination gives rise to 'systemic knowledge', and internalization produces 'operational knowledge'. (Nonaka and Takeuchi 1995, 70-72)

Tacit and explicit knowledge are not only knowledge-specific but also knowledge-processor-specific. The receptivity of the receiver determines the extent to which knowledge is tacit or explicit. Knowledge creation as interplay between tacit and explicit knowledge can be analyzed both on the individual level and in the interpersonal context. After presenting my conceptual analysis, I

will move onto the individual level and analyze the related cross-cultural issues. I will then turn to knowledge creation as a process between individuals: knowledge transfer is understood here as the communication process that also creates new knowledge. I will not discuss the group organization inter-organization separately in this context.

3.2 Definitions of Tacit and Explicit Knowledge

Usui er (1998, 40) pointed out that most of the concepts in management are borrowed from the USA: "*In fact more frequently the actual words have been imported rather than their whole sense and the social practices involved.*" Nonaka and Takeuchi (1995) present a case of organizational theory originating in non-Western culture. The concepts of knowledge used in the theory of Knowledge Creation originated in the West, but were applied first to Japan by Nonaka (野中 1990), and then re-imported to the West (Nonaka and Takeuchi 1995). The meaning of the concepts is not the same in these different contexts, however (see Figure 4), and neither are the practices involved in knowledge creation.

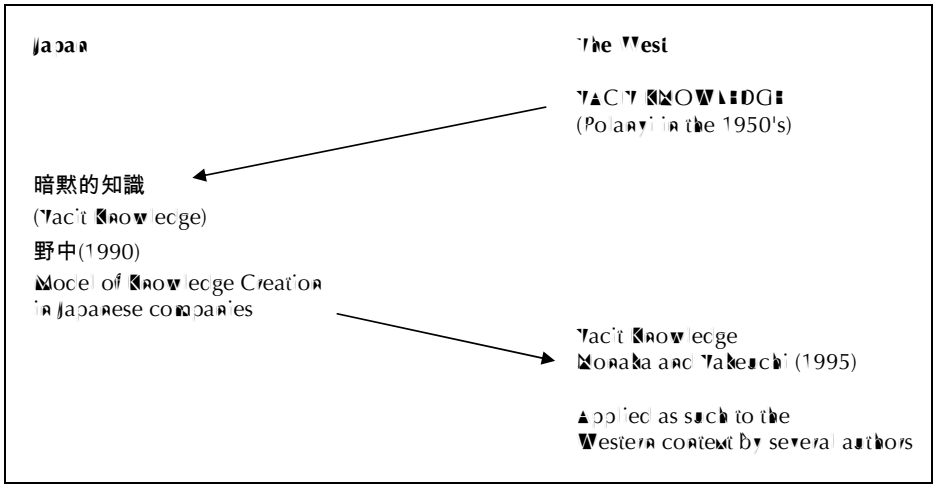

Figure 4: The Transfer of the Concept of Tacit Knowledge between the West and Japan

It seems that there is some confusion about the meaning of two central concepts in the knowledge-creation model: those of tacit and explicit knowledge. It is clear that the meaning of tacit knowledge is not the same in English and Japanese. Different concepts of knowledge are based on different worldviews: Nonaka's theory of knowledge creation has been criticized for its 'relative lack of interest in information technology' (Majia 1999). Here lies an important worldview-level difference between the West and Japan. Managing and measuring knowledge is very important for Western companies.

Toffler and Toffler (1994) refer to 'analysis paralysis' and the 'over-compartmentalization' of knowledge in Western organizations. The mass collection of data by technological means has resulted in a de-emphasis on 'human' - the collection of information from human sources. The information society has created an infinitely expanding knowledge universe, which is based on open sources. However, what matters is not the collection of data but the interpretation of it. Toffler and Toffler (1994) suggest that even in military intelligence it is important to know the 'knowledge terrain': religious views, the time perspective, level of education and training, sources of information, media watched off duty, and other elements related to knowledge power.

Mead (1976, 905) refers to two sources of knowledge: external and internal. In addition to observing external factors and collecting information, we also need introspection and even empathy. These two points of view are not in contradiction but complement each other. William James (Keller 1984, 175) uses the concepts of *'knowledge about'* and *'knowledge of acquaintance'*. The former is gained through observation of phenomena in the external world, whereas the latter is sourced on intuition and empathy. In some languages there are different terms for these two types of knowledge: in French *savoir/connaître*, in German *wissen/kennen*. The French words indicate the meaning of the word: *'sa-voir'* means to know by seeing, and *'con-naître'* indicates knowing by experience (birth). Interestingly, English has only one word for these two types of knowing. It has been speculated that this may have influenced the

methodologies of social science when the drive came from English-speaking countries (Kelles 1984, 176).

Japanese also has two words for different types of knowing: 知っている and 分かる. ～を知っている means to know something (a thing or a matter), whereas the latter word for knowing, 分かる, can be used also to talk about understanding and feelings, *気持ちが分かる*. The Finnish words '*tietää*' and '*taitaa*' correspond to these two: '*tietää asia*' and '*taitaa henkilö*' correspond to knowing a matter and knowing a person. '*Tietää*' and related words such as '*tietäjä*' (seer) indicate knowing by seeing[5], and '*taitaa*' means, among other things, experiencing emotions or feeling. In Finnish the word '*tieto*' covers both knowledge (*tietämys*) and information. It also means learning (*oppi*); insight (*taitavuus*); notice, advice, intelligence (*ilmoitus*); message (*sanoma*), word (*sana*) (Laanne 1980). I will analyze the meaning of these concepts in more detail later.

Polanyi may well have developed the concepts of 'tacit' and 'explicit' knowledge because of the lack of appropriate words for 'knowing' in English. His concept of tacit knowing is similar to 'knowing by acquaintance', and explicit knowledge is by definition something that is made 'visible', thus 'knowing by seeing' or 'knowledge about'.

Virkkunen (1996) argues that since tacit and explicit knowledge are mutually constituted and connected, distinguishing them in the knowledge-creation model is not relevant. However, the main focus in models of organizational learning and knowledge creation is not on the type of knowledge as such, but rather on the *process* of transferring and transforming it. Thus the 'tietää', 知っている, wissen and 'savoir' type of (explicit) knowing is transferred in a different

[5] Etymologically,'*tietää*' comes from '*tie*' (way, road).

process than the 'tuntea', 分かる, kennen and 'connaître' type of (tacit) knowing. Tacit knowledge can be 'felt', 'acquainted' and 'experienced', whereas explicit knowledge is 'known' and 'articulated'.

If we consider tacit knowledge as 'emotion' we might see how it is transferred in the knowledge-creation process. Emotions can be hidden; they can also be shared without words. They can be expressed in words, most effectively in poems, or expressed in works of art. Explicit knowledge thus becomes the opposite of emotion, the 'ration'. Articulated knowledge is already arranged according to some logic, of both language and script.

Why is it apparently assumed that the knowledge-creation model using tacit and explicit knowledge is applicable to the cross-cultural context? It may be that if we substitute tacit by non-verbal and explicit by verbal we get a simple model of communication patterns. Since learning on the organizational level can be explained as communication processes, the exchange of verbal and non-verbal messages becomes a model of knowledge conversion.

A few researchers have pondered about the definition of tacit and explicit (see, for example, Spender 1996; Scharmer 2001; Tsoukas 1996; Tuomi 1999), but most have referred to Polanyi and or to Nonaka and Takeuchi (1995). It is thus worthwhile analyzing the development of the concepts here. I will first discuss their dictionary meaning and how they were originally brought into the area of knowledge management, and how they have changed along the way. Then I will compare Polanyi's concepts of knowledge to that of Jung, who was his contemporary. Finally, I will reflect on some of the recent understandings of how our brain and consciousness work.

The Dictionary Meaning of Tacit and Explicit

Since English was not the mother tongue of Polanyi, with whom the concept used in studies of knowledge creation is associated, it could be argued that he

adopted the word 'tacit' from its dictionary meaning. By definition, *'tacit'* means 'silent, saying nothing'. It is something that can be understood without being openly expressed, implied (tacit approval) (Webster's 1989, 1446). Derivatives of the word include *taciturn*[6] and *taciturnity*[7], both of which refer to the lack of speech and to silence (as the lack of speech).

The synonyms suggested in the dictionary for tacit are 'unexpressed, unspoken, unsaid, and implicit', and the antithesis is 'expressed'. We thus learn that 'expressing' means generally 'expressing verbally' (spoken, said) in English.

Explicit is defined in the dictionary as 'fully and clearly expressed; leaving nothing merely implied; unequivocal'. Explicit knowledge can be clearly developed or formulated; it is definite and unreserved in expression; outspoken. Although it is not exactly stated in the dictionary, it can be understood that explicit refers to verbal expression.

The core meanings of tacit and explicit found in the dictionary are summarized in Table 1. The overall feeling that one gets from the English dictionary is that tacit and explicit are dimensions of 'spoken'.

Tacit	Explicit
Silent - saying nothing	Expressed - outspoken

Table 1: The Dictionary Meaning of Tacit and Explicit

Polanyi's Concept of Tacit

Polanyi considered tacit knowledge as *knowledge that is incapable of full explicit expression*. Thus he defined tacit by stating what it was not. He saw tacit

[6] 1. inclined to silence; reserved in speech; reluctant to join in conversation 2. cour, stern, and silent in expression and manner. Webster's 1989, 1446

[7] 1. the state or quality of being reserved or reticent in conversation; 2. Scots law a form of relinquishing a legal right through an unduly long delay, as by **silence** of the creditor. Webster's 1989, 1446

knowledge as underlying all explicit knowledge. In fact, he drew our attention to the unconscious and conscious elements in knowing (= having tacit understanding) and saying (=making explicit). He declared: *"We can know more than we can tell"*, and explained that the very act of communication displays a knowledge that we cannot verbalize. All knowledge is gained through tacit power (Polanyi 1983, 4-5).

Polanyi suggests that tacit knowledge explains the classical Platonic paradox: it is absurd to search for a solution to a problem, because either you know what you are looking for and then there is no problem, or you do not know what you are looking for and thus cannot expect to find anything: by knowing that a statement is true, we know more than we can tell (Polanyi 1983, 22-25).

As a member of the Western scientific community, Polanyi found the idea of non-objective, non-scientific knowledge radical (1983, 20):

> *"The declared aim of modern science is to establish a strictly detached, objective knowledge. ... But suppose that tacit thought forms an indispensable part of all knowledge, then the ideal of eliminating all personal elements of knowledge would, in effect, aim at the destruction of all knowledge."*

There is no reason to believe that Polanyi ever considered the applicability of his concept of tacit knowledge in an interdependent-self type of culture, or in a communication mode in which tacit knowledge could be directly transferred between persons (as in meditation). This may explain why he did not look around in different scientific fields for similar concepts. In psychology the term the 'unconscious mind' has a meaning that is very similar to that of tacit knowledge, and it has become a part of everyday vocabulary. I will discuss the unconscious and conscious elements of tacit knowledge, and the differences between Jung's and Polanyi's concepts, later.

野中(1990): 明示的 Articulable and 暗黙的 Tacit 知識 Knowledge

The original work on the theory of knowledge creation by Nonaka (published in 1990) was written in Japanese, but in his references to Polanyi he gives the English correspondence in parenthesis after the Japanese word for 暗黙的知識 (tacit knowledge) and 明示的知識 (articulable knowledge) (野中 1990, 54).

It is important here to note that the term that Nonaka (野中 1990) gives in English for explicit knowledge is 'articulable', stressing the 'ability to be articulated' (if wanted). Thus the opposite is tacit, as "we know more than we can tell", as something that we are 'not able to articulate' (even if we wished to). In fact, Nonaka (野中 1990, 54) defines the two forms of knowledge as follows:

> *"暗黙的知識 (tacit knowledge) は、語ることのできる分節化された明示的知識 (articulable knowledge) を支える、語れない部分に関する知識である。この知は分節化されず、感情的色彩をもつ個人的な知である。しかし、この個人的な知こそ、自ら経験を能動的に統合していく場合には、明示知を生み、これに意味を与え、これの使用を制御するのである。"*[8]

For Nonaka (野中 1990), tacit knowledge concerns knowledge that supports civiced (participated) articulable knowledge that can be articulated (spoken, verbalized). This knowledge (knowing) cannot be civiced (into parts), and it is personal knowledge (knowing) that has an emotional (impulsive) it (color, hue). He closely follows Polanyi's idea that tacit knowledge is personal knowledge from which explicit knowledge arises, and stresses the importance of personal experience.

[8] My translation: "Tacit knowledge concerns knowledge that supports civiced (participated) articulable knowledge that can be spoken (articulated, verbalized). This knowledge (knowing) cannot be civiced (into parts) and it is personal knowledge (knowing) that has an emotional (impulsive) it (colour, hue). It is exactly this personal knowledge (knowing) from which explicit knowledge stems when personal experience is actively integrated, and which gives meaning to it and controls its use."

In the Japanese cultural context it is more natural to understand explicit knowledge as articulable (if so wanted) rather than as already articulated. The Japanese are very skilful in 'reading between the lines': 察し, a sort of guessing, has an important role in the communication process (Yamaoka 1997). In fact, it is considered a more refined form of communication not to articulate, not to finish your sentences, but to let others do that in their minds.

From Articulable to Articulated and to Explicit Knowledge

Nonaka published some articles on knowledge creation in English and processed his ideas together with the Swedish professor Hedlund before publishing his theory of knowledge creation in English (in 1995). It is interesting to look at the conceptual development in the working paper (Nonaka and Hedlund 1991) that was later processed into a chapter in Hedlund and Nonaka (1993), and two articles (Nonaka 1991a; 1991b).

Nonaka and Hedlund (1991) propose two models of knowledge management: Western and Japanese. They also discuss their relative strengths and weaknesses with regard to industries. They comment at the end of their paper as follows:

> *"The fact that analysis of western multinational corporations on the one hand, and of the Japanese firm on the other - by authors from quite different backgrounds - lead to similar conceptions suggests that the underlying issues are more general than having to do with peculiarities of national culture or organizational history."* (Ibid., 34)

Thus it seems that they were agreeing on the concepts of knowledge. *Tacit knowledge* is again defined, in line with Polanyi (Knowing and Being 1969), as *"knowledge which is intuitive, non-verbalized and yet unarticulated"* (Nonaka and Hedlund 1991, 3). Nonaka's earlier 'articul**able**' knowledge has now become *'articulated' knowledge* and it is defined as knowledge that *"specifies either verbally or in writing, computer programs and the like"*. The attention here is clearly on verbalizing: tacit knowledge is not yet verbalized, and articulated knowledge is already verbalized. An interesting nuance difference is

that Nonaka (野中 1990) stresses the potential to be verbalized as the opposite of tacit, which cannot be verbalized. Nonaka (1991a, 248) still explains that direct and continual dialogues between people create new information as a result of the conversion of tacit knowledge into articulable knowledge. Nonaka and Hedlund (1991) shift this potential to tacit knowledge, which is 'not yet articulated'.

The English word 'articulate' has two conflicting meanings: (1) to divide into parts and (2) to put together by joining. Thus the word encompasses two opposite concepts: analysis (decomposition) and synthesis (integration). Kodama (1995, 145) uses this as a foundation for his concept of *demand articulation*, which he defines as *"a dynamic interaction of technological activities that involves integrating potential demands into a product concept and decomposing this product concept into a development agenda for its individual component technologies."*

The shift in definition demonstrates how differently we can perceive these concepts. Nonaka (野中 1990) was simply translating the term into English, while defining and understanding it through Japanese. When the Japanese and Swedish researchers worked together they found consensus in a common term and definition for articulated knowledge. Since the terms articulable and articulated would both be translated as 明示的 in Japanese, this did not change the Japanese conceptualization of knowledge. It should be noted, however, that during the same year Nonaka's article (Nonaka 1991b) on knowledge creation was published in English in Harvard Business Review, and here he was already using the term 'explicit knowledge' instead of 'articulable' or 'articulated' knowledge. He elaborated further the theory of knowledge creation in an article in 1994, in which he also used the term 'explicit knowledge', and developed notions about the digital character of explicit knowledge and the analogue type of tacit knowledge (Nonaka 1994). However, Hedlund and Nonaka (1993) refer

to 'articulated' knowledge, and Nelson (1994) continued to use the term articulated.

Nonaka and Takeuchi (1995): Tacit and Explicit Knowledge

The Knowledge Creation Theory was finally published in English by Nonaka and Takeuchi in 1995 as *The Knowledge-Creating Company*. Prior to this Nonaka had published articles in English on knowledge creation: for example, in 1991 in *Advances in International Processing in Organizations* (Nonaka 1991a); in *Harvard Business Review* (Nonaka 1991b); and in 1994 in Organization Science (Nonaka 1994). Nonaka and Takeuchi (1995) is not a translation of Nonaka (1990), although the basic framework and many of the examples were presented in it. As the subtitle *How Japanese Companies Create the Dynamics of Innovation* suggests, Nonaka and Takeuchi (1995) analyze the Japanese knowledge-creation model and thereby aim to explain why Japanese companies have been so successful.

Tacit knowledge is defined in Nonaka and Takeuchi (1995, 8) as *"highly personal and hard to formalize, making it difficult to communicate or to share with others. Subjective insights, intuitions, and hunches fall into this category of knowledge."* Further, *"it is deeply rooted in an individual's action and experience, as well as in the ideas, values, or emotions he or she embraces"*. Tacit knowledge contains a technical (skills, know-how) and a cognitive dimension (schemata, mental models, beliefs, and perceptions).

Explicit knowledge is something formal and systematic that *"can be expressed in words and numbers, and easily communicated and shared in the form of hard data, scientific formulae, codified procedures, or universal principles"* (Nonaka and Takeuchi 1995, 8). Polanyi (1958, Personal Knowledge; 1966 The Tacit Dimension) appears on the list of references, although it is not mentioned whether these were used in the Japanese translations or in the English original. Table 2 summarizes the conceptual development of tacit and explicit knowledge in the publications on knowledge-creation theory discussed here.

SOURCE:	TYPE OF KNOWLEDGE:	
Dictionary Meaning	Tacit 'Unexpressed, unspoken, unsaid, and implicit'	Explicit 'Fully and clearly expressed'
Polanyi (1966 1983)	Tacit Knowledge - 'We cannot verbalize'	Explicit Knowledge - 'We can verbalize'
野中(1990)	暗黙的知識 (Tacit)	明示的知識 (Articulable)
Nonaka (1991a)	Tacit - Cannot be civided - Emotional [at	Articulable - Can be articulated also 形式的知識
Nonaka and Hedlund (1991) Hedlund and Nonaka (1993) Hedlund (1994)	Tacit Knowledge - Intuitive, non-verbalized, yet unarticulated	Articulated Knowledge - Specified verbally or in writing, computer programs, etc.
Nonaka (1991b)	Tacit Knowledge - Not so easily expressible, highly personal, hard to formalize, difficult to communicate	Explicit Knowledge - Formal and systematic, easily communicated and shared
Nonaka (1994)	Tacit Knowledge - Analogue	Explicit Knowledge - Digital
Nonaka and Takeuchi (1995)	Tacit Knowledge - highly personal and hard to formalize	Explicit Knowledge - Stng formal and systematic that can be expressed in words and numbers
Nonaka and Toyama (2003)	Tacit Knowledge - Produced by practical consciousness	Explicit Knowledge - Produced by our discursive consciousness

Table 2: The Development of the Concepts of Tacit and Explicit Knowledge in Publications on Knowledge-creation Theory

Nonaka and Takeuchi (1995) claim that Japanese companies understand knowledge primarily as tacit, whereas Western companies seem to focus on explicit knowledge. This was also an important argument in their later writings, but seems to have gone largely unnoticed by Western researchers in the field.

Polanyi and Jung as Contemporaries

In order to understand the concept of tacit knowledge developed by Polanyi, we have to consider his background. Michael Polanyi (1891-1976) was born in

Hungary and his first university degree was in medicine. Because of poor health he switched his field and launched his career as a physical chemist after World War I. In 1933 he moved to the University of Manchester in England. His interests grew to include questions about organization and order in science and society, and in 1947 he moved from the faculty of science to the faculty of humanities where he developed his philosophy of science and of society, including the concept of tacit knowledge.[9]

It is most probable that Polanyi was aware of the work of Carl Jung (1875-1961), since Jung had developed his ideas about the interplay between the conscious and the unconscious in 1912, long before Polanyi moved to England. However, at that time the Cartesian concept of the human being was dominating medicine. The mind had been pushed aside and left to the realm of religion and philosophy, and even after it had become a special field of study, i.e. psychology, it had to wait for acceptance by medicine and biology until quite recently (Damasio 2001, 238). This may explain why Polanyi (1983, originally in 1966) made no reference to Jung's work, although his concept of tacit seems similar to Jung's concept of the unconscious.

Along with Freud, Jung established psychology as a field of study. Jung employed the concepts of the conscious and unconscious mind in explaining how the human mind works. Jung's definition of the unconscious mind differs radically from Freud's definition, and in fact this issue was one reason why Jung departed from Freudian psychoanalysis in 1921 to found his own school of analytical psychology. According to Jung, the unconscious mind constitutes the *things that occur in our mind, of which we are not conscious*. He depicted the unconscious as a having an active role: *"the unconscious is no mere depository of the past, but it is also full of germs of future psychic situations and ideas..."* (Jung 1978, 25)

[9] See, for example, www.deepsight.org articles polanyi.htm accessed 26.8.2002

Table 3 compares the related concepts developed by Jung and Polanyi. The main difference between the Jungian concepts of the unconscious and the conscious and the concepts of tacit and explicit developed by Polanyi are in the focus of the analysis. Jung was interested in the individual (personal unconscious) and, to some extent, in the idea that some of the unconscious could be shared (collective unconscious and archetypes): for him the unconscious mind consisted of unorganized knowledge that was pre-linguistic and emotional in nature, whereas the conscious mind represented linguistic, organized knowledge, and rationality.

Jung (1875-1961)		
	Unconscious - Occurs in the mind, not the consciousness	**Conscious**
	The Unconscious mind - Personal unconscious - Collective unconscious - Archetypes	**The Conscious mind**
	"Unorganized knowledge" Pre-linguistic Emotional	"Organized knowledge" Linguistic Rational
Polanyi (1891-1976)		
	Tacit Knowledge - We cannot verbalize	**Explicit Knowledge** - We can verbalize
	'Tacit knowing'	'Telling'

Sources: Jung (1978; 1990), Polanyi (1983)

Table 3: Related Concepts Developed by Jung and Polanyi

Polanyi combined both the intra-individual and the interpersonal in his definition of tacit by referring to both 'knowing' and 'telling'. Knowing takes place within the individual (and can be both conscious and unconscious), but telling means sharing this knowledge with another person. Polanyi thereby linked knowledge to sharing it with others.

However, if we think of knowledge creation within an individual, there is no need to be able to share it. In fact, it has been recently discovered that highly talented people and those working in scientific professions have more autistic

traits than average people.[10] This conceptual difference may explain why the use of Polanyi's tacit and explicit knowledge has provoked some criticism in the West. It was mentioned earlier that Tsoukas (1996, 14) claims that such distinction is not justifiable. One cannot, in fact, distinguish between them because they are mutually constituted and inseparably related. This makes sense on the intra-individual level because the processes of transformation between tacit and explicit knowledge take place within the individual.

However, on the interpersonal (group organization) level it is important to distinguish between these two types of knowledge in order to be able to analyze the process of transferring knowledge between individuals. It may be that Western readers consider only transfer within explicit knowledge possible between individuals, whereas for the Japanese it is self-evident that individuals can also share tacit knowledge without converting it first into explicit knowledge. For this reason, I think it is important to analyze the knowledge-creation process on both the individual and the interpersonal (group organizational) levels.

Descartes' Error

Until very recently researchers had limited access to what goes on in a person's mind. Jung (1990) tried to reach the unconscious by the careful observation and recording of every fantasy, vision, dream and thought, however odd. In his time the psyche was neglected in medical textbooks and lectures. By developing the field of psychiatric studies, both he and Freud legitimized scientific discussion of the existence of the 'spirit' or the 'mind'. Neuroscience today has been able to map the functioning of the brain and the new findings are radically changing the view of how the mind and the body work. For Jung (and his contemporaries), spirit and matter were two opposites, whereas recent studies have been able to prove that the mind (brain) cannot operate or exist without the body (Damasio 2001, 97).

[10] Helsingin Sanomat 15.9.2000 referring to research published in the *Journal of Autism and Developmental Orders* and *The Times Higher Education Supplement*

One of the world's leading researchers in neuroscience, Antonio Damasio, integrated recent findings in studies of the mind and consciousness in his book *'Descartes' Error'* (1994), and developed a vision of the brain and its parts that makes sense biologically, psychologically, and philosophically (Dennett 1995, 3). According to Damasio (2001, 127), an organism is born with automatic survival mechanisms, and education and cultural adaptation add a number of socially acceptable and desirable decision-making strategies, which in turn increase chances of survival, drastically improve the quality of life, and are thus the basis for building the self. In birth and at the beginning of human development there are instincts in the brain that govern both the physiological toolbox for regulating one's metabolism and social cognition and behavior. The brain acquires additional layers of survival strategies during childhood development. The neurobiological basis of these strategies has something to do with instincts, and this both changes and extends their operations. Operations that are wider than instincts are supported by neural mechanisms, which may be structured in a basically similar fashion as those that regulate biological instincts, and may be bounded by them. However, they absorb some influence from society in becoming what they become. In this way they are linked equally strongly both with the given culture and with general neurobiology. In addition, this two-level limitation implies that the survival strategies that are wider than instincts create a unique human characteristic: a moral perspective, which sometimes extends beyond the immediate interests of a group or even a whole species.

There are several implications in Damasio (2001) concerning Jung's four types of interplay between the conscious and the unconscious. The most important finding is that the mind and the body are even more strongly interrelated than was previously thought in the West. Interestingly, Polanyi (1983, 15) also suggested this: *"Our body is the ultimate instrument of all our external knowledge, whether intellectual or practical."* For Jung, Western civilized consciousness had already separated itself from the basic instincts. Although these instincts have not disappeared, they have lost their contact with our

consciousness and are thus forced to assert themselves in an indirect fashion (Jung 1978, 72). Damasio (2001, 166-167) suggests that the inference process of a 'civilized' person is in fact based on emotional mechanisms, and is thus a result of interaction between the mind and the body.

We could link the idea of tacit and explicit knowledge on the individual level to the awareness[11] of knowing. Tacit knowledge would relate to the unconscious, and explicit knowledge to conscious knowing. There seems to be evidence of a type of memory of which we are not consciously aware, yet which stores knowledge. Daniel Schacter and Endel Tulving refer to this type of memory as *implicit memory*, which they distinguish from *explicit memory*.[12]

According to Schacter (1996, 190-191), implicit memory could be seen as constituting part of tacit knowledge:

> *"The nonconscious world of implicit memory revealed by cognitive neuroscience differs markedly from the Freudian unconscious. In Freud's vision, unconscious memories are dynamic entities embroiled in a fight against the forces of repression; they result from special experiences that relate to our deepest conflicts and desires. . . . Implicit memories . . . arise as a natural consequence of such everyday activities as perceiving, understanding, and acting."*

3.3 Knowledge Creation on the Individual Level

The individual knowledge-creation process could be described as interplay between the conscious and the unconscious mind. Jung (1978, 49) describes four different means by which the conscious obtains its orientation to experience: *sensation* (i.e. sense perception) tells you that something exists; *thinking* tells you what it is; *feeling* tells you whether it is agreeable or not; and *intuition* tells you whence it comes and where it is going. For Jung (1978, 24-25), it is the process of bringing something from the unconscious to the conscious

[11] It seems that some conscious perception goes on without self-consciousness: it is possible to be unaware of having experienced something, and to be unable to remember the experience, but still give evidence that one has had the experience. There are examples of 'implicit memory' in brain-damaged persons. See, Schacter (1996) for example.
[12] http://skepdic.com/psychoan.html 29.06.2003

that creates new knowledge: new ideas, inspirations, and "revelations". In the following I will link these processes to knowledge creation in terms of interplay between tacit and explicit knowledge.

Feeling: within tacit knowledge

Jung describes *feeling* as telling you whether something is agreeable or not. It belongs to the realm of emotions, which rest in the unconscious mind. Tacit knowledge could be defined as "*emotional knowledge*" as opposed to explicit knowledge, which is "rational knowledge". However, emotions and their display are two different things. When emotions are expressed, either verbally or non-verbally, they become part of explicit knowledge. Thus the process of feeling could be described as tacit to tacit knowledge transfer, without conversion into explicit knowledge. In this way we can also see the emotional side of sharing tacit knowledge. In the SECI model this takes place at the group level through the process of *socialization*, which involves *synthesized knowledge*. Nonaka, Toyama and Bos'ère (2001, 495) ascertine the importance of arranging "*ba*" or contexts for this process to begin. They use the terms "love", "care" and "trust", all of which are related to emotion. On the individual level, dreaming and imagining are means of dwelling in the unconscious. It is still unknown what the significance of sleeping is to human beings. Recent research suggests that we reconstruct damaged brain cells during sleep.

Damasio (2001, 134) furthers deeper understanding of the Jungian idea of 'feeling' when he explains the neurological basis of feelings and emotions. Ontologically, primary emotions give way to secondary emotions, which emerge when we start experiencing feelings and form systematic connections between classes of objects and situations on the one hand and primary emotions on the other.

We have primary emotions: the innate ability to react to an emotion in a pre-ordered way when we sense certain characteristics of the world or our body receives stimulation. Examples include size (like a big animal), a wide wingspan

(like the eagle in flight), movement style (like a lizard), certain sounds (such as a 'murmur'), and certain bodily states (such as the pain during a heart attack) (ibid, 131).

These characteristics are processed alone or together, after which the limbic part of the brain, for example the amygdala, perceives them. The nucleus of its nerve cells has a dispositional representation, which releases the bodily state characteristic of fear emotions and changes cognitive processing in a way that fits the state of fear. There is no need to 'recognize' the bear or snake as such in order to observe and classify certain characteristics. (ibid, 132)

For humans the next stage is feeling the emotion in connection with the object that caused it. Awareness of this connection gives more security: if one learns to know that an animal, object, or situation, M, causes fear, there are two ways to react when meeting M. The first is innate and it cannot be regulated. In any case, it is not connected only with M, because a variety of creatures, objects and circumstances can create the response. The other way is based on one's own experience and it is associated only with M. Because one knows M one can think of the future and predict the possibility of M being in a certain environment. Then one can avoid M by anticipating it and not only by reacting to its appearance in an emergency. (ibid, 133)

There are other advantages of 'knowing' the emotional reaction. One can generalize knowledge and decide to be careful when facing something resembling M, for example. In this way, we could say that *awareness of emotional states is the basis of all learning*. This is very important in terms of the knowledge-creation process within an individual.

Although Damasio (ibid, 127) talks about ontogical development, he stresses the fact that organisms are in constant interaction with their environment, which means that the development of secondary emotions is also partly manipulated by society and culture. This idea is further developed in his analysis of cultural

differences in connection with receptivity in the internalization process on the group level.

Intuition: from tacit to explicit knowledge

Intuition is the flow of knowledge from the unconscious to the conscious, from in to out, and results in new ideas, inspirations, "revelations" (Jung 1978, 24-25). Thus we could apply this and say that new knowledge is created when tacit knowledge is converted into explicit knowledge. On the interpersonal level, this corresponds to the Internalization Process in the SECI model. It is the stage of the knowledge-creation process at which new *conceptual knowledge* emerges.

Jung (1978, 25) pointed out that the French mathematician Henry Poincaré and the chemist Kekulé owed important scientific discoveries to sudden pictorial "revelations" from the unconscious. Damasio (2001) and Penrose (1990) also refer to Poincaré when describing the role of intuition in decision-making in mathematical knowledge creation. Poincaré had a sudden flash of inspiration (which made him connect Fuchsian functions with non-Euclidean geometry) when he was stepping onto an omnibus. Penrose (1990, 533) recalls similar flashes in his own career as a mathematician. He refers to *external insight* as an ability to intuit truth from falsity (and beauty from ugliness!) and considers this the hallmark of consciousness. For Damasio (2001, 180-181), intuition means sorting out, selecting different possible alternatives. Pre-selection of possible alternatives is sometimes done invisibly, sometimes not. The biological mechanism takes care of pre-selection: it examines candidates and allows only a few to take the final test.

Leo Szilard, physician and biologist, has claimed that the creative scientist has a lot in common with the artist and the poet. Logical thinking and analytical ability are necessary but not sufficient requirements for creative work. Revelations leading to scientific breakthroughs were not logically derived from existing knowledge: the creative processes on which scientific achievement is based work unconsciously (Damasio 2001, 181-182).

Maslow (1993) termed this type of sudden discovery or uplifting incident "peak experience", and Csikszentmihalyi (1991) refers to "flow experience". There is a feeling of great satisfaction when one solves a problem or discovers a new idea. This may well be the driving force behind computer hackers, and distinguishes their relation to information technology from that of users, (Himanen 2001). Since users of information technology only consume information, they tend to get dulled by it.

There is something coming out of the unconscious to the conscious level all the time and it is not necessarily an innovation or a great discovery. The very act of memorizing entails externalizing knowledge from the tacit to the explicit within an individual. The senses continuously perceive a lot of data, but the brain processes only a fragment of this. Just part of what has been perceived will be stored in the short-term or the long-term memory for later retrieval.

In a strict sense, sensory data becomes knowledge only after it has been organized according to some schema. After hearing a sound the mind connects it with some meaning and thus creates knowledge of what it means. The processes of sensing and connecting take place at such short intervals, virtually simultaneously, and it is difficult to distinguish between them. All this takes place before the mind can make explicit what this knowledge is. We could thus say that tacit knowledge is the source of organized (explicit) knowledge.

Dreaming is an interesting case of both dwelling in the unconscious and entering the conscious level occasionally (as in remembering dreams). Different visual images emerge without any apparent logic. Reflecting back on these images, one may conceptualize them later and attach a meaning to them. This was one of the principal ideas in Jung's study of the importance of dreams. He saw the unconscious sending messages to the conscious through dreams.

Thinking: combining explicit knowledge

Thinking is communication within one's head. However, it is part of the conscious process and could be said to take place within explicit knowledge. According to Jung, thinking explains what something is. It is therefore the combination of information into comprehensible knowledge, or *systemic knowledge*. On the group level this refers to the *Combination* Process in the SECI model. Thinking aloud is talking (see Vygotsky on internal speech in Luria 1976). Therefore, dialoguing is part of this process. Talking and thinking are similar in the way they use concepts that are determined linguistically. Conscious knowledge can also be arranged in the mind by writing, drawing or modeling. Conceptual processing is the conversion of explicit knowledge into explicit knowledge. It is a cognitive process in which language has a crucial role.

Conceptual processing may also be an unconscious process, as when we are "absorbed in our thoughts" or when we internalize a skill based on conceptual thinking. In both of these cases tacit knowledge is handled in its conceptual form. Burton (1999) claims that most of one's knowledge is of a non-explicitly conceptual nature. He gives the following example:

> *a "...situation in which conceptualization is likely to be explicit is when one is learning, and has not yet mastered, some skill. While learning a piano-sonata, for example, the pianist must explicitly conceptualize the musical directions which enable him to play the music. But as he becomes more familiar with the music - with practice - he will think less and less in this explicitly conceptual way. When he has perfected his playing, I suspect that there is very little explicit conceptualisation which takes place. This is not to say that the pianist's experience becomes non-conceptual (i.e. in the sense of 'not discriminating anything'), for he certainly does discriminate the music when he plays. But the pianist is unlikely on the whole to be aware of the conceptualisation which occurs. He simply plays, naturally and without noticing the various notes which he is discriminating." (Burton 1999, 77- 78)*

Recent findings in neuroscience suggest that thinking consists mostly of images. Most words that we use in the internal speech that precedes saying or writing exist as audiovisual images in our consciousness (Damasio 2001, 110). Some excellent mathematicians and physicians say that images dominate their thinking. Often these images are visual and they may be also somatosensory.

Damasio (ibid, 111-112) refers to famous scientists, such as Albert Einstein and Richard Feynman, who have acknowledged the importance of visual images in their thinking processes. Descartes also seemed to think in images. It has been said that he liked glancing through books just by looking at the pictures, and he had revelations in dreams (Ljatker 1984, 173).

Damasio (2001, 96) explains that as organisms acquired greater complexity, 'brain-caused' actions required more intermediate processing. Other neurons were interpolated between the stimulus neuron and the response neuron, and varying parallel circuits were thus set up, but it did not follow that the organisms with this more complicated brain necessarily had a mind. The brain may take many intervening steps in the circuits mediating between stimulus and response and still have no mind if it does not meet an essential condition: the ability to display images internally and to order those images in a process called thought. Images are not only visual, and may be based on 'sound' and 'smell'.

Non-conceptual knowledge processing is thinking without words or concepts. However, conceptual thinking also involves processing images into linguistic concepts even if these are not voiced out, that is spoken or written. Small infants dwell in the non-conceptual (or pre-conceptual at this age) tacit world. It is therefore said that we cannot trust our early infanthood memories because they took root in the pre-conceptual stage of development. During the early stages of a child's development, words are not an organizing factor in terms of categorizing experience (Luria 1979, 67). As children grow and acquire language, their thinking becomes more conceptual. Piaget and Vygotsky had different opinions about the meaning of egocentric speech in child development. The relationship between language and thought is discussed further in Chapter 4.

Sensation: from explicit to tacit knowledge

Nonaka (1994) associates internalization, the conversion of explicit knowledge into tacit knowledge, with organizational learning:

> *"For explicit knowledge to become tacit, it helps if the knowledge is verbalized or diagrammed into documents, manuals, or oral stories. Documentation helps individuals internalize what they experienced, thus enriching their tacit knowledge." (Nonaka and Takeuchi 1995, 69)*

The dictionary definition of knowledge states that it is *"an organized body of information; or the comprehension and understanding consequent on having acquired and organized a body of facts"* (Webster's 1989, 730). In a strict sense then, tacit knowledge as residing in the unconscious mind is not knowledge at all, but rather unorganized pieces of information gathered through different sensory devices. However, common usage of the word "knowledge" refers to "something that we know". This knowing can result from data pouring in through different sources: touching ("I know from the touch that it's silk"), smelling ("I know by the smell that it's coffee time"), seeing ("I know it's red when I see it"), tasting ("I know it's salty by the taste"), or hearing ("I know by the sound that it's an ambulance"). Therefore, I find it justified to call this data gathered from experience "knowledge". This is to acknowledge that knowing can take place through different senses.

The Jungian concept of *sensation* or sense perception is the flow of information from out to in, corresponding to the conversion from explicit to tacit knowledge. On the individual level, this is the *internalization* process in the SECI model. It includes reaching, listening, and also perceiving with all the senses (sensation): an intake of external knowledge, which is then processed or forgotten. Most lost memories are lost because they were never elaborately encoded. In this the explicit knowledge may be in a form that different senses can "read". It is thus something that is understandable through any of the senses, not only something articulated. Dogs leave messages for other dogs by spraying urine. They are able to encode messages left by other dogs and receive a lot of information (gender, state of mating time, for example) from it. Human beings can also read non-verbal messages and obtain information in that way. It is through the process of sensation or internalization that we obtain *operational knowledge*.

Neuroscience explains the same process in terms of the environment leaving its signs for the organism in a variety of ways, such as by stimulating the function of the nerves in the eye or ear or the many nerve endings in the skin, the gustatory nerves or the pituitary membrane. Nerve endings send messages to certain incoming points, i.e. to the area in which sight, hearing, bodily sensations, taste and smell are registered. (Damasio 2001, 97)

Perception is mostly a filtering process. Our interests and needs affect it, but most of what is available to us as potential sense data will never be processed, and most of what is processed will be forgotten. Amnesia is not rare, being rather the standard condition of the human species. We do not forget in order to avoid being reminded of unpleasant things. We forget either because we did not perceive closely in the first place or we did not encode the experience either in the parietal lobes of the cortical surface (for short-term or working memory) or in the prefrontal lobe (for long-term memory) (see, for example, Schacter 1996).

For Jung, the flow from the conscious to the unconscious also meant *forgetting*. Forgetting itself is a very important aspect of knowledge creation. Without the unlearning (forgetting) of old ideas, there is no room for the emergence of new ones. However, to say that conversion from explicit to tacit knowledge merely denotes forgetting would be to ignore the meaning of implicit memory. Tacit knowledge is the container of all knowledge acquired so far: some knowledge, which has been explicit, becomes unorganized and mixed with other elements of tacit knowledge.

Cultural Differences in the Individual Knowledge-creation Process

Analyzing the knowledge-creation process on the individual level raises many important cross-cultural issues. Some those that are incorporated into the SEC model were selected for further investigation in this study (see Table 4). Cultural differences in terms of considering dreaming and meditation as ways of knowing are discussed after this.

Type of Knowledge Conversion: (SECI Model) *Nonaka and Takeuchi (1995)*	Individual-level Process *Jung (1978)*	Related Cross-Cultural Issues
Tacit-to-Tacit Knowledge (SOCIALIZATION)	Feeling	Cognitive elements Dreaming Meditation Note: Somatic Markers (Damasio 2001)
Tacit to Explicit Knowledge (EXTERNALIZATION)	Intuition	Cognitive processing - language
Explicit-to-Explicit Knowledge (COMBINATION)	Thinking	Cognitive processing - language
Explicit to Tacit (INTERNALIZATION)	Sensation	Cognitive processing - language Sense perception

Table 4: Cross-cultural issues on the individual level in the SECI Model

Explicit knowledge is understood as 'knowledge that is transmittable in formal, systematic language' (Nonaka 1994, 16). The externalization and combination of knowledge is clearly bound up with its organization through *cognitive processes*, which means using *language*. There are over 5,000 different languages in the world (Gibbs 2002), and there is ample evidence that language is an essential tool in cognitive processing. The internalization process also includes understanding and interpreting knowledge expressed in language. Moreover, it seems that the cognitive elements involved in processing tacit knowledge are also influenced by the cognitive skills developed by using language. Cognitive psychologists and neuroscientists thought for a long time that cognitive processes were the same for all human beings; that we all relied on the same tools for perception, memory, causal analysis, categorization and inference. However, recent findings are proving that there exist culturally different cognitive processes, which shape the way we process knowledge (Nisbett 2003, xiv).

Sense perception is also an important way of internalizing explicit knowledge. What, then, happens with sensation? Surely a human being remains biologically constant. However, it seems that at the infant stage we develop a cultural bias for *sense perception*, i.e. we start focusing more on perception through certain senses. I will discuss the development of sensory perception in connection with the internalization process on the group level.

Are feelings universal, or are there cultural differences? There are several studies showing that emotions are universal, but their display is culturally regulated (Matsumoto 1996). Recent findings also suggest that secondary emotions, and especially the development of somatic markers, are gained through experience, which is regulated by the internal preference system and by the influence of external circumstances, including social customs (Damasio 2001, 172-173).

Since the cognitive process is a central element in knowledge creation, an analysis of the impact of culture on cognitive development is a major theme in this study. Nonaka and Takeuchi (1995) consider the articulation (i.e. using language) of tacit mental models the key factor in creating knowledge. There is ample evidence to support the idea that language influences our cognitive skills. In Chapter 4 of this study, I analyze how language, especially writing systems and achieving literacy, shape the way we process knowledge.

Dreaming and Meditation as Ways of Knowing

> During [these] periods of relaxation after concentrated intellectual activity, the intuitive mind seems to take over and can produce the sudden clarifying insights, which give so much joy and delight.
> **Fritjof Capra, physicist**

Jung (1990, 333) considered dreaming to be an important way in which the unconscious communicates to the conscious mind. He even believed that dreams could sometimes inform us of things that, according to all logic, we could not possibly know, concerning synchronistic phenomena, premonitions and dreams that come true, for example. It has been said that all the information

necessary for saying is actually available publicly in different media and other sources. The critical element in obtaining the necessary knowledge is the right combination of pieces of information. It could be that the unconscious works for us in this selection and combination task.

Dreaming could be considered a creative way of combining elements in unconscious or tacit knowledge. Without conscious control by the mind, these different elements join together, sometimes in surprising ways. Something 'clicks' and the result may be an innovation that one is able to express as explicit knowledge upon waking up.

Some of the most revolutionary ideas in the world started as revelations in dreams. One famous example is Descartes' Angel (Rozak 1986, 210):

> *"On the night of November 10, 1619, René Descartes, then an aspiring philosopher still in his early twenties, had a series of three dreams which changed the course of his life and of modern thought. He reports that in his sleep, the Angel of Truth appeared to him and, in a blinding revelation like a flash of lightning, revealed a secret, which would lay foundations of a new method of understanding and a new and marvelous science'. In the light of what the angel had told him, Descartes set to work on an ambitious treatise called 'Rules for the Direction of Mind'."*

Descartes never finished his treatise. Neither did he ever spare time in his writing for the role of dreams, revelations, and insights as the wellsprings of thought. Instead, he gave all his attention to formal, logical procedures that supposedly begin with zero, from a position of radical doubt. (Rozak 1986, 211)

According to cultural anthropologists, *dreaming* has a different status in different cultures, especially as a source of information (Gell 1992). *Meditation* is also a way of gaining access to tacit knowledge. It has traditionally been practiced in Eastern religions and is essential to Zen Buddhism.

We may also try to reach the non-conceptual world consciously. Artists who are able to think in visual images are capable of this. In some philosophies (or religions), such as Buddhism, *meditation* has a central role in reaching

consciously to the non-conceptual world. Burton (1999) studied second-century Indian Buddhist philosophy and followed the discussion about non-conceptuality and knowledge of reality. He concluded that (78-79):

> *"At the time of the meditation, the meditator, due to his absorption in his experience of emptiness, does not reflect 'this is emptiness', nor does he proclaim 'this is emptiness'. He does not stand back from his experience in which he is immersed. He is simply absorbed in the experience, like the pianist who is totally familiar with the music which he plays. In this sense, then, the meditator on reality also does not have a view, a position, or a thesis. He does not formulate or express a proposition that entities lack **svabhāva**, although he is undoubtedly discriminating, in a face-to-face encounter, this lack of **svabhāva**."*

It is of course possible to reflect later on meditative experience and to conceptualize the "absence of emptiness".

3.4 Knowledge Creation as a Communication Process

A lot of talk
Passes as what I say with a lot of talk,
But the hemlock-pauses speak
And the cowbane, and the thorn-apples.
What I can't say
Is the deadliest nightshade
That can grow on any house-corner.
(Kia Kitt'ano, 1961)

Knowledge creation on the group level or between organizations entails the transfer of knowledge between individuals and could thus be paralleled to the communication process. There are several studies focusing on *knowledge transfer* through alliances and joint ventures (for example, Kogut 1988a; Westney 1988; Hamel 1990, 1991; Zander 1991; Kogut and Zander 1992). Kogut and Zander (1992) discuss tacit 'know-how', defined as *"the accumulated practical skill or expertise that allows one to do something smoothly and efficiently"*, and information or 'know-what', which accommodates more articulable dimensions of knowledge. For Kogut (1988), tacit is 'organizationally embedded knowledge'. Zander (1991) noted that tacit knowledge was more difficult to transfer than articulated knowledge.

Bresman, Birkinshaw and Nobel (1999) studied knowledge transfer in international acquisitions and they considered the extent to which knowledge can be articulated to be positively related to knowledge transfer. This is typical of the Western communicative approach in which the focus is on the explicit or the verbal. Although these studies also discuss tacit and explicit dimensions of knowledge, their primary interest is in how easily knowledge can be transferred, and not in the knowledge-creation process itself. Thus the focus is on how we can make tacit knowledge explicit, i.e. more easily transferable.

野中(1990) based his theory of knowledge creation on the experience of Japanese companies. However, Nonaka and Takeuchi (1995, 197-223) also considered the applicability of the Japanese-style knowledge-creation process outside Japan, and the adjustments needed when Japanese companies start to work jointly with non-Japanese partners.

It has been suggested that the source of Japanese managerial success may not be the Theory Z social skills stressing team-building, consensus and trust, as put forth by Ouchi (1981), but rather the Japanese cognitive skills at carrying out organizational learning (Nonaka and Johansson 1985; Sullivan and Nonaka 1986; Kagono et al. 1989). However, I believe that the Japanese management style reflects the Japanese cognitive skills. The major differences between knowledge creation in Japanese and Western organizations as summarized by Nonaka and Takeuchi (1995) are given in Table 5. These parallel the differences between the Japanese and American styles of management analyzed by Fukuda (1991).

Japanese Organization	Western Organization
- Group-based	- Individual-based
- Tacit knowledge-oriented	- Explicit-knowledge-oriented
- Strong on socialization and internalization	- Strong on externalization and combination
- Emphasis on experience	- Emphasis on analysis
- Dangers of "group think" and "overadaptation to past success"	- Danger of "paralysis by analysis"
- Ambiguous organizational intention	- Clear organizational intention
- Group autonomy	- Individual autonomy
- Creative chaos through overlapping tasks	- Creative chaos through individual differences
- Frequent fluctuation from top management	- Less fluctuation from top management
- Redundancy of information	- Less redundancy of information
- Requisite variety through cross-functional teams	- Requisite variety through individual differences

Source: Nonaka and Takeuchi (1995, 199)

Table 5: A Comparison of Japanese-style vs. Western-style Organizational Knowledge Creation

The Japanese represent a collectivistic culture, in which organizations are group-based and group autonomy (an *emphasis on human relations, collective decision-making and group harmony*) prevails. There is a danger of 'group think' and 'overadaptation to past experience'. In terms of knowledge creation the Japanese are oriented towards tacit knowledge and are especially strong in socialization and internalization processes.

Japanese-style management allows emphasis on experience (*life-time employment, seniority-based pay/promotion*), creative chaos through overlapping tasks (*group duties and responsibilities*),and access to requisite variety through cross-functional teams (*job rotation and on-the-job training*). There is also frequent fluctuation in top management (*management by consensus, the manager as facilitator*). The organizational intention in Japanese companies is ambiguous (*organic type of organization*), and there is redundancy of information.

Western, or American, culture is individualistic and based on individual autonomy. The requisite for variety is realized through individual differences.

There is emphasis on analysis (*analytic decision style*) to the extent that there is a danger of 'paralysis by analysis'. There is clear organizational integration (*system type of organization*) and creative chaos comes through individual differences (*emphasis on functional relationships*). Compared to the Japanese organization, there is less fluctuation from top management (management by objectives, the manager as decision-maker) and less redundancy of information. In terms of knowledge creation, Western organizations are oriented towards explicit knowledge and are strong on externalization and combination processes.

The flexibility of Japanese companies in adjusting by synthesizing Western approaches allows them to take advantage of the diversity provided by a foreign environment. The question remains whether Western companies are also flexible in this respect: there may be *asymmetry of flexibility*. Inkpen (1990) suggested this in his discussion of partner out-learning in US-Japanese joint ventures. The Japanese partners were eager to learn from the American counterpart, but evidently not vice versa.

Nonaka and Takeuchi (1995, 243) suggest that Western companies should *"start paying more attention to the less formal and systematic side of knowledge and begin focusing on highly subjective insights, intuitions, and hunches that are gained through experience or the use of metaphors or pictures"*. Their recommendations are the opposite to those of Japanese companies, which according to them need *"to make better use of advanced information technology, software capabilities, and computerized management systems to accumulate, store, and disseminate explicit knowledge throughout the organization"*. Western companies are required to learn how to amplify or crystallize knowledge on the group level through dialogues, discussion, experience sharing, and observation. Japanese companies need to learn how to build up stronger capabilities on the individual level, not only at the top, but also throughout the organization. (Nonaka and Takeuchi 1995, 244)

It is suggested in this study that differences between Japanese and Western knowledge-creation processes are based on cultural differences. Thus it is not easy to change these knowledge-creation patterns. A discussion on the knowledge-creation process as communication follows, and critical cultural issues are identified for further analysis.

Conscious and Unconscious Knowledge on the Group Level

Jung's concepts of the conscious and the unconscious in knowledge creation were applied earlier on the individual level. To what extent could we apply the interplay between them (here: the tacit and the explicit) on the group (interpersonal) level? The conscious and the unconscious on the interpersonal level could be interpreted as 'known to others' and 'unknown to others'. Luft's (1969) model of human interaction, known as the *Johari Window*, is an awareness-understanding-disclosure model. Aspects of a person (in terms of feelings and behaviors) may be known or not known to others and to oneself. When we say more than we know that we say - the window is open to others but blind to the self; when we know more than we can say - the window is hidden from others and sometimes also unknown to oneself.

Spender (1996, 51) draws attention to notions of non-individual knowing because *"on the Japanese tradition, the European tradition springs from Durkheim's sociology and notion of 'conscience collective', the collective knowing suggested by the term 'organizational culture'."* By separating the "*psychological individual type of tacit knowledge, on which Polanyi focused*" from the "*sociological or collective type proposed by Durkheim*", he aims to clarify the nonexplicit modes of knowing

If we understand explicit and implicit in terms of awareness, we could apply Luft's (1969) Johari Window to types of organizational knowledge. Spender (1996) does not make clear if his explicit and implicit apply at the same time on both individual and social levels. What is explicit (known) to the individual (self) may be not known to others (BLIND), or it may be known to others (OPEN).

Thus conscious knowledge could be either hidden or open to others depending on whether it is shared. Similarly, Spender's objectified knowledge is not necessarily only open, since it can be known to others but not known to the self, which makes one blind to it. (Figure 5)

	Individual	Social
Explicit	**Conscious** Johari Window: HIDDEN OPEN	**Objectified** Johari Window: OPEN BLIND
Implicit	**Automatic** Johari Window: BLIND UNKNOWN	**Collective** Johari Window: UNKNOWN

Sources: Spender 1996; Luft 1969

Figure 5: Spender's Different Types of Organizational Knowledge and Luft's Johari Window

Automatic knowledge could then represent both the blind and unknown (Johari) windows, because what is not known to the self may not be known to others either. Collective knowledge would seem to fall into the window of the unknown. Luft's (1969) unknown area can become known through reflection, certain drugs, projective techniques, and dreaming. Jung also suggests that we can reach the collective unconscious through dreams.

Luft (1969) based his model on eight assumptions about human behavior: (1) human behavior should be approached *holistically*; (2) what is happening to a person or group is best understood *subjectively* in terms of the individual's perceptions and feelings; (3) behavior is primarily *emotional*, not rational; (4) the person and the group tend to operate *without awareness of the sources* of their behavior; (5) *qualitative factors* such as acceptance, conflict, and trust are highly important, although they are difficult to quantify; (6) *process and change* are more important than structure in behavior; (7) *induction by personal experience* is better suited to studying behavior than deduction by abstraction; (8) behavior

should be understood in its complexity rather than in rigid simplicity (Littlejohn 1978, 221). The nature of a person is holistic!

According to Jung (1978), the unconscious contains two distinct components, the *personal unconscious* and the *collective unconscious*. The collective unconscious is a vast mental universe that contains a constellation of patterns that he called archetypes, or symbols that represent universal images that he believed were commonly experienced in all cultures and societies. He argued that archetypes were part of the genetic inheritance of all humans and, as such, were mental contents that existed prior to the formation of the consciousness.

There has been growing interest in the study of consciousness in recent years. According to Damasio (2001), this is due to the maturing of the sciences of the brain and the mind:

> *"There are new techniques that permit the effective study of the neural substrates of mind processing and help produce new findings. In parallel, there are new theoretical developments prompted by the new findings. The combination allows for effective formulation and testing of hypotheses."* [13]

There is an interesting parallel between *Jungian archetypes* and the way Damasio (2001) explains primary emotions. An archetype is described by Jung as a "*preconscious psychic disposition that enables a (man) to react in a human manner.*" This potential for creation is actualized when it enters the consciousness as an image. In his earlier work Jung linked archetypes to heredity and considered them innate and based on instincts.

Damasio (2001) uses the concept of innate *dispositional representations*, which exist as potential patterns of neuron activity in small ensembles of neurons that he calls 'convergence zones'. They are required for control of the metabolism, drives, and instincts. Although innate dispositional representations are not considered to generate images, the consequences of their activity can produce

[13] Harvard Brain Spring 2001, Vol. 8., Interview with Antonio Damasio
http://hcs.harvard.edu/~husn/BRAIN/vol8-spring2001/damasio.htm accessed 29.12.2003

imagery. As specialist agencies that set off chains of reaction that reach deep down into the body's accumulated experience, they call to mind not only further images of reliably appropriate content, but also "*somatic markers*", emotional states that color everything with specific varieties of urgency and calm, rendering various further thoughts relatively unthinkable while driving others into the attention. (Damasio 2001, 109; 167; see also Dennett 1995)[14]

Table 6 compares the concepts developed by Jung and Damasio. The major difference between them is that Jungian archetypes were mythical images common to all individuals in all cultures to the extent of forming what he called the 'universal unconscious', whereas Damasio (2001, 131) considers dispositional representations to be linked to primary emotions, which are not visual images but sensations of the world or bodily stimulations. At a later stage within the formation of secondary emotions, somatic markers are developed as partly culturally conditioned responses and may appear as visual images (ibid, 173). Thus the 'universal unconscious' suggested in Damasio's study seems more limited in scope than Jung's concept. However, different cultural environments could be expected to produce spaces of 'collective unconscious' characteristic of each culture. This is further explored in the analysis of cultural differences in literary culture.

The Universal Unconscious	
Jung: Archetypes - Hero, God, etc.	Damasio: Primary emotions - Dispositional Representations
The Collective Unconscious	
Jung	Damasio: Secondary Emotions - Somatic Markers
Sources: Jung 1978; Damasio 2001	

Table 6: The Universal and the Collective Unconscious

[14] I have since found out that Carc (1996) suggests a similarity between Jungian archetypes and Damasio's thought (Charles R. Carc, The Emergence of Archetypes in Present Day Science And its Significance for a Contemporary Philosophy of Nature, *Dynamical Psychology* 1996 http://www.goertzel.org/dynapsyc/index.htm#1996 accessed 06.01.2004).

Jung (1978) maintained that archetypes were the fundamental source of human creativity. This is an important notion in terms of the knowledge-creation process. We can tap this source of shared tacit knowledge by using symbols and myths shared in the culture. We can communicate to others something that we do not know ourselves (BLIND and UNKNOWN in the Johari Window). This may take place verbally (in the unconscious selection of words) and nonverbally (in certain behavior).

Knowledge and Communication

Knowledge and communication are strongly interrelated. Habermas' Theory of Communicative Action also marks a shift from the theory of knowledge to the theory of language (Cooke 1994, 9-10). On the interpersonal level, knowledge creation is a process by which individual knowledge is transferred between people, in other words it becomes *communication*. In order to understand the full richness of communication we should treat it as a broad concept encompassing a variety of phenomena. I thus refer the reader here to Littlejohn's (1978, 375-376) definition of communication:

> *"It is a complex process of psychological and social events involving symbolic interaction. These events occur within and between people in interpersonal, group, organizational, and mass contexts. Communication events involve varying combinations coding, meaning, thinking, information, and persuasion."*

Symbolic interaction means the exchange of messages by the use of symbols. Since language is our primary symbol system, it is the most important mechanism of the mind and the self. Speaking and writing could be considered the principal modes of communication in an organizational context (Mumby 1988, 15).

The prevailing view of the communication process is that it involves two distinct activities: the mechanics of communicating and the process of gathering the information provided therein. However, Mumby (1988, 14) considers communication in an organizational context as a process through which

meaning is created. Meaning is not conveyed through communication, neither is it the product of individual interpretation or an objectively existing entity outside of social interaction. It is produced in communication:

> *"Communication - as an institutional form - articulates meaning formations which, when habitualized over time, provide the background of common experience that gives organization members a context for their organizing behavior. Communication is thus not simply the vehicle for information, but rather is the very process by which the notion of organizing comes to acquire consensual meaning. Organizing is therefore continuously created and recreated in the act of communication among organization members." (Mumby 1988, 14-15)*

Mumby (1988) claims that communication must be considered the means by which organizational structure and reality are produced and reproduced. In other words, organizations are constructed through the articulation of meaning as produced in communication.

Language has an essential role in both cognitive processing and communication. Conceptualisation is possible only because language exists, and it is distinctively a human phenomenon to use language to transfer knowledge. Communication theories and models are predominantly Western (and especially Anglo-Saxon), and they stress the importance of verbal communication. Thus the basic communication model distinguishes between *verbal* and *non-verbal communication*, indicating that verbal communication is so important that every other type of communication can be grouped together as its opposite. The definition of non-verbal communication is therefore not an easy task, as Harrison (1973) points out:

> *"The term 'non-verbal communication' has been applied to a broad range of phenomena: everything from facial expression and gesture to fashion and status symbol, from dance and drama to music and mime, from the flow of affect to the flow of traffic, from the territoriality of animals to the protocol of diplomats, from extrasensory perception to analog computer, and from the rhetoric of violence to the rhetoric of toothless cancers."*

The SECI Model and Communication

Nonaka and Takeuchi (1995, 225) see organizational knowledge creation as a never-ending, iterative process of interaction between tacit and explicit knowledge. This knowledge conversion gives rise to the following four modes: socialization (from tacit to tacit), externalization (from tacit to explicit), combination (from explicit to explicit), and internalization (from explicit to tacit). Individuals, not the organization itself, affect this knowledge conversion:

> *"But if the knowledge cannot be shared with others or is not amplified at the group or divisional level, then knowledge does not spiral itself organizationally. This spiral movement is one of the keys to understanding organizational knowledge creation."*

Knowledge creation fuels innovation, but knowledge per se does not. It is the dynamic process producing two different kinds of knowledge spirals that is the cornerstone of innovative activities. The first spiral moves across the four modes of knowledge conversion, and the second is where knowledge developed on the individual level is transformed into knowledge at the group and organizational levels. (Ibid, 235)

Boisot (1986, 139) argued that the codification and diffusion of knowledge are related: the more experience (tacit knowledge) has been codified (explicit knowledge), the more speedily and extensively it can be diffused, although the actual diffusion depends on its semantic and pragmatic characteristics. He distinguishes between four knowledge flows: scanning (diffused to undiffused), knowledge creation (unmodified to codified), knowledge diffusion (codified to diffused)) and knowledge absorption (codified to diffused). Scanning and absorption take place in the internalizing process, whereas codifying knowledge is part of Externalization, and knowledge absorption would indicate Combination in the Nonaka and Takeuchi (1995) SECI model.

Nonaka and Takeuchi (1995) define the two essential types of *by the way they are codified*, in other words how they can be diffused or communicated. *Explicit knowledge* refers to clear, distinct knowledge that has been organized by means

of language (as a cognitive tool) into a coherent or meaningful whole.[15] Its transfer equals what is called *verbal communication*, consisting of both vocal (speech) and nonvocal (writing) dimensions (Saville-Troike 1982). Explicit knowledge also covers mathematical formulas and technical inscriptions, as these could be considered a separate language (cognitive tools) and thus transferable verbally and nonvocally. In general, Westerners are focused on individuals and emphasize explicit knowledge. (Nonaka and Takeuchi 1995, p. 43)

Tacit knowledge forms a basis for the emergence of explicit knowledge. It is incapable of full explicit expression (uncodified) and thus it can be transferred only by *non verbal communication*. Parts of it are not transferable and remain only within an individual until made more explicit. Some parts of it are transferable within individuals by sharing the same experience. The Japanese are considered group-oriented and focused on tacit knowledge. (Nonaka and Takeuchi 1995, p. 43)

Equating the transfer of explicit and tacit knowledge with verbal and nonverbal communication respectively opens up the possibility of applying cross-cultural-communication theories to the knowledge-transfer process. This is important for two reasons: first, it helps us to see how different cultures are biased toward certain styles of knowledge transfer (the Japanese being skilful in nonverbal communication, the Americans focusing on verbal skills), and second, it enables us to analyze the different contexts of cross-cultural (and inter-organizational) knowledge creation in international business when multicultural teams set out to create knowledge together.

In this study, knowledge creation at the group level is considered communication, and the transfer of knowledge in a tacit form is equated with nonverbal communication. In genuine communication we not only transfer

[15] See the definition of articulated knowledge: articulate is understood here in the meaning of 'clear distinct; made clear, distinct, and precise in relation to other parts; having a meaningful relation to other parts; having some parts or distinct areas organized into a coherent or meaningful whole; unified (Webster's 1989, selected meanings).

existing meanings but also create new meanings. On the individual level, tacit knowledge is considered non-conceptualized knowledge, but on the group level even the conceptualized knowledge of one individual is perceived as tacit by another. We can transfer tacit knowledge between individuals by nonverbal communication; we can also understand nonverbally what has been communicated verbally. Thus both *socialization (empathizing) and internalization (embodying) could be considered non verbal communication*.

Verbalization makes knowledge explicit between individuals. As discussed earlier, the original term used for explicit knowledge was 'articulated knowledge', stressing its verbal character. Verbal communication incorporates both spoken and written language, and both externalization (articulating) and combination (connecting) could be considered verbal communication on the group level.

Table 7 summarizes the cross-cultural issues in the group-level knowledge-creation process (the SECI Model). These issues are analyzed further in the following sections. I will begin by discussing socialization in terms of empathizing and the collective unconscious. Orientation to the self and the other, and facets of individualism and collectivism, are important conceptions in analyzing cultural differences in tacit-knowledge transfer in the knowledge-creation process.

Externalization and combination processes on the group level are considered here as the communication of knowledge between individuals. Cultural differences are found in communication orientation, and the degrees of verbal and nonverbal communication. Dimensions of high- and low-context communication are discussed, and finally a two-dimensional model of the contextuality of communication is proposed to explain the different knowledge-creation patterns which emerge in different cultures.

SECI mode*	Chief Communication Mode	Cross-Cultural Issues in This Study
Socialization -Empathizing	Nonverbal Communication	Role of Emotions, Collective Unconsciousness Orientation to the Self and the Other Facets of Individualism and Collectivism LANGUAGE AND THOUGHT: Literary Tradition as Collective Memory
Externalization Knowledge: -Articulating	Verbal communication	Communicating Communication orientations LANGUAGE AND THOUGHT: Language as a Cognitive Tool
Combination -Connecting	Verbal communication	Communicating Knowledge: High and Low Context Communication LANGUAGE AND THOUGHT: Literary and Knowledge Processing
Internalization - Embodying	Nonverbal communication	Capacity to Learn: Receptivity and Sensory Perception Transparency of Knowledge LANGUAGE AND THOUGHT: Thought Processes and Writing Systems
* Nonaka & Takeuchi 1995		

Table 7: Cross-cultural issues at the Group level (the SECI Mode)

Cultural issues in internalization are discussed as differences in the capacity to learn, and I present a review of studies on receptivity as perception and sensing with a view to furthering understanding of how we perceive knowledge from the environment.

The relationship between language and thought is focused on in this study, and it is discussed in Chapter 4. Language also has an important role in individual-level knowledge creation.

3.5 Socialization: Empathizing and the Collective Unconscious

Knowledge creation starts with socialization, which is the process of converting new tacit knowledge through shared direct experiences in day-to-day social interaction, and in joint activities such as spending time together or living in the same environment (Nonaka and Takeuchi 1995; Nonaka, Toyama and Konno

2001; Nonaka and Toyama 2003). It is said to yield 'sympathized' knowledge such as mental models and technical skills (Nonaka and Takeuchi 1995, 238).

Defined in this way, socialization is not possible if the persons concerned do not live in the same country. Even if you do live in the same country, you could have a life that is very different from that of your colleagues. Since socialization is a group process, differences between individualistic and collectivistic cultures are to be anticipated. The group functions as the 'synthesizer' of knowledge: *"The more autonomous, diverse, and self-organizing the team, the more effectively it will function as a synthesizer."* (Nonaka and Takeuchi 1995, 240)

Routines are said to be part of tacit knowledge because they are developed in close interaction over time. This assumes stability in the organization: if there is high personnel turnover, routines among colleagues are not developed.

Nonaka and Toyama (2003) consider *walking around* inside and outside the company, and accumulating and transferring tacit knowledge, parts of the socialization process. This is not an automatic process: accumulating tacit knowledge about the world that surrounds us is a matter of receptivity. There are both cultural and individual differences in perception. Nonaka and Toyama (2003) suggest:

> *"For example, one can accumulate the tacit knowledge about customers through his/her own experience as a customer. Here individuals embrace contradictions rather than confront them. This enables actors to* ***absorb*** *knowledge in their social environment through action and* ***perception***. *Hence the dichotomy between the environment and the organization can be synthesized in the socialization process as members of organization accumulate and share the tacit knowledge of the environment through their practical consciousness." (Emphasis mine)*

However, the capacity for absorption and perception are embedded in one's cultural background.

According to Nonaka and Takeuchi (1995, 225), socialization starts with building a team whose members share their experiences and *mental models*.

Persons from different cultures and worldviews do not necessarily have the same mental models, and this will affect how they experience the world.

Tacit knowledge can be shared by *empathizing* with others. This requires skills in empathy, a sort of emotional intelligence (Goleman 1996). The role of emotions was acknowledged relatively late in Western management, whereas the Japanese have traditionally considered emotions and empathy important aspects of social interaction. Japanese-style management emphasizes human relations (Fukuda 1991).

Scherer and Tran (2001) discussed the effects of emotions on the process of organizational learning in the West. They conclude that emotions are powerful determinants of the organization's fitness in the modern market place:

> *"Emotions focus the energies of an organization on events, provide the organization with crucial learning opportunities, and produce the motivational underpinning necessary for a sustained effort to learn about adapting to changing environments." (Scherer and Tran 2001, 387)*

In the present study emotions are considered an important aspect of tacit-to-tacit knowledge transfer, which takes place in socialization. The role of emotions is discussed below with regard to both *perception* (in the internalizing process) and *communication* (in the externalizing and communication processes). They play an important role in knowledge processing and knowledge creation. If we accept the definition of tacit knowledge as emotions, and feeling as the processing of tacit knowledge within an individual, what, then, is the transfer of tacit knowledge between individuals? It is labeled 'socializing' and 'empathizing' in the SECI model, but what does that mean and how do cultures differ in this respect?

Somatic markers are partly culturally learned, which means that individuals from different cultural backgrounds process emotions (tacit knowledge) differently. We have established cultural patterns of somatic markers that work within the same culture to enable us to share emotions and the tacit knowledge

involved. However, it is to be suspected that there are several limitations in transferring emotions across very different cultures. Not only are the rules for emotional display different, the way in which the body reacts to a certain experience may also vary.

The following is an extract from Tsoukas' (1996, 14) article, which I have manipulated by replacing the word 'tacit' by 'emotional', and the word 'explicit' by 'rational':

> *"Contrary to what Nonaka and Takeuchi argue emotional knowledge can indeed be linguistically expressed if we focus our attention to it. And vice versa: rational knowledge is always grounded on an emotional component. Emotional knowledge is not external knowledge 'internalized' as Nonaka and Takeuchi claim, nor is it something that a firm may 'lose' during periods of crisis, as Spencer implies. Emotional knowledge is the necessary component of all knowledge; it is not made up of discrete beans which may be ground, lost or reconstituted. As I will show in the next section, to split emotional knowledge from rational knowledge is to miss the point - the two are inseparably related."*

This is in line with the results of recent studies in neuroscience, which show conclusively that emotional knowledge is the component of all knowledge (Damasio 2001). However, the organizational possession of emotional knowledge may well be debated. What is emotional knowledge on the organizational level? Is it the organizational climate - or is that something similar to somatic markers in that it establishes a relationship between the experience and the socially accepted emotional response to it? In that case it would be the organizational climate that allows the processing of certain experience into emotions.

Another important cross-cultural aspect of the socialization process concerns how tacit knowledge can be transferred between individuals. Jung (1978) suggested the existence of *'collective unconsciousness'*. The extent to which we share in this across cultures is another question. It seems that sharing tacit knowledge has to do with how we define the *concept of the self*. Individualism and collectivism have different dimensions based on the way they set boundaries between the self and the other, and there are cultural differences in

how these boundaries are set (Barnlund 1980; Shweder and Bourne 1984; Marsella, DeVos and Hsu 1985).

Orientation to the Self and the Other

Different degrees of the self are projected onto the public self-image known as 'face'. Ting-Toomey (1988) developed a theoretical model of facework, which distinguishes between strategies that threaten the self-face and the other-face, as well as strategies that are geared toward negative-face maintenance and positive-face maintenance. Face in this *"is a projected image of one's self in a relational situation. It is an identity that is defined conjointly by the participants in a setting"* (Gudykunst and Ting-Toomey 1988, 85). A reconceptualization of Ting-Toomey's theoretical model (Ting-Toomey 1988; Gudykunst and Ting-Toomey 1988; Ting-Toomey 1994) is used here to explain how differences in the concept of the self influence knowledge creation in the socialization process.

There is variance in the degree to which one wishes to project an 'authentic self' in a situation and in the degree to which one chooses to maintain a 'social self'. Ting-Toomey (1988) argues that in individualistic cultures (such as Australia, Germany, and the United States), maintaining consistency between the private self-image and a public self-image is of vital importance. In other words, the public self-presentation of 'face' should correspond to an invariant 'core self' within an individual. On the other hand, in collectivistic cultures (such as China, Korea, and Japan), the 'self' is a situationally and relationally based concept. This is based on the Confucian idea of the self as a center of relationships in an open system.

According to Ting-Toomey (1988), the self in collectivistic cultures is maintained and codified through the active *negotiation* of face work, whereas in individualistic cultures it is often defined as an *intrapsychic* phenomenon. The public self should then ideally correspond to one's internal states.

Drawing on earlier studies on facework (Brown and Levinson 1978), Ting-Toomey (1988) built a two-dimensional grid of facework maintenance (Figure 6) based on negative-face and positive-face needs and face concern (self-face, other-face, or mutual-face). She explains negative-face need as the need for autonomy or dissociation, and positive-face as the need for inclusion or association. The self-concern and other-concern dimensions refer to the individual's orientation toward attention to the self versus the other. The grid displays four different sets of substrategies that are present in all negotiation situations, but some of which may be preferred by members of one culture more than others (Gudykunst and Ting-Toomey 1988, 88-89).

(1) SPF: Self positive-face maintenance means the use of certain communication strategies to defend and protect *one's need for inclusion and association*.

(2) OPF: Other positive-face maintenance is the use of certain communication strategies to defend and support the *other person's need for inclusion and association*.

(3) SNF: Self negative-face maintenance means the use of certain interaction strategies to give oneself freedom and space, and to protect the self from the other's infringement of one's autonomy.

(4) ONF: Other negative-face maintenance requires the use of certain interaction strategies to signal respect for the other person's need for freedom, space, and dissociation.

Ting-Toomey (1988) suggests that members of individualistic, low-context cultures tend to use SPF and SNF strategies, while members of collectivistic cultures prefer OPF and ONF strategies in interpersonal problematic situations.

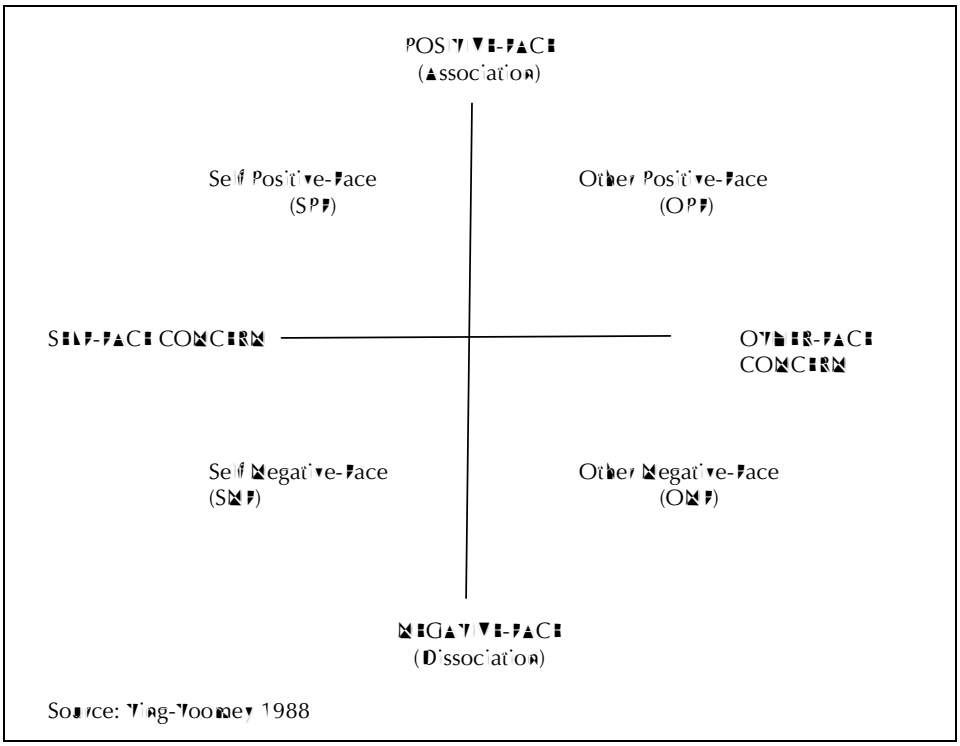

Figure 6: Ting-Toomey's Two-dimensional Grid of Facework Maintenance

The facework-maintenance model developed by Ting-Toomey (1988) could be extended to the analysis of cultural differences in the concept of the self by defining negative-face need as the *'autonomous' self*-concept, and positive-face need as the *'negotiated' self*-concept. The autonomous self is a fixed idea of the self, whereas the negotiated self must be redefined in each new context or group. Dimensions of the self and the other could be seen as concepts of a 'person's self' and the 'other persons' selves, i.e. 'self-perception' and 'view of others'. Members of individualistic and collectivistic cultures have both a self-perception and a view of the other. Thus there is a mixture of the four different strategies that Ting-Toomey (1988) suggests. Table 8 displays this reconceptualization, which concerns orientations toward the self and the other.

The VIEW OF OTHER		
Negotiated	Autonomous Self Negotiated Other *COURTESY*	Negotiated Self Negotiated Other *NEGOTIATED*
Autonomous	Autonomous Self Autonomous Other *AUTONOMY* Autonomous	Negotiated Self Autonomous Other *MIRROR* Negotiated
	SELF-PERCEPTION	

Source: Developed by this author based on Ting-Toomey 1988

Table 8: Orientation to the Self and the Other

Autonomy as an orientation means that there is a need to protect the freedom, space, and autonomy of both the self and the other. This is a combination of SMF and OMF strategies. The individual has a fixed concept of the self and has no need to be included in the group of others. The others are considered to be just like one: independent and avoiding association. 'Leave me in peace, and I won't disturb you'.

Courtesy type of orientation here means another individualistic orientation of the self, which is based on the need to defend one's autonomy, but at the same time to be included and associated with others. So although one keeps oneself autonomous, one desires to join groups of others. Membership of these groups is negotiated verbally with the necessary courtesy. This orientation is a combination of SMF and OPF.

The *negotiated* type of orientation combines both SPF and OPF and refers to negotiating both the self and the other. The private and public selves depend on contexts, and the boundaries of others (groups) are also flexible. Communication style reflects this in stressing elaborate verbal and nonverbal communication.

Mirror refers to an orientation in which the other is considered an autonomous whole, for example a group that has fixed boundaries. In contrast, the self is perceived as a reflection of the other; a concept of the self must be negotiated in relation to the other. It is a combination of SPF and ONF strategies.

Orientation to the self and the other is an important concept in analyzing the socialization process in knowledge creation. Both the autonomy and the courtesy types of orientation represent an independent self in which tacit knowledge exists within the individual and is transferable only after conversion into explicit knowledge. The two types differ in how they see the needs of the other. Socialization is something to be avoided for autonomous persons because they prefer emotional detachment and assume that others do also. Although the courtesy types also prefer their own autonomy, they are willing to respond to the emotional needs of others and would cordially accept invitations to business dinners or concerts. However, there would be very little transfer of tacit knowledge, but rather polite small talk.

When both the self and the other are negotiated, there is mutual need for inclusion and association. Thus one would enjoy spending time with one's colleagues even outside working time. This socialization may take place in the form of different sports activities, or in beer drinking, for example. Companies may also establish programs embracing voluntary work activities (such as Nokia's Helping Hands) in order to provide possibilities for socializing.

The mirror represents the type of orientation in which the self merges into the other. Tacit knowledge is transferred, not by converting it into explicit knowledge, but also by extending the boundaries of the self to include the other. This is a very effective way of transferring tacit knowledge and it can be used in autonomous working teams or in self-organizing teams. The major difference between the negotiated and the mirror orientations has to do with emotional communication: in the mirror type one can take the position of the other and

thus feel empathy, whereas in the negotiated type one sympathizes from the outside.

Facets of Individualism and Collectivism

Kim (1995) conceptualized the relationship between individuals and groups based on an extensive literature review. He introduces the different facets of individualism and collectivism that create the central features. His framework can also be used to analyze individual- and group-level differences in the knowledge-creation process, and especially the transfer of tacit knowledge.

Kim (1995, 19) defines *individualism* as an explicit and firm boundary between the self and others. He then supplements this with an analysis of its relationship to collective entities. Facets of individualism include (1) the Aggregate Mode, (2) the Distributive Mode, and (3) the Static Mode. All of these prevent the merger of the self into the other, so that direct access to the tacit knowledge of the other cannot be gained. However, there are differences in how these modes view socializing activities.

The *Aggregate Mode* of individualism requires emphasis on distinct and independent individuals who need to detach themselves from their ascribed relationships, such as those with family, relatives, the community, and religion. Abstract principles, rules, and norms provide the mechanisms for unrelated individuals to interact with one another. This type of individualism is *self-contained*, and emphasizes the values of freedom, independence, self-determination, personal control, and uniqueness (Sampson 1977). It could also be called *inner-directed* individualism, guided by the psychological gyroscope. The Aggregate mode also entails the "*belief that each of us is an entity separate from every other and from the group*" (Spence 1985, 128). This separation may also be extended to viewing oneself as separate a mind and body. This type of individual would therefore value explicit knowledge more than tacit knowledge, and would show preference for the abstract.

individuals in the aggregate mode interact with others based on principles such as equality, competition, equity, and exchanges based on contracts. Members of a group are conceived of as independent and unrelated individuals, and no individual enjoys special privileges. (Kim 1995, 20) This type of detachment from others does not support the transfer of tacit knowledge even when opportunities to spend time together are organized.

The *Distributive Mode* of individualism differs from the Aggregate mode in the nature of the group: in the latter it is not clearly defined, whereas in the former the boundary of the group is explicitly set by commonality and publicity (Kim 1995, 22). The Distributive mode emphasizes contracts, which define relationships between people, such as professionals and clients.

Socialization for distributive types of individuals might take place in organized events or teamwork where the professional identity could be maintained. This may allow a limited degree of tacit knowledge to be passed when the professional culture ('lawyers', 'architects') is shared, but socialization tends to be limited to work-related activities.

The *Static Mode* of individualism concerns the individual's inalienable rights, and institutions such as government that protects freedom and justice for all individuals (Kim 1995, 23). The boundary of the group is firm, but it is not permanent. Individuals may challenge the limits of existing laws and regulations particularly if they perceive them as infringing upon their rights.

Socialization by representatives of the distributive mode takes forms such as joining golf clubs and membership in the Rotary club. These activities often take place in private time, although many of the contacts made may also benefit the working life of the individual.

Kim (1995, 25) defines *collectivism* in terms of an explicit and firm group boundary, and it is considered to be more than the mere sum of its individual

characteristics. Analysis of the collective also incorporates its relationship to individuals. Kim (1995) defines the three facets of collectivism as (1) the Undifferentiated Mode, (2) the Relational Mode, and (3) the Co-Existence Mode. In the context of knowledge creation, it is important to note that collectivism does not automatically entail ease with the transfer of tacit knowledge in the socialization process.

The *Undifferentiated mode* of collectivism is characterized by a firm and explicit group boundary coupled with an undifferentiated self-group boundary, and is typically represented by individuals who have failed to achieve or who give up some degree of individuation and separation. (Kim 1995, 25-26) It enables the merger of the self into the group, which is ideal for transferring tacit knowledge. The group may act as a self-organizing team in which members pursue different activities without predetermined specialization.

The *Relational mode* is defined by a porous boundary between in-group members that allows thoughts, ideas, and emotions to flow freely, and focuses on shared relationships (Kim 1995, 26). The transfer of tacit knowledge within the group is accomplished with relative ease, although to a lesser degree than in the undifferentiated mode.

The *Co-existence mode* of collectivism describes a model that allows diverse and contradictory elements to co-exist within a culture and within a person, and separates the private self from the public self (Kim 1995, 27). In the context of knowledge creation, this type of collectivism signifies a group of diverse individuals who may or may not commit themselves to the common targets of the group. If there is enough commitment to consider the organization part of the private self ('my company') it may enhance the transmission of tacit knowledge within the group. However, considering the organization as part of one's public self may in turn loosen the emotionalities necessary for tacit-knowledge transfer between individuals.

individualism and collectivism provide backgrounds for understanding the meaning of values in different cultures. Kinaid (1987) gives an example of the meaning of 'freedom': the meaning of liberation in traditional Indian philosophy is intertwined with the related concepts of oneness, non-individuality, and material non-attachment.

> *"Freedom is something attained when one gives up his/her individuality, renounces material things, and spiritually becomes one with something greater than oneself. Freedom, at least in the American sense, is associated with the independence to pursue one's own -often material- interests in fair competition with other individuals. In the West you do something to achieve whatever ends make you happy. In the East you become one with something greater than yourself for no other conscious purpose. Both speak of freedom." (ibid, 335)*

3.6 Externalization and Combination: Communicating Knowledge

The *externalization* process means converting tacit knowledge, which is personal, context-specific, and therefore hard to formalize and communicate to others, into knowledge that is transmittable and articulable, such as words or numbers. Externalization yields 'conceptual' knowledge, as in the 'Tall Boy' concept at Honda (Nonaka and Takeuchi 1995, 238).

Nonaka and Takeuchi (1995) consider this part of the knowledge-creation process the key. They stress the importance of metaphors and analogies, which enable team members to articulate in dialogue their own perspectives and thereby reveal hidden tacit knowledge that is otherwise hard to communicate (ibid, 235).

The *combination* mode is facilitated when the concept formed by the team is combined with existing data and knowledge that resize outside of the team, in order to create more sharable specifications. Combination has its roots in the information-processing paradigm and it yields 'systemic' knowledge such as prototypes and new-component technology (ibid, 235; 238).

Obviously language has an important role in how tacit knowledge is verbalized. 'Verbal' equals language in both vocal (spoken) and nonvocal (written) forms, and language is the primary conceptualization tool. It is argued in this study that written language, or more specifically script, influences our habits of reasoning. There are cultural differences in the logic that people use to arrange their thoughts.

Both logic and communication styles influence the degree to which we use metaphors and analogies in communication. It should also be noted that metaphors are not always transferable cross-culturally. Family metaphors are often used in international business: we talk about 'mother' companies and 'daughter' companies. We refer to a joint venture as a marriage, although the meaning of marriage varies in different cultural contexts. Takahara (1974) studied the semantic meaning of marriage across cultures: for the French and the Americans it meant primarily 'love', whereas for the Japanese it denoted mainly 'trust', and 'love' came in sixth place.

When members of different cultures interact in the combination process, the language used becomes an issue. English is often used as the common language in international business. This may cause misunderstandings and make combination difficult.

Although language has an important role in externalization and combination processes, the major cultural differences in transferring explicit knowledge are in the realm of communication. Cultures differ in how they emphasize verbal and nonverbal communication, and the communication process itself may be receiver- or sender-oriented.

Communication theories are of Western origin, and thus reflect the Western communication bias. As Kincaid (1987, 36) pointed out, communication theorists have focused their attention on the verbal symbols used in human speech since the time of Aristotle's *Rhetoric*. Plato also considered speaking

superior to writing for the purpose of informing as well as persuading. There has been less interest in the Chinese and Japanese cultures in analyzing the verbal communication process, partly because scientific inquiry is not part of the cultural tradition, and partly because very little confidence is placed on verbal communication. The academic study of communication started relatively recently in China (Gao and Ting-Toomey 1998, 5), and although the Japanese have been active in doing research on intercultural communication since the 1970's (Rogers, Hart and Yoshitaka 2002), they use Western communication theories, and thus the bias toward verbal communication has been replicated. Japanese researchers have been especially interested in nonverbal communication, but explore it along with the categories established by Western researchers.

Edward T. Hall is considered the founder of Intercultural Communication (in the 1950's in the US). He developed some important concepts still used in communication theory today. The major elements of his paradigm for Intercultural Communication have to do with *non verbal communication*, which he defined as *communication that does not involve the exchange of words*. Together with Trager and Birdwhistell he instigated the empirical study of various types of nonverbal communication and developed concepts to be used by later researchers in the field. He emphasized the out-of-awareness level of information exchange in nonverbal communication, in which he was influenced by Sigmund Freud, among others. (Rogers, Hart and Yoshitaka 2002, 11; Hall 1977)

The Japanese-US American context of intercultural communication has been studied more than any other context in the world. One reason for this is that these two cultures are the two largest economic powers in the world, and thus there is a great deal of interchange between them. For the Japanese, intercultural communication is considered a useful skill in international business. Comparisons between the Japanese and the Americans have also been fruitful in the sense that they represent two very different types of communication culture

and worldview. Several Japanese researchers have used Hall's work and his theoretical framework to understand Japanese nonverbal behavior from both interpersonal and intercultural perspectives (Mitake and Ishii 1997, 1998; Rogers, Hart and Yoshitaka 2002).

However, the approach in communication theory is one of trying to fit nonverbal communication conceptually into a language system. For Hall, silence 'speaks', time 'talks' and space speaks'. The division of communication into the verbal and nonverbal dimensions was obstructing the study of communication in two respects. Firstly, since verbal and nonverbal communication were considered the extremes of one continuum, the tendency was to consider a lack of verbal communication to indicate nonverbal communication (Kinkaid 1987, 338). Secondly, the category of nonverbal communication came to include everything except verbal communication. This is discussed later in this study with an example of a theory of communication for dogs in which communication is either olfactory or non-olfactory.

Two important dimensions of communication are now taken for further analysis. First, communication orientation is discussed by comparing studies in various cultures. It is suggested that the sender orientation in Western communication models is not a universal one, and Japanese, Korean, Chinese, and Indian examples are used to illustrate various different orientations.

Secondly, the theoretical framework developed by Hall (1977; 1983; 1990; Hall and Hall 1990) is analyzed and a revision is suggested in terms of dividing verbal communication and nonverbal communication into two different dimensions instead of considering them two poles of one continuum. This new two-dimensional model is used as basis for knowledge transfer between individuals in a theoretical framework of knowledge-creation patterns.

Communication Orientations

Communication could be considered a process in which information is shared by two or more persons and which has consequences for one or more of the persons involved (Cushman and Kincaid 1987, 2). Eastern and Western perspectives on communication theory present interesting contrasts in regard to goals, the means for achieving those goals, and the role of individuals in the communication process. The traditional Western communication model focuses on the individual sender who is communicating rationally with others and aims at self-realization. As Cushman and Kincaid (1987, 9) note:

> *"A Western perspective emphasizes self-analysis, rational reflection, audience analysis, and message adaptation as the chief instruments for achieving the practical cooperation from others necessary for self-realization."*

In the traditional Indian model there is preference for authority and asymmetrical communication, and also a belief that communication from a higher social level to a lower one is more effective (Dissanayake 1987). This is in sharp contrast with US American culture, which places such a high value on equality, individualism, and freedom, and thus has a built-in bias that directs attention to other aspects of communication (Kincaid 1987, 340).

On the basis of a comparison of studies on communication in Japan, China, Korea and India (Yoshikawa 1987; Yum 1987; Dissanayake 1987; Kincaid 1987) it is suggested here that orientation in communication falls into four different types: 1) Sender orientation; 2) Receiver orientation; 3) Interaction orientation; and 4) Internal orientation (Figure 7).

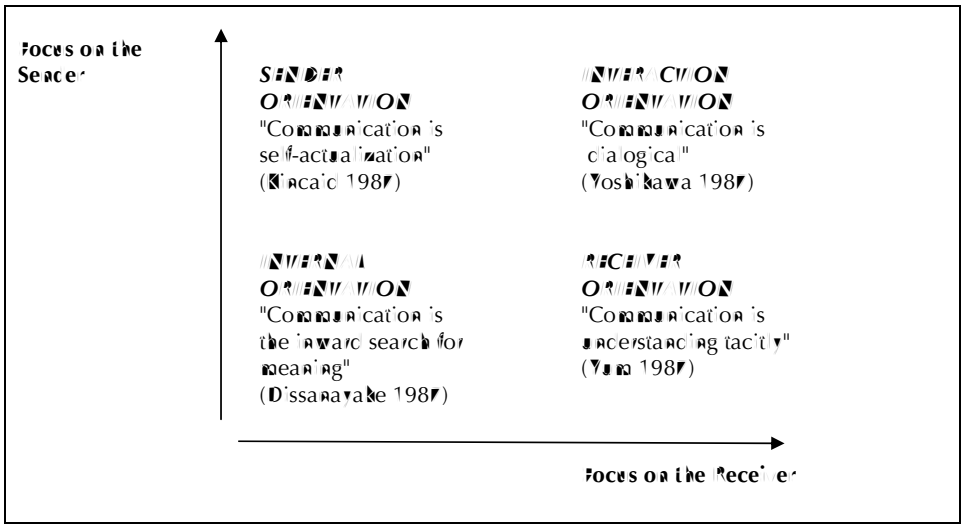

Figure 7: Communication Orientations

Sender Orientation

The standard textbook model of communication focuses on the sender, who is an individual communicating rationally with others. Cushman and Kincaid (1987, 9) consider the Western perspective as being one that focuses on and motivates human action through the individual's desire for political, social, and economic self-realization, and employs communication to that end.

Sender orientation is not limited to Western cultures. Tobin et al. (1989) note that in both China and the United States successful communication is believed to depend largely on the clarity of expression of the speaker, so there is emphasis on teaching children to express themselves clearly.

At its extreme, the Sender orientation is a series of monologues. It is an effective style in the Externalization process of knowledge creation since the focus is on formulating the message and practicing the presentation skills, not on discussion skills or listening. Although textbooks on international management define communication as the dynamic process through which verbal and non-verbal human behavior is perceived and responded to, they tend to emphasize sender-

oriented skills as a solution to problems in intercultural communication: 'speak more slowly and distinctly' (Lane and D'Stefano 1992).

Receiver Orientation

Receiver orientation in communication means active listening and picking up nonverbal cues from the participants and the environment. It is related to the internalization process in knowledge creation, in which explicit knowledge is converted into tacit knowledge. Yum (1987) relates the Korean communication style to Confucian influence, which is also shared in China and Japan. Confucianism discouraged oral communication and emphasized written communication. Since the human passions were considered obstacles to the pursuit of knowledge and truth, emotions were to be suppressed. When the sender does not send clear verbal or nonverbal messages, it remains the responsibility of the receiver to construct the message.

Successful communication in Japan is believed to depend largely on the empathic and intuitive abilities of the listener (Lebra 1976), and thus children are taught less to express themselves than to be sensitive to others' spoken and unspoken forms of self-expression (Nobe et al. 1989, 190-191). The Japanese style of communication is receiver-oriented to the extent that 察し 'guessing' is considered its most sophisticated form. In a business meeting, the senior manager will utter 'それはちょっと...' (literally: 'That's a little bit...'), and it remains the task of the participants to understand how the sentence should be understood or completed (Yamada 1992). The use of あいづち *aizuchi*[16] - back-channel cues, such as *'uh-huh', 'yeah', etc.'* in English, are also typical in Japanese receiver-oriented communication and may even involve sentence-length back-channels such as, 'ん、ん、ん　たしかに　そうですようね...' ('Yeah, yeah, yeah, that's exactly right'). According to Yamada (1997, 97),

[16] Literally "alternate hammering" (Kenkyusha's 1983).

Americans may misinterpret this as a sign of untrustworthiness in cross-cultural communication with the Japanese.

Miller (1977) uses examples of foreigners who speak Japanese. One of these concerns Donald Keene, and how the Japanese apologized for not having *romaji* (Roman Latin alphabet) on their business cards when they introduced themselves to this famous expert and translator of Japanese literature. Miller comments that they should have known that Mr. Keene could read Japanese. But this is not the point. The main point here is that the Japanese are receiver-orientated, which means that they look for answers and solutions in the other, not in themselves. So even though I might think that you probably know written Japanese, you are a foreigner and send signals indicating the opposite. Coulmas (1987) also noted that the Japanese had difficulties in realizing that the foreigner in front of them might actually speak Japanese. This has been attributed to the belief that the Japanese language is so difficult that no outsider can learn it. However, I believe that it is a natural reaction for the Japanese to adjust as receivers.

It seems that verbal communication (both written and spoken) is receiver-orientated in Japan. The receiver is supposed to "read between the lines" and to finish the sentence. A good example is gift giving: the sender carefully encodes the message that is sent, and the receiver does not even open the wrapped gift in the presence of the giver. The receiver's personal likes or dislikes have little to do with the gift selection.

Interaction Orientation

Interaction orientation in communication means taking and being genuinely interested in communicating with the other. This may involve both verbal and non-verbal communication, or just one of them. An example of interaction in non-verbal communication is reciprocal gift exchange in Japan. In terms of knowledge creation, interaction orientation is relevant in the Combination and

Socialization processes in which both verbal and nonverbal communication play an important role.

Buber's (1878-1965) concept of the dialogical relationship explains this type of interaction orientation in communication. Buber (1965) developed a philosophy of dialogue that describes two basic attitudes a man has in relation with the other: 'I-Thou' and 'I-It'. The I of man comes into being in the act of speaking one or the other of these primary words. The two I's are not the same, however: *"The primary word I-Thou can only be spoken with the whole being. The primary word I-It can never be spoken with the whole being"* (Buber 1965, 12). Personality and the personal really exist in the I-Thou relationship, and it is characterized by "mutuality, directness, presentness, intensity, and ineffability" (ibid, 12). The other is treated as a living being, although Thou is not limited to humans and may include animals, trees, objects of nature, and God. Interaction orientation also brings to life inanimate objects, as can be observed in children's play.

The I-It relationship in Buber's philosophy has to do with the objectification of the other. It takes place within a man and not really between him and the world. The It of I-It may equally well be a he, a she, an animal, a thing, a spirit, or even a god, without a change in the primary word (ibid, 12). This orientation is closer to the Sender orientation in communication: the other is treated as an object in terms of categories and connections, and hence is comprehensible and orderable. It is significant only in connection with something and not in itself, and thus it is entirely subjective and lacking in mutuality. Buber (1965, 12-13) summarizes the differences between these two types of relationship:

> *"'The It is the eternal corpse, the Thou the eternal butterfly.' What at one moment was the Thou of an I-Thou relationship can become the next moment an It and indeed must continually do so. The It may again become a Thou but it will not be able to remain one, and it need not become a Thou at all. Man can live continuously and securely in the world of It, but if he lives only in this world he is not a man.'"*

Objectification of the other may lead to seeing oneself also as an object (I-It), which can be observed in some extreme behavior, such as tattooing, piercing, and mutilating the self in the name of 'fashion'. On the other hand, the animistic view of the other may bring 'alive' robots: Japanese factory workers are said to give names to robots and to treat them like human colleagues.

Yoshikawa's (1987) Dialogical Mode of intercultural encounter and communication corresponds to the interaction orientation. In this, participants A and B are separate and independent but they are also simultaneously interdependent when engaged in the communication process. He explains this type of paradoxical relationship in terms of Buber's dialogical relationships and Buddhist logic.

Internal Orientation

Internal orientation in communication is not to be confused with the absence of communication. Three-to-six-year-old children pass through a stage of development when in their play they seem to talk to themselves. Vygotsky disagreed with Piaget about the meaning of the egocentric speech emerging at this stage of development. For Piaget, it signaled that a child was imperfectly adapted socially, whereas Vygotsky claimed that it was 'speech on its way inward' and would later become inner speech (Luria 1979). Thinking could be considered a form of inner speech, and the communication process may trigger the thinking process. Through meditation it may be possible to reach the state of sharing this internally oriented communication. An internal orientation in knowledge creation could be linked with socialization, which involves emotions in the transfer of tacit knowledge.

The Indian model of communication focuses primarily on how the receiver makes sense of the stimuli that he receives so as to deepen his self-awareness. In Western models the basic questions have to do with how the communicator affects influences manipulates the receiver, and how the communicator and receiver share information and enter into a two-way relationship. According to

traditional Indian views, "*meaning spoke of necessity lead to self-awareness. Hence, the Indian definition of communication would be that it is an inward search for meaning*" (Dissanayake 1987, 158-159).

Kincaid (1987) notes that there is a cognitive bias in the West that emphasizes the aspect of how communication affects one's mind: what the audience thinks and believes. Conversely, the form chosen in Indian communication is aesthetic and artistic, and the consequence is the diminishing 'in one's heart' of the difference (separateness) between oneself and others. The outcome is an emotional and spiritual convergence. The aesthetic pleasures that are mutually felt include erotic feelings, and feelings of hate, wonder, anger, compassion, and so forth. Sharing these feelings with the performers and others involved creates a spirituality and detachment from worldly concerns (Kincaid 1987, 335).

Cultural Differences in Verbal and Nonverbal Communication

Cultures differ in how much they emphasize verbal communication and also in what is verbalized. In Japan and China, language expression is centered on encouraging children to express that which is *socially shared* rather than, as in the United States, on that which is *individual and personal* (Tobin et al. 1989, 191).

Wierzbicka (1999) notes that Polish and American expressions of emotions are very different: the Polish language has a variety of emotional expressions with different nuances. In Japan, language is considered a poor medium for expressing feelings but a useful medium for expressing social cohesion. Tobin et al. (1989, 153) claim that a culture in which children are encouraged and expected to verbalize their feelings, talk about their feelings, and perhaps even develop feelings themselves, will inevitably be more conventional and socially constrained than in a culture such as China, where children are not exposed to publicly talking about feelings, or in a culture such as Japan, where teachers stay largely outside the world of children's discourse.

Children's informal speech is modeled, corrected, and prompted by teachers in American preschools, while Chinese teachers at preschools direct their efforts at limiting rather than facilitating children's spontaneous use of language. Japanese preschool classes are extremely noisy, full of the voices of shouting, freely conversing children, and the teachers do very little monitoring or correcting of the children's speech during these periods of unconstrained child-to-child discourse, which make up much of the preschool day. (Tobin et al. 1989, 150-151)

In American preschools, again, *words* are thought to be critical for social as well as cognitive development: Tobin's informants thought that children needed to be taught *to express* their wants, needs, and feelings, in order to be a friend, a group participant, a member of society, and a citizen in a democracy (ibid, 151-152).

The ideological dimension of American views on language becomes clear in comparison between American preschools and those in Japan and China. Although speech is spontaneous in American preschools, it is carefully monitored and constrained by adults. Newkirk (1989) maintains that American children enjoy great freedom to express their opinions and feelings, but conversely, they are much less free than children in China or Japan to remain silent and to hide their feelings. Speech is thus constrained differently, not less, than in China and Japan.

Oral skills are treated as an academic subject at pre-school in China, and the emphasis in language development is on enunciation, diction, memorization, and self-confidence in speaking and performing. Language in Japan, both in and out of preschool, is divided into formal language 建前 (*tatemae*) and informal language 本音 (*honne*). As Doi (1986, 33) notes:

> *"...to be Japanese is to be aware of the fact that things have an omote and an ura, and a person is not considered to be an adult until he or she has grasped this distinction."*

In Japanese pre-schools the unrestrained use of language (free, loud, even vulgar talk with other children) is alternated with periods of polite, formal, teacher-directed group recitation of expressions of greetings, thanks, blessing, and farewell. Language is viewed less as a tool for self-expression than as medium for expressing group solidarity and shared social purpose. In contrast, Americans view words as the key to promoting individuality, autonomy, problem solving, friendship, and cognitive development in children. (Tobin et al. 1989, 189)

Japanese parents give less emphasis than Chinese and Americans to the importance of children learning to express themselves verbally. Instead, 'sympathy, empathy, and concern for others', were considered most important things to learn in preschool. (Ibid, 190)

Nonaka, Toyama and Boysière (2001, 494) describe tacit knowledge as subjective and as encompassing knowledge of experience (body), simultaneous knowledge (here and now), and analog knowledge (practice). On the other hand, explicit knowledge is depicted as objective. It includes knowledge of rationality (mind), sequential knowledge (there and then), and digital knowledge (theory). *Non verbal Communication* tends to be *analogical*, while verbal behavior is more digital in nature (at least in Western cultures) (Damen 1987, 163). However, the use of analogies presupposes understanding them in a similar way. For example, beckoning gestures can vary to the degree of being misleading. Anyone using analogies and metaphors should be careful and sensitive to the cultural meanings attached to them.

Littlejohn (1978, 99) defines nonverbal signs as any signs other than spoken or written language used to represent something other than itself. It is assumed that such signs are meaningful to the persons using them. There are several ways of categorizing different types of nonverbal signs. Eisenberg and Smith (1971) describe the most common methods in their three-point analysis: kinesics, proxemics, and paralanguage. Various theories of nonverbal communication can also be classified in these three categories. Accordingly, there are two

anthropological approaches that have become most prominent in the field: Birdwhistell's (1952) kinesics theory and Hall's (1977) theory of proxemics. Trager's (1958) work on paralanguage completes the representation of theories in this context.

Kinesics is the study of body movement, sometimes also called body language. Birdwhistell (1952) is considered the founder of this field of study. Although he considered communication a multi-channel phenomenon, he focused on the visual channel and used linguistics as a model for his kinesics work:

> *"The original study of gestures gave the first indication that kinetic structure is parallel to language structure. By the study of gestures in context, it became clear that the kinetic system has forms which are astonishingly like words in language. This discovery in turn led to the investigation of the components of these forms and to the discovery of the large complexes of which they were components…it has become clear that there are body behaviors which function like significant sounds, that combine into simple or relatively complex units like words, which are combined into much longer stretches of structured behavior like sentences or even paragraphs."*(Birdwhistell 1952, 80)

It is interesting to note that kinesics approaches 'the other', the nonverbal, by using the structure of the verbal. Such is the overwhelming influence of the bias for verbal dimensions in Western culture:

> *"The West has developed the study of non verbal communication in recent years, but the approach thus far is hampered by the desire to fit it conceptually into a language system. Gestures are described and labelled as if they function as verbal symbols in a language. Again the emphasis is on the cognitive representation of non verbal behavior as 'symbolic'" (Kinacid 1987, 338)*

Edward T. Hall developed the study of *proxemics*, the study of bodily position and spatial relationships, based on the idea that just as language varies from culture to culture, so do the other interacting media. Although proxemics has been defined broadly as 'the study of how man unconsciously structures micro space', it has been mostly applied to the area of interpersonal space (Littlejohn 1978, 102).

Hall (1977; 1983) recognized the cultural variability in sensory modalities in that, for example, the American culture is predominated by sight and hearing,

but smell is also important in the Arabic culture, in which there is a need for sensory intimacy: if lacking close, intimate contact, Arabs typically feel a strong sense of 'sensory deprivation'. On the other hand, Latin American cultures tend to engage in more frequent tactile behavior than people in the United States. *Paralanguage* refers to the study of the use of the voice and vocalization, and represents the borderline between verbal and nonverbal aspects of communication. Trager (1958) divided paralinguistic cues into four types: voice qualities (such as pitch range, quality of articulation, and rhythm), vocal characterisitics (noises such as laughing, crying, yelling, yawning, spitting, belching), vocal qualifiers (the manner in which words and phrases are uttered), and vocal segregates (the rhythmic factors that contribute to the flow of speech: 'uh', 'um', pauses, and other interruptions of rhythm).

Dimensions of High and Low Context Communication

The thought of Edward T. Hall (1914-) was influenced by the studies of Benjamin Lee Whorf (1897-1941) and Sigmund Freud (1856-1939). Through Whorf Hall was exposed to the concept of linguistic relativity, the process through which language influences human thought and meaning, and Freud's idea of the unconscious level of communication had a strong influence on his work on conceptions of nonverbal communication.

Hall (1977) developed a conceptual model of the *role of context in communication*. In defining this model, he refers to the conscious and unconscious selection of messages. He also recognizes the importance of nonverbal communication, yet he perceives the contextuality of communication as a continuum between low-context and high-context messages:

> *"...High-context messages are placed at one and low-context messages at the other end of a continuum. A high-context (HC) communication or message is one in which most of the information or message is either in the physical context or internalized in the person, while very little is in the coded, explicit, transmitted part of the message. A low-context (LC) communication is just the opposite; i.e., the mass of the information is vested in the explicit code. Twins who have grown up together can and*

> *to communicate more economically (HC) than two lawyers in a courtroom during a trial (LC), a mathematician programming a computer, two politicians drafting legislation, two administrators writing a regulation, or a cook trying to explain to his mother why he got into a fight." (Hall 1977, 91)*

Many researchers have interpreted Hall's model to focus on differences in verbal communication, and as to distinguishing cultures by their degree of reliance on direct verbal language. Nonverbal communication is considered to provide a background in which verbal messages can be meaningfully encoded and decoded (Gudykunst and Ting-Toomey 1988, 117). High context refers to communication the meaning of which derives more from previous mental knowledge and or contextual cues than from verbal messages. In Japanese speech, unlike in English, personal pronouns (*I, you*) are generally avoided (although not totally); this encourages a collectivistic sentiment. The omission of sentence subjects also requires greater use of contextual cues.

Low-context communication predominates in individualistic cultures, while high-context communication does so in collectivistic cultures (Gudykunst and Ting-Toomey 1988). Cultures have been located on a continuum between High Context and Low Context communication: Japan and other East-Asian cultures are considered to be on the high-context side, whereas Swiss and German cultures, and Northern Europe and North America in general are placed on the low-context side. Hall (1977, 91) suggested that complex, multi-institutional cultures (those that are technologically advanced) might be thought of as inevitably LC, but this is not always true, as the case of Japan suggests. Also China, the possessor of a great and complex culture, is on the high-context end of the scale. There may also be differences in subcultures within national cultures: Hall (1977) considered black culture much higher on the context scale than white culture in the United States.

The Two-dimensional Model of the Contextuality of Communication

We could reconsider Hall's idea of high-context and low-context communication by distinguishing between explicit and implicit (tacit?) knowledge. According to Hall, the high-context message contains little explicit information (knowledge) but a high amount of tacit information (knowledge). Low-context communication, on the other hand, mostly consists of explicit knowledge and has little tacit knowledge involved. Thus, we could consider *explicit and tacit messages as different dimensions in communication*, and the communication process could be described in terms of the degree to which it involves these dimensions. Instead of two opposing poles, we arrive at four different quadrants that represent four different modes of communication (Figure 8).

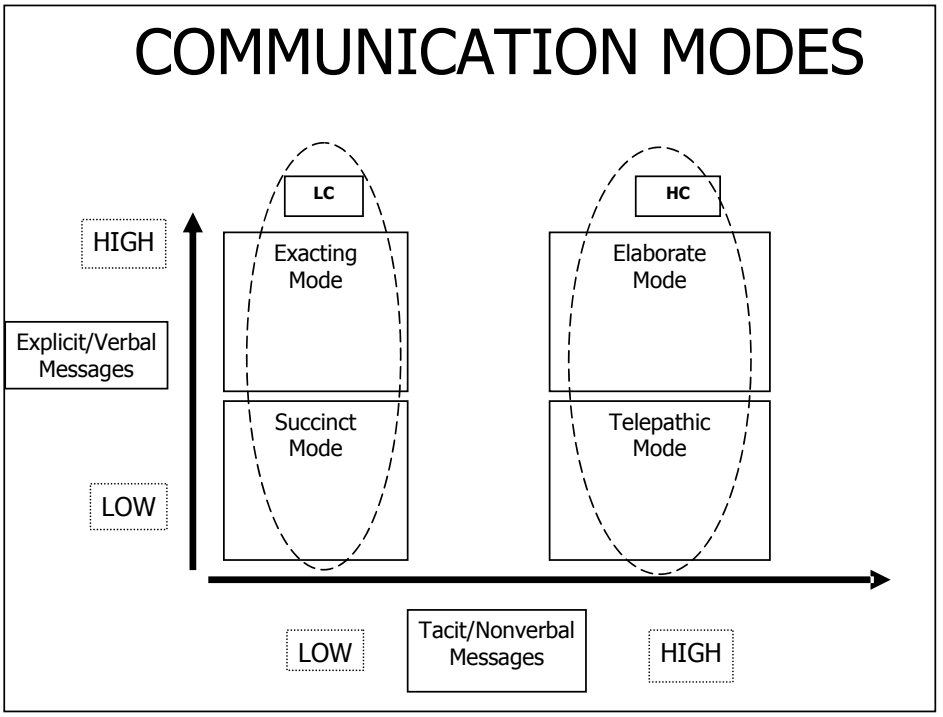

Figure 8: The Two-dimensional Model of the Contextuality of Communication

The *Succinct mode* of communication consists of low degrees of both verbal (explicit) messages and nonverbal (tacit) messages, as in mathematical formulas. As a communication mode between human beings, it could also be seen as avoidance of communication.

The number of verbal messages is high in the *exacting mode* of communication, but tacit knowledge is not necessary to understand the meaning of the messages. Both the succinct and the exacting modes represent low-context (LC) communication in Hall's model.

The *Elaborate mode* of communication involves high degrees of both verbal and nonverbal messages. Words are important and elaborate, but tacit understanding of their meaning and the meaning of the context is also necessary.

When the degree of verbal messages is low, or when verbal knowledge does not constitute part of the message but is rather misleading, and nonverbal messages are used to transfer the meanings, we could talk about a *telepathic mode* of communication. This may be a very effective way to communicate for those involved, but for outsiders it remains a mystery.

3.7 Internalization: the Capacity to Learn

The internalization process starts when team members begin to internalize the new explicit knowledge that is shared throughout the organization. They use it to broaden, extend, and reframe their own tacit knowledge. It is closely related to the learning organization and it yields 'operational' knowledge about project management, the production process, and policy implementation. (Nonaka and Takeuchi 1995, 225; 238)

Nonaka and Takeuchi (1995, 239) argue that the most powerful learning comes from bodily experience. They emphasize learning by doing, and consider personal and physical experience just as valuable as indirect, intellectual

abstraction. Despite the individual and cultural differences in, educational systems and the pursuit of literacy teach us certain *learning styles* and promote a certain attitude toward learning.

Internalization is about learning. As Hamel (1990, 82) puts it:

> "*A firm's inherent capacity to learn from its partner will be determined by the extremes of affluence and privation, arrogance and helplessness, orthodoxy and blind variation, and by its relative standing between pace-breakers and stragglers*".

According to Hamel (1990, 91), the *capacity to learn* is based on *intent*, which affects both *receptivity* and *transparency*. It establishes the desire to learn, and transparency determines the potential for learning. Skills transparency is determined by the extent to which skills are context-specific: those that comprise explicit knowledge held by a few experts are more transparent than those comprising tacit knowledge embedded within social systems. (Ibid, 94)

Receptivity concerns the quest for new knowledge, its absorption and application. Learning receptivity is influenced by inherent constraints (arrogance, affluence, helplessness, privation, and one's partner's capacity for skills improvement), and by active determinants (the skills and motivation of agents, exposure position, application facilities, and diffusion mechanisms).

Internalization is greatly affected in the knowledge creation process by the ability to receive signals or knowledge from the environment. Monitoring the environment takes place continuously, but it seems that human beings perceive signals differently and use their senses in culturally adopted ways. These cultural biases in receptivity develop in early infancthood, and later become firmly established through the communication processes in the culture.

McLuhan (1987) suggested that there was a different balance between various modalities in societies and over time: that there is now emphasis on visual modality in the West. Weber (1966) coined the term 'ideotypes' to indicate

differences between cultural groups in the relative importance of one sensory modality over others (Berry et al. 1992, 135).

Cultural differences in receptivity are analyzed in the following as differences in *perception and sensing*. First, however, some issues related to the transparency of knowledge are discussed.

Transparency of Knowledge in Communication

In his excellent study on learning in international strategic alliances, Hamel (1990) introduces the concept *transparency* of knowledge. He defines it in terms of learning in the following way: "*Transparency* ***permits*** *the opportunities to internalize key skills. Intent establishes the* ***desire*** *to learn, transparency determines the* ***potential*** *to learn.*" (1990, 51) Thus, transparency of knowledge indicates the openness and accessibility of the skills of one partner, who succumbs without question to the other partner's intent to learn these skills. The transfer of skills between partners may be intentional or unintentional, and it is not limited to formal agreements. Varieties of skills and knowledge differ in their transparency. Important aspects in this induce the explicit tacit dimensions, and contextuality of knowledge. *Asymmetry of knowledge transparency* is inevitable in partnerships because partners contribute very different types of skills and knowledge. There are complex skills, labeled "*invisible assets*" by Itami and Roehl (1987), which are based on tacit knowledge and are thus very difficult to acquire and are not easily learned by the partner.

Technical skills are often transferred formally by various modes of technology transfer, such as licensing. Unintentional technology diffusion may also occur as the result of joint operations of one kind or another. As discussed earlier, it is distinctive of technological knowledge that it can be articulated to a certain extent. It is also inherently low in contextuality. Consequently, technological know-how is relatively transparent. To a degree, companies may try to manage this transparency by limiting and controlling the flows of information although

active measures to limit transparency may be considered a mark of bad faith by the partner.

Market knowledge, on the other hand, is part of contextual knowledge. The diversity of potential market environments generates very situation-specific market knowledge. Embedded in cultural systems, it varies in the degree of both contextuality and transferability. Culture can act as a natural barrier to transparency, and as such may be far more effective than any active measures to limit it. Hamel (1990, 66) points out that the usage of contractual clauses could be regarded as destroying trust, but the existence of natural barriers adversely maintains the image of openness.

To what degree partner transparency is inherent in the culture is an interesting question. If we observe cultures with regard to their openness, type of communication emerges as a decisive factor. *High-context* communication is more closed and difficult to translate than *low-context* communication. It is intrinsic in low-contextual cultures that *verbal communication* has a central role, which implies that verbal messages can relatively easily be transferred, and also translated into foreign languages. This does not apply to high-context cultures, however. Contextuality implies interpretation according to situations, and this very often also involves subtle explication of non-verbal messages. The translation of these could be an excessively demanding task.

Thus we could conclude that *asymmetry in transparency between cultures* does exist, and that this is concurrent with high and low contextuality (Kanpinen-Takacs 1994). Generally, market knowledge from Western cultural environments tends to be less context-bound and can be more easily articulated than market knowledge about non-Western environments. There are naturally exceptions to this, and the variation among Western cultures is substantial. Nevertheless, this applies to the relation between Japan and most Western industrialized countries. Thus we could assume that transparency of market knowledge relies on the contextuality and explicitness of the surrounding

culture. We could also claim that Western market knowledge is prevalently more transparent than knowledge of Japanese markets, which is well illustrated in the example used by Hamel (1990, 65-66):

> *"Knowledge of Japanese distribution and marketing practices has been shown to be just as contextual and difficult to absorb as knowledge of Japanese manufacturing practices. Thus partnerships that give the Western partner access to the Japanese market, and the Japanese partner access to technology (...), may be characterized by the same asymmetry in transparency that is thought to characterize technology-for-manufacturing alliances. ...the dilemma for Western partners is that those things which they should most learn from their Asian partners--may be those which are least transparent."*

Barriers to transparency

In addition to exploring natural barriers to transparency (such as language differences as a barrier to access to market knowledge), companies could try to manage the transparency of their knowledge by limiting and controlling the flow of information. However, as Hamel (1990) also notes, this type of active measure may be considered a mark of bad faith by a partner in a joint venture.

Creating an artificial barrier to transparency is practically viable only for low-context knowledge. Knowledge, such as technical know-how, that can be articulated and stored in documents or computer files, can be placed so that its usage is controlled. In that sense, low-context knowledge is, indeed, transparent, *but* it is also relatively easily protected. Patents and licensing agreements, as well as industrial espionage, are evidence of this kind of protection. It is possible to protect the diffusion of technical knowledge by creating several layers of barriers, for example, so that part of it can be released and part concealed.

It is contradictory that high-context knowledge, although seemingly less transparent than low-context knowledge, becomes quite accessible after the first enclosure has been penetrated. The critical task in gaining access to market knowledge is obtaining *cultural knowledge*, including language skills, after which it becomes common property in a sense, and very few things can be hidden from the outsider even in high-context cultures.

In comparing access to market knowledge across low- and high-context cultures, it should be noted that cultural knowledge is also a necessity for gaining such access in low-context cultures. Thus, for example, the Japanese have already broken a cultural barrier when they have learned English and studied Western culture. Although it is more common for Japanese to know English than for non-Japanese to know Japanese, it is far from easy for the Japanese to take this step. Individuals raised in this high-context culture have difficulties in learning to articulate more of their communication process. They certainly make good listeners, but are able to ask fewer questions, not to mention finding it difficult to explain themselves. We should not underestimate the significance of Japanese efforts to understand foreign markets.

The Development of Sensory Perception

Everything we know about the world comes to us through our senses. Thus the activation of the sense organs is the first step in knowledge creation. Let us assume that we are born with an *undivided sense*. When still located in the womb, the embryo senses or 'feels' surrounding sounds, light, touch, temperature, chemicals entering through the umbilical cord, and so on. However, these are not sensed through separate sense organs such as the nose for smelling (which can be activated only by the first breath) or the ear for hearing, but by the holistic perception of the body.

Traditionally, Western science divides the senses into five: vision, hearing, smell, touch, and taste. Nevertheless, scientists now recognize that we have several additional kinds of sensations, such as pain, pressure, body temperature, joint position, muscle sense, and movement, but these are generally included in 'touch'.[17] It may be that the whole idea of differentiated senses is an invention based on an atomistic worldview, a notion that is supported by findings that we

[17] Howard Hughes Medical Institute, http://www.hhmi.org/senses/ July 27, 2003

tend to compensate for any lost senses.[18] Moreover, the fact that it is difficult sometimes to make a distinction between taste and smell speaks for undifferentiated sense.[19]

The Chinese way of understanding is more holistic, less divided, and truer of our nature as a whole. Holistic understanding is achieved not simply with our analytic minds, but with all of our senses as well, and therefore with our natures as a whole. According to Allinson (1989, 21), the Chinese mind is not divorced from the senses; our aesthetic rapport is the unity of the senses with the mind, while "*In the West, aesthetics is normally construed as a theory which refers to a special sphere of experience which is reserved for the corridors of museum visiting.*"

Wu (1989, 236) presents aesthetics as a special way of viewing the entire universe:

> "*For the Chinese, beauty is the constitutive inter-involvement of many into one, and one with man, until the entire cosmos becomes both concrete-particular and cosmic-universal, both in scale and substance. … As a result, beauty is less of a subject to be independently discussed than a pervasive attitude and atmosphere in which one moves and has one's being.*"

Wu (1989) also includes culinary arts in Chinese aesthetics.

Allinson (1989, 21) suggests that in order to understand the Chinese notion of aesthetics

> "*We must expand our initial notion of what constitutes the field of aesthetics in the first place. One example stands out strongly in our mind since it differs so markedly from Kant's influential concept of*

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[18] The case of Helen Keller is a perfect example. At the age of 19 months she lost both her vision and hearing as a result of an acute illness. However, she was able to compensate for this loss by the sense of touch. She wrote an autobiography, *The Story of My Life*.

[19] "Our taste buds provide only four distinct sensations: sweet, salty, sour, and bitter. Other flavors come from smell, and when the nose is blocked by a cold, most foods seem bland or tasteless. Both smell and taste require us to incorporate—to breathe in or swallow—chemical substances that actually attach themselves to receptors on our sensory cells. Early in evolution, the two senses had the same precursor, a common chemical sense that enabled bacteria and other single-celled organisms to locate food or be aware of harmful substances." Howard Hughes Medical Institute, http: www.hhmi.org senses July 27, 2003

'disinterested pleasure' that has demarcated the proper realm of aesthetics for Western philosophers, and that is the example of the culinary arts. What is required for us, as Western thinkers, to include the culinary arts, as a valid aesthetic domain? First of all, it requires a cancellation of the traditional separation between the fine arts and practical arts. It requires an integration of beauty as part of earthly and self-interested enjoyment...there is no perfect division between these forms of enjoyment for Chinese aesthetics. Part of the satisfaction of eating lies in the aesthetics of preparation and presentation; there is an aesthetic dimension which is integral to a self-interested activity."

It is suggested here that sensing itself is holistic in nature, but when a baby is born and is put in direct contact with the environment it starts developing the use of different sense organs, in other words coordination between the brain and the senses. For example, eye and brain coordination is a learned activity. There was a case of a six-year old boy who was blind in one eye but no medical explanation could be found: the eye was perfect yet the boy could not see with it. It came out that when he was less than one year old, his eye was treated for a minor infection by bandaging it. This happened during the critical time when the eye would normally have been establishing connection with the brain, and to do that it had to be stimulated. (Greenfield 2001)

It seems that there are cultural differences in the use of the sense organs. Explanations for cross-cultural differences in reaction to simple sensory stimuli have been classified by Berry et al. (1992, 133-134) as 1) conditions in the physical environment that affect the sensory apparatus directly; (2) environmental conditions that affect the sensory apparatus indirectly; (3) genetic factors; and (4) cultural differences in interaction with the environment.

A physical environment such as the desert can stimulate the use of the auditory apparatus (ear) and increase the ability to perceive sounds (in the higher frequency ranges, up to 8000 Hz for Kalahari Bushmen) (Berry et al. 1992, 134). The environment may also have an indirect effect, as is the case with nutrition. For example, the efficiency of vitamin A in the diet has been found to lead to impaired vision in the dark. Genetic factors have also been shown to influence

sensing. Ackerman (1991) suggests that pigment may have something to do with the number of sensory cells in the nose.

It seems, however, that socialization and enculturation practices are the main antecedents of differences in sensory sensitivity and discrimination. Children learn to pay attention to certain stimuli and to acquire certain preferences, and these in turn lead to the development of more complex abilities (Berry et al. 1992, 135). As a result we may observe cultural differences in matters such as taste (for example, Chinese subjects rated lower concentrations of sucrose as more pleasant than white Americans) and tolerance of certain sounds and smells.

Western scientists still tend to believe that Western practices are universal and common to all humans, as is clear from the following:

> *"Being civilized and human means, for one thing, that our lives are not ruled by smells. The social behavior of most animals is controlled by smells and other chemical signals. Dogs and mice rely on odors to locate food, recognize trails and territory, identify kin, find a receptive mate. Social insects such as ants send and receive intricate chemical signals that tell them precisely where to go and how to behave at all times of day. … But humans 'see' the world largely through eyes and ears. We neglect the sense of smell -and often suppress our awareness of what our nose tells us. Many of us have been taught that there is something shameful about odours."*[20]

This is not so far from the language used by early anthropologists, who labeled cultures different from their own primitive.

The Somatic marker hypothesis

Recent studies in neuroscience suggest that experience and the environment (culture) affect the way we perceive stimuli. Damasio (2001) developed the 'Somatic Marker Hypothesis', according to which the external circumstances, including the physical environment and events that dictate how the individual must act, influence the development of a psychological system that is based on immediate and later punishments and rewards associated with certain alternatives:

[20] Howard Hughes Medical Institute, http: www.hhmi.org senses July 27, 2003.

> *"At the early developmental stage punishments and rewards do not come solely from things themselves but also from parents, other adults, and peers, in which the social customs and ethics of the organism usually personalize. Acquisition of somatically marked stimuli is an ongoing learning process, which continues until death."* (Damasio 2001, 173)

According to Damasio (2001, 167-168), the somatic marker is a feeling created by thought of a (positive or negative) outcome connected with a certain alternative. It focuses interest on the possible negative (or positive) outcome of a certain activity and functions like an automatic marker (sign) that says: beware, if you select this alternative. This message may lead you to discard the negative option immediately and to select from other alternatives. It automatically protects you from future losses without more hassle, and later you can select from a smaller number of alternatives.

Somatic markers probably increase the precision and efficiency of decision-making, and are a special case of feelings started by secondary emotions. These emotions and feelings have been associated with descriptions of certain future outcomes through learning. When the negative somatic marker emerges along with a certain future result, the combination works like an alarm. When the positive somatic marker appears together with the future result, it commands us to act. Somatic markers do not think for us, they assist in inference by highlighting some (dangerous or favorable) alternatives. (Damasio 2001, 168)

There are likely to be important areas of difference in emotional response in people in one culture when compared to those in another. *"Such differences are not easily subject to conscious control and, largely out of awareness, they accent and color human behavior"* (Cassell and Weinstein (1974, 265).

Contextual Sensitivity

Geil (1992, 109) refers to the *contextual sensitivity of knowledge*:

> *"How much a person 'knows' about the world depends not only on what he has internalized and what, so to speak, is in his permanent possession, but also on the context within which this knowledge is to be elicited, and by what means."*

All our sense-experiences are limited and definite, and the intellect based on them is also limited and definable. They all belong in the world of subject and object, seeing and seen, thinking and thought, in other words, in the world of dualities. Here reality is always subjected to separation: it is never grasped in its suchness or -isness, or in its totality. From the Japanese point of view it seems that logicians and scientists deal with reality in its inevitably separated and therefore limited aspect: there is always something left over after their studies and measurements. They are not conscious of this something, in fact they insist that there is nothing left behind, that they have everything they want to study. They even go so far as to declare that if there is anything left they will have nothing to do with it, for it can never be scooped up with their logical shovel. (Miyamoto 1987; see also Suzuki 1987; Yukawa 1987)

Communication with All Senses

I suggested earlier that we are born with an undivided sense, later conceptualized by Western science as five different senses: vision, hearing, smell, touch, and taste. Any sensory perception not falling into one of these categories has been dubbed the 'sixth sense'. Even though this view could be considered quite limited even in the light of recent scientific research (which has found additional sensations), it is useful to analyze the communication process from this perspective.

The senses act as a channel through which external information reaches the individual (perception), but they can also be used to emanate information from the individual to the environment, including other human beings. Our ability both to send messages and to interpret messages sent through these channels (the senses) is a skill that is trained differently in different cultures. In the West we have mostly trained our hearing and vision, which explains the existing focus in communication theories on audiovisual elements. Spatial orientation has been analyzed as nonverbal communication (Hall's proxemics), mainly concerning vision and touch but also noting the existence of auditory (hearing) and olfactory space (smell).

If we consider the Saville-Troike (1982) model of codes and channels in verbal and nonverbal communication in the context of sensual perception, we can see how limited is the view it gives us (Table 9).

Dittmann (1972) developed a *theory of emotional communication*, which deals with emotional information, signs and channels for communicating emotions. He explains emotional expressions as deviations from baseline behavior, regardless of whether oneself or others perceive them. This model classifies channels of emotional communication as audible (language, paralanguage), visual (facial expressions, body movement, and others), and psycho-physiological (cues emanating from bodily functions such as breathing and blinking).

	CHANNELS	
	Auditory	***Nonauditory***
CODES ***Verbal*** ***Nonverbal***	*speech* *paralanguage*	*written* *kinesics, proxemics*
	Visual **Olfactory** **Tactile** **Taste**	**Nonvisual** **Nonolfactory** **Nontactile** **Nontaste**
Based on Saville-Troike 1982		

Table 9: Sensory Channels in Communication

Nolan (1975) integrated channels (e.g., speaking, voice, face: eyes, clothing, space), coding (concrete to abstract), and propositionality (conscious-unconscious) in a three-dimensional model of communication (Figure 9). Although his model concerns the relationship between verbal and nonverbal communication, it could be modified to represent sensory communication. The different *sensory channels* form the first dimension. The second dimension, *coding*, could be simply represented by the *presence-absence continuum*. Thus,

for example, a sign mediated through the auditory channel (hearing) could be present (sound) or absent (silence), and the difference between these two opposites would create the volume. In the same way, vision can be present or absent, and both of these codes would convey a message. (Empty space in Japanese paintings has more meaning than the space filled in; void is also considered more important than previously thought in modern physics.)

The third dimension, *propositionality*, concerns *awareness* of the sign. Consciousness of a sign mediated through the presence or absence of sensory perception would make it explicit to the receiver even if it were unconsciously sent. Conversely, unconsciousness of a sign leaves it tacit for the receiver.

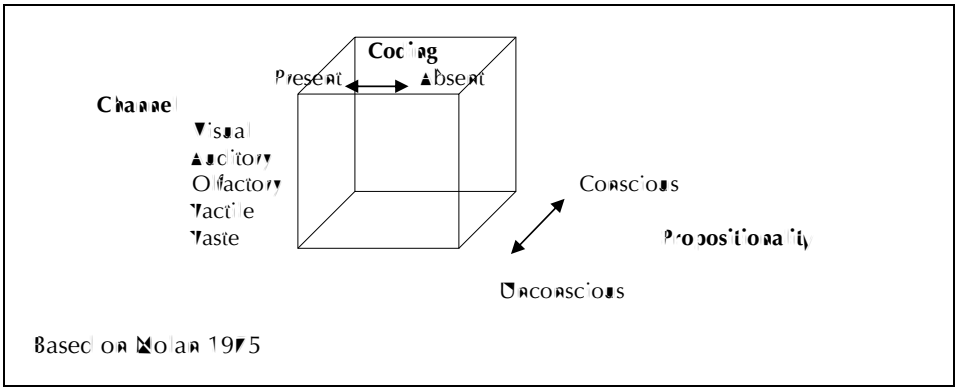

Figure 9: A three-dimensional model of sensory communication developed from Nolan's 1975 model of communication

This three-dimensional model of sensory communication draws attention to the limitations of the division into verbal and nonverbal communication, which could be compared to the 'Communication Theory of Dogs' that classifies communication along two dimensions, olfactory and non-olfactory. However, as long as international business knowledge (and largely also scientific knowledge) rests on verbal knowledge, it is useful to base a knowledge-transfer model on the dimensions of verbal and nonverbal communication. In the cross-cultural context this is important because it brings into the picture the differences between languages and the challenge of translation and interpretation. It should nevertheless be remembered that we have a lot to learn

about using the variety of senses and the knowledge gained and transmitted through them. Again there exists asymmetry between cultures, thus we can learn from each other.

Receptivity in Perception

Receptivity in perception is greatly influenced by the childhood environment and experiences. It is thus no surprise that communication habits also originate in early childhood. Caudill and Weinstein (1974, 119) compared maternal care and infant behavior in Japan and the US, and came to the conclusion that:

> *"...in normal life in Japan there is an emphasis on interdependence and reliance on others, while in America the emphasis is on independence and self-assertion. The conception of the infant would seem to be somewhat different in the two cultures. In Japan, the infant is seen more as a separate biological organism who from the beginning, in order to develop, needs to be drawn into increasingly interdependent relations with others. In America, the infant is seen more as a dependent biological organism who, in order to develop, needs to be made increasingly independent of others."*

By three-to-four months of age Japanese and American infants have already learned in some ways to behave differently in response to the culturally patterned behavior of their mothers. Beyond the direct awareness of mother or child, the precursors of certain ways of behaving, thinking, and feeling that are characteristic of a given culture have become part of an infant's approach to its environment well before the development of language, and hence are not easily accessible to consciousness or to change. (Caudill and Weinstein (1974, 230)

Caudill and Weinstein (1974) discovered differences in styles of care in the two cultures: the American mother seemed to have a more lively and stimulating approach to her baby (caretaker positioning the infant's body more, and looking at and chatting to the infant more), whereas the Japanese mother was present more with the baby, in general, and seemed to have the more soothing and calming approach (greater lulling, more carrying in her arms, and rocking).

It seems that infants express their biological needs in the same way in different cultures, and their mothers also take care of these needs in a similar way. However, the infant's behavior and the mother's style of care-taking varies. As Caudill and Weinstein (1974, 248-249) noted:

> *"The Japanese baby seems passive, and he lies quietly with occasional vocalizations, while his mother, in her care, does more holding, carrying, and rocking of her baby. She seems to try to soothe the child, and to communicate with him physically rather than verbally. On the other hand, the American infant is more active, happily vocal, and exploring of his environment, and his mother in her care does more looking at and chatting to her baby. She seems to stimulate the baby to activity and vocal response. It is as if the American mother wanted to have a vocal, active baby, and the Japanese mother wanted to have a quiet, contented baby. In terms of the styles of care taking of the mothers in the two cultures, they seem to get what they apparently want."*

Doi (1974b, 20) refers to the study conducted by Caudill and Weinstein and concludes

> *"... Americans are conditioned from the very beginning of life to associate human contact with verbal communications whereas Japanese more with non-verbal and passive communication."*

One of the differences between the American and Japanese caretakers was that the Japanese mother stayed passively present in the room with the infant even when it was sleeping, whereas the American infant was alone when asleep (Caudill and Weinstein 1974, 253). This may explain why the Japanese style of nonverbal communication differs from what Barnlund (1974) calls tactile or touching communication. According to Doi (1974b, 21), Japanese nonverbal communication does not mean this 'skin sensitivity': *"Emotaic communications are more important to Japanese. We can feel without touching."*

It may also be that silence sharpens other senses. It is well known that even in smell-eliminating cultures mothers can recognize their babies by their smell, and newborns recognize their mothers in the same way. The sense of smell could be stimulated to a greater extent in the absence of vocal stimulus.

If the Japanese style of communication sometimes seems almost 'telepathic' to many Westerners, the Western emphasis on verbal communication is similarly foreign to the Japanese: to one well-known Japanese psychiatrist Americans who *"do not to talk incessantly"* even during meals sounded *"almost hypermanic"* (Doi 1974b, 21).

When I read, some other traits for me.
When I write, my hand traits for me.
When I see I can't ask, Do I exist?
I exist and know I'm not free:
I can't deceive myself: I'm in a dream.
Teresa-Liisa Wanner (1968)

4 LANGUAGE AND COGNITIVE CAPACITIES

4.1 The Development of Thought Processes

The underlying assumption in this study is that we live in multiple objective worlds. The development of these different realities is discussed from a historical perspective in this chapter with a view to finding the origin of different thinking traditions. The chapter begins with an introduction of theories that explain how language and culture affect meaning and thinking. Language is seen to affect cognitive skills both directly and through cognitive capacities. It is discussed here first as a vocal system, and characteristics of the Finnish and Japanese languages are analyzed.

Nisbett (2003) has suggested that differences between Eastern and Western ways of thinking could be explained in terms of differences in the structure of language. It is argued here that, in this respect, Finnish has Eastern characteristics in its oral language form, despite the fact that it is written in the phonetic alphabet used in most Western cultures. On the other hand, the Japanese language has a structure that is very different from Chinese, and yet these two languages share a script using Chinese characters. This gives support to the idea that the writing system is influential in the way in which we process our thoughts.

I will discuss the emergence of writing in human history, and go on to introduce different directions and types of scripts. Since history starts with written records, it is important to note how the invention of writing itself has shaped the way we think. It seems that different writing systems have emphasized alternative ways of thinking, and have thus resulted in the development of different systems of logic and communication modes. This is considered in terms of the

achievement of literacy and its influence on knowledge-processing styles such as categorization.

The level of literacy achievement as a cultural product is important in considering the literary tradition as collective memory. Tacit knowledge is based on this collective memory in cultures with a long literary tradition, while in those in which literacy is relatively new, shared tacit knowledge remains shallow. The literary tradition is passed on through formal education, which further shapes the learning styles. Japan and Finland are given as case examples for demonstrating how different languages, scripts, methods of learning to read, and societal-level literacy achievements are preconditions for the acquisition of different types of cognitive skills.

According to the Sapir-Whorf hypothesis, a person's language shapes her or his perception and view of the world. The hypothesis was named after two linguists, Edward **Sapir** and Benjamin Lee **Whorf**, who helped to develop the notion of 'cultural relativism' in the 1950's. The idea behind the notion is that there is a close relationship between the structure of a language and the culture that uses it. There are several interpretations of the Sapir-Whorf hypothesis, which differ in terms of how strong the relationship is thought to be between language and culture, and of what 'Sapir-Whorf effects' might be seen in a culture derived from a particular language.

One proposition in the Sapir-Whorf hypothesis is that since the may have several (approximately twenty) words for the semantic category of 'snow', they also perceive more varieties of snow than speakers of other languages (Berry et al. 1992, 103). One of the leading modern linguists, Alexandra Aikhenvald, notes in an interview about this dispute:

> *"The story about Inuit words for snow is completely wrong. That language group uses multiple suffixes, so you can derive not 50, but 150 words for snow. But the Tariana do have a lot of terms for ants. It is important to know that some bite and others are edible, for instance." (Barnett 2004)*

Whorf (1956, 212; Berry et al. 1991, 102) suggested originally that language was not only a means for communicating ideas and thoughts, but that it was also essential to their formation:

> *"The background linguistic system (in other words, the grammar) of each language is itself a shaper of ideas, the program and the guide for the individual's mental activity, for his analysis of impressions, for his synthesis of his mental stock-of-trade."*

The Sapir-Whorfian view is not in line with the thoughts of Jean **Piaget**[21], who is the most acclaimed representative of the cognitive-structuralist school. Although he focused on cognitive development rather than language acquisition, he made important observations about language based on his study of egocentric speech by children. He claimed that:[22]

- language reflects thought - it does not shape it;
- our cognitive structures limit and define what we are able to say;
- development is social - egocentricity shows that a child is imperfectly adapted socially. The child must develop into being a mature social being from an immature one by considering the role of the hearer.

Lev Semionovitch **Vygotsky**[23] disagreed with Piaget and claimed that egocentric speech was "speech on its way inward", and would go underground to become inner speech. He was convinced that the acquisition of language played a decisive role in the development of higher psychological processes. He considered language and thought to have independent origins, but that thought development was determined by language, i.e. by the linguistic tools of thought and by the socio-cultural development of the child. (Luria 1979, 55)

Does language precede thought or does thought precede language? According to Piaget, thought drives language: concepts are learned discovered developed, which allows language to grow. On the other hand, according to Vygotsky,

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[21] The Swiss scholar whose first book on child psychology was published in 1923: The Language and Thought of the Child - he started by studying his own three children!
[22] www.ling.lancs.ac.uk/groups/langacq/LECTURE3 3piaget.htm 25.06.03
[23] (1895-1934) a well-known Soviet psychologist

thought and language have different roots: language guides and drives thought on.

Another well-known challenge to Whorf's ideas came from **Chomsky** (1980), who suggested that there was a universal grammar to which any human language conforms. This grammar corresponds with the nature and scope of human cognitive functioning. Chomsky believes that there is an innate organization that determines the potential for language in the human being. The mind is equipped at birth with a mental representation of the universal grammar, and all languages have a universal common core (Berry et al. 1992, 106-107).

This is contrary to Luria's (1979) belief that language is a tool that man uses to master his environment, and that his own behavior did not spring fully developed from the head of God, but was invented and perfected in the long course of man's social history:

> *"From the moment of birth, children are in constant interaction with adults who actively seek to incorporate them into their culture and its historically accumulated store of meanings and ways of doing things. In the beginning, children's responses to the world are dominated by natural processes, namely those provided by their biological heritage. But through the constant intercession of adults, more complex, instrumental psychological processes begin to take shape."* (Luria 1979, 45)

These processes are first interpsychic, in other words they are shared between people (adults as mediating agents), but later become intrapsychic. Through the internalization of historically determined and culturally organized ways of operating on information, the social nature of people comes to be their psychological nature as well.

Recent developments in neuroscience support Luria's view. The organism is born with automatic survival mechanisms, and the rest is learned through experience. At birth and at the beginning of human development there are instincts in the brain, which contains both the physiological tool box for regulating the metabolism and the basic equipment for social cognition and

behavior. It receives additional layers of survival strategies during childhood development. (Damasio 2001)

Alexander Romanovich Luria[24] was a member of psychology's second generation.[25] He worked with Vygotsky and, having scrutinized Piaget's *"Language and Thought of the Child"*, disagreed fundamentally with the interpretation of the relation between language and thought. The core of their thinking was based on a belief that the origins of higher forms of conscious behavior were to be found in the individual's social relations with the external world. Man is not only a product of his environment, however; he is also an active agent in creating that environment. Vygotsky placed special emphasis on the role of language in the organization and development of thought processes. (Luria 1979, 42-44)

According to Luria (ibid, 45), language carries within it the generalized concepts that are the storehouse of human knowledge. Writing and arithmetic (which are considered explicit knowledge by Nonaka and Takeuchi 1995) are special cultural instruments. He reasoned that if we could study the way in which the various thought operations are structured among people whose cultural history has not supplied them with a tool such as writing, we would find a different organization of higher cognitive processes but a similar structuring of elementary processes.

McQuail (1975, 67) argued that there were differences in the degree to which various peoples use language in the same situations or for the same things. Some focus upon language more than others, and thus its role in communication also influences how it ancillaries the worldview. Language is the primary means of human communication, and the linguistic form may be complex or simple, the modality written or spoken. There is evidence that writing restructures the consciousness. Studies on illiterate and half-literate people (Luria 1976) show that abstract thinking is a product of education, i.e. of

[24] (1902-1977) The Soviet psychologist who instigated 'neuroscience'.
[25] His father was a physician who was interested in psychosomatic medicine.

literacy to start with. Even just the direction of writing seems to make us focus more with one eye or the other, and thus to emphasize one side of the brain or the other. It appears that linear logic, so much part of our Western scientific tradition, has been supported by our linear writing: it flows from left to right, thus making us focus on right-eye sight and use the left side of the brain more.

It is not only writing literacy and the direction of our writing that matter: the script that we use is itself a very powerful medium. Whether we like it or not, we are in interaction with written text: not only do we shape it, but it also shapes us! The Greek alphabet represented a breakthrough in writing systems by introducing an alphabet consisting of not only consonants but also vowels. Thus far, Semitic writing, in using only consonants, had had to draw on non-textual as well as on textual data. Vowels had to be added given thorough knowledge of the context and language. The Greek alphabet was the first in which words from unknown languages could be written and read. Ong (1990, 90) refers to this as follows:

> *"The Greek alphabet was democratizing in the sense that it was easy for everyone to learn. It was also internationalizing in that it provided a way of processing even foreign tongues. (...) in abstractly analyzing the elusive world of sound into visual equivalents (not perfectly, of course, but in effect fully) both presaged and implemented their further analytic exploits."*

The impact of writing on the way we think is discussed in the following. For those familiar with only one writing system or only the phonetic script, it may be thought-provoking to learn that our Western alphabet is just one of many. People around the world are familiar not only with the Latin alphabet, but also with indigenous writing systems, which they use quite flexibly on a daily basis. Further pondering may also reveal how little we know of other cultures, not even the direction of their writing. This inquiry will teach us not only facts but also something about the way people think and learn. If you grow up in a culture in which writing is a combination of pictograms and phonetic script, in which books can be opened from either front or back cover, and in which text flows both from left to right and right to left, horizontally or vertically, you will

certainly develop a flexible attitude to learning. There is no single correct answer, but there are different ways of looking at things. For anyone doubting this, studying the Japanese writing system just for fun can be recommenced. Learning is fun!

Literacy and Cognition

Several scholars (Luria 1976; Goody 1989; 1991; Havelock 1976; Ong 1990) have argued that literacy is linked to abstract and logical reasoning. These studies have been interpreted to claim that the alphabetic script promotes abstract concepts, analytic reasoning, new ways of categorizing, and a logical approach to language (Taylor and Taylor 1995, 100). The claim that the phonetic alphabet is superior to other scripts dates back to McLuhan (1962, 47):

> *"Cultures can rise far above civilization artistically but without the phonetic alphabet they remain tribal, as do the Chinese and Japanese."*

It is understandable that, in response to such arrogant statements claiming the superiority of Western culture, Asian researchers reject the idea that a script could be held responsible for shaping mental activities. Although the evidence from recent decades has proven McLuhan's prophecy mistaken, the idea of China (or any other non-Western country for that matter) lagging behind Europe and North America in development is deep-rooted. Japan has been a member of the G7-forum since its creation in 1975, and thus has been considered a sort of "honorary Westerner".

Scribner and Cole (1981) claim that it is schooling, and not the type of script or literacy, that contributes to the development of logical thinking. Along the same lines, Taylor and Taylor (1995, 99) consider the differences in the performing of mental activities by East Asians and Westerners a result of differences in educational traditions rather than in writing systems. How, then, can we distinguish the effects of writing and education when formal education takes place through written language? I propose in this study that what is claimed to be the effect of the educational tradition in schools in East Asia, i.e. an emphasis

or rote memorization, is in fact the necessary skill to master the written language.

Luria (1979, 71) studied conceptualization among illiterate, half-literate and literate people in central Russia, and found that uneducated and illiterate subjects tended to classify objects based on practical life, whereas literate subjects employed categorical (abstract) classification.

Scribner and Cole's (1981, 7) study comparing the Vai of Liberia, Africa with English and Arabic people did not support Luria's findings, They noted:

> *"It is striking that the scholars who offer these claims for specific changes in psychological processes present no direct evidence that individuals in literate societies do, in fact, process information about the world differently from those in societies without literacy."*

Goody (1991, 219-220) later commented on Scribner and Cole's (1981) study, arguing that writing has both *connected* and *isolated* implications. The use of writing systems and the context of the written tradition among the Vai generate different implications in terms of using the maternal script for private correspondence, Arabic for reading the Qu'ran, and English as the national language in schooling. This has required the development of different cognitive processes.

What Goody means, as he explains, is that procedures constituting the Greek study of 'logic', procedures of inductive or deductive reasoning such as syllogism, were dependent on the prior existence of writing. He does not claim that the 'oral mind' is incapable of reasoning or perceiving contradiction (logical reasoning), but he does suggest that the oral society lacks certain tools of intellectual operation that defined the Greek notion of 'logic'.

Writing not only promotes the kind of critical attention to a text that is read that would be impossible to apply to an utterance that is heard, it also permits the accumulation of skeptical knowledge and of logical procedures (Goody 1991, 220). In claiming that writing facilitates or makes possible certain tasks, Goody

is not suggesting that mastery of writing in itself produces an immediate change in the intellectual operations of individuals.

The relation of writing systems to thought processes is analyzed in the following on the basis of a modification of Goody's Culture-cognition Model (1991).

The Culture-Cognition Model

Goody (1991) developed a model explaining how language influences thought, especially through its writing system (Figure 10). He divides cultural influence into four different processes: sound factors are a description of the oral system, the writing system is a cultural invention, the level of literacy constitutes cultural capacity, and the level of literacy achievement could be considered a cultural product. These are in interaction with cognitive capacities, which in turn are based on cognitive abilities. Cognitive capacities and cultural products precondition related cognitive skills.

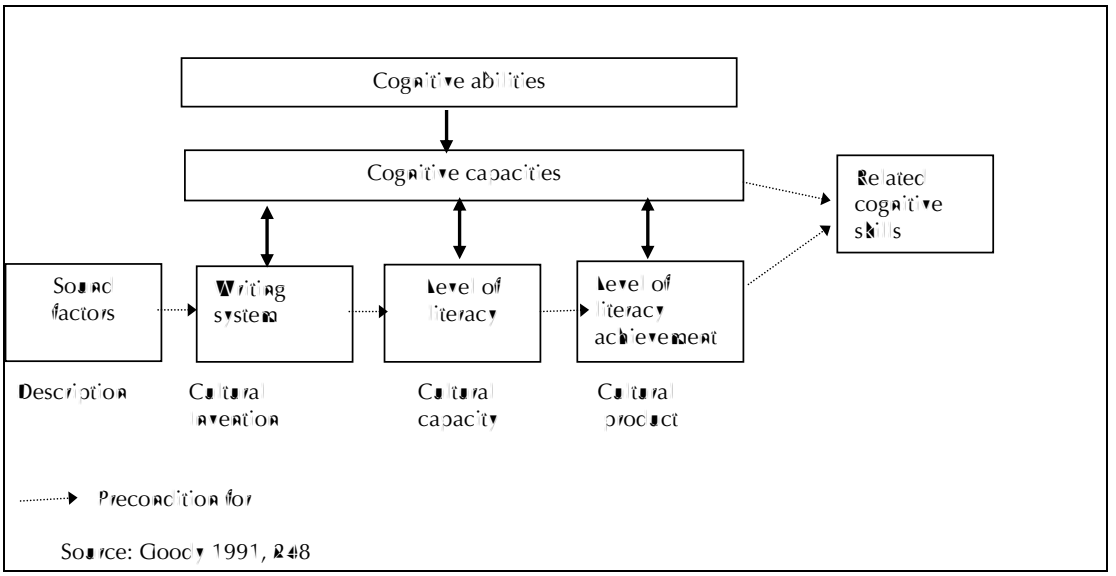
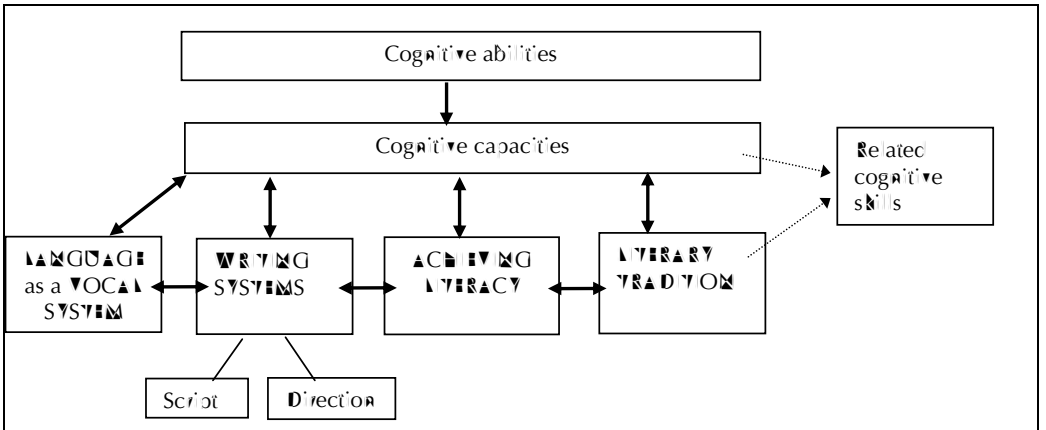


Figure 10: Goody's Culture-Cognition Model (1991)

Goody's model is modified here and used as a starting point for analysing the impact of language on the thinking process (Figure 11). The Finnish and Japanese languages are used throughout as cases. These two languages have both similarities and differences, and thus serve to highlight the important aspects of language in regard to thinking. I will begin by discussing language as a vocal system, and propose that Finnish is an Eastern language. Since the relation between sound factors and the writing system is qualitatively different in Finnish and Japanese, the scripts used in both will need to be analysed. Moreover, sound factors are not only a precondition for the writing system, but are also influenced by it. It could also be argued that language as a vocal system directly influences cognitive capacities (Nisbett 2003). Cognitive capacities can also shape the vocal system, such as when certain sounds drop out of it in historical development.[26]



Source: modified from Goody 1991, 248

Figure 11: Language and Cognitive Capacities in this Study

Writing systems consist of symbolic systems (script), and the direction of the script also influences cognition. This is significant in comparing Finnish and Japanese. The scripts used in the two languages do not represent two opposite types since Japanese writing also includes phonetic writing, but some of the elements are considerably different from the Western phonetic system. Evidently

[26] For example, the syllables 𛀀(wi) and 𛀁(we) are disappearing from Japanese.

the writing system is a precondition for literacy. For one thing, all the challenge of achieving literacy is bounded by the type(s) of script involved.

Learning to read and write (achieving literacy) is also a method of learning and it shapes or establishes the learner's attitude toward learning. The level of literacy has its effects, too: the simplified Chinese characters used in China are one example of a low level of literacy leading to changes in the writing system.

The literary tradition shows the level of literacy achievement in a culture and gives substantial insight into the timescale and the types of literature that cultures have been exposed to. Again, Japan and Finland represent contrasting cases: Finland with its history of literacy for barely a century and Japan with a tradition going back to the Heian Era, one thousand years ago. The interface between orality and literacy is also discussed. Goody (1991) suggests that predominantly oral cultures have a different logic than literate societies.

I will analyze in this chapter also related cognitive skills in terms of their dependence on cultural factors. In my view, Piaget's cognitive-development model is ethnocentric. Taking studies conducted by Vygotsky and Luria as my starting point, and comparing Finnish and Japanese scripts, I suggest that conceptualization is different in languages using phonetic and logographic scripts. In other words, I claim not only that language shapes the way we think and that literacy has an effect on our logic, but also that different scripts enhance different types of logic. We develop culturally different cognitive skills that underlie all knowledge creation.

Language as a Vocal System

Vygotsky's theory emphasizes language as a key tool, unique to human beings, for mediating their interactions with the world. He refers to argumentation with reference to Trubetskoy[27]:

[27] N.S. Trubetskoy 1939 "*Grundzüge der Phonologie*" as explained in Luria (1979, 166)

"*Language processing depends critically not only on the physical features of sound, such as pitch, but also on the value of sounds as a means of distinguishing word meaning.*" (Luria 1979, 166)

Trubetskoy emphasized this phonemic aspect of speech instead of its phonological aspect because the organization of sounds into different phonemes is what distinguishes different languages, not the physical or phonological aspects of sounds alone.

As early as in 1897, Swedelius divided all forms of verbal communication into two basic classes: the communication of events, the contents of which can be expressed in images, and the communication of relations, such as "*Socrates is a man*" or "*Kathy is prettier than Mary*", in which special linguistic devices such as prepositions or variations in word order are necessary to express the ideas being communicated.[28] Human speech is organized into a *phonemic system of language*, which uses sounds of a special type, and sharpness of hearing alone is not enough to distinguish between them. The sounds of speech constitute a system in which only certain characteristics are essential to the differentiation of the meaning of words, while others do not possess this role. (Luria 1973, 132-134)

The phonemic systems of different languages differ considerably, and features found in some languages do not exist in others: certain Caucasian languages (Georgian, for example) contain elements of aspiration, which are imperceptible in Indo-European languages but alter the meaning of words (Luria 1973). Moreover, the phonetic characteristics of the so-called tonal languages (Chinese, Vietnamese) make them completely different from Western languages.

Luria (1973, 134) concludes:

"All these facts show that the sounds of speech or *phonemes are organized into a particular sequence which depends on the phonemic system of the language*, and that in order to *distinguish* these sounds of speech it is necessary to *code them in accordance with this system*, to pick out the useful, phonemic (or meaning-distinguishing) features and to

[28] Luria (1979, 167) referring to C. Swedelius 1897 "*L'analyse de language*", *Uppsala*

> separate them for the unimportant features which play no part in the differentiation of word meaning and which are known as 'variants'." (cursive in the original)

Qualified speech hearing requires the analysis and synthesis of the sounds of speech, and the temporal cortex of the dominant (left) hemisphere is specially adapted to this. Luria 1973 (134) talks about "acoustic agnosia" or "sensory agnosia", which means an inability to distinguish clearly between the sounds of speech. It could be said that we have 'acoustic agnosia' with regard to some foreign languages.

The sound factors related to oral language underlie the phonetic written system: there is a difference on the physiological level between spoken and written language. Laterality studies of the brain show generally that the left hemisphere is superior in processing oral materials (Goody 1991, 248). However, some Japanese researchers have claimed that the Japanese use a different brain hemisphere than Westerners to process certain sounds.

Tsunoda (1985) observed that the Japanese process a wider variety of sounds in the left hemisphere than other nationalities. It seems that they (and Polynesians) process all vowels in the left hemisphere, whereas the right hemisphere is used by right-handed Westerners (and also by Chinese and Koreans) for processing single vowels. Basically, what Tsunoda (1985) discovered was that the Japanese processed sound made by four-legged animals, birds and insects, and emotional sounds, together with Japanese instrument sounds, vowels, consonants and speech in the left hemisphere of the brain, and European instruments and music, sounds of machinery, and noise in the right hemisphere (Tsunoda 1985).

Westerners, on the other hand, seem to process logical thinking, consonants, syllables, and speech in the left hemisphere, and all the other sounds in the right hemisphere. One might suspect that the Indo-European languages and Japanese (and perhaps also Finnish) have different neuropsychological qualifications related to speech.

Finnish has eight vowels: *a, e, i, o, u, y, ä, ö*. To compensate for the lack of opposition such as voiced unvoiced consonants Finnish uses *length* as a distinctive feature. This means that all eight vowels and most of the consonants can appear *long*, i.e. marked in writing with two letters, or *short* marked with one letter (*tuuli* 'wind' *tuli* 'fire'; *kukka* 'flower' *kuka* 'who'). Japanese has five vowels: *a, i, u, e, o*, and it also uses vowel and consonant length in the same way as Finnish does (*toru* 'take' 'tooru 'pass' *kata* 'person' *katta* 'bought').

Since the sound systems in Finnish and Japanese are similar, it is relatively easy for the Japanese and the Finns to learn to vocalize each other's language. This has created an impression that the two languages (which also share some grammatical structures) are related. However, there is no linguistic evidence of this.

Both of these languages have been considered very difficult for non-native speakers to learn. The following sentence is attributed to Francis Xavier (1506-1552), a Spanish Jesuit missionary in Japan: "*The complex Japanese language and its writing system are inventions of the devil, designed to prevent the spread of Christ*" (Taylor and Taylor 1995, 279). Later, foreign companies continued along the same lines: the complex writing system in Japan was considered a decisive non-tariff barrier, even though (or because) foreign businessmen located in Japan even today seldom speak and more rarely write Japanese (Karpinen-Takada 1991, empirical study).

Isolated languages

There is also a similarity between Finnish and Japanese based on the relative isolation of the languages in their geographical surroundings. This does not refer to the term 'isolating language' used in linguistics: both Japanese and Finnish are 'agglutinating' languages in that respect (Crystal 1987). Japanese, although sharing the use of Chinese characters as one of its scripts, has no relation to

Chinese or Korean, and the Finnish language has no relation to neighboring Swedish and Russian, which are Indo-European languages[29].

This isolation has taken the form of self-segregation: one's native language has provided a safe nest to which one can return after exploring the world outside. For a long time only oral Japanese, or writing the indigenous kana script, was considered ことだま, 'real Japanese' carrying the spirit of Japan, since the foreign language was represented by borrowed Chinese characters and loan words. The modern use of scripts in Japanese continues this strategy: writing all new loan words, mostly from English, in *katakana*, keeps them apart, distinguished from 'real Japanese'.

Finns learned to be silent under the rule of the Swedes. Swedish was the only official language in Finland until 1809, when Sweden was defeated by Russia in the Finnish War and Finland became an autonomous Grand Duchy of Russia. It was only in 1863 that Emperor Alexander II decreed that Finnish was to have equal status with Swedish as a language of administration. The decree was to have the force of law within 20 years (Virtual Finland 2003). It has been reported, too, that during Russian rule, Karelian serfs (part of the Finnish population) singing the long accounts of the Kalevala[30] heros were whipped by their Russian masters, who suspected that the poems, sung in a language that they did not understand, were subversive (Karttunen 1994).

Although only one seventh of the Finnish population spoke Swedish as their first language, Swedish retained its dominant position until the beginning of the 20th century (Virtual Finland 2003). Before the rise of nationalism among Finns and the independence of Finland in 1917, lower-class Finns hesitated to speak in front of the 'better folk', the masters, the Swedish-speaking society, because they

[29] There is a new situation today: following the collapse of the Soviet Union a nearby neighbor, Estonia, 'opened' its borders and access to Estonian (which is one of the Finno-Ugric languages) was gained. However, linguistic interaction has long been one-way in that even during Soviet times the Estonians could watch Finnish television, and thus became used to hearing Finnish, whereas no such exposure was possible to Finns.
[30] The Finnish national epic

cic not oroperly know their language. Meanwhile, the Finnish oral culture flourished. It was very late when the Finnish language started to be written down, and this has influenced not only its structure, but also attitudes towards the written language.

Similarities between Finnish and Japanese

Finnish expresses ideas differently than the more commonly studied European languages. It has been suggested that Finnish is a 'fuzzy' language (Varis 1998), in much the same way as Japanese is considered ambiguous in its expressions.

Students who have studied Finnish methodologically admit that it is a very logical language (in its own logic). It is also considered a very **synthetic** language. Consonant gradation and vowel changes make the task of learning the vocabulary more difficult. In addition, both nouns and verbs have a large number of inflectional forms, some of which occur more frequently than others (Branch 2003).

The Finno-Ugrian languages (including Finnish, Hungarian, Estonian, and Sami) share common lexical and grammatical features that include (Branch 2003):

1) the absence of gender (the same Finnish pronoun '*hän*' denotes both *he* and *she*),
2) the absence of articles (*a* and *the* in English),
3) long words due to the structure of the language,
4) numerous grammatical cases,
5) personal possession expressed with suffixes,
6) postpositions in addition to prepositions, and
7) no equivalent of the verb *to have*.

A feature of Finnish that often amazes the foreigner is the length of words. Finnish is typologically an *agglutinative* language in which grammatical markers and endings are joined to a word stem. This is also a feature of Japanese, but does not stand out because of its different writing system.

Finnish sometimes resembles mathematics and many students enjoy it as a similar challenge. Most of the vocabulary does not involve complications of this

kind, although it is normally recognized that it is one of the hardest things for the learner to grasp - partly due to the fact that he or she can only very rarely resort to forms in other languages as a means of memorizing (Branch 2003).

Finnish requires a feeling for the divisible and the indivisible: in the case of the complement, the opposition is between the nominative and the partitive forms. *Maito on <u>pahaa</u>* 'The milk is bad'. The complement *pahaa* is in the partitive case because the subject *maito* 'milk' is a divisable word. In the sentence *Tyttö on <u>kaunis</u>* 'The girl is beautiful' the complement *kaunis* 'beautiful' is in the nominative because the subject *tyttö* 'girl' is indivisable. (Branch 2003)

English manages to talk about different aspects of 'who' by using three case forms. Finnish needs twenty-four forms for the same purpose. In English, 'who' is both a singular and a plural form. Finnish has to indicate the plurality with plural markers. Thus the pronoun in Finnish often has to be in a specific case and form.

The **subject** prominence in Western languages is also absent in Finnish. The passive voice is often used, especially in bureaucratic and academic writing. Japanese frequently omits the subject (also a non-logical trait), and anacoluthon is common. Anacoluthon was frequent in the literary works of the Heian period (794-1186), and also appeared in annotations to Chinese Buddhist texts:

> *"That the Japanese can dispense with the subject in their linguistic expression is due to the fact that intuitive understanding of the scene referred to in their discourse is usually attained beforehand by their close bonds and nexus with other"* (Nakamura 1987, 186).

In fact, a logically correct assertion of the 'obvious' sources harsh to the Japanese.

Finding the correct form of the subject, the direct object and the complement in Finnish causes many headaches for learners because of the duality in their marking. The subject can be either in the nominative or the partitive case, and the direct object in the accusative or the partitive. The action can affect the whole object or lead to a result, i.e. be resultative. In the case of the

complement, the opposition is between the nominative and the partitive forms. (Branch 2003)

The **verb** is a very powerful actor in Finnish sentences, since the forms of other items in the sentence depend on it. Just as *to wait* requires the preposition *for* in English, in Finnish the verb *odottaa* 'to wait' requires the partitive case; the accusative cannot be used. As Finnish has no verb 'to have', forms of *olla* 'to be' are used with the past participle of the main verb. Branch (2003) considers the verb to be the most powerful item in a Finnish sentence. Its dynamic or static nature may also require different forms for the expression of time.

There is no fully established method of composing abstract nouns in the Japanese language. It does not have the infinitive form of the verb, the special character of which is to express an indefinite situation, a relation itself rather than a thing. (Nakamura 1987, 184) Japanese intellectuals today have come to add the Chinese character 生 to form any abstract noun in order to compensate for the original lack of such an ending.

Word order is not random in Finnish, but it is true that, given the amount of inflectional grammar, a certain freedom of word order exists that is lacking in English. This, again, is a similarity between the Japanese and Finnish languages.

The relationship between sound factors and writing systems is not only one-way, as Goody's (1991) original model suggests. When a language starts to be written, previously existing dialects and pronunciation tend to be fixed into one 'formal' language. For example, the morpheme 'd' does not exist in Finnish dialects, in fact it is quite difficult even today for some rural elderly people to pronounce it at all (easily becoming either 'r' or 't': for example, in the inflection of '*äiti*' - mother, into the genitive '*äidin*' - mother's, the spoken version is '*äitin*' or '*äirin*'; or in the case of the written word '*mahdoton*' - impossible, which is pronounced in everyday speech as '*mahoton*'). One might suspect that when Finnish started to be written, the model came from the Swedish language

(Finland was part of the Swedish kingdom at that time, and even Finnish-speaking educated people used Swedish). However, since Swedish is not related to Finnish (it belongs to the Germanic languages), it also altered some aspects of Finnish by 'fitting' a system not exactly tailored to it (of course the same can be said of many other languages).

It could also be argued that the notoriously difficult Finnish grammar is an outcome of similar 'forced fitting'. If the Finnish language represents a totally different thinking system than Swedish or German, how could we model its grammar based on these two languages? The same could be said of Japanese grammar, which was composed by foreign missionaries: linguistic terms developed in structurally different languages were applied to describe the Japanese way of using the language.

Naturally the close contact between the Swedish and Finnish languages in Finland has influenced both. Dixon (1997, 15) notes:

> *"If two languages are in contact - some of the speakers of each having a degree of competence in the other - they are likely to borrow lexemes, grammatical categories, and some grammatical forms (in at least one direction, often in both directions) and gradually become more similar."*

This development is also observable in the Swedish language spoken by the six-percent minority of Finns.

The differences in word order and character in Japanese and Chinese caused many problems when the Japanese language was first written down (in Chinese characters). At first, the Chinese word order was used and a reader of Japanese simply had to remember to reverse the order. In some cases 'markers' of order were added to the text, indicating where to read first, for example. The complexity involved in reading and writing Japanese text in this way, combined with the unsuitability of the solely logographic script to an agglutinative language, probably gave the impetus to develop a native syllabary. Had this development not taken place, the Chinese language would certainly have

influenced the Japanese language, not only in the form of loan words but also by changing its structure.

Nakamura (1987, 185) claims that the Japanese language manifests its non-logical character clearly in the syntax since it is lacking the relative pronoun 'which', which helps develop the process of thought:

> *"Japanese presents difficulties for logical expression, which has to be exact, and, as is generally pointed out, its non-logical character naturally handicaps the development of ability in logical thinking among Japanese people, and has actually brought about grave inconveniences in their practical lives."*

It should be noted that this non-logic is with regard to Western logic. As will be discussed later, there is logic of different type behind the Japanese language.

4.2 Cognitive Capacities and Writing Systems

McQuail (1975, 66) argued that, in order to maintain social stability and their place in it, elite literal groups had a strong tendency to maintain a writing system of a particular kind: 'pictographic and logographic systems are alike in their tendency to reify objects of the natural and social order; by doing so they register, record, make permanent the existing social order and ideological picture'. By contrast, 'phonetic writing, by imitating human discourse, is in fact symbolizing not the objects of the social and natural order but the very process of human interaction in speech'. For this reason, the invention and diffusion of this form of writing is much more likely to be responsive to social change, more accessible to outsiders, and also more reflective of group and cultural differences.

Some of the effects of the emergence of writing are discussed in the following. Attention is given to the directionality of the script, which has varied historically, and which also directs our focus in non-linguistic tasks. Differences in phonographic and logographic scripts are analyzed, with special emphasis on the cognitive aspects within them.

Emergence of Writing

It has been estimated that human language originated approximately 100,000 years ago (Dixon 1997; Aitchison 1996). Writing systems began to develop five or ten thousand years ago. About two-thirds of the world's languages have no writing system, and new systems are being introduced every year. (Muter 1986)

Hall (1977, 87) describes the differences between spoken and written language as follows:

> *"...the spoken language is an abstraction of an event that happened, might have happened, or is being planned. As any writer knows, an event is usually infinitely more complex and rich than the language used to describe it. Moreover, the writing system is an abstraction of the spoken system and is in effect a reminder system of what somebody said or could have said. In the process of abstracting, as contrasted with measuring, people take in some things and unconsciously ignore others. The linear quality of language inevitably results in accentuating some things at the expense of others."*

Naturally, Hall is talking about a language (English) written in the phonetic alphabet. The written language is said to be more decontextualized, or autonomous, than the spoken language. It is less dependent on the spatial and temporal situation in which it is produced. Simons and Murphy (1986) use the terms 'situation-dependent' to refer to language that relies on situation-related cues, and the term 'text-dependent' to refer to language that can be interpreted without reference to the immediate situational context.

Goody (1989, 49) expressed the firm belief that writing was originally used primarily for the conduct of economic affairs: early writing in Mesopotamia around 3300 BC was used for bookkeeping and the administration of temples and palaces, as well as for commercial exchange and interpersonal transfers, rather than for recording myths and rituals. It has even been argued that Mesopotamian cuneiform script was an incidental by-product of a strong sense of private property.

In late Proto-literate times knowledge of the application of writing may have strengthened the 'managerial functions' of temples, as well as encouraged 'a sense of detachment from and superiority to the day-to-day concerns of secular life'. Goody (1989, 50) thus concludes that writing represents not only a method of communication, but also a means of distancing oneself from communication.

Akkadian, written in cuneiform script, was the diplomatic language employed even by the chancery of the Egyptian Pharaohs. The use of the same script meant that not only the form but also the norms became similar, for the regulations that governed Sumerian international trade were adopted by many other states. Thus it could be said that writing governed the form and language of the discourse:

> *"Once again the uses of writing affected not only the forms of interaction but also helped to change the nature of its rules, substituting the fixed text for the variable utterance." (Goody 1989, 99)*

Chinese characters are believed to originate in signs used in farming communities of the Yangshao culture in Neolithic times, around 5000-3000 BC. A large set of Chinese characters used in text appeared about 3,400 years ago in the late Shang dynasty. There have been changes in script styles, but Chinese characters have been used continuously since then. (Taylor and Taylor 1995, 43-44)

Farley (2000, 37) claims that, in contrast to the Indians, who have always been absorbed with metaphysical and religious speculation and scarcely at all with history, the Chinese are among the world's greatest record-keepers. Their reverence to the written word was also transmitted to the Japanese.

There is a fundamental difference between Chinese characters and phonemic writing. Written language using the alphabet is merely the recording of spoken language. As a result, Western theories generalize about languages with phonemic writing systems, inflectional sentential syntax, clear structural distinctions between descriptive and prescriptive forms, and a required subject predicate structure (Hansen 1989, 76).

Hansen (1989, 78) suggests that we could treat language using Chinese characters as *a written system that is spoken*, rather than a spoken system that is written: "*The written [Chinese] language is clearly independent from any particular spoken language. We could reasonably regard it as a more universal medium of communication than we do spoken language.*" Chinese theories of language account for what was taken to be a pictographic written language with a grammar that relies almost exclusively on word order for grammatical role marking.

The Invention of Printing

Hirst and Wooley (1982, 38) argue that the effect printing has on forms of language use include definite tendencies towards stabilization and conservation:

> "*The printed page makes possible the uniform and standardized presentation of language. Rationalized typefaces and page layout, stylized punctuation, the organization of a book by a contents page, index, and so on, all impose new forms of order on language. We should note the immense effort that went into this process in the first century of print. It was anything but 'automatic'.*"

When printing emerged in Europe, two powerful social forces accelerated its standardization (Hirst and Wooley 1982). The Reformation generated a demand for mass literacy in order that the people might read the Bible (a demand that printing could meet by reproducing both Bibles and grammars and first readers to educate the populace): the success of Protestantism is difficult to imagine without the power of the press. Second, new 'national' states and absolutist monarchies generated a demand to constrain and subordinate local powers and cultures. Printing reinforced the tendency toward scholarly, literary, and administrative use of the 'vernacular' language, because it contributed to their standardization and definition: it stabilized one form from amidst a variety of dialects.

Hirst and Wooley continue to explain the standardizing influence of printing on language:

> "*The stabilization and uniformity imposed by print made possible the very idea of a proper or 'official' language use. The mass production of*

> *educational materials made possible the placing of models of this 'proper' language before everyone who learned to read and write. Language was therefore taken out of the hands of the unlettered common people - although one should be careful not to be too romantic here, for maybe as many as half of the people in urban centers in Protestant countries could read. Slang, illiterate and common speech were chiselled against cultural and officially printed language. Such a process would have been much more difficult before print when the written culture was necessarily dominated by oral culture. Education and linguistic homogenization could, after printing, be based on stable models and these made available on a large scale." (Olsen and Wooley (1982, 39)*

Since the Finnish language started to be written relatively late in European history, printing was already in common use at the time. Thus from the beginning the Finnish written language was fixed in a certain form selected by early writers such as Mikael Agricola (who produced the Finnish translation of the New Testament in 1548) and Elias Lönnrot (Kalevala in 1883).

Script Directionality

> *In what direction do the Japanese write? Even those having several years of experience doing business with the Japanese seem to be unable to answer this simple question. How little we know of Japan and the Japanese! I am not asking **how** they write, just the **direction** of their script.*
>
> *In an educational exhibition in Finland, a Finnish "China expert" did not know if the banners with text in Chinese were upside down or not.*

We tend to take for granted in Finland that any script runs horizontally from left to right, top to bottom. Only in rare instances in children's books or in neon lights, do we see Finnish written vertically. For children under school age it is not uncommon to start writing from any side of the paper and to proceed up or down, from left to right and right to left, alternating writing in all these directions and using mirror images of letters. In a way, one can see the whole history and variety of script directionality in pre-literate children's writing style.

Scripts can be, and have been, written in many directions. Basically the alternatives are horizontal and vertical, left to right and right to left. Mirror-image letters can be used (as in ancient Egyptian hieroglyphics and Etruscan

writing), or even alternation of direction in the same text (called *boustrophedon*) and the reading of letters from upside down on alternating lines (the rare case of the Rongo-rongo script of Easter Island) (Makarish 1989). The different script directions in use today (see Figure 12) are horizontal from left to right (Finnish and English, for example), horizontal from right to left (Arabic, for example), and vertical from right to left, top to bottom (as often in Chinese characters). A rare case in modern writing is that of Mongolian and Manchu, which are written from top to bottom on vertical lines shifting from left to right in mirror-image letters.

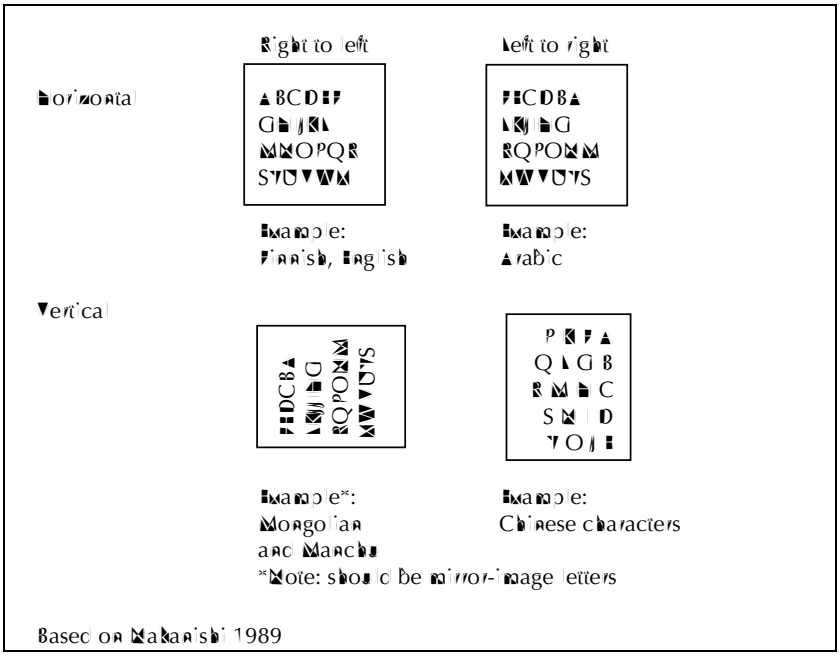


Figure 12: Script Directions in Use Today

Scanning Bias

The textbook example of the medicine advertisement in an Arabic-speaking country shows how useful are the training that "our way is the only way". Since many people in that country are illiterate, the advertisers decided to use drawings. A cartoon in three boxes starting from the left shows 1. A man in pain, 2. The man taking the medicine, 3. The man being happy. The Western company only forgot that Arabic is written and read from right to left, thus the message became "Happy man taking this medicine becomes ill".

It is a well-documented fact that users of scripts with different directionalities acquire differential *directional scanning biases* (Vaid 1995, 295-296). It seems that we do have an innate directional tendency in muscular movement (a smoother execution of movements directed away from the body than towards it). This means that, depending on whether we use our left or right hand to perform a task, we favor an outward-directed movement. Thus a right-handed person drawing a horizontal line should favor a left-to-right direction while left-handers should favor a right-to-left direction. However, by the age we establish reading writing skills (i.e. use different kinds of scripts) we either reinforce this tendency, as with left-to-right scripts, or shift our directional preference (as in right-to-left scripts). (ibid, 297)

It was suggested by Vaid (ibid, 308) that reading habits appear to be more influential in ostensibly nonlinguistic tasks than in verbal laterality tasks. Thus researchers in the field of cognitive studies should introduce readers with different directional scanning biases as comparison groups when studying laterality.

The natural tendency to produce left-to-right movements with the right hand (together with the dominance of right-handed individuals) may be one reason why the Latin Roman alphabet settled down in left-to-right writing. This may also have coincided with the development of writing tools. It has been argued that left-to-right writing works better for right-handed writers because the writer can see better what he or she has written so far, and avoid smearing the part already written (Taylor and Taylor 1995, 102-104). This does not apply to the traditional writing of Chinese characters on a scroll with a brush in an upright position in one's hand. It is therefore no wonder that the Chinese scroll was unrolled with the left hand while the right hand filled in the paper vertically from right-to-left with brush strokes. With modern printing technology, even the Chinese have shifted from vertical to horizontal writing, producing only occasional vertical texts.

Directional Scanning Bias in Nonlinguistic Tasks

Script direction also seems to establish a directional scanning bias in nonlinguistic tasks. The study conducted by Vaid (1995, 307) comparing users of the Hindi script and the Urdu script, which represent more or less the same spoken language on the Indian continent, supports this view. She found that Hindi (horizontal, left-to-right direction) readers began their drawings at the top left of the page and proceeded to draw in a left-to-right order, whereas Urdu (horizontal, right-to-left direction) readers tended to start at the top right and to proceed in a right-to-left order.

Hemispheric lateralization in the perception of facial emotion may also be influenced by the directionality of the script one learns. Vaid and Singh (1989) found a significant left visual-field preference only in their Hindi subjects (left-to-right readers), suggesting that the acquisition and directionality of an orthography influences the hemispheric substrates of facial-emotion perception. Border (1999, 281) produces evidence that hemispheric lateralization in the perception of facial emotion may be influenced by the directionality of the script one learns. In particular, the acquisition of a right-to-left script may attenuate an intrinsic right-hemisphere specialization.

The Greek alphabet was originally written in the old Semitic right-to-left direction. This was also the case when, during the 8th century BC, Greek settlers brought the alphabet to Italy where the Etruscans adopted it. Of the various Etruscan alphabets, the Roman (or Latin) one, documented from the 7th 6th century BC onwards, evolved and in due course became the script of the western half of the Roman Empire. (Gaur 1995, 26) By that time the direction of the alphabetic script had changed to run from left to right. If it is possible to draw any conclusions from this and from studies on the influence of the directionality of writing on brain-hemisphere specialization, we might say that *the scientific revolution started when the Greek alphabet began to be written from left to right, thus emphasizing the use of the right eye and consequently*

stimulating the left hemisphere of the brain - that is, the part that is associated with conceptual thinking.

Luria's (1976; 1979) studies of illiterates could also be interpreted as supporting the idea that script direction influences our thought, although he himself did not consider this aspect. However, he studied the influence in practice of an alphabetical script running from left to right. Thus we might conclude that the script direction emphasized the use of the left hemisphere and consequently the logical thinking that Luria found in literate subjects.

Reading Speed and Direction of Writing

In terms of how quickly one reads, habit and not the direction of the writing seems to make a difference. Chinese and Koreans are not exposed to vertical writing in the same measure as the Japanese are, so they have been reported to read horizontally more quickly than vertically (Taylor & Taylor 1995, 105-106). However, Japanese readers are used to both vertical and horizontal directions from early on: even at primary school, first graders have textbooks containing both vertical and horizontal writing.

According to a study conducted by Satō (1958), both middle- and high-school Japanese students read vertically more quickly than horizontally, but as they progress through school, the difference becomes smaller and smaller. This has been attributed to becoming more practiced in horizontal reading (Taylor and Taylor 1995, 105). Since the study was based on recording the patterns of eye movements, the results could also be attributed to more fluency in reading the Chinese characters, which involves less movement of the eye but a more holistic focus on the visual image. This explanation is supported by the fact that university students in Japan read texts in which the ratio of *kanji*, Chinese characters, to phonetic syllables is higher than at lower levels of education. Instead of shifting from the vertical to the horizontal, the Japanese reduce movements of the eye and focus on the *kanji*.

The Direction of Writing in Finland and Japan

The implications of script directionality are summarized in Table 10. Written Finnish is formally and predominantly *mono-directional*: horizontal from left-to-right. Exceptions include some playful experiments by artists or children, and signposts, for example, may have vertical text. Finnish books always open at the left-hand cover. In the light of the findings of earlier studies, it is to be expected that Finns develop a left-to-right scanning bias, and that this is carried over to nonlinguistic tasks. Finns are thus *asymmetrical* with a *left visual field bias* in their nonlinguistic perceptual task processing: they can be expected to start drawing (or problem solving) from the top left-hand side of the page. This also indicates a bias for using the left side of the brain when processing written material (*left-brain bias*), which suggests rational processing.

Since there is only one correct direction of writing, experimentation with writing or reading habits in other directions is not encouraged. The attitude to problem solving learned from this is *rule-orientation*, according to which one tries to discover the rule in order to find the right solution.

	Information seeking	Knowledge processing	Problem solving
Finland	Mono-directional	Left-right asymmetrical Left-brain bias	Learn by rule
Japan	Multi-directional	Symmetrical Symmetrical brain	Learn by experience

Table 10: Implications of Script Directionality for Knowledge Creation

The Japanese are a rare case in terms of writing direction even in East Asia. Instead of dropping the old direction when adopting the new one, they combined both horizontal (left-to-right) and vertical (top-to-bottom, columns from right-to-left) directions. For a short time the horizontal right-to-left direction was also used. Thus the Japanese could be called *multi-directional*, to distinguish them further from English-Hebrew readers, for example, who are considered bi-directional (Vaid 1995, 198). Books and magazines in Japanese accordingly open at either the right-hand or the left-hand cover. Although the

vertical direction is considered formal, both directions are sometimes used in the same text, such as in newspapers. Primary-school textbooks use vertical text and open at the right-hand cover when the subject is something traditionally Japanese (such as *国語 Kokugo* - the national language, or history), and horizontal text opening at the left-hand cover for something Western (such as Mathematics and Music). From the very beginning of their education, the Japanese learn a multi-directional approach to things. This encourages *experimentation*: only by taking up and glancing at a book can one tell in which direction it runs. Some bilingual English-Japanese books have even been written both ways, starting from the left-hand cover for the English text and from the right-hand cover for the Japanese: both are 'correct'!

In terms of scanning bias, the Japanese can be expected to have no strong visual bias for either side based on script directionality, and could thus be considered *symmetrical* in both visual processing and problem solving. This trait is probably also supported by their habit of writing *kanji* in a square in a balanced focus. The Japanese have been considered more symmetrical in using the two parts of the brain (*symmetrical brain)* (Hatta 1977).

Types of Script

Sampson (1985) divides writing systems into *semasiographic* and *glottographic*, the former being independent of the spoken language and including pictures, mathematical notation and international road signs. The latter group, glottographics, is further divided into **logographic** and **phonographic** (phonetic) writing systems (Figure 13), which have been used to classify scripts on the basis of the ways in which they represent language:

> *"A logograph (logo= word; graph= written sign) represents primarily the meaning of a word or morpheme and secondarily its sound. A sign of a phonetic script represents primarily a sound unit, either a syllable or phoneme, and through a sequence of sounds and signs, the meaning of a word or morpheme." (Taylor and Olson 1995, 1)*

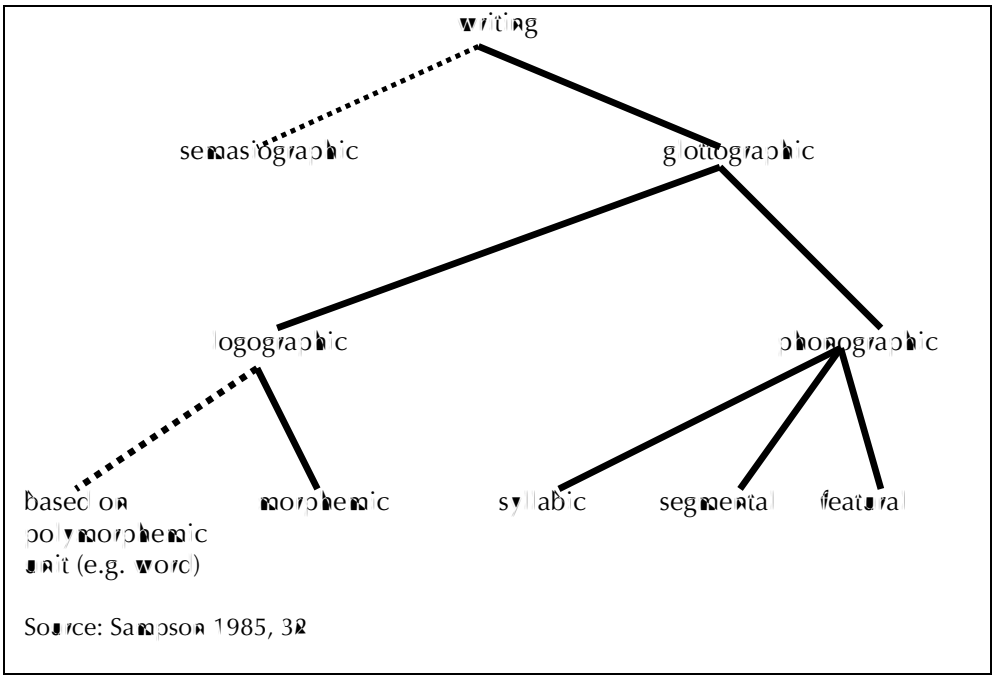


Figure 13: Sampson's Classification of Writing

Ancient writing systems were generated in Egypt and Mesopotamia around 3500 BC, in the Indus River valley around 2800 BC, and two millenniums later in Mesoamerica. It was thought earlier that Chinese characters evolved around 2000 BC, but recent findings suggest that they emerged much earlier, perhaps as early as 6500 BC (Heft 2003). These old scripts used pictographs, word signs, syllable signs, determinatives, and combinations of two or more diverse signs (Taylor and Olson 1995, 1; Sampson 1985). Of these early scripts, only the Chinese characters are still used, and they remain basically logographic. Most other scripts evolved from the Phoenician script (16th Century BC) and are primarily sound-based (phonetic).

It was assumed earlier that writing systems were evolutionary in their progression from logographic to syllabic systems, culminating in the alphabet (McCarthy 1995, 62). It was also believed that the alphabet, as the abstract and most modern type of writing, must be best suited to mass literacy and modernization, the goal of a democratic society. However, several arguments

based on the Japanese writing system and cuneiform (a type of syllabic writing) have been put forward against this evolutionary interpretation.

McCarthy (ibid, 71) argues against classifying the syllabic system along with an alphabet as a phonographic system. She suggests a new paradigm for writing-system classification, in which the alphabetic system is called *analytic* and is distinguished from the *holistic*, i.e. syllabic system (See Table 11). There are several reasons why native speakers (such as the Cree) have identified syllabic systems as holistic. All in all, it seems that such systems may foster a close relationship between the writing system and the language and culture of the people.

	phonographic	logographic
holistic	syllabic	morphosyllabic
analytic (alphabetic)	phonemic	morphophonemic

Source: McCarthy 1995, 71

Table 11: The New Paradigm for Writing System Classification

The types of script used in Finland and Japan are analyzed further in the following. A sound-based system of phonemic Latin Roman letters is the sole type of script used in Finland today. Japanese writing consists of a combination of meaning-based logographic (morphosyllabic) script (*kanji*, Chinese characters) and two sound-based syllabic systems (*katakana* and *hiragana*). The Roman alphabet and Arabic numerals are also known to and used by the Japanese.

In the phonographic script one graph, which may be either a syllable or a phoneme, represents one unit of sound of a language. Some scripts could be described as alphabets with syllabic features (Taylor and Olson 1995, 3). The Finnish use of the Latin alphabet seems to have this type of characteristic: words

are divided into syllables when a word is continued on the next line, for example.

A syllabic writing system is generally used only for languages that have a certain type of sound structure. It best suits those with a fairly simple syllable structure and few consonant clusters. It is also widely recognized that the initial *learning process* is much easier with syllabic writing than with an alphabet (McCarthy 1995, 61).

The Latin Alphabet in Finnish

The **Latin Roman alphabet** used in most contemporary European scripts is based on the Greek alphabet, which is considered a successful mutation of the Phoenician consonant script. The original 22 Phoenician consonant signs were not suited as such to Greek, which is an Indo-European language and in which vowels are important. The Greeks thus made a far-reaching modification by using some Phoenician consonant signs (for which the Greek language had no corresponding sounds) to represent vowels (a, e, i, o) (Gaur 1995, 24-26). This introduction of vowels into the Greek alphabet represented a breakthrough in writing systems. Thus far, Semitic writing, in using only consonants, had to draw on non-textual as well as textual data. Vowels had to be added on the basis of thorough knowledge of the context and the language. It was first through the Greek alphabet that words from unknown languages could be written and read. Ong (1990, 90) refers to this as follows:

> *"The Greek alphabet was democratizing in the sense that it was easy for everyone to learn. It was also internationalizing in that it provided a way of processing even foreign tongues. (…) in abstractly analyzing the elusive world of sound into visual equivalents (not perfectly, of course, but in effect fully) both presaged and implemented their further analytic exploits."*

The Finnish language, like most European languages, uses the Latin Roman alphabet. However, Finnish is a Finno-Ugric language, related to Hungarian, and not a relative of the Anglo-Saxon languages or even part of the Indo-European group. Finnish was originally written in Gothic script, but later the

Latin script became prevalent. Unlike Diamond (1998, 226) claims, we have not dropped certain consonants from our alphabet, but we have included the ones that are used only for loan words. Thus the alphabet in use in Finland has a total of 29 letters: in addition to the 26 letters of the Latin script used in English, for example, are three additional vowels (ä and ö used in vernacular Finnish, and å, which is used in Swedish). There are capital (majuscule) and small (minuscule) letters, and print styles may differ somewhat (for example in the *italic style*). Handwriting differs to some extent from the printed text, but the recent reforms of the writing style taught in elementary schools have brought the two closer together.

Since the Latin alphabet is written horizontally from left to right, it has been suggested that this focus on the left side of the brain may perhaps offer accidental but crucial intellectual advantage:

> *"Merckoyle (1981) has suggested that, more than other writing systems, the completely phonetic alphabet favors left-hemisphere activity in the brain, and thus on neurophysiological grounds fosters abstract, analytic thought." (Ong 1990. 91)*

Written Finnish (like Turkish but unlike English), is a highly regular alphabetic system, in which reading can be learned as a set of simple writing-to-sound rules. Every grapheme (letter in writing) corresponds to one phoneme; i.e. every letter is always pronounced in the same way. (Branch 2003) It is apparently difficult in English (and perhaps also in French, for example) to learn to understand the grapheme-to-phoneme code (Lee et al. 1995, 261). The initial acquisition of decoding skills (= reading) is faster with a highly regular alphabetic system. This may partly explain why Finnish pupils achieved the highest scores in the PISA literacy study (OECD 2002), being placed well ahead of pupils in many English-speaking countries. Although the study also measured understanding of the contents of a text (functional literacy), it could be that early acquisition of the ability to read fluently gives 'a head start' in allowing concentration on the meaning of words as well. Moreover, there is very little room for interpretation of written words in Finnish: with the exception of some

homonyms, they have quite transparent meanings. This could be attributed to the fact that Finnish started to be written relatively late in history.

The Japanese Writing System

Professor Neustupný (1978, 182), a well-known expert in Japanese and many other languages, comments on the Japanese writing system:

> *"Only man could have designed a system as illogical and complicated as the Japanese system of writing. Even today, after series of post war reforms, the Japanese script remains the most difficult of writing systems of all languages and historical periods."*

The view of the Japanese writing system as illogical persists among most researchers. This conclusion is drawn when Japanese writing is compared to the Latin alphabetic script, and the finding is that it does not follow the same logic. However, a different logic does not mean the absence of logic: it is just another type. The Japanese script is complex in the sense that, in the same text, it combines Chinese characters and two types of syllabaries, in addition to using the Roman alphabet and Arabic numerals. Achieving literacy in Japan takes many years, and everyday use of the writing system requires interpretation and tolerance of ambiguity. Since this forms the basis of the Japanese way of processing knowledge, the different scripts used in Japanese are analyzed in more detail in the following.

The Japanese *katakana* and *hiragana* syllabaries

In Japanese syllabaries, one sign represents one *mora*: a syllable (inseparable consonant and vowel) or a single vowel. Only the consonant "n" has a sign of its own separate from the vowel part. There are 46 basic signs for moras or syllables, and additional secondary and compound signs add up to a little over 100 signs each for both the *katakana* and the *hiragana* syllabaries (Figure 14). This makes up a rather simple sound system in comparison to other languages: Chinese, for example has 400 syllables (or 1,300 with the tones), Korean 2,000, and English several thousand. It is possible to write Japanese only in these phonetic scripts, or even in the Roman alphabet.

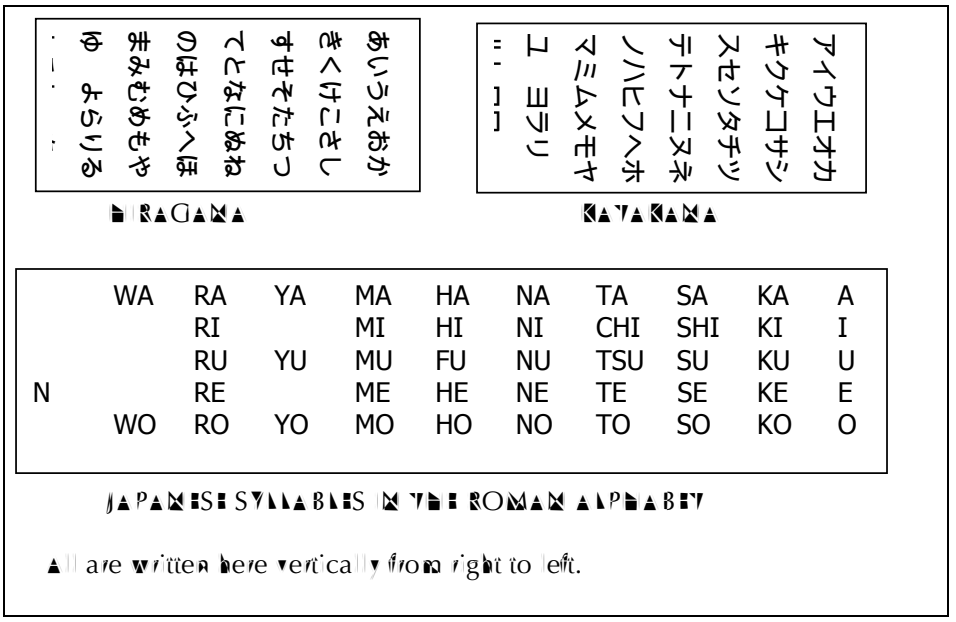


Figure 14: Japanese Syllables written in Hiragana, Katakana, and Romaji (Latin alphabet)

The *Hiragana* script is used in written Japanese, together with Chinese characters, to inflect the words (such as 食べました, 'ate'), whereas the *Katakana* script is used to transcribe foreign words (foreign names and loan words other than from Chinese) into Japanese. The basis for the transcription is the pronunciation: for example, the closest pronunciation in Japanese syllabary to the English word 'coffee' is コーヒー *kōhī*, which explains why the English pronounced by the Japanese may sometimes be difficult for native English speakers to understand. Miller (1977, 10) is very critical of the fact that the Japanese even consider Chinese loanwords as ことだま *kotodama*, or having the spirit of the Japanese language. He also notes that, although 和歌 *waka* (a poem) is not supposed to use foreign loanwords, even Prince Mikasa used the English word *beat-conveyer* in the poem that he contributed to the January 1965 ceremony that celebrated the beginning of a new year of court poetry.

However, the word "belt-conveyer" itself is new in Japanese society (or was in the 1960's), and it became "Japanese" through adoption to katakana as ベルト・コンベヤー *berutokonbeya*. In the same way, a variety of katakana words are Japanese in spirit. Would you consider the following words English: パソコン 'pasokon'[31], 'ファミコン *famikon*'[32] ? It may be difficult for a native English speaker to understand the 'emotional source' of words in foreign languages. Finnish has several loanwords that have become uniquely Finnish in spirit. A recent example is the word 'six-pack', in Finnish '*siksipäkki*'.[33] There are many other loanwords, such as 'pankki' (bank), which have origins in foreign languages but feel very Finnish now.

In the Latin alphabet the order of the letters (a, b, c, d, e ...) is used to arrange words in dictionaries and encyclopedias. Letters can also be used instead of ordinal numbers to indicate sequential order. For the Japanese, the native 'alphabet', the *kana* syllabary, represents an ordinal system. Thus あいうえお。。。'a, i, u, e , o' is used as the ordinal indication in texts[34]. Sometimes the old syllabic order, which was in the form of a poem[35] and started with いろはにほ。。。'i, ro, ha, ni, ho...', is also visible. Thus the logic of starting with 'ABC' and 'throwing something to the A-file" does not quite apply to Japanese logic.

The Logographic Script of Chinese Characters

A logograph represents primarily the meaning of a morpheme and secondarily its sound (Taylor and Olson 1995, 2). The same logograph may have different sounds in different languages or contexts. Although *Chinese characters* are

[31] Derived from the English word 'personal computer'
[32] Derived from the English word 'family computer'
[33] Used by the Koff company for Karhu beer
[34] I have used this ordinal indication when referring to interviews conducted for this study.
[35] This poem can be found at the beginning of this study.

frequently considered ideograms, there is debate over whether the Chinese script can be called logographic in the true sense. There are cases in both Chinese and Japanese in which characters are used merely for their phonetic value, without regard to the conventional "meaning" associated with them. According to some researchers, the Chinese character could more correctly be termed a morphosyllabic system, since it represents not only a morpheme but also a syllable. However, others point out that a sound is assigned to it - usually one tone syllable in Chinese, one syllable without a tone in Korean, and one-to-five syllables in Japanese (Taylor and Taylor 1995, 89).

The oldest undisputed Chinese writing is a set of 5000 characters used during the Shang dynasty, which began about 1700 BC. However, recent archaeological findings suggest that some written characters had much earlier origins in China. More than 50 painted characters have been found on pottery dating from the Longshan period between 3000 and 2000 BC. Somewhat less complex signs appear on pottery fragments from the Yangshao period between 5000 and 4000 BC. The Jiahu discoveries push the oldest traces of writing back even further: symbols that resemble Chinese characters appear on tortoise shells in graves dating back to 6500 BC at a site called Jiahu in Henan Province. (Keightley 2003)

About 85% of the Chinese characters in present-day Chinese are phonetic compounds containing a phonetic component that may give information about the pronunciation. However, only 38% of the phonetic compounds are helpful in the pronunciation of whole characters.

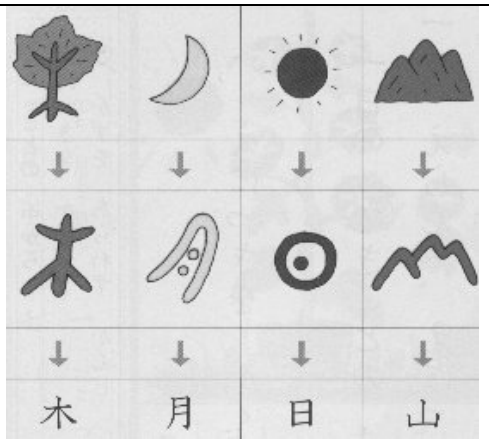
Chinese characters are used as script for different dialects in China and Taiwan, as well as for the Korean and Japanese languages, which are not related to Chinese[36]. Therefore there is variation in the way in which they are used and sounded. For example, the Chinese character 十 that represents the morpheme

[36] Chinese characters were used by the Vietnamese until the15th century, and by Central Asian people such as the Qidans (or Khitans) whose kingdom existed between the 10th and 12th centuries AD (Taylor and Taylor 1995, 14).

'tea' is pronounced *sai* in Mandarin; *sao* in Cantonese; *sio* in Korean; and *tō-, to, jū, jitt-, jutt-* in Japanese (Taylor and Olson 1995, 2). The case is analogous to the Arabic numeral 10 being read *ten* in English, *dix* in French, and *kymmenen* in Finnish.

Given the long history of Chinese characters and the fact that each logograph represents a morpheme, nobody can tell how many characters there are altogether. The Chinese Character Analysis Group in Taiwan collected and coded some 74,000 characters in the 1980's. The number is increasing as more and more variants of standard characters appear, and new concepts emerge necessitating new characters. However, there are many that are not in practical use: knowledge of roughly 3,500 is enough for common use and functional literacy in Chinese, but 6,000 are needed for high-level, scholarly literacy.

The simple Chinese characters resemble pictures (they are pictographic). Figure 15 shows how the first four Chinese characters are taught to primary-school children in Japan. The characters for mountain 山, sun 日, moon 月, and tree 木 resemble their physical shape in reality.



Source: 新版こくご 1 上 (1993)

Figure 15: The First Many Taught at Primary School First Grade in Japan

There is logic in combining the characters: for example a 'tree' is 木 but two trees 林 form a 'wood', whereas three trees 森 is a 'forest'. A 'man' 人 beside a tree 休 means 'resting'. However, this logic of associating Chinese characters with the visual images does not work with more complicated characters.

漢字 Kanji in Japan

The Japanese language is unrelated to Chinese, but because of the geographic proximity, it has borrowed many thousands of words and characters from it. Chinese characters were first brought to Japan around the third or fourth century AD by migrating Chinese and Koreans, and became established during the following four centuries. The Japanese call Chinese Characters 漢字'*kanji*', meaning literally 'symbols of Han China' (the Han period in China extended from 206 BC to 220 AD). At that time Japanese existed only in oral form, and Chinese characters were used to express Japanese words as well as Chinese pronunciation. This resulted in several readings of the *kanji* used in Japan.

Let us imagine using Chinese characters to express English: 母 would be the character for 'mother' in English, but we would at the same time pronounce it in Chinese as 'BO' in some compounds, such as 母性 BOSEI (motherhood). We would further agree that the word 'mom', 'mommy' and 'mama' would also be written with the same character (originally a pictograph of a woman with breasts). This is how indigenous Japanese words and Chinese loan words are combined in present-day Japanese. Even in the same compound word, such as 母国 'mother country', BO represents the Chinese reading (the *On* reading) and KOKU the Japanese reading (the *Kun* reading).

Over the centuries the Chinese characters brought to Japan in different periods (reflecting the style and custom of using the characters in China in each period) evolved in their own particular way, and acquired nuances and connotations

not necessarily found in Chinese. There were also phonetic modifications for most characters. Many characters were borrowed on the basis of their sound to express entirely different meanings, and in many cases miscopying also led to the acquisition of new meanings. As a result, the *kanji* used in Japan may have a variety of readings and meanings: a typical *kanji* today has two or three *On* readings and two or three *Kun* readings, while some may have as many as ten fundamentally different readings. For example, the simple *kanji* 日 (meaning sun, day) can be pronounced as *nichi* or *jitsu* (*On* readings) and as *hi, -bi, -ka* (*Kun* readings). The appropriate reading will depend on the context in which the *kanji* is presented, in other words on what the other characters are in the compound or which syllabaries will follow it. The meaning of a *kanji* can be understood even when it is not known how it should be pronounced.

Different Types of *Kanji*

Chinese characters have been traditionally (since the publication of the first Chinese dictionary in the second century AD) put into categories based upon different criteria relating to character composition (Hadamitzky 1992):

> 1. The *Pictograph* (象形文字 *Shōkei moji*): essentially a picture of a physical object, and usually quite simple;
>
> 2. The *Sign or Symbol* 指事文字 *Shiji moji*): essentially a symbol expressing an abstract concept, and usually quite simple;
>
> 3. The *Ideograph* (会意文字 *Kai moji*): essentially a meaningful combination of two or more pictographs or symbols, and usually quite simple;
>
> 4. The *Phonetic-Ideograph or Semasio-Phonetic* (形声文字 *Keisei moji*): essentially a combination of a semantic element with a phonetic element, the former usually indicating the general nature of the item to be presented and the latter giving more specific information by leading its sound to express the pronunciation. About 85% of the Chinese characters used in Japan fall into this category.

The Japanese define two additional, rather vague categories based on character usage:

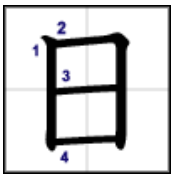
5. Characters of borrowed meaning and pronunciation (転注文字 *Tenchū moji*);

6. Phonetically borrowed characters (仮借文字 *Kasha moji* or *Kashaku moji*). (Heisha 1992)

It has been argued that there is a direct visual form-to-meaning process in Japanese (Perfetti 2003). Unlike Chinese, which generally assigns only one reading to each character, Japanese with its variety of readings focuses naturally on the visual image of the *kanji*. I am suggesting also that categorization by radicals further increases this tendency. Thus the association would spring from the character or radical to other characters visually related to it. I will also suggest later on in this study the idea that *kanji* form a conceptual network.

Stroke numbers and radicals

Chinese characters must always be written in the same premeditated order in balance within a square (Figure 16), and thus the number of *strokes* needed to write one character serves as one basis for their classification. The average number of strokes for a *kanji* is ten (Taylor and Taylor 1995, 325). In Japanese dictionaries, character classification usually follows the order of 'radicals' arranged by the number of strokes. *Radicals* are the basic elements in Chinese characters: for example, the character for 'dark' 暗 consists of two parts, 'day' 日 and 'sound' 音. The first one is the basic radical under which the character will be found in a dictionary.



Number of strokes: 4
Number of readings: 6
Meaning: 'sun'

Number of strokes: 14
Number of readings: 2
Meaning: 'to read'

Figure 16: Examples of Stroke order in Chinese Characters

There is a fundamental difference between monosyllabic Chinese and polysyllabic, highly inflected Japanese, and thus writing Japanese solely in Chinese characters proved impractical: by about the ninth century, the standardized characters used thus far as phonetics were simplified into 仮名 *kana* syllabaries (*hiragana* and *katakana*), which were discussed earlier in this chapter. Thus the Japanese writing system consists of the combination of *kanji*, Chinese characters with several phonetic readings, and two types of syllabaries, in addition to the *Rōmaji* (Latin alphabet). All these scripts may be used in the same text, and the script direction may vary on the same page from horizontal left-to-right to vertical right-to-left.

Since logographs disambiguate homophones, it is possible that homophones have continued to exist (and perhaps even increased) historically in Japan because of *kanji*. As a result, it would be difficult to manage without *kanji* in modern Japanese due to the vast number of homophones. There have been suggestions in the past that Japan should move into using solely phonetic syllabaries, or perhaps even the Latin alphabet (the same has been seriously considered in China). Those in opposition have stressed the importance of Chinese characters as a link to history. Diamond (1998, 333) claims that there is prestige value in Chinese culture and this is why Chinese characters are used in Japanese writing. However, evidently the Japanese have seen practical benefits in using combination of *kanji* and phonetic writing, and since the development of computer programs with Chinese characters, using them has become so unproblematic that there will be no pressure to abolish them. Furthermore, I am suggesting that the unusual Japanese writing system has an important role in the Japanese knowledge-creation process.

A Comparison of the Finnish and Japanese writing systems

According to McLuhan (1987, 83-84), the world of meaning and perception secured in the hieroglyph and the Chinese ideogram was lost in the phonetic script. He suggests that the many centuries of use of the ideographic script did

not threaten the seamless web of family and tribal subtleties in Chinese society, but that a single generation of alphabetic literacy suffices in Africa today, as in Gaul two thousand years ago, *'to release the individual initially, at least, from the tribal web.'* He considered this the result of a sudden breach between the auditory and the visual experience of man, as in the sudden transfer from the magically discontinuous and traditional world of the tribal word into the cool and uniform visual medium.

I suggest that the Latin alphabet and Chinese characters represent two very different tools for processing knowledge. They are not only different ways of writing phonetic sounds, and the *kanji* in Japan could be considered to have the character of semasiographic writing in that it also has a meaning independent of the spoken word. In fact, it is possible to understand the meaning of a text written in *kanji* without being able to 'read' it, as in vocalizing the words. The concept of literacy is thus complex in Japanese.

The phonetic alphabet is an abstract and analytic system of signs corresponding to phonemes in speech. The Finnish alphabet is highly regular and has a close correspondence between sound and letter. The special characteristics of the Finnish language could make the use of the phonetic script perhaps more holistic, as in syllabic scripts. These characteristics make the Finnish writing system *highly transparent*.

Japanese writing combines phonetic syllabaries, which are more holistic than letters, with the logographic *kanji* used in a more visual sense than the characters in Chinese. Thus Japanese writing is based on concrete images and interpretation according to the context in which the characters are presented. To someone from a phonetic-script environment, the Japanese writing system presents itself as *opaque*. Even for native speakers it takes more than nine years to achieve full literacy in Japanese. However, due to the visual character of *kanji*, the meaning of written concepts is more transparent than in phonetic writing

systems. The basic meanings of Chinese characters can be understood across East Asian countries, thus it represents regionally a transparent writing system.

There is tentative evidence that sound-based words yield a right-visual-field advantage, whereas logographs yield a left-visual-field advantage, and that lesions in different areas of the brain tend to affect the use of sound-based and logographic systems differently (Hatta 1977).

In the following section, aspects of script and literacy are discussed in relation to knowledge-processing patterns.

4.3 Literacy and Knowledge Processing

Literacy rates are considered indicators of the health of a society and a barometer of the social climate. Both Finland and Japan are reported to have full literacy. The two countries also achieved the highest scores in the Pisa study of literacy in OECD countries (OECD 2000), although the task of achieving literacy is completely different, both quantitatively (in terms of time and effort needed) and qualitatively (in terms of the skills involved).

Cook-Gumperz (1986) argued that literacy provides not just a technical skill, but also a set of *prescriptions about using knowledge*. It is not simply a matter of being able to read and write: by processing and exercising these skills we develop socially approved and approvable talents. In other words, literacy is a socially constructed phenomenon. Writing systems based on a phonetic alphabet teach very different knowledge-processing skills than logographic writing systems.

From a psychological perspective, literacy is a multifaceted set of instrumental skills involving cognitive processes, which operate in the production and comprehension of texts. Such cognitive processing also underlies the linguistic knowledge needed to decontextualise oral performance and present coherent

written or spoken language (Cook-Gumperz 1986). However, the relationship between performance and spoken and written language is constructed in a different manner in phonographic and logographic scripts.

In the following I will consider language as a way of knowing, and analyze its role in the knowledge-conversion process. Conversion between tacit and explicit knowledge involves both oral and written language, although the script used in writing influences the processing style.

Differences in categorization are considered here as a result of learning different knowledge-processing styles when using different scripts. The model of cognitive development suggested by Piaget is not considered valid in a culture in which the script is logographic.

I will conclude this discussion with an evaluation and a comparison of how literacy is achieved in Japan and Finland. There are different skills, learning styles and attitudes toward learning, which are associated here with learning to read and write in different languages and scripts. The role of schools and education is also considered.

Language and Ways of Knowing

To what extent do we use language for knowing something? Our sensory system receives information, which is then processed by using language as a tool. We organize the knowledge by comparing it to existing concepts. Since concepts are described in language, our ways of knowing are also limited by it. Thus the structure of language constrains the thought patterns of participants in the culture associated with that language.

Alkhenvald (in Barnett 2004) introduces the concept of 'evidentiality', which means that in some languages, such as Tariana, one has to express not only that one knows something, but also *how* one knows it, otherwise it is not considered

reliable. For example, if you talked with someone on the telephone, this would be referred to as 'talking non-visual'. Japanese expressions are also abundant in aesthetic and emotional feelings (Nakamura 1987, 188). Many verbal expressions refer to sensory sources: for example, one 'listens' to fragrances or describes color combinations as 'fragrances' (as in Heian era いろめのかさね).

The Western view of language differs radically from that in the East, and treats it as more parasitic on an individual, the *rational* process of *abstraction* from experience. The core of language is private: *"Conventional languages work by translating an inner, subjective, and inherently private mental code"* (Hansen 1989, 94-95).

According to Hansen (1989, 94), Chinese thinkers have a unique view of language, some of it motivated by the unique features of (written) Chinese. They treat the mind as an action guide that operates through language. Different theories of language and the mind, in turn, motivate different ethical theories. The Chinese philosophy of language concentrates on the different ways in which it deals with *classification*, and on *permissibility* rather than 'truth' (ibid., 106; 119).

Consequently, what are essential in Western theories of language are philosophical concepts such as *truth, belief, meaning, and propositional knowledge*, which have no adequate counterparts in the Chinese theory. Western theory considers the function of language to be descriptive or representative, whereas Chinese theory considers it in terms of socializing, regulating, and co-coordinating behavior. (ibid, 76-77)

According to Hansen (ibid, 89), the Chinese thinker Mozi (Mo Tzu) believed that general utility was an appropriate gauge of linguistic revision: linguistic reform would result in a psychological change, which would result in an ethical advance. We should make constant the system of word contrasts that best promotes human co-operation in our common interests and survival. The North-

Korean experiments with deliberate changes in language may be an attempt of this sort.

Allinson (1989, 8) argues that a culture that could learn to function with an alphabet language would be both more theoretically inclined and *ex post facto* more conditioned to think abstractly than a culture that was inclined, and accustomed, to thinking in terms of concrete images.

The Western mind operates through the indirect, depending on intermediate action and abstract medium of words. Aristotelian logic is based on strings of words and sentences. Syllogisms are one example of this type of logic, as Luria (1976, 74) defines it:

> *"One specific device that arises in the course of cultural development is syllogistic reasoning, in which a set of individual judgments give rise to objectively necessary conclusions. Two sentences, the first of which makes the general proposition and the second of which gives a specific proposition, comprise the major and minor premises of the syllogism."*

An example of a syllogism is: *'Precious metals do not rust. Gold is a precious metal.'* The conclusion 'Gold does not rust' seems so obvious that many psychologists were inclined to regard the drawing of such a conclusion as a basic property of human consciousness.

Luria (1976) conducted a study in central Russia in the 1930's and discovered that the process of reasoning and deduction were different among literate and illiterate people. Literate and educated subjects drew the correct conclusions from each of the syllogisms presented, regardless of the factual correctness of the premises or their application to the subject's immediate experience. However, the illiterate subjects made judgments associated with their immediate practical experience, but were limited in capability when they had to change to a system of theoretical thinking. They mistrusted the initial premises that did not arise out of their personal experience, and they failed to accept such premises as universals. This made it impossible for them to accept them as a point of departure. Rather, they treated them as a particular statement reflecting

a particular phenomenon. As a result of this, the syllogisms disintegrated into three isolated, particular propositions, and the subjects had to solve the problems by guessing or by referring to their own experience. Although they could use logical relations objectively if they could rely on their own experience, they had not acquired the syllogism as a device for making logical inferences. (ibid, 79-80)

The system of abstract, theoretical thinking is alien not only to illiterate people but also to cultures using the logographic writing system. Nisbett (2003. 168-70) reports differences between Easterners and Westerners in the evaluation of syllogisms: compared to Korean students, American students were more in the habit of applying logical rules to ordinary events and thus more capable of ignoring the plausibility of the conclusions. Essential differences between Eastern and Western thought may well be traced to the differences between phonetic and ideographic languages. According to Cheng (1989),

> *"The nonpictorial quality of the Greek language lent itself naturally to the development of abstract thought more than the picture image quality of the Chinese language".*

The syntactic sentence is not focal in the Chinese language. The Chinese character operates directly and immediately as a source of dispositions and skills (Allinson 1989, 6-7). The character for 'heart' (心)contains the meanings of both heart and mind, and it does not have the mental counterpart of words and sentences. It resembles a biological heart, not the brain in ancient Chinese pictographic symbols. Hansen (1989) decided to translate it as 'heart mind', thus incorporating both connotations. According to Allinson (1989, 7), this reflects an act of philosophical interpretation, which to a considerable extent bridges linguistic and cultural barriers:

> *"This act, in and of itself, shows a modification of the Western way of understanding in its effort to understand its Chinese counterpart which in turn may expand the Western concept of understanding."*

'Conceptual scheme' has been used as a rough synonym for language. Hansen (1989, 90) uses the term 'conceptual perspective' to mean the practice of

guiding that is enshrined in a language as defined by its patterns of word contrasts and distinctions.

When using language orally or literally, we are not usually aware of any conceptualization, but when encountering new concepts we are also forced to re-evaluate the existing conceptual system. Concepts in Buddhism offer a place for such reflection. No adequate conception of *non-being* has ever been developed or accepted in Western philosophy. Cheng (1989, 203) remarks:

> *"In the realistic metaphysics of Fichte and Hegel, non-being becomes an abstraction as revealed by negation and hence is contradictory to being so that it needs to be 'sublated' out of itself. Hence the negation of negation or the non-being of non-being, which still confirms to the Parmenidean dictum: 'What is, is, what is not, is not.'"*

Cheng (1989) raises the question of how the Parmenidean split and deviation took place in the West, and why such a turn was not made in the Chinese metaphysical tradition. He suggests that this was because the Greek language, being a phonetic language, produced an abstraction of thinking more easily than the visual Chinese language.

> *"This tendency toward abstraction is conducive to transcendental thinking in extensive abstractions and thus leads to the crystallization of both thinking and the object of thinking in an enclosure of concepts." (206)*

However, with its logographic script, the Chinese language is rooted in the concrete representation of the reality of experience both visually and auditorily, and thus always brings the image of the world to metaphysical contemplation.

Language in the Knowledge-conversion Process

Knowledge Conversion, or the SECI model, is at the heart of Nonaka's knowledge-creation theory. It has been suggested earlier in this study that tacit knowledge could be considered non-verbal and explicit knowledge verbal. Let us thus analyze the role of language in the knowledge-conversion process.

If explicit knowledge is seen in terms of language, tacit knowledge would then represent the idea, experience, or image that resides in our minds. Converting images (tacit knowledge) into words (explicit knowledge) forms the **externalization process**, which Nonaka and Takeuchi (1995) consider the most critical stage in knowledge creation. If we look upon written words as explicit knowledge, we can see how the externalization process differs across cultures with different writing systems. Externalization means writing and the opposite is reading, which represents the **internalization process** here.

The **combination process** involves the conversion of language (explicit knowledge), as in composing a text based on different concepts. Conversion or transfer within tacit knowledge is called the **socialization process**. If tacit knowledge is understood as nonverbal and thus based on something other than language, it seems to be related only to inner images before their conversion into spoken and written words. However, given the fact that the logographic script uses symbols to directly represent these images, we could think of Chinese characters as concrete images (tacit knowledge) that do not have to be converted into an explicit form. Nonaka and Takeuchi (1995) argue that the Japanese are especially skilful in transferring tacit knowledge. Although this may be partly due to management practices and different communication styles, and to the concept of the interdependent self, the processing of knowledge in *kanji* clearly enhances the transfer of tacit knowledge. Metaphors and analogies are cited as being typical of the socialization process: this is exactly what *kanji* is about.

The Externalization Process as Writing

All activity is initially rooted in graphic, practical operations. In an oral culture, experience is intellectualized mnemonically (Ong 1990, 36): an image will be linked with a spoken word in a situation-specific way (Luria 1979) (Cf. Figure 17).

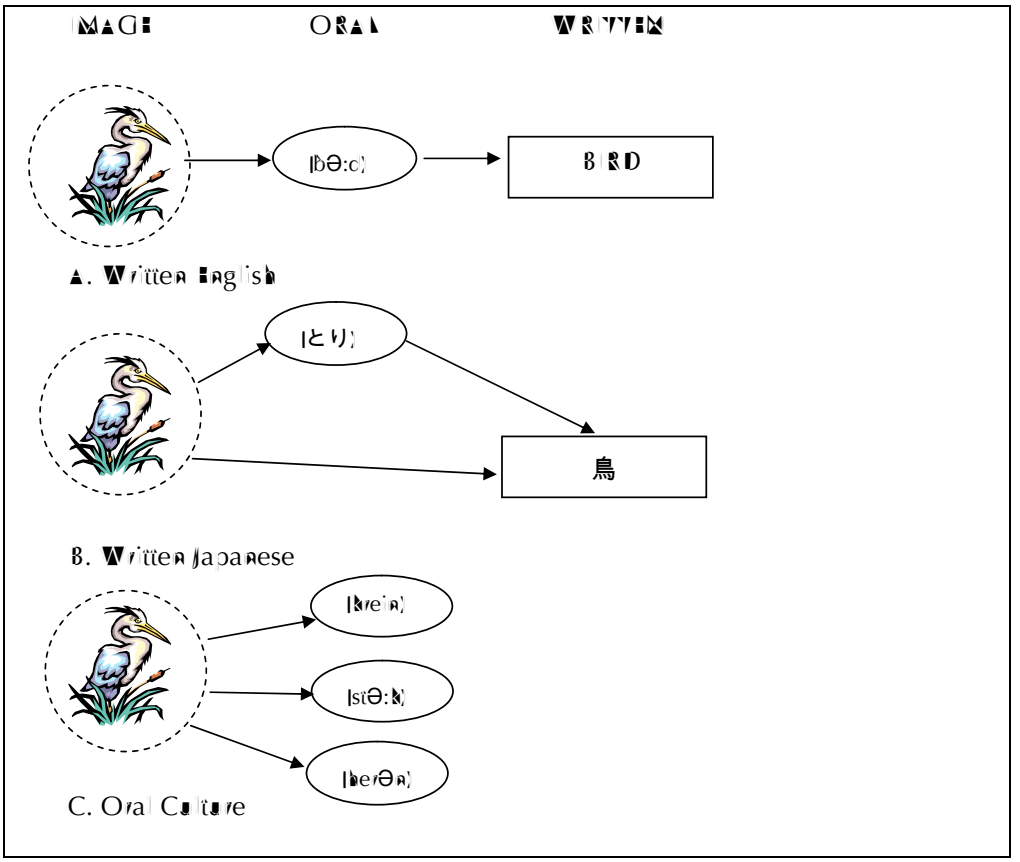


Figure 17: An Image Transferred to Oral and Written Language

The development of conceptual thinking involving taxonomic forms of abstraction and generalization depends on literacy and formal schooling (Luria 1979, 68). Thus deduction and inference (as in syllogisms) are not part of natural development, but they are learned along with a specific writing system. In a culture using the phonetic alphabet, images are first processed into sounds and then into letters. There is an indirect link between the morpheme and the letter-sound relation (Taylor and Taylor 1995, 96.) For example, in English, a picture of a bird links with the spoken word /bɘ:d/ and is written down as BIRD (see A in Figure 17). The process of writing involves analysing the phonetic composition of the spoken word, and starts with the breaking down of the sound stream of living speech into its individual phonemes (Luria 1979, 141).

The Finnish alphabetic script shows close correspondence between sound and graph, and thus may require less analysis of the phonetic composition: the spoken word is the same as the written word (Figure 18).

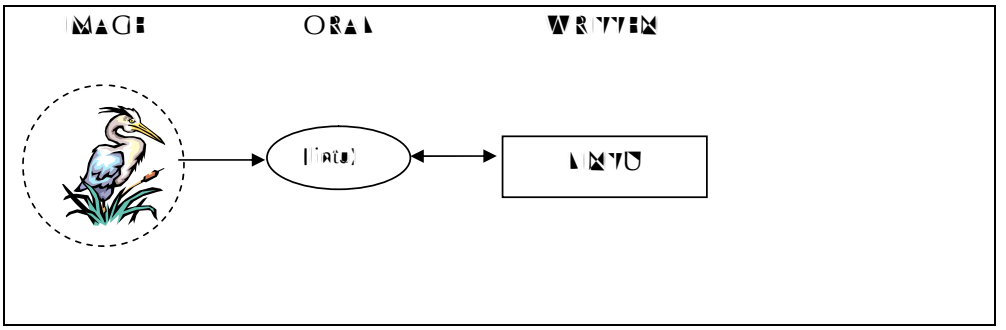


Figure 18: Processing Images into Oral and Written Words in Finnish

The areas of the brain responsible for the analysis of acoustic-verbal information play a decisive role in the analysis of normal speech into stable phonemes. When these parts of the cortex are injured and the isolation of stable phonemes from the flow of speech becomes impossible, as is often the case in sensory aphasia, writing is disturbed. (Luria 1979, 141)

This process of phonetic analysis and synthesis is unnecessary in languages, using ideographic transcription, which represent concepts directly by means of symbols. The graphic shape of a logograph gives its direct meaning (B in Figure 17). In Chinese a phonetic component never maps onto a sub-syllabic phonological representation in the way that a letter maps onto a segment of a word's phonological form in an alphabetic system. Therefore, Chinese writing does not allow the true segmental analysis that is fundamental to alphabetic systems, and quasi-regular letter-sound conversion rules that exist in all alphabetic languages are impossible. Nevertheless, Chinese characters possess a number of strokes that are packed into a square shape; they map onto morphemes, and their meaning is often suggested in visual configurations. (Tan et al. 2003, 159)

Taylor and Taylor (1995, 96) suggest that, in Japanese writing, as more *kanji* are learned the more they become used as phonetic symbols and not only as images. During the first years in primary school, the *Kun* reading (Japanese reading) is taught for most of the *kanji*, although the *On* reading (Chinese reading) is used in compound words. The *kanji* taught at school gradually become more abstract in the sense that, in addition to a concrete visual meaning (one radical), there is also a component indicating the phonetic meaning. Thus cognitive development implies higher degrees of abstraction but without losing the concrete images.

However, it could be argued that the *kanji* retain and develop a visual image. The Japanese *kanji* differ from the Chinese characters used in China and Korea in that there are several readings for each one. This places more focus on the visual image of the character even in the case of abstract compounds. Regardless of whether the connection is real or imagined, the Japanese tend to relate the etymology and original meaning of a word or concept to the pictographic elements of the *kanji* that is used in writing it. I have observed the Japanese engage in this kind of mapping process on several occasions. Since there are many homophones in Japanese, one has to rely on the visual image in selecting the appropriate *kanji*.

Reading as an Internalization Process

A Finnish written word can be easily articulated and associated with meaning (A in Figure 19). Even English spelling, which is notorious for its irregularity, gives some clue to the sounds of unfamiliar words and nonsense words. Thus, explicit knowledge (the written word) is converted into tacit knowledge (meaning) in the internalization process. However, a Chinese character can be sounded out easily in Chinese if it is familiar, but not so easily or not at all if it is unfamiliar. (Taylor and Taylor 1995, 90)

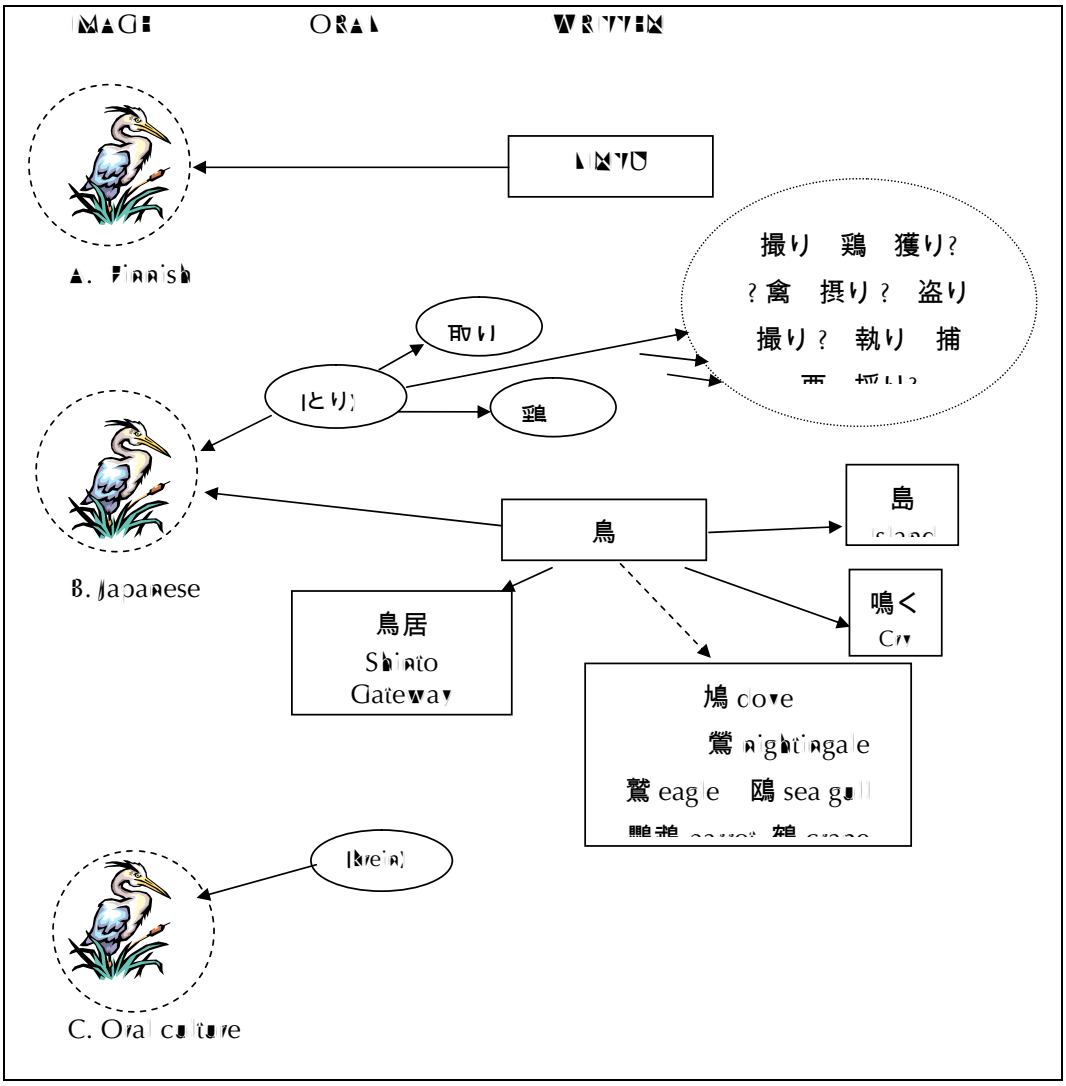


Figure 19: Language Decoded back to the Image

The case is even more complicated in Japanese. Any word written in *kana* syllabary can be easily articulated, but due to the many homophones it may be associated with several meanings (B in Figure 19). In contrast, *kanji* cannot be articulated at all if it is unfamiliar, but it will reveal the meaning directly. If it is familiar but in an unknown context (a different combination with other *kanji* or the kana script) it may defy articulation. However, a reader can understand the meaning of a *kanji* word even if he or she cannot pronounce it.

Acquiring a spoken-word vocabulary involves learning mappings between phonology and semantics (C in Figure 19), whereas skilled reading of the alphabetic script often involves computation from orthography to phonology to semantics. It has been suggested that the age at which children learn phonology-to-semantics mappings (oral language) could have a residual impact on orthography-to-phonology-to-semantics computation (reading) (Devlin and Seidenberg 2002). Thus there is a relationship between the development of cognitive processing for oral and written languages.

In phonetic writing, phonological awareness and text coherence require that language be treated as an object of attention rather than as a vehicle of communication. Simons and Murphy (1986, 195) showed in their study that children who exhibited phonological awareness were better readers (in the phonetic writing system), and would use less situation-specific language, whereas children who used situation-coherent language would exhibit poor reading skills. Earlier studies have demonstrated that lower-class children adopt different verbal styles and perform less effectively than middle-class children. The fit between verbal style at home and the one used at school seems to be an important predictor of school performance, at least in the phonetic-script environment.

The Combination Process as Abstraction

Luria (1979) studied patients with sensory aphasia who could speak but did not understand spoken language, and those with semantic aphasia, who could understand isolated words but were at loss when presented with relational terms such as 'brother's father' or 'the circle under the triangle'. The latter were able to understand other genitive forms, such as 'piece of bread', which made Luria realize that

> *"in the attributive genitive constructions there was a conflict between the two words that required the person to make a mental transformation in order to overcome the conflict and to understand the phrase. One had to abstract the immediate, concrete meaning of the word 'brother's' and convert the semantic content of a noun into the semantic content of an adjective; mentally, the sequence had to be reversed." (ibid., 167)*

Luria (1979) discovered that, in fact, this kind of attributive genitive developed relatively late in the Russian, German, and English languages. I suspect that it may have developed along with the writing system, which allows abstraction and the rearrangement of words. In Finnish, which has a short written history, we have special words for this kind of relation between relatives: one's father's brother is '*setä*', one's mother's brother is '*eno*', son-in-law is '*väpy*', daughter-in-law is '*miniä*', sister-in-law is '*käly*' and brother-in-law is '*lanko*' on the wife's side, and '*sato*' and '*käly*' respectively on the husband's side; mother-in-law is '*anoppi*' and father-in-law is '*appi*'. Some of these words have become less common in urbanized (and literate) society.

The logographic script does not require this kind of linguistic abstraction process: on the contrary, Chinese characters allow expression of the nuances of concepts. Even the abstract *appearing* form of language functions differently in the Chinese mind, and thus reveals a different type of mental functioning (Hansen 1989; Allinson 1989, 8). Thus in Japanese too, the combination process is a matter of connecting knowledge by association, which does not require abstraction.

The Socialization Process as Categorization

A category refers to a set of objects that go together, i.e. that could be addressed, processed, or simply regarded as a whole. The objects that constitute a given category are members, or instances, of it. Categorization is the process by which human beings create their categories, the mental representations of which are called concepts. The prototype is the most salient member of a given category. (Gurova 1999) Basic categorization does not presuppose language and it is not limited to human beings: even dogs can categorize people and animals they know, or accept or reject. Types of categories that humans use vary at different ages, and it is argued here that they are also influenced by language.

When the development of cognitive skills is considered from the viewpoint that language, including written language, is a tool for processing knowledge, we

could argue that there are three different types of categorization. The first takes place prior to the acquisition of language, and it is called Non-Verbal Categorization here. It is part of the socialization process in knowledge creation. The other two are labeled Concrete and Abstract Categorization (part of the combination process): it is suggested that different writing systems enhance these two latter types. In the following I will compare Piaget's theory of the cognitive development of the child (Atherton 2002; Dasen 1977; Piaget 1959) with Vygotsky and Luria's (Luria 1979) ideas about the role of language in cognitive development. The essential difference in these two approaches is that Piaget considered the development of abstract cognitive skills a natural age-related process, whereas Vygotsky and Luria maintain that literacy enhances the development of abstraction and generalization skills. It is my view that abstract conceptualization is linked with literacy in phonetic scripts, whereas concrete conceptualization is typical of oral cultures and literacy in logographic scripts. Thus abstract categorization is not the highest form of development in cognitive skills, as Piaget maintains, but it is rather one type of conceptualization.

1) Non-Verbal Categorization

Luria (1979) notes that, during the early stages of a child's development, words are not an organizing factor in the way that the child categorizes his or her experience. The small child perceives each object in isolation since he or she has no logical principle for grouping them.

According to Piaget, this is Stage 1: the Sensory-motor stage (before the age of two) when language is not developed and the child is bound up with its immediate environment. At the beginning of this stage the child starts differentiating itself from objects, recognizing itself as an agent of action, and acting intentionally (for example, it pulls a string to set a mobile in motion or shakes a rattle to make a noise). Piaget maintains that the child is unable to classify processes at all at this stage. (Atherton 2002; Dasen 1977; Piaget 1959)

Given the fact that psychological development is an outcome of interactions between a biological organism and environmental influences, there are cultural differences even at this stage of cognitive development. There are several cross-cultural studies comparing child-rearing practices and the behavior of newly born babies. The conclusions point out that, although child rearing differs from one culture to another, there are also some common dimensions (Berry et al. 1992). Caudill and Weinstein (1974) maintain that infants have learned by three-to-four months of age to respond in culturally appropriate ways. It is evident that the way of experiencing the world will be different when the infant is isolated in a baby carriage from when it is carried on the mother's back, for example. Konner (1981) suggested that the invention of the baby carrier could have influenced the relatively slow infant motor development among humans.

Arai et al. (1958) used Gesell norms (established on American children) to measure the development of Japanese children from one month to 36 months. The Japanese infants were found to match the American norms in the areas of motor development and language development in the age period from four to 16 weeks. After that, there was a steady decline from the norms for both motor and language development, from four to 36 months of age. Children with a developmental quotient between 90-119 showed a language aptitude (the weakest behavior) that was 66.0 percent of the norms. The point here is not that the Japanese children were somehow underdeveloped because they could not match the American norm, but that such differences showed cultural adjustment. Caudill and Weinstein (1974) also came to this conclusion.

It seems that non-verbal categorization is based on the culturally different ways of experiencing the world. Thus even before language starts to influence categorization, tacit knowledge is influenced by culture.

2) Concrete Categorization

During the next stage of categorization the child begins to compare objects on the basis of a single physical attribute, such as color, form, or size. However, in

making these comparisons, it quickly loses sight of the attribute it originally singled out as the basis for selecting objects, and shifts to another attribute. As a result, it often assembles a group or chain of objects that reflects no unified concept. The logical structure of such groupings, in fact, often suggests a family in which one individual is included as the 'son' of a central figure, a second as the 'wife', and so on. This type of group structure can be detected when objects are incorporated into a general situation in which each participates on an individual basis. An example of such a grouping would be a 'meal' in which the chair is used to sit on at the table, a cloth is used to cover the table, a knife to cut the bread, a plate to put the bread on, and so on. (Luria 1979, 67)

Radicals of *Ranji* link different, even unrelated concepts together in the same manner. This is discussed later in this study in relation to the conceptual network created by *Ranji*.

According to Piaget, this type of categorization marks Stage 2: the Pre-operational[37] stage (ages three to six approximately). The child learns to use language and to represent objects with images and words. He or she orders events into series and classifies objects by a single feature (for example groups together all the red blocks regardless of shape or all the square blocks regardless of color). Thinking is still egocentric: the child has difficulty taking the viewpoint of others. (Atherton 2002; Dasen 1977; Piaget 1959)

Luria (1976) discovered later that this kind of concrete categorization was not limited to a certain age, but that literacy and education had an impact on it. He studied illiterate and half-literate people in the remoter regions of Uzbekistan and Kirghizia in 1931-32, during the Soviet Union's radical restructuring aimed at the elimination of illiteracy. The illiterate subjects in Luria's study created concrete groups on the basis of 'situational' thinking that was extremely resistant to change. They made generalizations on the basis of concrete experience.

[37] Originally called "Pre-operatory stage."

Concrete categorization seems to be typical of oral societies, and it could be argued to be fundamental in the logographic writing system. A question that has become classic among linguistic anthropologists was also raised by Luria (1979, 66):

> *"Man can perceive three million different hues, but there are only sixteen to twenty names for colors. Does that mean that the perception and classification of hues vary with the names of different colors themselves? Or do language and practical attitudes toward colors evoke any changes in how people perceive colors and classify them?"*

The uneducated subjects in Luria's (1979) study labeled the colored pieces of wool with the names of similarly colored objects in their environment. For example, they called various hues of green by the names of different plants: 'the color of grass in the spring', 'the color of mulberry leaves in the summer', 'the color of young peas'. There is a striking parallel in this to how the Japanese name colors: a Japanese person shown some shade of 'gray' would describe it as '灰色'; '鼠色'; or perhaps as '鳩羽色', all translated as 'gray' in English, although the visual image of the character and the Japanese word refer to these as 'ash color', 'mouse color', and 'pigeon wing color' respectively. No general word for gray exists in Japanese, although the English word can be written in a Japanese katakana syllabary グレー *'guree'*. However, the type of script already makes it stand out as a foreign concept.

The same applies to basic colors in Japanese. Although red, blue green, black, white, yellow and so on are used as general categories, the *kanji* (Chinese character) that are used to write them always associate them with some visual images. Thus abstract concepts of color do not exist in Japanese. Although the Japanese (or Chinese) may not always be conscious of the visual connotation, the logographic writing system creates an alternative tool for organizing knowledge within the phonetic script.[38]

[38] NOTE: it is probably possible to describe colors in this way in all languages, but it is striking that in *kanji*, one can actually write draw an image of, say, *ogisa-iro*! 鶯色 The written language allows the continuation of this kind of concrete thinking.

3) Abstract Categorization

The concrete categorization of colors disappeared in Luria's literate subjects, whose responses were dominated by the categorical color names, and who readily classified similar colors together. He discovered (1979, 68) that categorical thinking was not just a reflection of individual experience, but was also shared experience that a society could convey through its linguistic system:

> *"The reliance on society-wide criteria transforms functional-graphic thinking processes to a scheme of semantic and logical operations in which words become the principal tool for abstraction and generalization."*

In other words, language, and especially achieving literacy, enhance taxonomic and abstract thinking.

In Piaget's theory, Stage 3: the Concrete Operational[39] stage (ages 7-11) denotes the gradual movement toward abstract categorization. The child can think logically about objects and events, and learns not only to recognize series of events, but also to coordinate one series with another. He or she can classify objects according to several features and order them in series along a single dimension such as size, and also achieves conservation of number, mass, and weight. (Atherton 2002; Dasen 1977; Piaget 1959) Finally, at stage 4: the Formal Operational[40] stage (around the age of 12), the child is able to think logically about abstract propositions and test hypotheses systematically. He or she becomes concerned with the hypothetical, the future, and with ideological problems.

Vygotsky and Luria (1979) also suggested that by the time children reached adolescence they no longer generalized on the basis of their immediate impression, but rather categorized by isolating certain distinct attributes of objects:

> *"Each object is assigned to a specific category by relating it to an abstract concept. After establishing a system for including diverse objects in a single category, adolescents develop a hierarchical conceptual scheme*

[39] Originally called "Pre-operatory stage I"
[40] Originally called "Operatory stage"

> *that expresses increasingly greater degrees of commonality'. For example, a rose is a flower, a flower is a plant, and a plant is a part of the organic world. Once a person has made the transition to this mode of thought, he focuses primarily on the 'categorical' relations between objects, not on the concrete way in which they interact in real situations." (Luria 1979, 67-68)*

Piaget's theory of conceptual development has been widely accepted, and a great deal of further research on cognitive science and pedagogy has been based upon it (Dasen 1979). Considered in terms of literacy and education influencing cognitive development, his stages seem to match neatly with the age at which exposure to the written text is introduced (pre-school at the age of four), and when abstract logic based on the phonetic alphabet and Western scientific thinking becomes internalized after several years at school.

Piaget's work has also been criticized over the years. There have been doubts about the premises of his method, and rival theories of cognitive development have been introduced (for example, the Prototype View revised by Rosch in 1978) (Gurova 1999). Gell (1992, 105-106) pointed out that the pedagogical milieu of the Maison des Enfantes in Geneva imposed itself in forming the background assumptions to Piaget's research, and is incidentally the primary reason for their being of little cross-cultural applicability. Piaget did not raise the problem of the contextual sensitivity of knowledge. What Gell (1992, 109) means by contextual sensitivity is that how much a person 'knows' about the world depends not only on what he or she has internalized and what, so to speak, is in his or her permanent possession, but also on the context within which this knowledge is to be elicited, and by what means.

> *"A basic premise of Piaget's method is that it is feasible, under experimental conditions, to identify cognitive abilities in isolation from any specific context of application, to drive a wedge between 'thinking ability' and the everyday contexts in which thinking is applied practically." (ibid., 110)*

Gurova (1999) suggested that Piaget's theory of intelligence did not solely represent the classical view of categorization, as had been thought. Piaget considered mature thinking to be logical thinking, which presupposes the

existence of well-defined concepts with clear-cut boundaries. However, one can recognize the elements of the challenging theories in his model of cognitive stages with its different mechanisms of categorization. For example, the Prototype View[41] corresponds well with the Pre-operational stage in Piaget's model, and the Classical View[42] describes the conceptualization at the last, Formal Operational stage. Gurova (1999) proposed that human beings preserved their ability to think using prototypes during their whole life. She also poses questions for future research. Is it really true that scientific thinking requires classical clear-cut categories? How would science be different if it were reformed on a different categorical basis?

It is proposed in this study that categorization by prototypes is inherent in cultures using the logographic script. Chinese characters or *Kanji* create a conceptual system of their own, which allows associative logic.

According to Vygotsky, in this type of concrete categorization the determining factor in classifying objects into situational complexes is based on functional-graphic perception, or on remembering real-life relations among objects, rather than on a word that allows one to single out a common attribute and denote a category that logically subsumes all objects (Luria 1979, 67). This is typical of older preschoolers and elementary-school children.

Kanji as a Conceptual Network

It was mentioned earlier that the Chinese philosophy of language is focused on how language treats classification (Hansen 1989, 106). This is natural in a language that uses Chinese characters. I am suggesting that *Kanji* characters are not just script: they are concepts, which represent categories. Before written

[41] According to the Prototype View of categorization, every category processes one or more salient members, which are called prototypes. Category membership is determined by the similarity of an object's attributes to the category's prototype.
[42] The Classical view of categorization represents the conventional way of thinking about categories and concepts in modern science. It is based on well-defined concepts with clearly defined attributes, which are the only scientifically appropriate concepts.

Chinese was standardized, the Chinese characters were relatively more varied and more pictographic. They were more intuitively recognizable as pictures, as is the case now in Japanese. Historically the Han characters, which constitute most of the Japanese *kanji*, are relatively more pictographic than the simplified characters promoted in modern China.

The system of classifying Chinese characters according to 214 basic elements or **radicals** evolved some three centuries ago, and is still used in Chinese and Japanese character dictionaries. Radicals could be considered prototypes, which are the most salient members of categories. In the Japanese writing system, *kanji* characters using the same radical may constitute categories. Moreover, since many concepts involve *kanji* compounds, these comprise families in which even contradictory concepts may belong to the same group.

Radicals tend to be used as semantic categories even in constructing otherwise phonemic characters - the most frequent composite character type in Chinese. For example, the phonetic *ma* with the 'earth' radical means dust, with a 'hand' radical means touch, and with a 'stone' radical means grind. In phonemic characters, one of the parts contributes a hint as well as some meaning. It is a hint because the characters work for all Chinese spoken languages over time. This means that it may be a perfect match for any specific language (modern or ancient), and the barest hint for another. It is assumed that this was true of the characters when they were created. The phonemic element in modern simplified characters is usually more purely phonemic. (Hansen 1989, 77; 120)

Ancient written Chinese specified more than homophones in the spoken language: Hansen (1989) suggests that some characters were invented solely to capture theoretically important distinctions that spoken language did not mark. As an example he gives *bian* 'distinction', which has the same structure as *bian* 'device'. They differ in that, between the two vertical parts being divided, the former has a *yan* 'language' radical where the latter has a *dao* 'knife' radical. It

is presumed that this marks an awareness of the distinction-making character of language.

From the knowledge-management perspective we cannot ignore the key role of Japanese *kanji* as a conceptual system. Although *kanji* are part of the script used to write Japanese, I think that they are actually **object concepts**. The hours spent in Japanese schools learning the *kanji* are not hours spent in memorizing script in the same way as with an alphabet. The Japanese do not repeat 'a' and 'b' and 'c' in order to learn how to read and write. By the end of their first year at primary school children have already learned hiragana, the phonetic syllabary that can be used to write any Japanese word. After the first term reading and writing are devoted to learning concepts signified by *kanji*. (See Appendix 1)

The *kanji* conceptual system is based on visual images and association (Figure 20). Learning a *kanji* means learning not only a word, but also a concept. For example, when primary-school first graders learn the *kanji* 青, written with eight strokes always in the same order, they learn the concept of 'blue green' and 'pale' color, and also the metaphorical meaning 'young, unripe, inexperienced'. This *kanji* is a combination of two radicals: a simplified version of a growing plant (life) 生, and a simplified version of a character, which originally indicated 'well' 井. Thus the visual and etymological meaning of this *kanji* is 'growth around a full well, which is fresh and green'. (Henshall 1992, 13) Green overlaps conceptually with blue in Japanese, and also has a figurative association with immature and young, as in English.

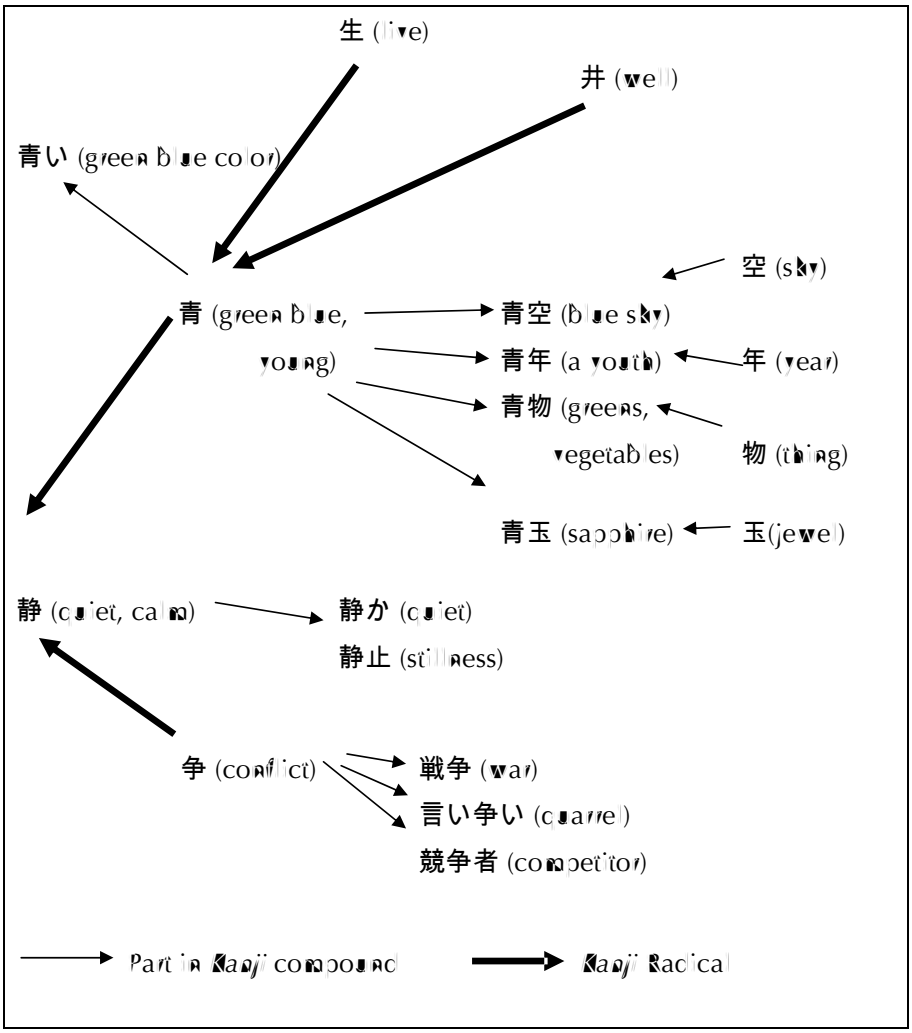


Figure 20: Association of Concepts in Kanji

This relatively simple *kanji* can be pronounced in three different ways (SEI, SHŌ, ao-), depending on the context, i.e. the *kanji* or word compounds that it is part of. It has the Japanese pronunciation (*Kun -reading*) 'ao' in the color 青い (*aoi*) green blue, or in compounds such as 青空 (*aozora*) blue sky, 青物 (*aomono*), greens, vegetables. It has two Chinese pronunciations (*On -reading*), SEI and SHŌ when combined with *kanji* that also use Chinese pronunciation, such as 'sei' as in 青年 (*seinen*) a youth, and *shō* as in 緑青 *(rokusyō)* verdigris copper

'green', rust. The concept of 'blue green - young' is there in all compounds although the phonetic value is different. Thus the *kanji* carries conceptual meaning. A primary-school first grader may not be able to pronounce the compound 青玉 (*seigyoku*), but he or she may well understand that it is a green blue jewel (sapphire). Compare this to asking a first grader what a 'sapphire' is - although able to read the word, he or she does not know it without having been exposed to it earlier.

Kanji concepts are linked to each other in compounds, and also by radicals, parts of characters. This creates a wide network of associations between multiple *kanji*. The *kanji* presented above, 青, is itself a radical and, together with 争 (*sō*), meaning conflict and quarrel, forms 静 (learned in the fourth grade), which can be pronounced *sei*, *jō*, or *shizu*, and means 'quiet', 'calm'. Scholars do not agree on the etymology of the character: some say the latter part acts phonetically to express 'beautiful', thus 'beautiful green', while others claim that the first part, partly phonetically and partly within, carries the meaning of 'clear' and thus the meaning of the character would be 'clear of conflict'. (Henshall 1992, 160)

Debate on the origin of individual *kanji* mainly interests linguists, and ordinary Japanese use them in different compounds unaware of these disputes. When learning the *kanji* 静, Japanese children also learn the latter part of it, 争 (*sō, arasō*), in its meaning of conflict and quarrel, and the compounds 戦争 *sensō* (war) and 競争者 *kyōsōsha* (competitor).

This associative way of combining *kanji* and their radicals results in some surprising concept connections: 'green' connects through 'quiet' to 'war', which does not follow any rational logic.

Learning by Analogy and Metaphor

Nonaka and Takeuchi (1995) underline the role of metaphors and analogies in the knowledge-creation process. Analogies may be used as explanatory tools to introduce new concepts. It seems that human beings are predisposed to think analogically, and they will use analogies, consciously and unconsciously, during explanation (Glynn et al. 1998, 195).

Meaningful learning means constructing knowledge actively; it is the process of integrating new knowledge with existing knowledge. It has been suggested that, in order to learn complex concepts meaningfully, students should learn them relationally, not by rote. Concepts are to be learned as information networks rather than as lists of facts. Glynn et al. (1998) suggest that when learning becomes relational rather than rote, it becomes meaningful and also interesting: "*Like playing with an erector set, the process of joining new knowledge to existing knowledge intrinsically motivates students.*" (196)

It seems that experts are experts, not just because they know more facts than novices, but because their knowledge exists in the form of interrelated networks:

> "*The construction of conceptual relationships enhances an expert's working memory and long-term memory performance. Because the expert's knowledge is relational, it is easily stored, quickly retrieved, and successfully applied.*" *(Glynn et al. 1998, 196)*

Kanji as a conceptual network operates exactly in this way. It has been thought, mistakenly, that learning to read and write in Japanese is learning by rote. However, learning *kanji* is not the same activity as learning the phonetic alphabet or even words written in it. Each *kanji* is a concept described within a square with a decisive stroke order. Learning to write a *kanji* develops understanding of the concept, it is not automatic repetition. It builds upon previously learned concepts (radicals), which makes learning meaningful. Learning and using *kanji* facilitates *concept mapping* (Novak 1990, in Glynn et al. 1998, 196), and it also develops relationships among different, but in some ways similar, conceptual networks.

Clyne et al. (1998, 1996; 204) maintain that carefully crafted analogies can serve as initial mental models that function as explanatory tools. These analogies may help in building bridges between existing and new knowledge. Chinese characters form such analogies, which have been carefully crafted over the millennia.

Chinese Characters as Tacit Knowledge

There are several characteristics of Chinese characters as they are used in the Japanese language that suggest their role in the socialization process. As I have maintained earlier, they could be considered not only script, but also 'zipped' knowledge, which contains certain nuances and associative meanings as described below.

(1) *Kanji* differentiates homophones. This is probably the reason why so many homonyms continue to exist in Japanese. The effect is a stronger focus on the visual image of *kanji* than on the sound.

(2) *Kanji* may give the direct meaning of words: *gesi* 夏至 'summer depart' is more immediate and understandable than 'summer solstice' (ibid, 325).

(3) *Kanji* express subtle or not subtle differences in meaning that can be expressed in the native word. For example, the Japanese verb *toru* can be written in five different official *kanji*, one each for 取る 'take', 採る 'pick', 捕る 'catch', 執る 'execute (a duty), and 撮る 'take (pictures)'.[43] (Taylor and Taylor 1995, 325)

Taylor and Taylor (1995) continue with another example: the verb *naku* ('cry') is used indiscriminately in Japanese for the cry of all kinds of animals. It is written with two official *kanji*: 鳴く (for 'a bird chirps or sings') and 泣く (for 'a person

[43] These are official *kanji*, but in fact my computer gives four additional *kanji* for writing the verb *toru*.

cries'). In addition there are several unofficial *kanji* (meaning *kanji* that are not in official use in present-day Japan), for example one each for 'a child cries', 'a cat meows', and a 'lamb bleats'.

(4) *Kanji* promotes 'instant' knowledge: reading the characters is a holistic process, which gives understanding of the meaning in a flash. They stand out in the mixed-text script (ibid, 330). As one native learner put it: "*When I look at print in Japanese, characters shot into my brain in meaning units with little effort, whereas this immediacy is often lacking in English.*" (Kubota 2001, 106)

(5) *Kanji* is embodied knowledge. It involves much rote memorizing, it takes time and effort, and is seldom perfect (Taylor and Taylor 1995, 335). However, this rote memorizing is not so much a mental activity as kinesthetic learning. Since the stroke order is determined, the *kanji* may become part of the 'physical memory'. When they are talking, the Japanese sometimes 'draw' the *kanji* on their palm or in the air with their hand if there is uncertainty or ambiguity about its meaning.

(6) *Kanji* is complex: there are readings in two very different systems (ON Chinese pronunciation and KUN Japanese pronunciation), and the shapes are complex (the average stroke number is 10). It takes more effort and time to write *kanji* than to write the phonetic script. However, studies have shown that the complexity does not affect memory. In fact, more complex *kanji* are memorized better than some simple ones.

(7) *Kanji* are numerous (even just the common characters plus those for personal names amount to 2,229). Thus knowing and using them is an ambiguous task, and one can never be perfect in that. People often make errors when writing *kanji*.

(8) *Kanji* is an image. Readers can retain the meaning of logographic characters even if they forget how they sound. Taylor and Taylor (1995, 334-335) remark

that one of the disadvantages is the lack of systematic relations. Even the mnemonic values and cues do not amount to a tight system, which makes mastering a large number of complex *kanji* difficult. There is logic in the system, but it is based on association.

The special character of the logographic writing system promotes the consideration of concepts such as network, and develops associative logic. The phonetic alphabet, in contrast, promotes abstract thinking based on linear logic. The fact that the Japanese writing system combines both logographic script and phonetic syllabaries suggests an interesting combination of knowledge processing. However, since learning the minimum number of required *kanji* takes over ten years, whereas the phonetic script can be learned within months, the cumulative effect of logic and learning style associated with *kanji* could be expected to prevail.

Achieving Literacy as a Learning Process

Language plays a major role in formal education: most of what is taught at school is transmitted either by oral language (the teacher's oral presentations) or through written language (textbooks and reference works). In order to succeed in school a pupil must have an adequate command of the linguistic skills of listening, speaking, reading and writing. In addition, the interactive nature of linguistic communication affects the learning. (Wells 1986, 69) Formal education is based on language, especially on written language. The beginning of education consists of learning reading and writing skills, i.e. achieving literacy.

According to Simons and Murphy (1986, 186-187), entry into school marks a major social, linguistic, and cognitive transition for children. Children, who must learn to communicate and operate outside their home network with adults and peers who do not share their communicative background. They must develop new language-use skills in order to participate in classroom activities,

to gain access to learning opportunities, and to demonstrate what they have learned.

The major focus of schooling is on teaching literacy. This requires that the child has to learn to shift from his or her home-based conversational discourse strategies, which depend on multi-level linguistic inference, to the more discursive strategies preparatory to written expository prose. It is this transition between speech and writing that makes the achievement of literacy more difficult. Recent research has suggested that distinctions between spoken and written language are to be found at the level of discourse (Collins and Michaels 1986, 207-208).

When learning to read, children must be conscious or aware of their primary linguistic activities - listening and speaking. This awareness has been called metalinguistic awareness. It is the ability to focus on the language itself as an object rather than on the meaning or intention of the communication. (Ibid, 193)

Metalinguistic awareness may be critical for learning to read in phonetic writing systems: it allows the segmentation of spoken sentences into words and of words into phonemes, and the focusing of attention on the phonological, lexical, syntactic, semantic, and practical levels of language. This type of metalinguistic awareness is not necessary for reading in a logographic writing system. It has been suggested that metalinguistic awareness could also develop as a consequence of learning to read in a phonetic script (Simons and Murphy 1986, 194).

Cook-Gumperz (1986, 3) claims that learning to read and write is not equivalent to learning other instrumental skills, for literacy is a *metacognitive* process that makes other cognitive and social development possible. The acquisition of metalinguistic skills in school requires that children focus on the form of the language, particularly on the phonological level, rather than on the content or

meaning (Simons and Murphy 1986, 194-195). This phonological awareness is not necessary in learning *kanji*.

Hansen (1989) stresses the supra-linguistic role that the Chinese written language (Chinese characters) plays among the numerous oral languages. This is a role that is occupied by ideas or concepts in Western theories. Learning to read and write in Japanese means learning concepts and ideas, not merely practicing a writing system. The conceptual system carried by *Kanji* is analyzed later in this section.

Luria (1979, 142-143) describes the process of learning to write in the phonetic alphabet as follows:

> *"In the first stages of learning to write, saying a word often helps the writer to write it correctly. By pronouncing the word, he has analyzed its articulation. (...) Once the speech stream has been correctly analyzed, the writer must translate the isolated phonemic unit into its proper visual or graphic unit. He must choose the necessary visual sign from the large number available, matching it and its spatially organized strokes with the auditory stimulus. (...) In the next stage, visual images of letters are transformed into motor acts. In the early stages of learning to write the motor process of writing consists of an extended series of steps, and the changes from one step to another occur as discrete acts. As the process of writing becomes more automated, the motor units increase in size, and the person begins to write whole letters at once, or sometimes firmly established combinations of whole letters. ... When writing has become an automatic habit, some words, particularly those that are familiar, come to be produced by a single, complex movement and lose their list-to-list sequential nature. (...) Finally, writing, like any activity, requires the maintenance of a constant purpose or plan and continuous feedback concerning the results of the action. "*

Writing may become so automatic that some people with brain damage continue to write even if they no longer understand what the words mean (Luria 1979).

The Sign-Learning Challenge

Recent findings of the OECD PISA study rank Finland, Japan and Korea as the top three in reading literacy[44]. This is surprising if one compares the sign-learning challenge for the Finns and the Japanese (Table 12). Achieving literacy in Japan and Finland are very different types of tasks.

Japanese	about 2,000 Chinese characters - with different pronunciations	220 Kana syllabaries	26 Roman letters	10 Arabic numerals
Total over 2,256 signs - complex, need interpretation in different contexts - takes years to master, minimum 9 years of compulsory education				
Finnish			29 Finnish letters	10 Arabic* numerals
Total 39 signs - simple, easy to sound out, always carry the same meaning (sound) - can be learned during the first school year				

*Older generations of Finns also learned Latin numerals (I, II, III, IV, V, VIII, IX, X and L, C, D, M...), but they are less common now: children see them in history books but cannot normally use them.

Table 12: The Sign-Learning Challenge for the Japanese and the Finns

It is easy to learn the *hiragana* syllabary, much easier than learning to read and write in English (Yobin et al. 1989 57). Reading the Finnish alphabet is also similarly easy because of the close correspondence between the phonemes and the letters. Although reading literacy comprises more than just the ability to read and write the vernacular script, it is possible that, since the Finnish, Japanese, and Korean phonetic scripts have a close correspondence with the phonetic sounds, and consequently are easy to learn, more time and effort is

[44] *"Reading literacy is understanding, using, and reflecting on written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society." OECD Pisa Study, 2000*

available for understanding and using the written text. For the Japanese, learning *kanji* actually means learning new concepts, not just new 'letters'.

Many, perhaps most, Japanese children learn to read the kana syllabaries at home (Yobin et al. 1989, 57). Japanese parents feel that many crucial skills, such as playing, sharing and empathizing with other children, cannot be taught at home. Parents can teach reading, but not how to be a member of a group or to socialize to the role of a student.

The large quantity and complexity of the characters affect the way people learn and use them. This way of learning and associative use of knowledge also guides their later knowledge processing. Table 13 compares in number and complexity the logographic characters to the letters in the English and Finnish alphabets and to the signs in the two forms of Japanese syllabary.

	Chinese Characters	Latin Roman Alphabet	Japanese Syllabary
Number	3,500 in Chinese 8,000 in Japanese	26 in English 29 in Finnish	110 hiragana over 110 katakana
	large and open-ended	small and closed	moderately small closed
Complexity	1-24 strokes (smaller set) 1-64 (full set)	1-4 strokes	1-6 strokes

Modified from Taylor and Taylor 1995, 89

Table 13: The Complexity and Number of Graphs in Logography vs. the Phonetic Script

It seems that the complexity (i.e. the number of strokes) of Chinese characters does not affect the memorizing of them. Both Chinese and Japanese studies show that, since readers perceive the characters as a whole, the complexity has no effect. The more frequent (in occurrence) and familiar the characters are, the more quickly they are learned, regardless of their complexity (Taylor and Taylor

1995, 59). It may be that *kanji* are also easier to learn because they are symbols. Gardner (1984, 266) suggests:

> *"Because human beings are meaning-seeking and meaning-creating individuals, symbol systems are the preferred mechanisms for the development and cultivation of intelligences."*

Mechanical exercises such as copying stories or poems from textbooks are commonly used as homework assignments in elementary and sometimes in secondary schools in Japan. The national curriculum guidelines (Course of Study) for elementary school include 'sight copying' and 'dictation' as one of the activities for first-, second- and third-grade Japanese language instruction. Japanese teachers believe that copying allows the practicing of *kanji* in contexts rather than in isolation, and it helps pupils to become aware of effective expressions and text organization. The approach is based on the idea that repeated practice of established forms builds a foundation for self-expression. (Kubota 2001, 100)

However, repeating *kanji* also means learning the concepts they represent. Kubota (ibid, 101) recalls how she developed in literacy:

> *"When I was in junior high school (from the seventh to the ninth grade), writing increasingly became a support skill for learning the content of subject matter such as social studies and science. My social studies notebooks are filled with definitions of terms, summaries of historical incidents and so on. (…) … writing was not only for academic but also for social purposes."*

Rather than being a specific writing assignment in the Japanese language class, writing *kanji* is an important aspect in essay tests on world history, ethics and philosophy, for example, and writing has become an increasingly important part of socialization. Kubota (ibid, 102) recalls how she exchanged with her peers what was called 交換日記,'exchange diary', which was written casually in a notebook and circulated among a specific group of friends.

The Capacity to Learn and Learning Intent

Earlier discussed earlier (Chapter 3.7) Hamel's (1990, 91) idea that the *capacity to learn* is based on learning *intent*. It is claimed in this study that achieving literacy as the primary tool for organizing knowledge has a twofold influence on learning capacity: *(1) types of scripts in the native language determine the individual's potential (transparency) to learn; and (2) the desire to learn (intent) reflects the general attitude towards learning assumed in the process of learning to read and write.*

March and Olsen (1979, 60) pointed out that learning was a form of attitude formation. Cultural models (understanding of the world) influence attitudes towards learning. Ogbu (1992, 535) refers to a study of Black American high-school students according to which many behaviors associated with academic achievement (speaking standard English, studying long hours, striving to get good grades) are regarded as "acting white", which produces a negative attitude toward learning.

In the West, we seem to prefer easy learning and fast memorization. 'Complex and difficult' have negative connotations, although one might think that the bigger the challenge the more one can learn. For some reason we build our muscles in gyms, but select the easy way for our brain (by using calculators, the memory function in mobile phones, and so on). We seem to value:

- *Learning more quickly*: Jean Piaget complained that Americans nearly always asked him the same question (what he called 'the American question') about his work: "How can children be accelerated through your stages of cognitive development?" (Robin et al. 1989, 173). American parents are very keen to know if their children have been taught to read at preschool.

- *Selecting the easy way*: Duke (1986, xvi) compares Japanese school with American schools and quotes in his preface a social-studies teacher in one of the leading high schools in southern California saying that her

students read very little and only few make an effort to prepare for the SATs (the Scholastic Aptitude Test used as a critical measure when selecting students for university entrance).

Comments by experts on Asia about the Chinese and Japanese writing systems reveal more about the Western attitude than about the writing system itself.

Varley (2000, 37) notes:

> *"...the Chinese are among the world's greatest record-keepers. They revere the written word, no doubt even more so because of the evocative nature of their ideographic script, and they transmitted this reverence for writing to the Japanese at an early date."*

Thus he is suggesting that there is something weird about respecting a conceptual system represented by Chinese characters.

One of the leading Western experts on Japanese culture and history, Edwin O. Reischauer (1989, 28-29), wrote:

> *"Had Japan been the neighbor of some Western or South Asian country using a phonetic script such as our own alphabet, the Japanese would have quickly learned to write their native tongue with efficiency and ease. Unfortunately, geographic accident decreed otherwise, and the Japanese were burdened with the most cumbersome of writing systems. Like the youth of China, the young people of Japan were sentenced generation after generation to years of mentally numbing memory work simply to learn the rudiments of writing."*

Certain Western experts on Japanese literature consider the Japanese writing system 'cumbersome'. Indeed the West has suggested several times that the Japanese should start using a more simple system:

> *"After the end of the Second World War a mission consisting of twenty-seven American educationalists recommended to General MacArthur a drastic overhauling of the Japanese education system. They called especially for the abolition of the 'Chinese-derived ideograms', since otherwise Japan could never hope to achieve technological parity with the West!" (Daw 1995, 24).*

If we agree that Japanese is the most complex written language in the world today, we might like to know why the Japanese insist on keeping such a system. There is certainly the historical link (discussed in the next section) and the aesthetic dimension, but even just as a learning exercise, achieving literacy in Japanese extends one's capacity to learn. While learning the concepts one also learns how to process new knowledge in a very special way.

4.4 The Literary Tradition as Collective Memory

The effects of literacy are both direct and mediated. Literacy was discussed earlier as an activity on the individual level. However, the literary achievements of a society also have an impact on cognitive capacity and skills.

The development of writing and increased literacy in a society shifts the focus from the auditory sense to the visual, which is a slow process. Foster (1965, 167) remarks:

> *"Usually the desire to read and write comes late in the development of peasant society. Villagers do not look upon literacy as an abstract thing that is good per se. It is something that takes time and hard work, and when it is achieved it has no meaning for most people."*

Medieval readers in Europe, even highly 'literate' ones, read aloud or inwardly recited the text. Because the written word was dominated by the spoken word, forms of recognition and retention were auditory; language was fixed and operative through *acoustic images*. (Ong 1982, 38)

Although literacy may initially be part of life for only the privileged few, native literature accumulates over years and builds on the nation's literary tradition. Chinese characters form an uninterrupted history dating back perhaps even to 6500 BC (Keightley 2003). The prehistoric symbols on tortoise shells found in Jiahu are still recognizable by modern Chinese or Japanese readers. Thus the Chinese characters can be said to carry the collective memory across generations in China, Japan, and Korea.

Comparing themselves with the Chinese in their long historical traditions, the Japanese often consider their own literary culture relatively new. However, for over a thousand years the Japanese have been building their own literary traditions, which have influenced the ways in which modern Japanese conceive of the world.

The history of Japanese writing started in the 4th and 5th centuries, when Chinese characters were introduced to Japan through Korea. Religion (Buddhism) also had an important role in promoting literacy. Initially it was only a small circle of Koreans, Chinese immigrants, imperial family members, and aristocrats who were literate. However, they were soon joined by Buddhist monks and priests, who started teaching reading in temples. Chinese-style centralized bureaucracy during the Taika Reform (645-649) required many literate bureaucrats, and an institute called *Daigakuryô* ('the University') was consequently set up in Nara. This was where about 430 sons of the nobility were educated in Confucian literature. Each province also had *kokugaku* ('national learning'), through which the sons of the provincial nobility were educated. (Taylor & Taylor 1995, 364-365)

The earliest Japanese writings were two history books (*Kojiki*, 古事記, Record of Ancient matters, AD 712; *Nihon Shoki*, 日本書紀, Chronicle of Japan, AD 720) written in Chinese characters. The Japanese oral tradition was chronicled in *Manyôshû* 万葉集 (Collection of a Myriad Leaves), an anthology of ancient poetry, in ca. 750. It was also written solely in Chinese characters, most of which were used phonetically to represent the Japanese language.

The Tale of Genji (Genji monogatari, 源氏物語) is considered the first mature novel written in Japanese: a woman in the Heian court wrote it in the early 11th century. It tells of love affairs and life among the nobility and was written almost entirely in *hiragana*, which had been developing since the 8th century.

As early as in 828, the renowned monk Kûkai set up a private school in Kyoto for the children of commoners. Although the school was open for only a few years, it represents the role that monks played in spreading education among commoners during the Nara (710-794) and Heian (794-1185) periods in Japan. (Taylor & Taylor 1995, 365)

At the beginning of the Edo Tokugawa period (1600-1868), literacy was still prevalent only among a small group of special people, such as Buddhist priests, who tutored the children of noble families. Various types of schools were established for various social classes (from samurai to farmers, artisans and merchants) later in the period, and this started the dawn of Japanese literacy. (Taylor & Taylor 1995, 366) The sons of the samurai were first taught basic reading and writing skills at home or in simple schools, and then they entered special-domain schools (*hankô*). After the mid-Edo *terakoya* period, the children of commoners were taught reading and writing, and the use of abacus, at private community schools estimated to have been attended by about half of all children in prosperous regions (Taylor & Taylor 1995, 366-367).

Virtually all samurai, most townsmen, and well-off peasants were literate by the end of the Edo Tokugawa period: 45% of men and 15% of women could read and write by the mid-19th century. The Ministry of Education was established in 1871, in the Meiji era, and the modern national system of education was introduced the following year. Finally, after World War II in 1947, compulsory and free education was extended to nine years, and a survey from 1948 found that complete or partial illiterates comprised only around 2% of the population (Taylor & Taylor 1995, 368).

The Finnish Literary Tradition

Finland has existed as an independent nation only since 1917, and the literary history of the native language spans only about one hundred years. Although the oldest texts in Finnish date back to 1548 (New Testament), it took over 200 years before the first novel was published, and much longer to establish literary

traditions. The Lutheran Church took care of literacy in old Finland (as part of the Swedish kingdom), and the Bible was translated into Finnish in the 1640's. It was reading that was considered meaningful, not writing. The Church required the ability to read as a prerequisite for getting married. In practice, reading meant knowing the alphabet and passing a test of reading aloud (or memorizing?) Catechisms.

One of the earliest Finnish novels describes the process of learning to read through the experience of seven brothers. The first professional writer publishing his works in Finnish, Aleksis Kivi, wrote *Seven Brothers*, which was originally published in 1870. His father, Erik Stenvall, was a literate tailor who had learnt Swedish, the language every educated Finn spoke before the Finnish-language culture was fully developed. Kivi also acquired complete mastery of Swedish. However, in the wake of the national awakening he translated his Swedish surname (Stenvall, 'stone-bank') into Finnish (Kivi, 'stone').[45]

There were even a few ordinary people who could write in the 17th century, although only 12 percent could do so in 1880, and 38.6 percent at the turn of the 20th century. First they had to argue for the benefits of writing, which was evidently not useful in itself. The start of communal bureaucracy, freedom of trade and the Diet institution advanced writing skills. Women entered the world of writing in Finland later than men and it was only with compulsory education that the ability to write became widespread. Emigration created a need to keep contact with those who left the home country. (Makkonen 2003)

The *Kalevala* is the Finnish national epic, compiled by Elias Lönnrot (1802-1884) from ancient oral poetry. The material, old Finnish ballads and lyrical songs depicting "the sons of Kalevala", was published in two editions, first in 1835 with 35 cantos, and the enlarged edition with 50 cantos in 1849. Lönnrot's aim was to arrange the mythological and other poems in a single volume, comparable to the Icelandic *Edda*, and to tell of past heroes as Homer

[45] http://www.kirjasto.sci.fi/aleksis.htm accessed on 13.11.2003

cic in the *Iliad* and the *Odyssey*. The *Kalevala* itself is based principally on poems collected from the Finnish-Karelian borderzone. Lönnrot made three journeys to Archangel Karelia between 1831 and 1835 to collect materials, which he made into an epic whole. The revised *Kalevala* was augmented with the new material that Lönnrot and other collectors had amassed since 1835.[46]

It has been noted that the early mid-19th-century writings by ordinary Finns came alive when read aloud. This points to a difference between the oral and the written words, which began to emerge in Finland only about a hundred years ago, when less than 40% of Finns knew how to write!

Cognitive skills and literary tradition

The Japanese language started to be written as early as in the 8th and 11th centuries. Although the ability to read was not a common skill until the end of the 19th century, over 1,000 years of literary tradition must have shaped the Japanese cognitive strategy. As literacy became more common, the old literary sources became widely known and influential. Even the oldest novel, 源氏物語 (The Tale of Genji), is still alive in present-day Japan, also in the form of animations. It is still read and understood by the Japanese. The language and literary tradition kept alive for centuries has influenced Japanese literary development.

The cognitive aspect of Japanese thinking has its roots in the early history of Japanese writing. First, the introduction of a foreign script that was quite unsuited to the Japanese language raised certain suspicions about written language itself. *Kotodama* (ことだま, 'spirit of language', which meant oral Japanese or later Japanese written with hiragana) was thought to be the only pure form of the language. Japanese was originally the language of an oral culture: it had a wealth of vocabulary denoting aesthetic and emotional states of mind. The application of a logographic script allowed the preservation of these

[46] http://www.kirjasto.sci.fi/kalevala.htm accessed on 13.11.2003

rich expressions, because Kanji was used as a visual pointer or reminder in much the same way as knots or beads can be used.

Using an ambiguous script also created the skill of reading between the lines: in the early stages, reading Chinese characters in Japanese required jumping back and forth in order to create the Japanese sentence order. The meaning and pronunciation of Chinese characters varied, and still does, according to the context, and thus interpretation in the appropriate context is vital.

The Japanese used Chinese technical terms written in Kanji to adopt the already highly advanced conceptual knowledge of Buddhism and Confucianism. According to Nakamura (1987, 185),

> *"Japanese presents difficulties for logical expression, which has to be exact, and, as is generally pointed out, its non-logical character naturally handicaps the development of ability in logical thinking among Japanese people, and has actually brought about grave inconveniences in their practical lives."*

He continues: *"Again, in translating the concepts of Western learning, the Japanese used Chinese characters and did not render these concepts into pure, original Japanese directly."* It could be argued that there was no need to invent Japanese words for these Chinese terms: Kanji itself was a concept that could be understood and explained in terms of its components. The modern habit of introducing technical concepts by transcribing them from English into the katakana script works in reverse: it is easy to read the word but the meaning of the concept may remain a mystery.

The value of the forms of Japanese expression lies more in their aesthetic and intuitive aspects than in precise logic. The focus of individual thought and expression is on the immediate, concrete details of life. The Japanese way of thinking avoids summations of separate facts into broad statements about whole categories of things, although such abstraction is a prerequisite of logical and scientific thinking. (Nakamura 1987, 191)

The fact that primary literature and literary behavior were cultivated among the nobility in the Heian court added a special sophisticated element. Poetry had a courting function: love letters written in beautiful calligraphy, wrapped in a seasonal hue and scent, were written to disclose a beautiful poem and to hide messages of love. This way of communicating officially in the proper way, and yet sending hidden messages, is still alive in the *tatemae/honne* custom in Japan.

Since literacy was initially a skill of the privileged, the nobility and the samurai, it probably became admirable and desirable. Education is the most important background factor in determining the social class of a person in modern Japan, and about 97% of the population receives 12 years of general education. Achieving literacy in the Japanese writing system is a process that takes a minimum of nine years of compulsory education. The repetition of earlier characters and the adoption of new ones embodies the *kanji* concepts.

Finland, on the other hand, remained an oral culture until the wake of nationalism in the mid-18th century. For Finns in the 17th century, the written language was Swedish or Latin, neither of which was accessible to the common people. The nobility used Swedish (or French, German or Russian) and focused on relations across the Gulf, there being no privileged group akin to the Japanese court to enhance the development of the Finnish literary tradition.

The brevity of the literary tradition in Finland may explain why the Finns can adopt new rules and regulations relatively easily: if there is no a heavy tradition of doing things in a certain way, one is more willing to adopt new ways. This can be seen in the way Finland has, as a member of the European Union, followed literally all EU standards and regulations. Even the concept of 'cultivated people' has been under change in the modern information Society.[47] The new definition of a 'cultivated person' stresses the use value of education and learning - the necessary knowledge and skills for working life. Classical cultivation (world literature and good manners, for example), growing as a

[47] See, for example, Development Plan 1999-2004 for Research and Education published by the Finnish Ministry of Education.

human being, and even knowledge itself, are no longer valued to the same extent. Instead, media literacy and the ability to use information and communications technology (paying your bills by computer, using the mobile phone) are considered even more important than formal education.

Finnish written texts were, and still are, more non-fiction than fiction, which emphasizes literal understanding of the written text. Even old texts such as the Bible have been rewritten (retranslated) into modern Finnish to increase transparency and to lessen the need for interpretation.

The similarity between the Japanese and the Finnish history of literacy lies in the fact that both nations acquired a script from a developed literary culture unrelated to their own. Thus on the societal level, the oral culture was brought into contact with the written culture suddenly. This may have allowed some aspects of the oral culture to exist even as the society transformed into a literate society. Finland has been a literate society only for the past hundred years, and thus the written language does not dominate the thinking process in the same way as in older European civilizations. The Japanese adopted Chinese characters as visual symbols that allowed the oral native language to exist throughout a thousand years of literary tradition. The love of nature shared by the Japanese and the Finns, which is well documented, could be related to this similarity in the role of an oral tradition.

5 KNOWLEDGE CREATION BY ENGINEERS AND POETS

5.1 Finns as Engineers and Japanese as Poets

Cultural differences in language and communication are assumed here to launch different patterns of knowledge creation. These patterns are kaleidoscopic combinations of variability in the nature of language and script, in the concept of the self and receptivity, and in the communication process. I am claiming that each culture has its own unique knowledge-creation style. This study has specifically focused on Finland and Japan, and the knowledge-creation styles considered typical of these cultures are described here as those of *Engineer* and *Poet*.

In the previous chapter I analyzed how language and script, achieving literacy, and the literary tradition influence cognitive capacities and related cognitive skills. I will now combine these findings with the earlier discussion of cross-cultural issues in the SECI Model, and introduce the styles of the Engineer and the Poet to describe how the Finns and the Japanese create knowledge.

I will then analyze the central concepts of knowledge-creation theory. The meaning of tacit and explicit knowledge in Finnish and Japanese reveals the different cultural understandings of these concepts. The resulting knowledge-creation process takes different forms in Finland and Japan.

Empirical data from the Finnish-Japanese business community is presented in the sub-chapters following the processes set out in the SECI model in terms of the suggested cultural knowledge-creation patterns. Critical issues in Finnish-Japanese knowledge creation in international business are identified. The Engineer and Poet styles are shown to have both strengths and weaknesses that constitute both opportunities and threats in international business operations.

Table 14 summarizes the characteristics of Engineers and Poets that constitute the knowledge-creation patterns in Finland and Japan.

Engineers: the Finnish Knowledge-creation Pattern

Finns as Engineers in knowledge creation means that the Finnish knowledge-creation style is linked to the **Western scientific tradition** and **secular Christianity** (Protestant, Lutheran). The Finnish language has characteristics that make it similar to Japanese: it is agglutinative, non-agentic and topic-prominent. The script that is used to write Finnish is based on the Latin alphabet, which is a phonetic writing system. Since sound-to-sign correspondence is very high, the writing could be considered very **transparent**. This type of phonetic script enhances **digital logic**. Finnish is written horizontally from left to right, which directs visual focus to the right eye and stimulates the **left side of the brain**. Since there is **mono-direction** and only one correct spelling of words, the problem-solving approach learned from the script enhances **learning by rule**. Categorization of knowledge in Finnish is **abstract**. Achieving literacy encompasses mastery of a total of 39 signs and takes less than a year for a primary-school first grader. Since this first learning task is relatively simple, it promotes the thinking that learning should be easy and fast. Thus **learning intent** is relatively **low**.

Immediately after learning to read the alphabet, a child can start **creating** its own texts, which reflect the spoken-word experience. Learning in Finnish schools is **abstract and theoretical**: once literacy has been achieved, all other subjects are taught through written text. Even some practical skills, such as cooking (home-economics) are taught through theory. As Gardner (1984, 269) pointed out about Western education:

> *"The context in which the knowledge will eventually be used is overlayed, and indeed, there is a heightened emphasis on presenting materials that are abstract and far removed from the usual locus of practice."*

	Finland		Japan
UNDERLYING WORLDVIEW	Secular Christian (Protestant, Lutheran) Western Scientific tradition		Shinto (animism), Buddhism Chinese Philosophic and Western Scientific traditions
LANGUAGE AND THOUGHT	Finnish (Finno-Ugric)		Japanese
- Oral Language	Agglutinative, Non-agentic, Topic-prominent	⟷	Agglutinative, Non-agentic, Topic-prominent
- Written Language	Phonetic Alphabet		Logographic and Syllabic
Transparency	High		Low
Logic of Script	Digital (Phonetic)		Analogue (Logographic - Kanji) Digital (Phonetic - Kana-syllables)
Directionality	Horizontal, left to right		Vertical right to left and horizontal, left to right
- Information seeking	Mono-directional		Multifaceted
- Knowledge processing	Left brain bias		Symmetrical brain
- Problem solving	Learn by rule		Learn by experience
- Categorization	Abstract, Linear		Concrete, Associative
- Achieving Literacy	Total 39 signs, less than one year		Total over 2,256 signs, minimum 9 yrs
	Simple, easy, sound to sign correspondence		Complex, ambiguous, need interpretation
	THEORY CALLED LEARNING (Linear Logic)		LEARNING BY DOING (Kinaesthetic Memory)
- Learning Intent	Low		High
- Literary Tradition	About 130 years (*Seitsemän veljestä* 1870)		About 1,000 years (*Genji Monogatari* c. 1,000)
CONCEPT OF SELF			
- Orientation to Self and Other	Autonomy: autonomous self, autonomous other	<-->	Mirror: Negotiated self, autonomous other
- Modes of Individualism Collectivism	AGGREGATE Mode of Individualism		RELATIONAL Mode of Collectivism
PERCEPTUAL AND SENSORY PERCEPTION	Verbal, low volume; physical separation	<-->	Nonverbal; feeling-based
	Interpersonal		Interpersonal
COMMUNICATING KNOWLEDGE			
- Communication Orientation	SENDER		RECEIVER
- Communication Mode	Succinct Mode (Passive Silence)	<-->	Telepathic Mode (Active Silence)
KNOWLEDGE CREATION STYLE	ENGINEER		POET

<--> Some similarity ⟷ Similarity

Table 14: Summary of the Knowledge Creation Patterns in Finland and Japan

it is assumed that such 'decontextualization' ensures greater generalization and better 'transfer of learning' than traditional modes of learning can achieve. For Finns, literacy is the starting point for **theoretical learning** and enhances **linear logic**. The Finnish literary tradition is only about 130 years old: although texts in Finnish have existed since 1548 (the New Testament translated into Finnish by Mikael Agricola), indigenous literature emerged only in the 19th century. This indicates that Finnish culture is still closely related to oral culture, and thus the influence of script on knowledge processing may not be as strong as in more traditional cultures.

Finns are extremely **individualistic and independent**. Their orientation to the self and the other could be described in terms of autonomy: both the self and the other are considered autonomous entities. Finnish individualism is of the self-contained type, which is typical of the Aggregate mode: abstract principles, rules and norms provide the mechanisms for unrelated individuals to interact with one another. This type of individual is not keen to share knowledge with others. Child-rearing in Finland fosters **physical separation** and **low use of verbal messages**, which may be compensated by direct perception of the natural environment. Finns are **space-oriented** in their communication, but keep both verbal and nonverbal messages **succinct**. There are long silent periods, but these are passive breaks. The general communication mode could be described as **succinct**, which refers to avoidance.

In sum, the Finnish knowledge-creation pattern could be described as the **Engineer style** because it resembles the approach that an engineer has to knowledge: exact abstract knowledge based on digital linear logic is communicated succinctly and clearly, avoiding any ambiguity. What is more, the organization of Finnish society as a whole is based on the engineer's style accuracy and rationalism. Not only are the contents of higher education focused on an engineering type of education, technology is also emphasized in teaching methods and research approaches (see, for example, Castells and Himanen

2001). The Finnish national strategy for education, training and research in the information society 2000-2004 states:

> *"The Finnish solution to raising the level of knowledge is the wide application of information and communication technologies in education and research. This not only means the integration of technology with traditional modes of operation but also the establishment of an entirely new operational culture. A key factor is the implementation of new, interactive teaching and study methods."* (Ministry of Education 2004)

The higher-education system in Finland as a whole offers openings for 68.4% of the relevant age group (universities 31.4%, polytechnics 37%). Polytechnics also arrange programs for mature students. In 2003, 27% of all tertiary-level students in Finland were studying technology and engineering, in addition to other disciplines applying an 'engineering type' of knowledge processing (such as Economics and Accounting in Business Schools). In comparison, humanities were studied at the tertiary level only by 9.4% of all tertiary-level students. (Ministry of Education 2004)

The values of one Finnish company that has become multinational also reflect the Engineer style of knowledge processing in an 'open and honest spirit at the workplace':

> *"Nokia is straightforward when dealing with customers and suppliers.... We provide individuals with a platform for personal growth in a challenging environment with a clear vision, goals and shared management principles - the Nokia Way." (Nokia 2004)*

Poets: the Japanese Knowledge-creation Pattern

The notion of **Japanese as Poets** in knowledge creation here arises from the idea that the poetic processing of knowledge is based on visual images and associations. The underlying worldview in Japan is based on **animistic** views in Shinto, which have integrated with **Buddhist** concepts stressing the unity of all living. When Buddhism was introduced to Japan, the Japanese replaced the abstract thought it incorporated with indigenous belief systems. For example, there is a concept of paradise in classical Indian Buddhism according to which a person who attains enlightenment through ascetic practices will pass after death into the "*Pure Land*", located *"to the west of ten trillion Buddha lands"*.

When this Buddhist concept entered Japan through China and Korea, the Japanese located the distant paradise in the mountains, which were already the resting place of the spirits of dead according to the Shinto belief. (Yamaori 2003, 45) This reinterpretation of original Buddhist thought began as early as in the Heian period (794-1185). The philosophic tradition in Japan rests on ancient Chinese philosophies such as **Confucianism and Taoism**, and **Western scientific traditions** have been adopted in industrial and technological development. (Sugimoto and Swain 1989)

The Japanese writing system is a combination of logographic *Kanji* (Chinese characters) and two sets of syllabaries, and the phonetic alphabet is used along with Arabic numerals. This complicated writing system is highly **ambiguous** (low on transparency) and embraces analogue logic along with the use of digital logic. Furthermore, the direction of the script is **multifaceted**: both horizontal and vertical script are often combined in the same text, and books open from either cover: one learns by experience on which part to concentrate.

Kanji comprise a conceptual system allowing **concrete categorization** and **associative logic**. The *Kanji* link the Japanese history of literacy with China, and the indigenous literary tradition also dates back over 1,000 years (the first Japanese-language novel, which is also considered the first novel to appear in the world, was 源氏物語, The Tale of Genji, in c. 1,000). Achieving literacy in Japanese denotes learning over 2,256 signs with a variety of readings and meanings in different combinations, which takes a minimum nine years of compulsory education.

Achieving literacy in the Japanese writing system (which combines both the logographic and the phonetic script and uses two script directions), *stimulates a high interest to learn and increases receptivity to learning*. There is a tradition of a deep love of learning as a legacy of the Tokugawa period (1603-1868), when the scholarly profession was respected often despite poverty. (Sugimoto and Swain 1989) The Japanese script promotes **analogue logic**, and the alternating

vertical (right to left) and horizontal (left to right) directions also make information seeking **multidirectional**. Processing *kanji* is said to promote a **symmetrical brain** (as opposed to bias for either side of the brain). Because of the need for constant interpretation according to the context in Japanese writing, problem solving also focuses on **learning by experience**. Categorization is **concrete and associative** since *kanji* have a visual meaning and generate an associative network.

Yamada (1997) notes that, although Japanese children are supposed to be able to read and write the minimal set of 1850 *kanji* (that has been adopted for standard use by the Ministry of Education), they are not able to do so by the end of compulsory education. In practice, this means that the Japanese must **tolerate ambiguity** in their native writing system since they cannot always be sure of how to pronounce the characters. They are never able to master it fully, which makes them **humble** toward learning and fosters **high learning intent**. It also makes them **good at guessing**, in a similar way as some people with reading difficulties in Europe have been reported to have managed in modern life by guessing what written texts have meant (or have become very innovative in finding out the meaning of written texts by other means, for example by claiming poor eyesight, and having others state their opinions first in a meeting and by acting as spokesmen).

The Japanese writing system embraces *flexibility* in approaching a new problem (or book or page), because there is no fixed idea of where one should start (books open from both sides, text runs in different directions). The Japanese adopt **learning by doing**, because memorizing *kanji* happens in the long run only by physical repetition: one could even talk about ***physical memory*** (or **kinesthetic memory**), or the 'memory of the hand'. The fact that even the writing system is mastered through physical practice means that there are more *concrete* approaches in other subjects as well: mathematics is one example.

When a major mode of learning consists of following a model (as in writing kanji), it is not surprising that this mode is carried over to other tasks as well. Many westerners consider the Japanese and Chinese habit of 'learning by model' plagiarism, and this is one of the issues causing trade disputes between East and West. The West jealously holds on to the individual creations within a narrow area and takes the teacher's role, whereas the East is an ever-curious child imitating the good and the bad, with a strong desire to learn.

Copying is not as unknown in European history as we might think. The scholars and copyists of the Middle Ages took liberties with the texts of 'authors' (such as Aristotle, Saint Thomas, Galen and Ptolemy) that would be unthinkable today. The 'authorities' did not consider a set of texts as belonging to a particular person's authorial property (Hirst & Wooley 1982, 40).

A recent newspaper article[48] accused the musician Bob Dylan of plagiarism. A Japanese book on yakuza (gangster) by Junichi Saga inspired him to write a song, and some foreign English teacher in Japan had noticed the resemblance of the words in Dylan's songs to what was in the book. The article ends by noting that Saga was flattered by the interest shown by Dylan and he was happy about the fuss, which had increased the sales of his book. Johansson and Nonaka (1996, 100) also note that *"...in Japan imitation is clearly the sincerest form of flattery, and perfect imitation is something that seems to come naturally to Japanese from their early education..."*.

For the Japanese, it is not so important to have individual credit for innovation. A book may be written by a team without the name of any of the team members appearing on the cover, which would carry just the name of the team and of the organization (see, for example, 日本型システム 1992).

The Japanese **concept of the self** is **fluid**: the self mirrors the other and is thus negotiated in each context, whereas the other is considered autonomous. The

[48] Helsingin Sanomat 12.7.2003, B2, "Dylania epäillään plagioinnista".

Japanese **relational mode of collectivism** indicates a porous boundary between in-group members that allows thoughts, ideas, and emotions to flow freely, and focuses on the shared relationship. It is well suited for sharing tacit knowledge within a group. The Japanese group is based on 'oneness' rather than 'sameness'. Relationships between people are founded on **emotional dependence**.

Japanese child rearing emphasizes presence and feeling through all of the senses. Verbal communication is discouraged. As a result, Japanese communication is characterized as telepathic, based on nonverbal messages and active silence. It is **receiver-oriented**, which stresses listener skills and perceptiveness.

Finnish Engineers and Japanese Poets, the Japanese cannot be compared considering enrolments in different fields of study: the aim of Japanese universities is not to train specialists, but to facilitate networking before students enter working life in companies that offer in-house training. Thus the difference is not only in what is studied but in *how* it is studied. The major subject of study at university is not an important criterion for recruiting fresh graduates.

Japanese society could be described with good reason as a 'poetic' society in the way ordinary people approach everyday things: even TV commercials often take the form of short poetic stories, such as Suntory whiskey commercials. In Japan's Heian Era, writing poetry was the major preoccupation of court members, and poetic forms were used to transfer secret messages between lovers. The poems could be read on two levels: the official level opening as a well-versed seasonal poem, and the underlying level carrying another meaning that was comprehensible only to those concerned.

Japanese poetry has existed for a over thousand years, and is still read and written both by ordinary citizens (including children) who might follow a course on poem writing at the NHK (Japan Broadcasting Corporation), and by the Imperial family: 和歌 *Waka* poetry is composed by the Emperor and Empress of

Japan and members of the Imperial family on the occasion of the New Year's Poetry Party at the Imperial Court.

In all possibility every Japanese person has written a *haiku* or *tanka* poem at least once in their lives. Japan has been dubbed a nation of 100 million poets (the total population is 127 million). A nationwide contest for 17-syllable *haiku* and 31-syllable *tanka* sponsored recently by the NHK, had more than 120,000 entries (Asahi Shimbun 2004).

5.2 Concepts of Tacit and Explicit Knowledge in Finnish and Japanese

Hiljainen and Eksplisiittinen Tieto

Since Polanyi's books have not been translated into Finnish, there is no historical background in using the terms tacit and explicit knowledge in the Finnish language. Most researchers in International Business and related fields write in English, so there has been no need to translate these concepts into Finnish. Even researchers who recognize and discuss the importance of language and concepts in knowledge management neglect the analysis of different meanings of the key concepts in different languages (see, for example, Tuomi 1999).

What an analysis of dictionary definitions of tacit and explicit brings out is that we understand in Finnish the two concepts not as exact opposites, but as two different if related terms. The English word 'tacit' is translated into Finnish as '*hiljainen* (cuiet), *äänetön* (lit. 'soundless', silent), *sanaton* (lit. 'wordless', nonverbal)': all of which seem to refer to a lack of words, the lack of speech (Hurme-Pesonen 1982). The term '*hiljainen tieto*' (lit. 'quiet knowledge') seems to have become established in Finnish vocabulary, whereas there is no consensus on how 'explicit knowledge' should be translated. Although

creativity and intuition have been under discussion in Finnish for a long time, the term '*hiljainen tieto*' is a relatively new concept.[49]

The dictionary defines explicit as '*selvä* (clear), *tarkka* (exact), *täsmällinen* (precise), *nimenomainen* (definite), *selvään lausuttu* (clearly spoken)' in Finnish (Hurme-Pesonen 1982). The word '*täsmällinen*' (precise) has been used for explicit knowledge by the Finnish mass media[50], but other variations exist. Since most of the researchers in this field in Finland write in English, it is difficult to know what Finnish translations they might prefer. Interestingly, some front-line Finnish researchers have recently decided to use the loan word '*eksplisiittinen*' when referring to explicit knowledge.[51] What does the selection of *hiljainen tieto* for tacit knowledge and *eksplisiittinen tieto* for explicit knowledge in Finnish translations disclose about the meaning of these concepts and the knowledge-creation process of the Finns?

The meaning of *hiljainen tieto* can be understood from the different meanings attached to the adjective *hiljainen* (Nykysuomen sanakirja 1996). Commonly understood as concerning *sound and sounding*, *hiljainen* means *äänetön* (silent), *vaiti oleva* (being silent); *heikosti kuuluva* (low voice), *meluton* (noiseless), and *vähä-ääninen* (of little sound). Thus the Finnish meaning of tacit draws attention to the *auditory sense* channel, hearing, and coding is somewhere between auditory and non-auditory, making it low volume.

However, *hiljainen* also has other meanings. It refers to *behavior* as *tyyni, rauhallinen, vaatimaton, hillitty* (calm, tranquil; quiet, still; modest; restrained). These are all favorable characteristics for a Finn and they indicate a low degree of something. In general, the expression of (joyful) emotions has not been part of accepted behavior in Finnish culture: "*Tulee se mies räkänokastakin, vaan ei turhan naurajasta*" (even a snotty-nosed child will become a man, but one who laughs for nothing will never do so).

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[49] Nurminen (2000) also uses 'hiljainen' for tacit in her Finnish treatise.
[50] Talousanomat 11.3.2000, Eeva-Liisa Pere: *Hiljaisen tiedon lähteillä.*
[51] Discussion with Dr. Marjatta Maula 16.6.2005.

Hiljainen also refers to *communication* as *sanaton* (wordless), *sanoin ilmaisematon* (not expressed in words). Silence has traditionally been preferred to speech in Finnish communication, as the old proverb "*Vaikeneminen on kultaa, puhuminen on hopeaa*" (silence is gold, speech is silver) suggests. Taciturnity is valued in Finnish culture.

Another major meaning of *hiljainen* concerns *movement and happening: hidas, verkkainen, vitkallinen, vähittäinen, vähäinen* (slow speed, tardy, sluggish; gradual; minor, diminutive): "*Hiljaa hyvä tulee*" ('good comes slowly' - when you work slowly the result is good). In some Finnish dialects *hiljainen* also refers to *myöhäinen, myöhästynyt* (late, delayed): "*Hiljaista on hiiren haukotella, kun on jo kissan suussa*" (It is too late for a mouse to yawn when it is already in the cat's mouth). Again these meanings indicate a low degree of something rather than the absence of anything.

The use of *eksplisiittinen tieto*[52] for explicit knowledge in Finnish could be considered somewhat typical of Finnish academics. By selecting a loan word we can avoid searching for a meaning in the Finnish language and achieve exact correspondence with the English word. As a loan word the concept becomes very abstract and it is difficult to define it by using Finnish. The dictionary of Modern Finnish explains 'eksplisiittinen' as 'clearly and in (full) detail explained, something of which the whole meaning has been fully explained'.[53] Its antithesis is given as 'implisiittinen' (implicit), 'included in something, something from which something can be derived or which has not been visibly or definitely expressed'.[54]

Since tacit and explicit knowledge are often contrasted, we could get a deeper meaning of *eksplisiittinen* (explicit) in Finnish by looking at the antithesis of tacit, (*hiljainen*). Table 15 gives the opposite of *hiljainen* (tacit, low volume) as

[52] x becomes ks in Finnish, similarly as in 'experimental' which is 'eksperimentaalinen'.
[53] Nykysuomen sanakirja 1996, 198: "selvästi, seikkaperäisesti esitetty, sellainen, jonka koko merkitys on täydesti ilmaistuna".
[54] Ibid, 653: vastakohta: implisiittinen = johonkin sisältyvä, sellainen josta jotakin voidaan johtaa tai jota ei ole näkyvästi tai definiittisesti ilmaistu

something auditory (high volume). *Äänettömyys* as the antithesis for *hiljaisuus* could also refer to agitated and bold behavior, or something expressed in words, being part of verbal communication. It could also refer to something fast, advanced, major, or prompt in happening.

HILJAISUUS	- *and its antitheses* (EKSPLISIITTINEN)
Low volume	Auditory (high volume)
Calm, modest behavior	Agitated, bold behavior
Not expressed in words	Expressed in words
- nonverbal communication	- verbal communication
Slow, tardy, minor, delayed in happening	Fast, advanced, major, prompt in happening
LOW DEGREE of S-C	

Table 15: The meaning of *hiljaisuus* and its antithesis in Finnish

Hiljaisuus tieto is linked to Finnish cultural knowledge (oral and literary) through proverbs and it assigns different meanings to the concept of tacit knowledge. The word silent has a positive sound in its different meanings in Finnish culture, but it is not actively used as a source of knowledge. Silence provides private space within communication between persons. *Hiljaisuus* in communication refers to silence as a break in speaking, and the Finns and the Japanese have been considered similar in their tolerance of longer periods of silence. However, for the Japanese the silent breaks are actively used for understanding nonverbal cues, for example for reading the moods of the other person. I would claim that for Finns silence in communication has the meaning of *hiljaisuus* as 'restrained and tardy': the silent break gives time to formulate what to say next, or just to be outside of the talk for a while. Silence is not used actively in Finnish communication for nonverbal understanding.

The selection of the word *eksplisiittinen tieto* for explicit knowledge mirrors the Finnish knowledge-processing style: as with the Finnish writing system, it allows a clear and precise translation of the English word and needs no interpretation in Finnish etymology. A loan word further detaches meaning from reality and becomes very abstract. It reflects the abstract and theoretical learning style prevalent in the Finnish educational system and accepted at the higher levels of

education and academic life. Finns prefer transparency and it is more transparent to use a loan word, especially an English loan word. At the same time, the usage of loan words preserves the multiple meanings that the English word explicit has in Finnish. In general, *eksplisiittinen* is understood as 'clearly verbalized', thus it directs attention to verbal knowledge, both auditory (oral) and nonauditory (written). Since the Finnish communication style encourages silence and brevity of spoken utterances, there is more focus on the written.

In sum, the meaning of tacit knowledge as *hiljainen* in Finnish carries the connotation of a **low degree of something**, whereas explicit knowledge as *eksplisiittinen* puts the focus on the verbal, and especially the **written** (auditory as phonetic script).

明示的知識, 形式的知 and 暗黙的知

Earlier I discussed the development of concepts in knowledge-creation theory as developed by Nonaka. It is worthwhile noting that Nonaka (野中 1990) was using Japanese translations of Polanyi's books, so he could be expected to have understood the concepts in their Japanese meaning.

Explicit Knowledge as 明示的知識

In his Japanese book, Nonaka refers to Polanyi (1966, Japanese translation), for whom explicit knowledge in Japanese is 明示的知識 (articulable knowledge). However, Nonaka (野中 1990) conceptualized explicit knowledge as 形式知.

The meaning of explicit in Polanyi's Japanese translation can be understood from the first two characters: 明 and 示. 日 sun and 月 moon together indicate 'clear, open, bright', whereas the latter *kanji* is a radical, frequently used with the meaning '*related to gods*'. *Show* is an extended meaning, from the idea of the outcome of a sacrifice showing the will of the gods. (Benshall 1992)

The first character is used in 明治維新 *Meiji Restoration*, for example, and in other compounds such as 明快 'clear, explicit'; 明分 'moral duty; justice'; 明記する 'specify'; 明知 'wisdom, intelligence' 明察 'discernment, insight'; and 明鏡止水 'serene frame of mind' (Nelson 1982).

The meaning of 示 is to 'show, indicate, point out, give (an example), signify, display, express', and it is found in compounds such as 示教 'instruction, information'; 示唆 'suggestion';示達 'directions, instructions'; 示威 'demonstration (against something)'; and 展示 'display'.

The combination of these two *kanji* would thus refer to something 'clearly shown', which seems quite close to the English meaning of explicit, although it focuses on vision ('shown') rather than sound ('expressed, verbalized').

Explicit Knowledge as 形式的知

Instead of the *kanji* used in Polanyi's Japanese translation, Nonaka (野中 1990, 56) selected the characters 形式知 for explicit knowledge, which could be translated as 'formalized knowledge' or 'formal (type of) knowledge':

> "特に客観的知識を命題としての言語化・形式化可能性という点に着目してそれを形式知と呼び"[55]

He was considering 客観的知識 (objective knowledge) from the point of view that it could be verbalized (言語化) and formalized (形式化), and thus decided to call this (explicit knowledge) 'formalized knowledge' (形式知) in Japanese.

[55] "if we take the viewpoint that objective knowledge has a proposition that can be verbalized and formalized, we can call it formalized knowledge" (my translation)

Earlier he defined tacit knowledge as something that was 非実体的 (not substantial, immaterial), which has the meaning of 形がない ('without form') in Japanese. He is thus suggesting that tacit knowledge has no form, whereas explicit knowledge has form.

形 means 'shape, form, pattern, appearance', as in 人形 'doll' (human shape), for example, and 式 carries the meanings of 'ceremony, rite, function; method, system; style, form, type, plan; formula, expression (in math); mode; law; standard'. These two kanji are learned in early grades at primary school and together they are used in several compounds with the meaning 'form; formality', such as in 形式化 'formalization'; 形式的 'formal'; 形式主義 'formalism, red-tapism'; and 形式美 'beauty of form'. (Hasshi 1992; Nelson 1982)

With his preference for 形式的 instead of 明示的, Nonaka (野中 1990) shifts the attention from merely 'clearly visible' to something that has been 'given a form', that is of 'formal' type. This concept also focuses on something visual, but it emphasizes the organization of the knowledge along some logic in order to make it formal.

Nonaka explains 形式的知, explicit knowledge, as knowledge that is based on 客観的知識, objective knowledge, and that can be given form in language 言語 (words) (野中 1990). The definition of explicit knowledge as objective is also repeated in Nonaka and Takeuchi (1995, 61). Although there is no room here for detailed analysis, I would like to point out that the word 'objective' 客観的 in Japanese has the meaning 'the guest's point of view', whereas subjective is 主観的, 'the master's point of view'. Thus objective and subjective in Japanese are

not questions of subject and object being separated, but rather of two different ways of looking at something.

Tacit Knowledge as 暗黙的知

Both Polanyi's Japanese translation and Nonaka use 暗黙的 for tacit. The first character 暗 is a combination of 日 sun and 音 sound. Its meaning as 'dark' is explained to the Japanese as 日が暮れて音だけ聞こえ暗い夜 (*the sun is gone, only sound is heard, dark night)* and 日がかくされて暗くなる (*the sun hides itself, it becomes dark*). The meaning is given as くらい (dark) and かくれてわからない ('is hidden, cannot be known seen) (漢字学習辞典 1983). Japanese children learn this character in the third grade of primary school. It is used in compounds such as 暗記 memorization; 暗香'a fragrance from somewhere; the fragrance of flowers at night'); and 暗流 (undercurrent).

The second character 黙 ('silence, to keep silent') is not among the Educational Kanji (1006 characters) learned at primary school, neither is it one of the most commonly used 100 *kanji*. Thus it is learned at junior high school. It consists of two parts, which are also independent radicals and are learned during the early grades of primary school: 黒 *kuro-hen*, which means black; and 犬 *kemono-hen* ('hairy'), which means a dog.

Thus the meaning of 暗 and the two radicals in 黙, 黒'black' and 犬'dog' are quite familiar already to the Japanese primary-school pupil. When he or she later encounters the combination 暗黙 these images are still bound to be present somewhere in the mind: "darkness, black dog". When the meaning of 黙る as

'to be silent' is also learned, the meaning of "darkness, silence" will then emerge. What is the meaning of black dog in the darkness?

Different *kanji* compounds using 黙 become familiar to grown-ups and lead the thought from 'keeping silent' toward 'contemplation' and 'pantomime': 黙考 'contemplation, meditation';黙約 'tacit understanding'; 黙契 'secret understanding without speaking'; 黙殺する 'ignore'; 黙劇 'pantomime'; 黙黙 'silent, tacit, mute'; and 沈黙 'silence, reticence, taciturnity'.

According to Nonaka (野中 1990; Nonaka and Takeuchi 1995), tacit knowledge is based on subjective knowledge (which should not be confused with the Japanese meaning of the word as discussed above), and it is 言語化困難性 'troublesome to verbalize'.

In sum, the Japanese concept of explicit means something that has been given a 'form', which is 'formal'. This draws the attention of the visual sense (channel) and coding as 'present'. Since Japanese writing is also visual in character, the understanding of explicit as something verbalized still carries a visual connotation. Tacit, on the other hand, is defined in Japanese in a challenging way as something non-visual (like 暗礁 a sunken rock), auditory ('only sound can be heard') and yet silent. The key to understanding the meaning of tacit in Japanese is embedded in the 'black dog in the darkness': although **non-visual, it is auditory, olfactory, tactile, and with a sense of taste**.

Table 16 summarizes the meanings of the concepts of tacit and explicit in Finnish and Japanese. This comparison identifies the emergence of distinct knowledge-creation patterns that begin to evolve from different understandings of the key concepts. Understanding explicit as something formal and systematic (Nonaka and Takeuchi 1995, 8) is close to the Japanese meaning of explicit as

形式: it *"can be expressed in words and numbers, and easily communicated and shared in the form of hard data, scientific formulae, codified procedures, or universal principles"*. The Finnish understanding of *asiantuntemus* also covers this understanding.

	TACIT	EXPLICIT
In Finnish	HILJAINEN	EKSPLISIITTINEN
Meaning	Low degree of something	Verbal -written
Sensory channels	(LOW)	AUDITORY
In Japanese	暗黙的	形式的
Meaning	"Black cog in the darkness"	Formal, with form
Sensory channels	NON-VISUAL AUDITORY OLFACTORY TACTILE SENSE OF TASTE EMOTION	VISUAL

Table 16: A Comparison of the Concepts of Tacit and Explicit in Finnish and Japanese

The difference between the Finnish and Japanese understandings lies in the concept of tacit. For the Japanese all knowledge is primarily tacit, something "not easily visible and expressible", something that is *"deeply rooted in an individual's action and experience, as well as in the ideals, values, or emotions he or she embraces"* (Nonaka and Takeuchi 1995, 8). Explicit knowledge is only the tip of an iceberg. For the Finns, knowledge is primarily explicit. Subjective insights and hunches are not considered 'real' knowledge. If you do not know the objective, you had better keep silent (*hiljainen*), or maintain a low profile.

Distinguishing between 外 (outer) and 内(inner) is very important in Japanese society. The concepts of 表 *omote* and 裏 *ura*, 建前 *tatemae* and 本音 *honne*, also refer to these outer and inner spheres, and are used in communication as something similar to 'facade' and 'real intention'. The English translation of these terms makes hierarchical oppositions of these dyadic pairs, ultimately as

evil opposed to good, which does not make sense of their Japanese meaning. (Doi 1986; 土居 1985)

The way Nonaka (野中 1990) defines tacit and explicit knowledge fits well into this division. Tacit is the inner knowledge, but unlike in the Western concept of the human psyche, in Japanese understanding it can be shared with other members of the inner group. Explicit knowledge is constructed from these true inner feelings (本音 *honne)* by giving a form to them. 建前 *tatemae* is not just any form, but a proper form in the specific context. Thus formalized knowledge in the Japanese context cannot be fixed and made abstract, but demands interpretation according to the context. In a similar fashion, explicit knowledge as verbal knowledge in written Japanese is bound with the different pronunciations and interpretations of *kanji* in different compounds and contexts.

For the Japanese, knowledge creation is interplay between the explicit (as visual) and the tacit (as non-visual, but full of other sensory perception). What makes their knowledge-creation style 'poetic' is the way of using 'visual images', metaphors, in the externalization process. A **poet** strongly experiences his her environment with all of the senses, and builds up poetry as 'images' with multiple meanings.

The Finns are described as 'engineers' in their attitude to knowledge creation: an **engineer** is interested in technology, which is verbal (or otherwise codified) in a precise form. Facts and objective truths are knowledge to him or her, but subjective knowledge and emotions are of little interest. Only hard data, scientific formulae, codified procedures, and universal principles matter in knowledge creation.

Nonaka and Takeuchi (1995, 11) suggest that "*Western managers need to 'unlearn' their old view of knowledge and grasp the importance of the Japanese view*". I fully agree with them, but as my analysis of the Finnish and Japanese

concepts of tacit and explicit knowledge shows, the different knowledge-creation patterns are deeply rooted in language and in primary knowledge-creation modes acquired at an early age along with the acquisition of literacy. Thus it is difficult to change the acquired patterns, especially if one is not aware of what it is based upon.

Luft's Johari Window in Finland and Japan

I have already applied Luft's (1969) Johari Window to types of organizational knowledge. Tacit knowledge resides on the individual level in individualistic cultures and the individual decides the degree to which he or she wishes to make it explicit. Extremely individualistic Finns want to keep the open area as small as possible (not discussing private matters with their colleagues). For example, religion is part of a very private area and even if colleagues know that you belong to some religious sect, it is never discussed. Private space is separated from professional ego. What is not known to the self but is known to others is by mutual (unspoken) agreement not taken into account.

Figure 21 shows the areas of explicit and tacit knowledge in the Finnish knowledge-creation pattern in accordance with the Johari window. For the Finns, only what is known to the self and to others (OPEN) is part of explicit knowledge. What is not known to the self but is known to others (BLIND) is, by mutual agreement, not considered knowledge: it is thus considered tacit knowledge from the ego's point of view. The BLIND area, which is known to the self but not to others, is also tacit knowledge. What is not known to others or to the self is part of the UNKNOWN area, which could correspond to the collective unconscious of Jung that also represents tacit knowledge. Thus the tacit area (in the Johari window) is larger than the explicit area for Finns. However, the focus is on the explicit in the Finnish knowledge-creation pattern: artists are able to tap into tacit knowledge, which might explain the vitality of Finnish design.

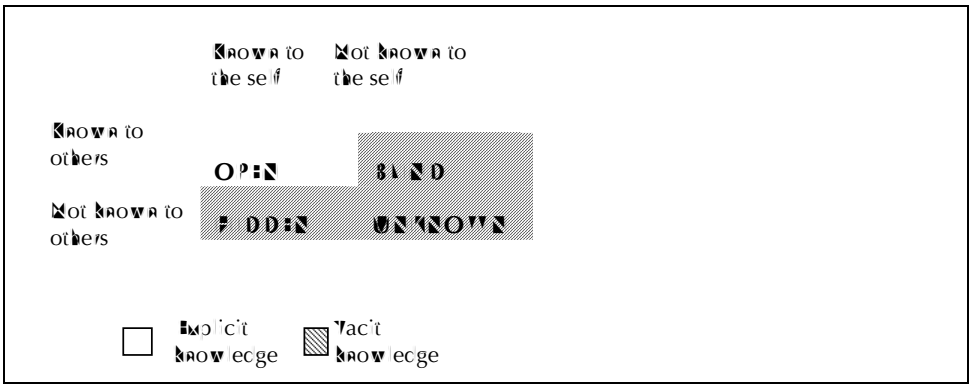


Figure 21: The areas of explicit and tacit knowledge in the Finnish knowledge-creation pattern in the Johari window

Since the Japanese are able to merge the self with the other, the areas known to both become explicit knowledge (Figure 22). Only what is not known both to the self and to the other (UNKNOWN) constitutes tacit knowledge in this sense. This is where the 'black dog' resides.

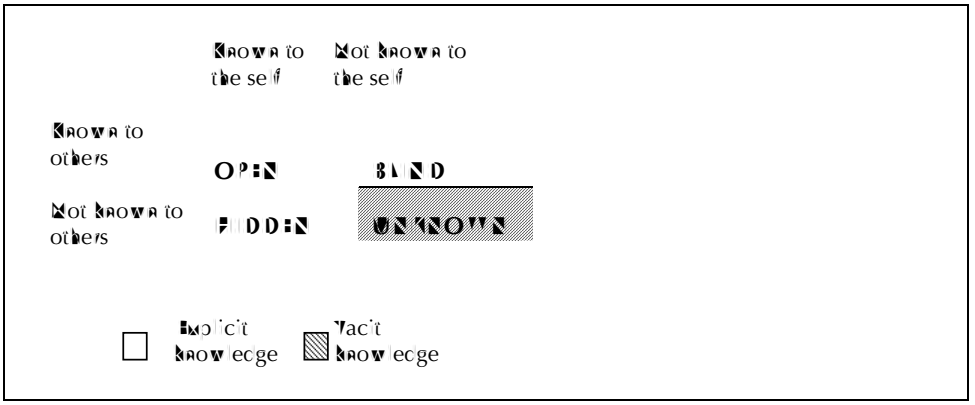


Figure 22: The areas of explicit and tacit knowledge in the Japanese knowledge-creation pattern in the Johari window

I will now move on to analyze the SECI model in the Finnish-Japanese context. I will discuss the typical ways in which Engineers and Poets convert and transfer knowledge, and also comment on how they see each other in the knowledge-creation process. Empirical material from key-person interviews from the 2003 data is supplemented with 1991 data in order to add the longitudinal dimension.

5.3 Socialization by Engineers and Poets

Socialization is conversion from tacit to tacit knowledge. Nonaka and Takeuchi (1995, 62) define it as *"a process of sharing experiences and thereby creating tacit knowledge such as mental models and technical skills"*. They connect it with theories of group processes and organizational culture. However, when we look at cultural differences in knowledge creation, we must bear in mind that there is plenty of tacit knowledge shared as cultural capital by members of the same culture. This cultural knowledge underlies the way we process later experiences. Even organizational culture is based on the national culture (Hofstede 1984; 1991). We do not arrive *'tabula rasa'* at a shared experience with members of an organization, but rather bring along all the tacit knowledge we have accumulated thus far. We already have existing mental models that shape the way we process knowledge.

Tacit Knowledge in Finland and Japan

I have described literary tradition as collective memory. Through literature we can share cultural knowledge and experiences over generations. Although my generation in Finland has not experienced war, I have a feeling of what wartime and the fight for independence were like from listening to the stories told by my grandparents and from reading *'The Unknown Soldier'*[56]. The Japanese are familiar with customs going back over thousand years, such as 'wife-visitation marriage', from reading 万葉集 (宮田 2000), and this shapes their understanding of the modern roles of husband and wife.

Cultural traditions and customs also create a wealth of tacit knowledge. Taking a sauna and swimming naked constitutes a shared cultural experience for Finns, and Finnish men across generations share the experience of army service: this constitutes tacit knowledge that can be understood without words. For the

[56] Translation's title, *The Unknown Soldier*, was published in 1954 by Väinö Linna, a novelist, essayist, and one of the greatest writers of post-war Finland.

Japanese, who have a much longer cultural history, there are several cultural rituals that generate mental models which are part of their shared tacit knowledge. The more we share in the tacit knowledge, the easier it is to communicate nonverbally.

Since the Finnish educational system requires one to specialize quite early, there are several narrow subcultures with their own tacit knowledge, such as 'engineers' and 'architects'. Specialists tend to focus only on their own field. On the other hand, the Japanese education system produces generalists: the twelve years of school education provide a firm common cultural background. Generalists are interested in many things.

The English word 'socialization' associates in Finnish with socialism, especially when it is translated as '*sosialisaatio*'. Perhaps a better word would be '*seurustelu*' (association, entertaining) which means spending time together in some activity (which is not goal-oriented). Working time and off-work time are strictly separated in Finland and people may not want to have anything to do with their colleagues after working hours (Karppinen-Shetta 1996). Private time is for one's friends and family. Small talk and rules of etiquette have always been a painful exercise for work oriented Finns, thus one could say that socialization as conversion from tacit to tacit knowledge takes place at work only on the individual level.

Nonaka (野中 1990, 61) calls the process of socialization 合同化 in Japanese. 合同 can be translated into English as "combination, union, merger, fusion". Kenkyusha's Dictionary (1983, 342) defines a verb derived from it (合同する) as "to unite (in one body, with others); merge (in something greater)". Thus the Japanese concept of socialization implies that the individual level will merge with the group level, and unlike the Finnish knowledge-creation pattern, socialization takes place on both.

In the Japanese context, the transfer of tacit knowledge takes place, between mother and child, or master and pupil, for example, such as in learning *origami* or the tea ceremony: *"Tacit knowledge can only be shared in direct experiences, which go beyond individuals"* (Nonaka, Toyama and Konno 2001, 21).

Japan is a relatively homogeneous society with small differences in income. Working time is not strictly separated from off-work time, and in order to avoid commuting in rush-hour trains, some people might select to keep company with their colleagues at the office or in a pub. (Karppinen-Shetta 1996) This gives plenty of time and opportunity for sharing experiences daily.

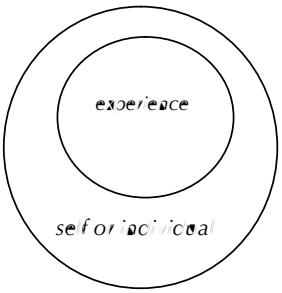
The Self in the Cross-cultural Perspective

It is vital to understand how the concept of the self varies in different cultures. The idea of clear boundaries of the self, separating the individual from other individuals and the environment, is a prerequisite for objective knowing. By taking distance we can observe the other and learn about its characteristics. Regardless of the theoretical and empirical approach, the fact remains that the observer and the observed are separate entities. This mode of knowing in the West reflects the alphabetical, phonetic writing system, which distances us from reality. Religion based on the Book (the Bible) may have enhanced this orientation.

The alternative way of knowing prevalent in Japan is based on the interdependent self, a concept of the self with fluid boundaries, which can be extended to contain the other in different contexts. Children under school age in Finland can also sometimes be observed to perceive their environment in this way. After reading a book or seeing a movie or a play, or even just observing a picture with characters (human, animal or inanimate), my daughter has asked 'which one ARE you?', not which one I liked best. She selected one or two that she herself wanted to be, and said that she WAS so and so (note that there may be several identities). In this way she expanded her self to cover these others,

such as a rowan tree, a cog, or a prince. This metaphorical approach to the environment means understanding it by becoming one with it, and thus also gives life to inanimate objects. In an animistic worldview the human self is the integrated part of the whole universe. This is also how inanimate objects can come alive: when you perceive a doll or a pen as an extension of yourself it becomes a living thing. This animistic way of perceiving the world is common in oral societies and has also been retained in Japan, with its special application of the logographic writing system.

The Japanese philosopher Nishida Kitarō *(西田幾多郎 1870-1945)* was dissatisfied with the Western philosophical expressions of pure experience because they grasp it from without and not from within. To him, pure experience was direct experience, in other words experience direct to the subject. (西田 2004; Nishida 1990) The ordinary understanding of experience is that first the self or the individual exists, and then this self experiences something as an object (Figure 23). This perspective is based on distinguishing the subject and the object, which forms the basis of Western scientific thinking.



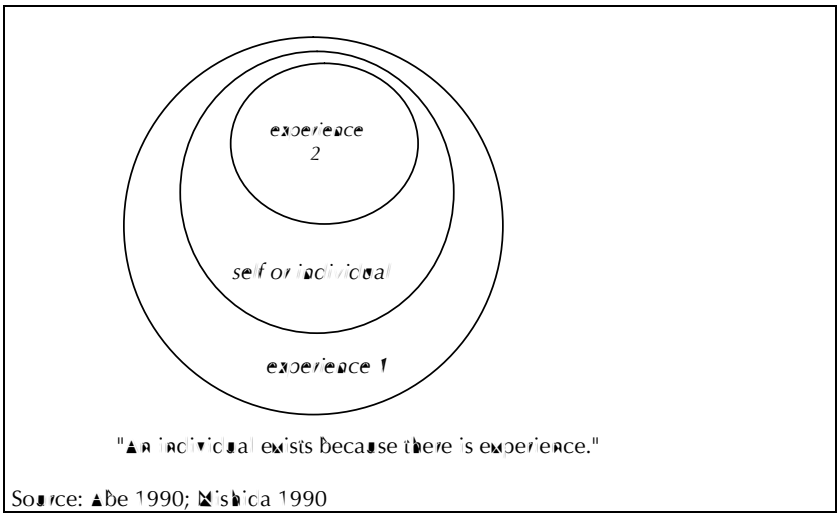
"Experience exists because there is an individual."

Source: Abe 1990; Nishida 1990

Figure 23: The Western understanding of experience

For Nishida (1990; 西田 2004), the self is also experienced. He argues that experience is more fundamental than the individual: "*An individual exists*

because there is experience" (Figure 24). There is direct experience (experience 1 in the figure), which is trans-individual and in which not only things but also the self or the individual is experienced, and then there is indirect experience (experience 2 in the figure), which is experienced by a presupposed self.



"An individual exists because there is experience."

Source: Abe 1990; Nishida 1990

Figure 24: The Japanese Understanding of Experience

The Japanese understanding of experience reflects a world view in which man is considered an integral part of his environment. Human intelligence is not an imprisoned spirit from afar but an aspect of the wholly intricately balanced organism of the natural world. Japanese culture has no conception of a God existing abstractly, completely separate from the human world:

> *"In the ultimate analysis, the Japanese consciousness of the object of religious devotion grows out of direct-contact relations between individuals; it is conceived as an extension of this mediating tie."* (Nakane 1984)

Orientation to the self and the other was discussed earlier (in Chapter 2.5.1). Finns could be considered to represent an extreme type of autonomy orientation: a Finn is autonomous to the extent that he does not need other people. He might belong to some groups, but they are not crucial to his identity or existence. The Finnish service industry is full of examples of this autonomous self-concept: service in Finland means self-service. This idea was captured well

in an outdoor advertisement by a self-service gasoline station chain (Kesoil) at the beginning of the 90's: the slogan was "Muista ystävällinen palvelu. Hymyile tankatessasi." (Remember friendly service. Smile when you fill up).

Communication with others follows this line in that one minimizes what has to be said: for example, on public transportation a Finn buying a ticket will say "vaihto" (change), meaning that he wants to buy a ticket that allows changing to another route, in order not to intrude into the other's autonomy and space. Since no negotiation is necessary with the other, communication is at a minimum.

Finns also expect independence from others. Japanese managers in Finnish subsidiaries in Japan have had to become very independent: Finnish headquarters expect them to manage on their own. One Japanese informant commented:

> *"...and I understood what they are saying...but there were/are no official instructions... OK they treat me as almost a kind of Finnish colleague so ...they let me do...but after all I think I can get along with the way of doing things in Finland or in our company...but it's not so easy for average Japanese to adapt to that system... the Japanese are not used to taking individual responsibility for decisions! ...but in Finnish system we have to make our decision and take our own responsibility by ourselves...that's one of the biggest differences...one of the difficult points... but the responsibility is totally different in this company and my previous company because ...the operation is so small here, I don't have any staff colleagues...one of the difficulties for me is that none of my Finnish colleagues can understand that I have to do everything... that I have to make all the decisions...that is very different than normal case...in Japan also in Finland... impossible to provide any assistance for small local matters so that is a fate...for the local managers to carry on everything or one solution is to buy a consultant service from outsiders then we have to pay more so..." (interview K)*

The Japanese could be considered to represent the mirror orientation in which the other is considered an autonomous whole, and the self is a reflection of the other. This orientation to the self and the other combines one's need for inclusion and association with respect for the other person's need for freedom, space, and dissociation. Doi (1983; 土居 1987) discussed the role of interdependence as a key concept in understanding Japanese society. The concept of 甘え'amae' well explains the emotionalities between people in

Japanese organizations. As another Japanese informant explained, there is an emotional need to depend:

> *"I always feel I want to depend on somebody, that's easy… I always have a feeling that I want to [depend] I feel insecure if I don't have anybody…" (Interview X)*

Emotional understanding is an effective way of transferring tacit knowledge: everybody present is aware of it at the same time and it is felt as much as it is thought. According to Kincaid (1987, 338),

> *"It goes beyond words, or symbolic processing of any kind, to the mutual sharing of feelings about something as opposed to thoughts about it. …It is this difference between feeling and thinking which differentiates the western and eastern perspectives in this regard."*

Sympathy, empathy, and concern for others are considered essential for the Japanese to learn even at preschool (Vogel et al. 1989, 190). They involve themselves in emotional communication but they are taught from early on to control the display of emotions. One interviewee commented:

> *"Yes [the Japanese are emotional], but they don't show it outside, they do it in their own circles" (Interview U)*

According to Ouchi (1981), the focus of Japanese management is on the development of trust. Although Finns do not actively use emotional communication, trust is very important to both them and the Japanese:

> *"Agreement is still between people and not between firms…one has to trust the person…if you are a Finn and coming here for the first time, so how can I trust that you deliver good products…or that you deliver even on time…this guy with whom I have come business for thirty years and our fathers were doing business before this…difficult to get in here…better goods and maybe also lower price …must be able to give reasons why a suitable product, and give reliable picture of yourself and the firm." (Interview U)*

The Japanese individual always exists in a network of human relationships: there is not a clear-cut concept of the human individual and individual as an objective unit like an inanimate thing. According to Nakamura (1987, 182), this means that the Japanese want to locate the individual in experience, not in the abstract:

> *"Largely because of the Japanese emphasis on concrete immediacy in experience, the individual was grasped as a living thing and not as a*

bloodless, inanimate thing in the realm of the abstract. The living individual is always located in various kinds of human relationships."

The Japanese describe this form of human existence as 間人, and explain that it is based on mutual dependence, mutual reliance, and on regarding interpersonal relationships as an end in themselves (日本型システム 1992).

One of the informants commented:

> *"Japanese person is so much influenced by the persons surrounding...they even change the attitude depending of the person around you...we hear KANJINSHUGI [間人主義]."* *(Interview ス)*

The concept of 間人 is written as the reversal of the characters for the human being, 人間. The first character means 'a person', and the second carries the meaning of 'interval, space, opening, and distance'. Thus the meaning refers to 'space between persons', or the contextual, and indicates the need to adapt one's behaviour depending on the people around. Interaction between persons in this contextual style takes place within the life space they both share, and is essentially seen as an end itself because it is an indispensable element in the composition of each person. (日本型システム 1992)

One of the reasons why Japanese companies do not want to send their employees for too long periods of assignment abroad might be that spending time in an individualistic culture will also change their self-identity. Returnees who are too individualistic cannot adapt back to interdependence in the Japanese society and they stand out as 変な日本人, weird Japanese. One Japanese interviewee commented on this individualization process:

> *"They become very individualistic I think, basically...also they...happens a lot among women...if they are in a Western society for a long time they are accustomed to being independent...but here in Japan sometimes it doesn't work..." (Interview ス)*

Another informant complained about a young Japanese employee who had spent several years in the United States:

"One Japanese young guy is so fluent in English he is almost like American and I don't think if he is good for us in the future or not...he is too American... also I expect him to adapt more to our way of doing things that is difficult part..." (Interview キ)

For the autonomous Finns, the socialization process is an internal process, and only explicit knowledge can be shared with others. Tacit knowledge is considered to be something that one should make explicit. This type of autonomy may also appear to be a weakness to the Japanese:

"Finnish due to their independent mentality person by person, individually, they are very weak to make something dictating (=reluctant to command others), even very simple easy decisions, but they don't like to dictate anything." (Interview キ)

The Japanese, on the other hand, define their identity as being part of a group. Thus knowledge creation at all stages in the SECI Model takes place on both the individual and the group level. As one Finnish manager put it, the Japanese system displays creativity at the group level:

"The creativity comes from within the system, Japanese are not innovative as individuals, as groups yes." (Interview ウ)

Autonomous Engineers

Knowledge creation is understood by the Japanese as a self-transcending process, in which one reaches out beyond the boundaries of one's own existence. Nonaka, Toyama and Konno (2001, 21) explain further that *"in the socialization process, people empathize with their colleagues and customers, which diminishes barriers between individuals"*. However, since the facets of individualism and collectivism vary across cultures, it may be difficult for the individualistic Finns to lower the barriers between individuals.

The concept of the autonomous self is not as simple as Western psychology assumes. We are all autonomous in some areas and dependent in others. We cannot tell anything about the concept of the self in general by comparing the degrees of autonomy in one area (LeVine 1982). This is reflected in the logic that we use: one kind of logic is required in some situations, another in others. The cool, rational approach is preferred in the work context in the US, but

informal gatherings assume a different approach, not to mention about love affairs (Goodnow 1992).

The Aggregate Mode of individualism developed by Kim (1995) best describes Finnish individualism (Figure 25).

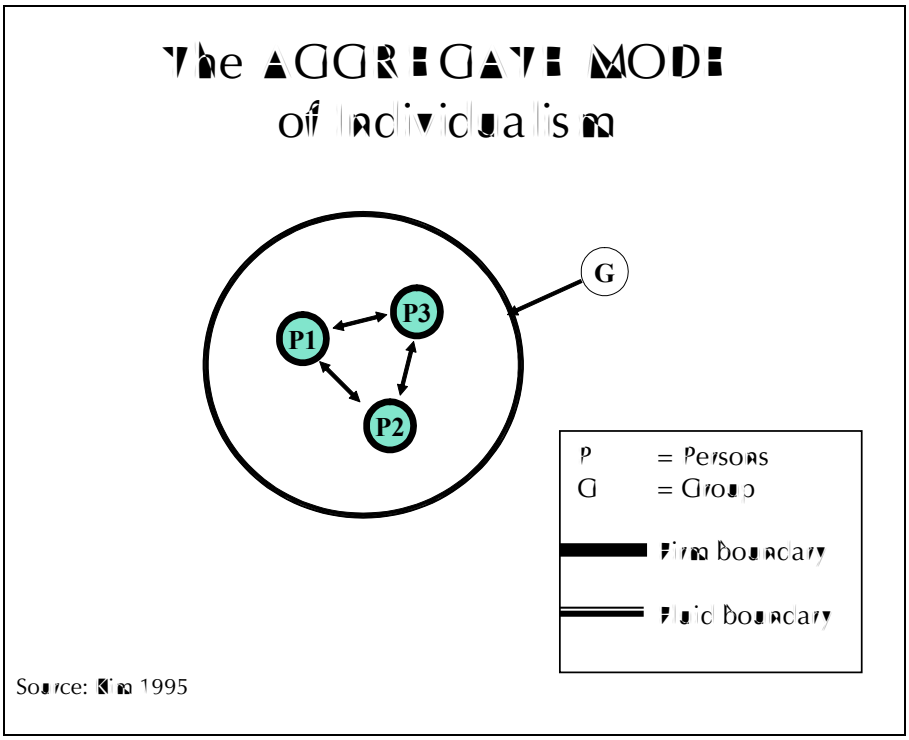


Figure 25: The Aggregate Mode of Individualism

It is self-contained individualism in which the borders around the individuals are firm, and the fluid boundary of the group consists of abstract principles, rules, and norms that provide the mechanisms for unrelated individuals to interact with one another. Shweder and Bourne (1984) use the term *egocentric contractual* to portray this kind of individualism.

The detachment of the individual from other people, including members of the family, has been taken to the extreme in Finnish society. Children under school age (starting even at nine months of age) are cared for by professionals in day-care centers or similar, which does not allow the development of emotional ties

within the family. Primary-school children have to learn from early on to stay alone at home and take care of themselves until their parents come back. Both parents work full-time and often keep separate bank accounts and divide family costs equally between them, even if they are married. Divorce rates are among the highest in the EU, although common-law marriage (and separation as well) is common and socially accepted. Single parents (usually mothers, the notable example is the present President of Finland) are common.

The extremely individualistic concept of the self in Finland reflects the knowledge-creation style of the Engineer: the Aggregate type of individual does not want to share knowledge with others. He is autonomous in communication, and respects the space and freedom of others - thus he does not expect others to share their knowledge either. Emotional independence stresses this further: he does not want to get emotionally involved and keeps to himself. Thus socialization does not affect his knowledge processing - non-task-oriented communication is seen by him as a waste of time: dinners are for eating, and weekends are for private time not for socializing with work-related contacts. It is difficult for the Japanese to understand why Finns keep distance from others:

> *"[It's] A little bit difficult for a Japanese to understand that why Finnish people are not openly speaking [about] his privacy. And when they get very close and they start speaking but generally they don't speak [about private matters] and particularly between Finns it is not so easy to openly speak to each other... I have experienced several times ... that one of my counter partner friend start to speak his private life or some family happenings or something and then his very close colleague don't know anything. ...Sometimes I thought that they regard me as very close friend or maybe I am Japanese but anyway friends so that he can rather easily speak to me that his Finnish friend." (Interview キ)*

In his study of the Finnish Pietistic movement Siltala (1992) notes that there is also a dual attitude toward success and positive feelings observed in the modern Finnish mentality:

> *"Nykysuomalaiselta puuttuu laillistettu kehikko, jossa heikkous ja vahvuus voisivat inhimilliseen tapaan vaihdella samojen ihmisten normaalitiloina. Nyt voittajat ja häviäjät kuuluvat ikään kuin eri todellisuuksiin. Suomalaisessa mentaliteetissa sekä itsenäisyyden menetys että riippuvuudesta irtisanoutuminen ovat kuitenkin skandaaleja, jotka merkitsevät siihenastisen elämän lopullista loppua. Yhtäältä suomalaiselta vaaditaan menestystä, toisaalta sitä ei sallita. Ihmisen pitäisi pärjätä omillaan muodostamatta menestyjän mentaliteettia sen sijaan että hän*

saisi vaihtelevasti pärjätä ja taantua, iloita menestyksestään ja itkeä takaiskujaan." (Siltala 1992, 430-431)[57]

When the individual-level demand for development was combined with the demands of the church community, it resulted in individuals who were *individually responsible for similarity*. The search for the acceptance of human anxiety and the weak inner self was changed to the *collective self-consciousness* of decent people. Pietism meant watching over the weak human being in his private God-relationship, whereas the strength of strong people followed civic morality. (Siltala 1992, 418)

Siltala (1992) identifies two junctions in the history of Finnish anxiety in which prerequisites of the self were changed. The first one took place with the great Pietistic movements at the beginning of the 19th century, and the second one occurred during the political awakening during the latter half of that century when the ability or inability to deal with the expression of one's own needs became an important issue. This was followed by the vague ideal of the normal person born in the post-political era.

The development of Finnish individuality has been a gradual process, which may have started with the introduction of Christianity to Finland. Siltala (1992, 11-27) notes that the common people became aware of the possibility of damnation and salvation at the end of the18th century and they began to fight individually for their destiny. Pietistic movements started in the North-eastern part of Finland (Savo), which was on the brink of famine due to the loss of livelihood caused by the slash and burn policy. This was an exceptional period when those who were concerned about their salvation had to reject the inner evil and reach for the good more eagerly than ever before. The battle was being

[57] "The modern Finn is deprived of a legal framework in which weaknesses and strengths could vary as the normal conditions of the same person. Now the winners and losers belong in a way in different realities. However, losing independence and resigning from dependence are both considered scandalous nowadays, heralding the end of life as we know it. On one the hand, success is required from a Finn, and on the other hand it is not allowed. The human being should manage on his own without developing the mentality of a successful person, and instead of being able to progress and fall back, enjoy his successes and cry over his setbacks." (translation mine)

fought with religious language and expressions, and the primary question was about what a man should do in order to be allowed to live. Earlier membership of a community, kin, class and parish entitled one to or constrained existence, but social changes forced man to redeem individually his right to exist.

Too rigid individualism may also hinder the general development of humankind. A well-known Finnish brain researcher suggests that

> *"if we are to have a healthy relationship to the world we have to abandon our individuality and 'melt' into society and nature. In this way the world constitutes an integrated whole, in which we are not a 'part' or member (...) but in which we are only 'it', the collective. This means that ultimately we are humanity, living and non-living. This is what the meaning of our life is." (Bergström 1989, 148)*

Interdependent Poets

In the facets of Collectivism, both the undifferentiated mode and the co-existence mode accentuate 'sameness', while the relational mode emphasizes 'oneness'. The Japanese type of collectivism is difficult to place in only one of these modes. Kim (1995) suggests that the Japanese might be classified as representing the co-existence mode and perhaps also the relational mode. Japanese culture has two sides to virtually all social phenomena, which would suggest the co-existence mode although there is a need to separate the two different realities that correspond to the two different selves (Azuma 1986). As a result, the relational mode is maintained in close relationships such as within a group or team working together, whereas the co-existence mode prevails in public situations. Since the Japanese concept of the self is a reflection of others ('I am your you' 汝の汝), an individual can also lose his self-identity when joining a religious group that insists on this. This would be typical of the undifferentiated mode of collectivism.

In terms of knowledge creation within companies, the relational mode of collectivism has most relevance in Japan (Figure 26). Belonging to a company or corporate group sets a firm boundary for the group and distinguishes it from

other groups. Members of the same group let down the boundaries of the self (fluid boundary between persons) and join together in forming an entity. Markus and Kitayama (1991, 229) describe this as

> *"the willingness and ability to feel and think what others are feeling and thinking, to absorb this information without being told, and to help others to satisfy their wishes and realize their goals".*

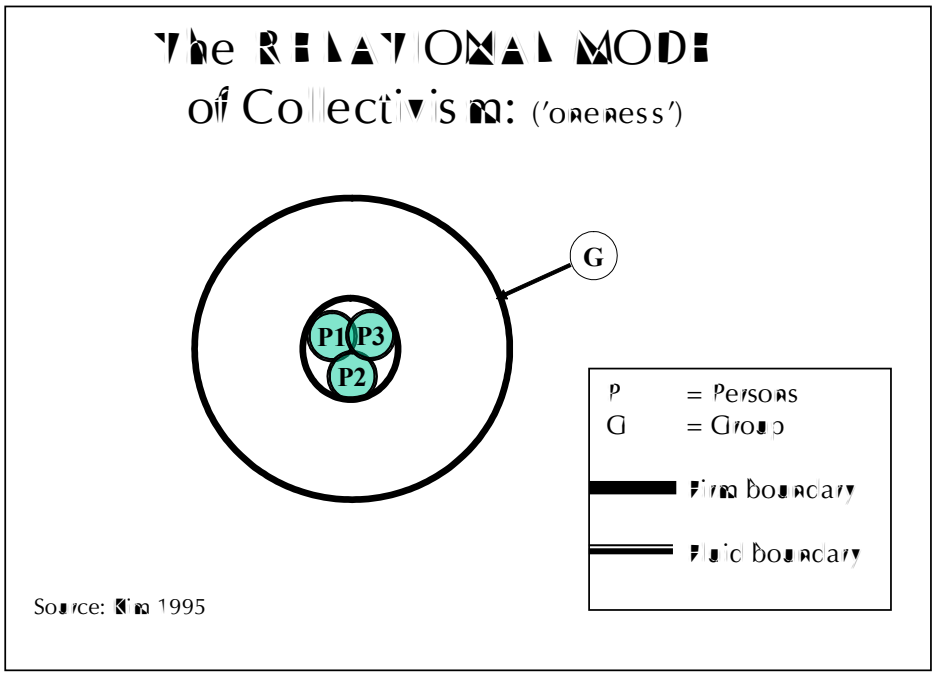


Figure 26: The Relational Mode of Collectivism

The fluid concept of the self in Japanese culture means that knowledge creation can take place at the group level at all stages. In socializing one transfers tacit knowledge by extending the borders of the self to cover the other and thus one is able to feel what the others feel. Metaphors can be used in the externalization process to provoke images of the collective unconsciousness. The combination process becomes receiver-oriented since it entails communication not between two separate entities but within the extended self that contains the group. Internalization is similar to watching a Tea Master and imitating his movements in order to internalize the skill. Form is very important in this, because by repeating the right form one can also internalize the action.

According to Nakane (1984), Japanese groups are based on constant and tangible personal relations. Sullivan and Nonaka (1986, 144) claim that

> *"It is these intense relationships that energize information flows in Japanese organizations so that variety created within high levels is reduced to information within low-level groups. Loosely knit groups would have great difficulty accomplishing transformation of the immense amounts of unstructured data that Japanese organizations collect".*

The way of knowing by extending the boundaries of the self to cover the other is quite the reverse of objective knowing. It requires empathy ('an ability to step into the other's shoes') and perception through all of the senses. When you become something instead of observing it, you can gather knowledge on different levels and through different channels.

Groupism (集団主義) in Japanese culture is not the same as groupism in China, where everyone does the same thing at the same time. Japanese informants observing a video of Chinese preschool noted that the authoritarian manner in which the Chinese taught group-oriented behaviors to children was quite different from the Japanese manner, which emphasized a gentler, more joyful, more understanding and flexible approach. Groupism in Japan is assumed to be compatible with human feeling:

> *"It makes possible the fullest realization of something truly human, the experience of camaraderie, of fusion, of unity with something larger than the self." (Tobin et al. 1989, 39)*

A Comparison of the Concept of the Self in Finland and Japan

The major characteristics of the concept of the self in Japan and Finland are summarized in Table 17. The autonomous self may be advantageous on the individual level of knowledge creation, but when transferring knowledge between individuals, the ability to negotiate the self to be part of the group makes the transfer of tacit knowledge possible. Nonaka, Toyama and Byosiére (2001, 500) suggest that the barrier between the self and others is removed in

order to provide the right environment for new knowledge creation. Knowledge creation can be accelerated if the group reaches a shared rhythm:

> *"The management of interaction rhythms among team members, i.e. that of divergence and convergence of various interaction rhythms, plays a critical role in accelerating the knowledge creation process." ... "...the sharing of mental and physical rhythm among participants of a field may serve as the driving force of socialization." (Nonaka 1994, 24)*

	Orientation to the Self and Other (conceptualized in this study based on Hsu-Toomey 1988)	**Types of Individualism Collectivism** (Kim 1995)	**Type of Relationship** (Doi 1974a)
Japanese	Mirror - Negotiated Self - Autonomous Other	RELATIONAL Mode of Collectivism	Interdependence
Finns	Autonomy - Autonomous Self - Autonomous Other	AGGREGATE Mode of Individualism	Independence

Table 17: The Characteristics of the Concept of the Self in Japan and Finland

For the Japanese, being a member of a group means letting down the boundaries of the self and forming an entity together with the inside members of the group. This type of relational mode of collectivism is based on the 'oneness' of the group members. The boundaries between groups are firm: the other as 'the other group' is regarded as an autonomous whole. There is no easy access to existing groups, and therefore autonomy is respected. With regard outside groups, the Japanese do not have the urge to be included. This is related to the Japanese concepts of 表 (*omote*, lit. 'in the front') and 裏(*ura*, lit. 'in the back')[58], which refer to the separation of the outsider and the insider (土居 1985).

According to Doi (1986, 31):

> *"To be Japanese is to be aware of the fact that things have an omote and an ura, and a person is not considered to be an adult until he or she has grasped this distinction."*

Thus mature Japanese people need to immerse themselves in the group to which they belong to but at the same time to accept that they are not part of

[58] Also the concepts of *外*-outside; *内*-inside; and *建前* (the public ideal) and *本音*(the individual reality)

other groups. A Finn, on the other hand does not make a distinction between inside and outside: a core value in Finnish culture is 'honesty', which is interpreted in the sense that the true self is displayed on all occasions. The group-oriented Japanese sometimes seem helpless to the Finns:

> *"The Japanese are more group-type of people, consensus is very important...no big decisions [are made] alone...talk with someone...get the picture that very few words, signs...finger in mouth..." (Interview ウ)*

> *"Japanese rely on others more easily...even rules for politeness require dependence...'prosaiku' be good to me, social situations require that this position is supported by behavior, that is those lower in the hierarchy pretend to be helpless, both men and women, whereas those in leading positions...cannot for example become pero-exec. Japanese subordinates need more instructions, guidance now to work... when the supervisor is present the Japanese will behave very differently...then in the background, rather quiet, follows from the side, doesn't speak very much...but when just the two of you, quite direct action, opens up, we are not bound by hierarchy, by the presence of the superior...then it works well." (Interview ク)*

> *"They have been told since childhood how things should be done, how to do things at school and at work.... what to do, how to behave....terribly many people in a small area and if everybody decided to play solo it would become chaos...a concerto." (Interview ウ)*

The autonomy and independence of Finns was described by one of the informants as 'being more outgoing'. He considered the Finns more outgoing than other Westerners in the sense that they liked to explore things on their own:

> *"The Finns are maybe more outgoing in the sense that they ...like to explore things... Americans can't go out very often, they would like to stick to their own club or society or...few Americans who buy a car and drive out to the countryside to look around...they say 'it's too complicated, you can't read the road signs, they always complain it's just too complicated. So that sounds funny from people who usually drive. ... Americans are boarding a car and they live in a car... Whereas if you get a new Finnish family, they will buy a car and they will start going out...even the golf competitions... when you have a golf competition with a lot of Americans, they all come in a bus, even the Swedish come in a bus. But if you have a golf competition with the Finns they all drive their own cars, including the ambassador." (Interview オ)*

It seems that Finns adapt to Japanese culture by being independent: they do not expect to be included in Japanese groups so they live in their own way. The Finnish-Japanese business community provides them with an opportunity to meet other Finns once a month and this seems to suit them. During the data-collection process I attended one of these luncheon meetings in Tokyo, and sat beside a Finnish manager who had driven that day from Osaka to Tokyo. He did

not read Japanese, but with the help of an elaborate satellite navigation system he was able to manage on his own on Japanese roads.

Other Western expatriates seem to feel a greater need to belong to groups. One informant noted that the French and Americans tended to stick to their own groups in Japan:

> *"... where there were a lot of French people and they were just saying that they don't like Japanese food and they never go out anywhere and they would just like to eat good French food, lot of cheese and wine..." (interview オ)*

The Japanese living in Finland seem to lack opportunities to become members of any group. Since the Finns are also very autonomous and independent at work, it is difficult for the Japanese to establish dependence relationships when working with them. The Finns separate work and leisure time, and they do not generally want to spend time with their colleagues after working hours. The Japanese, on the other hand, are accustomed to building friendship relations with their work colleagues, whom they consider part of their 'inner group'. Important customers are also considered part of this group and very personal and intimate knowledge is shared with them. Sharing personal knowledge was considered a skill by one Japanese informant:

> *"If a Finnish person starts to speak a little bit about his private [life] then it will be good motivation [for the] Japanese to start accepting him as a personal so that also could be thought of [as] a skill" (interview キ)*

Respect for the other's autonomy is also visible in how the Japanese and the Finns treat space in communication: both want to keep some distance from the communication partner and do not hold long eye contact during discussion. One Finnish informant had observed two young girls in a Yamanote train and realized that something was bothering about one of them (it came out that she was Chinese), as she kept moving closer all the time:

> *"Japanese would never do that...[they are] careful not to touch the other...the difference to Finland is that everybody keeps elbows out just in case...so that if somebody pushes you by accident, at least it hurts him...in Japan it's very non-aggressive to violate of the other, in Finland it's the line that 'don't you came come' that line of violance of the other." (interview コ)*

The Finnish-Japanese Business Community

Business between Finland and Japan has grown over the years and a Finnish-Japanese business community now exists in both countries. The Finnish-Japanese Chamber of Commerce (FJCC) was established in Finland in 1981. It has regular meetings - either luncheons or small events in the late afternoons, to which lecturers and speakers representing Finnish and Japanese business and politics are invited. Visits to member companies are also arranged on a regular basis. The main event for the FJCC is the annual Japan Golf Day.

The Finnish-Japanese business community in Japan has various activities. Informal monthly luncheon meetings of the 'Finnish Business Executives Association' became the Finnish Business Council (FBC) in 1992. When Finland joined the EU in 1995 it also became part of the European Business Council in Japan (EBC). To be active in this cooperation required additional resources, as well as a formal status, and this led to the establishment of the Finnish Chamber of Commerce in Japan (FCCJ) in 1999. In the same year a group of Finnish companies established K.K. Finland Village "for the purpose of creating a high-class and affordable recreation facility for companies, their staff and for people interested in a Finnish type resort". It is located by a lake, a two-and-half hour journey from Tokyo, with a landscape similar to that of Finland. Finland village provides a context in which Finns and Japanese can socialize.

A key person in the Finnish-Japanese business community, Mr. Claes-Göran Bystedt, founded a virtual Finland House in 1994. Its overall purpose is to promote business between Finland and Japan, focusing on improving the businesses of Finnish companies in Japan. Finland House links the FCCJ and Finland Village.

The Finnish-Japanese business community in Japan provides a network of human relationships for Finnish expatriate managers and Japanese managers working either in Finnish subsidiary in Japan or in Japanese companies doing business in Finland. This network can be used to obtain knowledge and to

transfer experience gained by other companies, and on the personal level it can bring together people with similar interests: jazz music connected two Japanese and Finnish managers.

Shared experience, which enables the transfer of tacit knowledge, can be gained in joint activities organized by the FCCJ (such as Christmas parties and the Finnish Independence Day party). Finland Village is also a place for volunteer work activities, such as painting the cottage, and for enjoying the sauna:

> *"I have friends in the country side who don't speak English... we have become accustomed at a certain level... in the sauna it's even good to talk and be good friends, but we can't get along in the way that we could talk about anything..." (Interview 7)*

Not all Finnish companies operating in Japan are members, or active members, of the FCCJ. One big multinational Finnish company with a subsidiary in Japan employing about 50 expatriates has its own society, and possibly does not consider it necessary to be part of the Finnish-Japanese business community. For smaller companies, however, this network may be crucial for both business and personal survival.

5.4 Externalization by Engineers and Poets

Externalization is a process of articulating tacit knowledge into explicit concepts. Nonaka and Takeuchi (1995, 66) consider it the key to knowledge creation, because it creates new explicit concepts from tacit knowledge.

> *"When we attempt to conceptualize an image, we express its essence mostly in language - writing is an act of converting tacit knowledge into articulable knowledge".* (Ibid, 64)

I considered in Chapter 4 the way in which language shapes our thought. It seems that it is not only the oral language, but also and especially, the written language that acts as a tool for organizing knowledge. The process of converting tacit images (we think in images) into explicit knowledge in the form of writing is very different in Finland and Japan. The phonetic script is digital in character and it allows for the development of abstract concepts. Its horizontal, left-to-

right direction enhances left-brain bias and subsequent focus on the rational. As a result, Finnish externalization is abstract and linear. Sound-to-sign correspondence promotes transparency.

The pictographic nature of Japanese *kanji* enhances concrete thinking. The image in tacit knowledge is converted to another image in written *kanji*, and thus the difference between tacit and explicit knowledge is smaller than in phonetic writing. Since Japanese text is written both vertically from right-to-left, and horizontally from left-to-right, and because reading *kanji* is a holistic process, there is more symmetry in terms of using the brain when processing the text. *Kanji* are linked together through radicals (parts of the pictographs) and they generate a network of concepts. Consequently, Japanese externalization is concrete and associative in character.

Converting Tacit Knowledge in to Explicit Knowledge

Nonaka (野中 1990) originally used 分節化 and the English term 'articulation' to describe the process of transforming tacit knowledge into (explicit) knowledge with form. 分 is a 'part, segment or division' and 節 means 'a node or joint in bamboo', thus the word associates first with 'dividing bamboo' (Haruhashi 1992; 漢字学習辞典 1983). 節 is also a point in a statement. In this combination and order[59], 分節, is not part of common vocabulary in Japanese, so the meaning must be explained by the user of the term.

In the Japanese context the externalization process as conversion from 暗黙的知 (tacit knowledge) to 形式的知 (formalized knowledge) denotes 'giving visual form' to knowledge from different sensory channels. Form is something that can

[59] In another order, 節分, it means 'the day before the calendrical beginning of spring'. (The Kodansha 2001)

be seen (and felt), but does not draw attention to sound. On the other hand, the English meaning for explicit knowledge refers to verbal knowledge, thus tacit knowledge becomes explicit when it is verbalized (spoken). Interestingly, when Nonaka (野中 1990) first gave 'articulation' as the English equivalent to 分節化, he selected a word that has the meaning of both 'verbalization' and 'joining together', the latter being closer to the Japanese meaning as 'joining parts together'.

The English verb 'to externalize' is translated into Finnish as *antaa ulkoinen muoto* 'giving something an external form' (Nonaka 1980). This is close to the Japanese concept of 'giving form' although the conversion of *'hiljainen tieto'* (tacit knowledge) into *'eksplisiittinen tieto'* (explicit knowledge) in the Finnish knowledge-creation process means putting a low degree of something into verbal form.

Language as a cognitive tool was referred to in Chapter 3 as a key issue in the externalization process: when tacit knowledge is made explicit, it is being verbalized. The way in which language shapes our thought was then discussed in Chapter 4. The key persons interviewed for this study agreed that language affects our thinking: as one of the Finns commented,

> *"I think that when a person speaks a foreign language he doesn't speak it with his soul" (Interview コ)*

There are similarities between the Finnish and Japanese languages (both being agglutinative, non-agentic, and topic-prominent). They even sound somewhat similar and there are many words that are similar but carry a different meaning. Such similarities were observed by the informants:

> *"It is easier [for the Finns and Japanese] to learn each other's language because of [similarities in] pronunciation and syllabic structure." (Interview コ)*

> *"Chinese and English [languages] belong to the same group, Finnish and Japanese are in the same group, [in regard with how you] operate." (Interview ク)*

> *"It is most amazing that both Japanese and Finns have the impression that they are unique as nations in the world and both have the world's most difficult languages which*

no foreigner can ever learn, and no foreigner can ever become really part of that culture and society." (Interview コ)

The existence of similarities has given rise to the myth among the Finnish-Japanese business community that the two languages are actually related to each other. This idea of being 'linguistic cousins' creates a feeling of familiarity, which is supported by the type of broken English used by Finns and Japanese in international business encounters. One Finnish expatriate manager who had also lived for a longer period of time in Britain commented that his English was deteriorating in Japan:

"What is funny here is that even tough one uses English every day… writes English a lot, yet my English gets worse the longer I stay here… when I speak with a British or American I feel ashamed … I do speak better English than I do speak now exactly because when one speaks with the Japanese one has to kind of try to speak as simple as possible…use simple words…forget all Oxford English." (Interview ウ)

Finns who were used to explaining things in 'Japanese-English' sometimes had to act as 'interpreters' between visiting Finns who spoke 'Finnish-English' and the Japanese speaking 'Japanese-English':

"…many experiences of when some Finn came here and we went to see some Japanese client who spoke quite good English…and this Finn explained something in English…then not without exception but very, very often this Japanese looked at me and I had to tell the same story in English so that a Japanese can understand that."
(Interview ウ)

However close the two languages may seem, starting to study Japanese at the age of 50 is still a great challenge, even for Finns:

"What has been a surprise concerning Japanese is that when speaking and pronouncing 'thereabouts', the Japanese listener doesn't understand a bit - even though the Westerners would understand each other's deficient Japanese."
(Interview ソ)

Metaphors in Knowledge Creation

According to Nonaka and Takeuchi (1995) when tacit knowledge becomes explicit it takes the shape of metaphors, analogies, concepts, hypotheses or models. Since Japanese writing consists of images, it is natural for the Japanese to use metaphors and analogies. However, even concepts are concrete and

'pictographic' in Japanese text. Nonaka (野中 1990) suggests that metaphors have an important role in the externalization process. Interestingly, he uses English loan words written in katakana when he talks about metaphor (メタファー), analogy (アナロジー), and model (モデル), although there are Japanese kanji equivalents to these terms(野中 1990, 63; 68). However, by doing this he is able to lift the concept of metaphor to a more abstract level in Japanese, which might be necessary in order for the Japanese audience to realize how important metaphors are in knowledge creation. Since the Japanese written language (script itself when using kanji) is full of metaphors, the abstract word メタファー covers more than these.

The conceptual network generated by the word tacit in Japanese, 暗黙, also links metaphors with tacit knowledge (Figure 27). Metaphor in Japanese as 暗喩 is 'dark understanding', and 喩 on its own refers to a "*metaphor, a simile, an allegory, a fable, a parable, a proverb, a saying; an adage; an illustration, an instance, a comparison*" (Kenkyusha's 1983; Nelson 1982, Wieger 1965). Metaphor can also be written as 隠喩 'hidden understanding', or 比喩 'comparative understanding'. 直喩 means a simile, 'straight understanding', and it is related to 直感, also written as 直観 intuition (insight), 直感的, also written as 直観的, stands for intuitive (immediate feeling, immediate sight). Intuition is also written as 直覚, which is a central concept in Nishida's philosophy. In this, 覚 is to 'remember, memorize, learn', making the meaning of intuition something like 'straight remembrance, instant learning'.

In the associative logic of Japanese kanji script therefore, we can move from 暗黙的知識, tacit knowledge, through 暗喩, a metaphor, to 直喩, a simile, and 直覚, intuition, and then back to tacit knowledge, since intuition is the core of all knowledge.

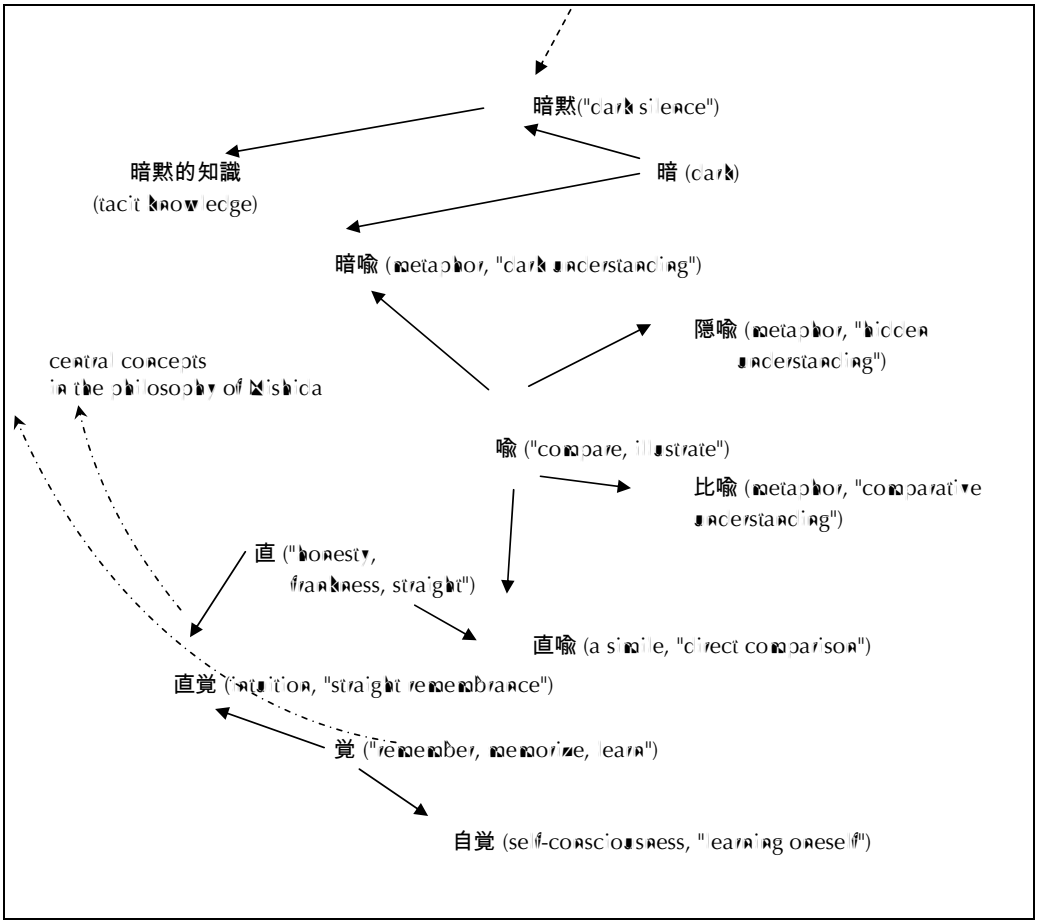


Figure 27 : The Conceptual Network Created by the Word Tacit in Japanese

The Finnish writing system and short literary tradition focusing on non-fiction emphasize the literal understanding of language. Ylönkas (1991, 571) claims that

> *"Literal language has an inherently reductive propensity; it abstracts and segments experience in order to decipher relationships between its constitutive components".*

One cannot express feelings in literal language: one can only analyze and explain the situation that makes one feel in some way. For the Finns, externalization is expressing facts in a succinct manner, just like an engineer would prefer.

In contrast, one can express *"an emotional reality lying beyond even conscious awareness"* through metaphors (Tsoukas 1991, 571). In written Japanese texts *kanji* act as metaphors for concepts. Although the reader does not become one with the *kanji*, this metaphorical use of script supports the immersion of the self and the other, the observer and the observed. Not only is the Japanese script metaphorical, there also exists a long literary tradition focusing on poetry and poetic expression.

Metaphorical language is a better alternative than literal language for expressing the continuous flow of experience, but in using it human beings are less able to detach themselves from experience in order to abstract it and explain it. According to Tsoukas (1991, 571), metaphors are

> *"closer to experience and consequently more vivid and memorable if, but they are poor cognitive devices for either specifying mechanisms that produce observable phenomena or revealing the generality of the operation of explanatory mechanisms".*

Furthermore, irony, carried to the point of paradox, allows expression of experience in a different way, as Kilduff (1987, 337) points out:

> *"Irony, paradox, and contradiction are beyond the scope of rules theory and action theory in general. How can a logical syllogism function if the meaning of some of the statements are taken as irony or self-contradiction?"*

Nonaka and Takeuchi (1995, 65) claim that externalization is often driven by metaphor and or analogy. They give examples from Japanese product development, such as when the Home Bakery product was developed by Matsushita. First the metaphor of 'Hotel Bread' was externalized along with an analogy of the 'Osaka International Hotel head baker'. This influenced the

concept creation by hinting at more delicious bread and by creating the 'twist dough' concept.

Interestingly, one Finnish interviewee used metaphors when describing differences in the Japanese and Finnish approaches:

> *"Well, the Japanese custom is to start first you take .... wooden knife and practice using it for twenty something years and after this you take a piece of wood and see if these match together, and only after that you take a real knife and then you start practicing, and this takes fifty years ...so...cultural differences...Japanese have a long perspective and Finns have culturally the knowledge that if you cannot collect enough food during three months for the winter then you will die...the Japanese have been able to harvest throughout the year...decisions have to be made relatively fast if it's a matter of survival." (Interview ヨ)*

Linear Logic vs. Associative Logic

The key persons interviewed for this study were aware that there were differences in the externalization processes of the Finns and the Japanese, but it was difficult for them to say what exactly they were:

> *"I think that this is the biggest difference between Finns and Japanese decision making culture and culture of understanding things: a Finn thinks that this is kind of starting point and the premises that this project starts from, and then next one has to decide these and these matters, and then after it come these and these operations, and then will be evaluation. ...but for the Japanese the process is somehow completely different, I cannot describe it, and I still can't understand how it works in its totality, but anyhow it is so that when I am of the opinion that things are now sort of clear and now we just sit and think that should we take it or leave it and then inform...so at this point I am being asked that what is this thing about. ... also during following time they might start again from zero point even though they had all the papers at their disposal and they had read them and were in principle ready...." (Interview ヨ)*

> *"It is part of the Japanese nature/character that one has to be a little bit roundabout and so, and that nothing is said quite directly." (Interview ウ)*

> *"As a Finn one would have wanted in the beginning...there is an idea, now should we proceed...doesn't necessarily work [in Japanese]...must be intensively, continuously together with the process." (Interview ク)*

One Japanese interviewee described Japanese decision making as lacking in logic - *"lot of illogical business decisions in olden"* (Interview キ) - and one of the Finns maintained that the Japanese in no way aimed for transparency and clarity, saying that there was *"obscureness in Japan in decision making, non-*

transparency" (interview 3). The differences in logic were described as 'cyclic' or 'roundabout' for the Japanese and 'linear' and 'direct' for the Finns:

> "It is not the language, but the mentality (amoeba like, cyclic)." (interview 3)

> "As for this cyclic decision making or amoeba likeness it is kind of exactly the same way if the discussions are in English or in Japanese...always feels somehow... very often get to a moment when succesfully one doesn't know where we are going...that one thinks that everything was quite clear and then one is back to the starting point after all." (interview 3)

> "This Japanese process... we [Finns] go kind of linear, then it [the Japanese process] is cyclic. When one round has been done, another round is taken and then a third round, and it is difficult to know at what phase the meeting has ceased to go around and we have come to an end, and at which phase it is still advancing and focused on the end point which is there in the middle and where then the decision is done that OK, let's join." (interview 3)

> "We assume that things proceed and do not return, but they advance, this is what we say 'things advance', but for the Japanese it is not returning but it is another round...it is that cycle...it touches the starting point before it goes for the next round, and it may not be repetition for them, but for me it is, because I know of this that if things proceed they proceed and go straight forward and don't turn around, for us turning around a circle means that one turns around one's own tail and never gets anywhere...so I think that this kind of is sort of essential." (interview 3)

One Japanese interviewee had observed some changes in the Finnish way of doing business, and he compared the American and Finnish styles as follows:

> "[a] recent years, last five to ten years, more and more the American way of business administration has been imported also Finland...and especially to young managers ...they want to make like the matrix type of organization and also categorize the matters identical to certain fixed patterns, so that even the Americans say that we have to think about different cultures, things, and absorb those, but still the way of management technology is categorized by their own thinking. I quite often complain that what the well that the Finns follow the American way!... they have been traditionally very flexible and they've been adapting to different cultures, but still in business scenes many young Finnish well educated managers, they try to introduce that kind of silly system that has had had." (interview 4)

The Finns described themselves as 'pragmatic, direct, clear, and purposeful', and as being very target-oriented:

> "Finns talk directly, make decisions fast and start fast implementation and then it goes either well or badly, and if it goes well then one can comment that it went well, and if it goes badly then one maybe cannot evaluate..." (interview 3)

> "In Finnish and in English it is easier and more direct...to operate rather directly and progress well to the point, in Japanese a certain touch is needed, in Finnish and English it doesn't somehow race." (interview 7)

"The Finnish and Japanese mentality is quite alike: we are relatively modest and a little bit shy ... and honest." (Interview ウ)

The central characteristic for Finns is naïve honesty, blue-eyed ness exactly ...trusting everybody and expecting that everybody will follow the same rules as we do." (Interview コ)

On the other hand, they considered the Japanese too formal, even to the extent of being boring:

"With the Japanese the first problems arise from the fact that they are so formal and if I should say, boring, but like of the same things are discussed many times all over and they proceed with things slowly... whether it is discussion or decision making." (Interview エ)

"The Japanese are flexible at the personal level, in business there are instructions, cannot be flexible unless they receive permission...greater variability than we have in between stubbornness and flexibility." (Interview ウ)

The Japanese interviewees considered the indirect style of Japanese externalization as being considerate of other person's feelings:

"The conclusion never comes first... well it comes gradually, gradually in the end...the best benefit is that since you can't have to be direct you have less tendency to hurt the person." (Interview ス)

"For the Japanese people conclusion comes last maybe...they say reasons first...process first and finally comes the conclusion... while they are talking they expect the other person to guess or to understand what I want to say...through this process Japanese people expect the other person to agree to that person." (Interview セ)

However, when taken to the extreme, Japanese emotionality can turn against itself:

"Sometimes in Japanese conference or meetings somebody just got so upset emotionally and they just missed the logic... which I hate very much when it happens...but that happens...that part of Japanese is....applied to me too...if somebody says the opinion against your opinion ...Japanese people have a tendency to feel that you are rejected as a whole person not only the opinion....so in order to avoid that you have to be very, very...carefully show that you can't agree with that person...but if somebody says directly that they can't understand or that they can't accept or something ...the person will get hurt and feel that he is not accepted as a person... very bad afterwards." (Interview ス)

Language Skills

In my 1991 empirical study I discovered that the single most important criterion in recruiting personnel for Finnish subsidiaries in Japan was (then) the ability to

speak English (Karjalainen-Takada 1994). At that time, 35% of the Finnish subsidiaries in Japan had a Finnish expatriate manager, and very few of them spoke any Japanese, let alone were fluent enough to use Japanese in business negotiations. In fact, there was a saying among the expatriates that "it is better not to speak Japanese", which seemed to discourage newcomers from learning the language.

There were expatriate managers in 63% of the Finnish subsidiaries in 2003, but there was no longer the pressure to hire Japanese personnel with fluency in English because 77% of the Finnish expatriate managers spoke at least some Japanese, and some were also able to read and write to some extent. The key informant on the Finnish business community in Japan identified two visible trends in the Finnish business organizations there: first, there was a trend away from using Finnish expatriates and hiring local (Japanese) managers; and second, there were more 'new generation' Finnish managers who had at some point in their lives learned Japanese (were either second-generation Finnish businessmen in Japan or had participated in the HU EMP program or similar).

In one Finnish subsidiary the Japanese managing director stated explicitly that the ability to speak English language was not the major criterion in recruiting:

> *"When recruiting, English is not the key when we look for the people who promote Finnish products for Japanese clients. The reason is not that we have very different way of transactions and the payment time is also unique compared with others, and also the verbal commitment and confidence between the seller and buyer is one of the key[s]."* *(Interview 4)*

The trend in the new breed of Finnish expatriates to speak Japanese changes their quality. Some new companies (established after 1991) were managed by Finnish expatriates with Japanese speaking skills, and there were also three subsidiaries that had previously been managed by Japanese personnel, but were now under the control of Finnish expatriates with Japanese language ability. Thus the move towards selecting expatriate managers could also be a result of the development of their language skills. As one interviewee noted:

> *"In the foreign community most can speak only everyday Japanese, not read or write... but there has been development, 19 years ago a foreigner who spoke Japanese was a*

surprise for the Japanese, now it seems that most foreigners who work here do speak more or less Japanese." (Interview ク)

Another interviewee commented that not all Finnish companies were interested in expatriates with Japanese language skills:

"[Company X] is a different case…about 50 persons…they stay so short time…they are not committed…their own circle…two to three years assignment, don't bother. …They have maybe five recruited locally who speak Japanese." (Interview ウ)

Using English as a common language that is foreign to both the Japanese and the Finns has its advantages, but the Finnish expatriates who want to learn Japanese might thus find very few opportunities to improve their spoken Japanese:

"It came out that those Japanese who are able to speak English or some other language understood by the visitor, have been reluctant to speak Japanese. Surely it is cumbersome to understand bad language, they don't feel that they are understood and so on…even my [Japanese] mother-in-law told me always during the first nine months that you have really improved in [Japanese language] very much….and shifted immediately to speak English." (Interview ソ)

Some Japanese interviewees acknowledged that they processed their thoughts differently depending on whether they spoke English or Japanese:

"For me explaining in English and Japanese is totally different process because … well it's so difficult for me to mix the two languages in one conversation… when I speak English …my mode is English mode…and Japanese… I can also switch in a Japanese way." (Interview ス)

"In English I will always say the result or conclusion first and then because… I will explain the reason right after… I say the sentence…so I get used to it when I speak English … Japanese first have introduction and talk about some related matters and then the conclusion always comes at the end." (Interview ス)

The Finns also saw the difference in thinking style when Japanese people were using English:

"When operating in English clearly the Japanese can operate more directly." (Interview コ)

However, the Finns who were able to speak Japanese extended the Finnish direct style (language 1) to Japanese (language 2):

"If you speak in English one can speak more direct…also Japanese… I try to speak also in Japanese quite direct and begin from the standpoint that I am a foreigner and I will never be part of this society, so I could as well take advantage of this and note that I am a foreigner and I act just as best suits me." (Interview コ)

Even the Finnish expatriates who were relatively fluent in Japanese, did not necessarily use Japanese in business negotiations, and considered English a neutral choice:

> *"English is ecually a foreign language to the Finns…in that respect if one used more English it would be a neutral language for both, if one could communicate through English…it would be neutral, but since I can say that I manage Japanese really well so I prefer to use Japanese in all situations rather than English." (Interview ク)*

> *"It is reasonable that both are on thin ice…foreign language for both…Japanese is anyhow so demanding for me and one needs to play with nuances in it… when one doesn't understand perfectly." (Interview コ)*

Yet, speaking Japanese was considered to be an advantage for the Finnish expatriate:

> *"It is clearly an advantage to speak Japanese…somehow immediately…the counterpart is then much more relaxed even if we spoke quite good English…through it is possible to obtain trust much faster than when operating in English." (Interview ク)*

Interviewee コ recalled meeting Japanese people after learning to speak some Japanese: they seemed to be totally different:

> *"as if I had never met them…only when I met them in Japanese could I become friends with them…it was quite an interesting experience."*

The main advantage in speaking Japanese for the Finns came from being able to select which language to use in appropriate situations:

> *"When money moves, I speak English." (Interview コ)*

> *"The selection of language depends on what one talks about." (Interview ク)*

> *"Generally speaking with the Japanese…in human interaction, not in business or serious matters…Japanese is always better. For sure I would also have those business negotiations in Japanese if I felt strong enough in it…but it is good to get some feeling…usually my English is better than that of the Japanese counterpart…a small advantage…" (Interview コ)*

Finnish, Japanese and English are used alternatively in the Finnish-Japanese business community:

> *"After a while we start speaking Finnish…they also…after an hour they also start speaking Japanese… I cannot say anything…why, are they just lazy…Finns have learned the same…impolite…easier." (Interview ウ)*

As I have suggested in this section, the conversion of tacit knowledge into explicit knowledge is shaped by the language that is used. Thus the process of

externalization is different in Finnish and Japanese. The Finnish language promotes abstract and linear categorization, whereas the Japanese externalization style is concrete and associative. I noted earlier that theory suggests that language one also dominates the processing of thought in language two (Yan et al. 2003). My empirical study suggests, however, that Japanese who are fluent in English will also adopt their externalization style in the English mode. Finns speaking Japanese, on the other hand, seem to keep their direct Finnish externalization style, partly as a deliberate choice allowing them to get things done more quickly.

5.5 Combination by Engineers and Poets

Combination is defined as a process of systemizing concepts into a knowledge system (Nonaka and Takeuchi 1995, 67). It involves exchanging and combining different bodies of explicit knowledge through media such as documents, meetings and telephone conversations. The reconfiguration of existing information through sorting, adding, combining, and categorizing explicit knowledge could lead to new knowledge, according to Nonaka and Takeuchi (ibid.). They claim that middle management plays a critical role in creating new concepts through the networking of codified information and knowledge.

From Explicit Knowledge to Explicit Knowledge

The process of combining (explicit) knowledge with form is called 連結 in 野中 (1990), which means 'coupling, connection, combination' (Kenkyusha's 1983). The verb derived from it means to 'couple; attach; connect; interconnect; join; interlink', such as attaching sleeping cars to a train. This is the transfer of existing (explicit) knowledge, such as when a teacher explains to the pupils the movements of the moon.

In Finnish the English word 'combination' has the meanings of uniting (*yhdistäminen*) and being united (*yhdistyminen*) or connected with something.

Although the process of combination has a similar meaning in Japanese, what is being connected is verbal knowledge in Finnish knowledge creation, and 'visual form' in Japanese. Since Japanese writing consists of pictures, in theory there is no difference in the process since both could be said to combine verbal knowledge. In practice, however, these two patterns comprise very different processes.

For engineers, combination means connecting existing facts with others to create a solution to some technical problem, while for poets it means uniting images and meanings from different fields by association.

An approach that raises the quality of explicit knowledge is called 'knowledge rationality', which describes the rational ability to reflect on experience. It is an effective approach for producing explicit knowledge, but Nonaka (1994, 22) is aware of its weakness:

> *"Knowledge of rationality is an explicit-knowledge-oriented approach that is dominant in Western culture. It centers on the combination mode of knowledge conversion, and is effective in creating digital, discrete declarative knowledge. Knowledge of rationality tends to ignore the importance of existing explicit knowledge."*

Verbal and Nonverbal Communication

Combination in the knowledge-creation process was linked to communication in chapter 3.5. There are different orientations to communication: the Japanese are receiver-oriented and pay attention to listening and interpretation skills to the extent that communication has telepathic characteristics to an outsider. In China and the United States, successful communication is believed to depend largely on the clarity of expression of the speaker, consequently there is emphasis on teaching children to express themselves clearly. In Japan, however, successful communication is believed to depend largely on the empathic and intuitive abilities of the listener (Lebra 1976), and thus children are taught less to express themselves than to be sensitive to others' spoken and unspoken forms of self-expression (Tobin et al. 1989, 190-191). Receiver-orientation

communication is understood tacitly in Japanese, which means that the knowledge-creation process may take some time. One Finnish interviewee observed that the Japanese were slow in decision making:

> *"In Japan everything takes such a long time...to get a project started can take... planning and preparing one-and-half years...then when they finally get the decision out they expect the end results to start within a week." (Interview 3)*

A Japanese interviewee also explained that negotiating in the Japanese style was time-consuming:

> *"Between Japanese persons...if I compromise this much then usually the other person will compromise this much and then negotiate and just around here just half and both sides compromise...this kind of negotiation is quite difficult with North Americans." (Interview 4)*

This receiver-oriented communication does not work with the Americans, as a Japanese interviewee noted:

> *"They [Americans] are kind of pushy and sometimes I compromise this much and I expect them to compromise this much too...but if I go back this way and then they go forward this way and I go back this way and then they come this way...like chasing." (Interview 4)*

The Finns are speaker-oriented, but minimize both verbal and nonverbal messages. In the two-dimensional model of contextuality of communication developed in this study, the succinct mode of communication describes best the Finnish type of communication, and the telepathic mode Japanese communication. It was mentioned earlier that Americans are encouraged to express their wants, needs, and feelings verbally. Finns, on the other hand, are taught to stick to the facts in their succinct verbal communication.

The succinct mode of communication bears superficial resemblance to the Japanese telepathic mode in that both use longer periods of silence. This similarity was also recognized by the informants. Interviewee 3 claimed that it was easier for Finns and Japanese to get along with each other than with Americans. Another key person noted that Finns had an advantage even compared with other Europeans:

"Similarity in communication…leaving space for the other…listening what the other person says, staying with all the time and keeping your own sayings on a spare flame, listening and adjusting, finding a common tone." (Interview ク)

Finns economize on words: for example, when buying a transfer ticket in a tram a Finns will just say 'transfer', not adding other words such as 'please'. This is not because Finns are impolite, but because they respect the time and personal space of others and they want to bother them as little as possible. This may appear as a lack of initiative to the Japanese. Although the Japanese interviewees generally had a very positive image of Finns, one also complained that they were too slow and patient:

"Finns are quite acceptable, serious, faithful, trust, not too formal (...) quite often complain to them that you are too slow, you are too patient, you are not too directive= commanding enough!…those are the three key words." (Interview キ)

Misunderstandings in verbal communication between Finns and Japanese are also caused by the different styles: Finns minimize what they say and put a literal meaning in the verbal message, while the Japanese talk around the subject and leave the real meaning to be interpreted in-between the lines. Both Japanese and Finns have to adjust their communication style when speaking to each other in English. One expatriate Finnish manager said that he had to adjust his verbal communication when speaking to the Japanese:

"Slowly, simple sentences and simple words, forget about 'snowing off', check every now and then that they are following." (Interview ウ)

The Japanese recognize the need to change their communication style depending on whether they are speaking English or Japanese:

"…the tone of the speech is also different, the things that I care is also different…I have to be more careful and considerate when I speak Japanese …and in a special manner which they accept they accept me as a woman…you know." (Interview ス)

Several Finnish informants stressed that, it was important to have concrete material or use drawings when discussing with the Japanese. As one of them expressed it:

"Visual material is very important…that you have something on paper because they can now usually read and write English much, much more than they can speak or

understand spoken, and materials....to explain by pictures more than words." (Interview ウ)

Since the Japanese also accept the Japanese communication style in English, they use あいずし *aizushi* back-channeling in English, for example, which was confusing for the Finns:

> "They say always that 'hai, hai, hai' yes, yes, yes, yes all the time along the way ...though they understand what is coming out of your mouth they do not understand the meaning at all...should say immediately 'stop, stop, stop'..." (Interview ウ)

It is difficult to place the Japanese style of nonverbal communication in the categories of the communication theories. The very idea of verbal communication in Japanese is very different from the Western (usually compared to American English) idea; the Japanese language is seen as a subjective experience rather than as an objective entity. Words are employed as tools for communication in the English language, and thoughts and ideas are treated as things contained in words (Maynard 1997, 180-181), whereas in Japan, language is considered a poor medium for expressing feelings but a useful medium for expressing social cohesion (Tobin et al. 1989, 191).

Understanding language in the former sense places communication at an angle of the conduit process and language is treated as an object that can be transmitted from one place to another: *"In the American view, words are compact, useful, and manageable - almost tangible objects that can be transported from one person to another."* (Maynard 1997, 181)

Conversely, the Japanese consider words meaningful only in the context of a communication event. Social, situational, psychological, and emotional factors must be integrated before words can be understood: language is seen as an event rather than as an object (Maynard 1997, 181). Non-verbal communication in Japan has a greater subtlety than elsewhere: it is analogical and it refers to something expressed by sympathy and empathy. One interviewee described it as giving space to the other:

"Non-verbal communication is in a way giving space to the other... longer acceptable silent moments in discussion in Japanese and Finnish than in South-European or American in which silent moments should be filled." (Interview 7)

Often-cited characteristics of Japanese non-verbal communication include smiling, bowing, and being silent. The two former lie behind the notion of the polite Japanese, and silence is often misunderstood as a lack of communication, which it is not.

The Japanese associate human contact with non-verbal rather than with verbal communication (Doi 1974a, 20). Verbal communication in Japanese is receiver-oriented, which means that the speaker may leave the sentence open to be finished by the receiver. The Japanese hesitate or say something ambiguous when they fear that what they have in mind might be disagreeable to others. Their non-verbal communication does not mean touching or kinesics, but is more to do with feeling the mood of the other person.

One interviewee gave advice on reading Japanese non-verbal signs:

"It is not telepathy.... it is based on learned things... more important than a list is maybe in a way ...to take open mind into situation... if the counterpart also has an open mind, things will work well, no need to make sure that one communicates in a certain way ...stand, attitude is most important." (Interview 7)

Silence in Finnish and Japanese Communication

Tobin et al. (1989, 153) note that, although American children enjoy great freedom to express their opinions and feelings, they are much less free than children in China or Japan to remain silent and to hide their feelings. Many of the key persons interviewed for this study took up silence as an important similarity in communication between the Finns and the Japanese. As one Finnish informant said:

"Tolerance of silence...and distance ...can be both quiet in the middle of a conversation without either getting into terrible angst... it's small talk, Finns and Japanese take courses so that they could talk with Americans... Finns and Japanese step back when Americans come so close." (Interview 3)

The meaning of silence is very different in these cultures, however. Finns are atypical in the West in that they are known as 'the silent Europeans'. Just as in Japan, there are many proverbs in Finland praising silence over speech: "*Speech is silver, silence is golden*". The national joke in Finland is that 'a Finn can remain silent in several languages', referring to the obligatory study of several languages at school (Finland is also officially bilingual in Finnish and Swedish).

Some researchers have interpreted Finnish silence as a sign of the 'Eastern character' (Wicén 1986), but I claim that its meaning differs from silence in Japan. Keeping silent in Finland usually means an interval in communication rather than engaging in active nonverbal communication. During the break the person may be thinking what to say next, or he or she may not be thinking of anything special.

The Japanese word for 'tacit', 暗黙 can be translated into English as 'silence', but we should bear in mind that silence has a very different meaning in Japanese than in Western communication. For the Japanese it involves the active use of different senses in order to understand holistically what is going on.

Cultural Mediators in International Business

Ohmae (1988) wrote his book "*Beyond National Borders*" with a Japanese audience in mind. Although he structured the text and added some clarifications for the English edition, it is still easy to see that the book was intended to make the Japanese aware, rather than to convince the non-Japanese. One of the most striking examples of this occurs in the chapter on communication: Ohmae seems to think that it is the Japanese who have the duty to bridge whatever cultural gaps exist between Japan and the rest of the world. This idea could stem from the underlying assumption that the Japanese language and culture are too difficult to be mastered by non-Japanese. It could also be a result of the sort of inferiority complex that the Japanese have in relation to Western cultures. Since I do not support either of these two assumptions, I assumed that since the book

was written for the Japanese, the aim was to emphasize the importance of understanding foreign cultures and to encourage the Japanese to be more active in this regard.

In fact, Ohmae (1988) stresses the need for the Japanese to explain themselves by themselves to the rest of the world. Western interpretations (by so-called Japan experts) might be *"inadvertently false or be couched in language that is detrimental to Japan in the long run"* (ibid, 69). However, given their high-context culture and extensive use of tacit communication, the Japanese are not very good at explaining things.

Communication between companies rooted in different cultures also poses problems in the globalizing world. Although it has been said that national borders will soon no longer exist, and that markets are very homogenized around the industrialized world, it still remains a fact that modes of communication and ways of thinking are very different in different cultural contexts, and companies operating in these environments must also take this into account.

Global business requires communication between high- and low-context cultures as well as among them. There is a need for cultural mediators who can successfully interpret between them (Kanpinen-Takaca 1992). As Ohmae (1988, 107) suggests, *"The result could be an entirely new species, a type of mutant with hypervigor"*. In terms of where to find these new "mutant heroes", the company has few choices: it can start training them, recruit them or hire them. Expatriate managers with local language skills are potential cultural mediators.

5.6 Internalization by Engineers and Poets

According to Nonaka and Takeuchi (1995, 69), the internalization process turns explicit knowledge into tacit knowledge. They relate this to 'learning by doing', and maintain that it helps if the explicit knowledge is verbalized or diagrammed

into documents, manuals, or oral stories. Documentation both facilitates the transfer of explicit knowledge to other people, and helps individuals to internalize what they experienced, thus enriching their tacit knowledge.

The Conversion of Explicit Knowledge into Tacit Knowledge

Transforming (explicit) 'knowledge with form' into tacit knowledge is called 内面化 in 野中(1990), which refers to 'inner, internal, inside', the inside and the interior, that is, to internalization and interiorization (Kenkyusha's 1983). He also refers to it as an everyday word 住み込み (inculcating).

In Finnish, internalization can be understood as '*sisäistää*' or '*sisäistyä*' (becoming internal, becoming ingrained with something). The verb has been used in expressions such as *'taiteilijan sisäistynyt luonnonkuva'* (the artist's inward sense of nature) (Alanne 1980).

Although it may seem that internalization is a similar process for the Finns and the Japanese, there are differences in how they perceive the explicit knowledge that has to be internalized. As discussed earlier, for the Finns explicit knowledge is verbal knowledge, which means either spoken or written in phonetic writing. Thus they perceive only verbal knowledge as something to be internalized and scan the environment only for words. Internalization is listening - by being quiet you convert verbal into '*äänettä*' (silent or a low degree of something). On the other hand, for the Japanese 'knowledge with form' is not limited to verbal knowledge, and it also includes knowledge perceived by different senses.

Internalization in the Finnish context concentrates on what has been said (or written), and what has **not** been said (or written) does not exist. One answers only what has been asked, one does not provide additional information. In the East, verbal symbols of any kind are treated sceptically, with the least confidence of all placed on the spoken word (Kincaid 1987, 336). Verbal

knowledge is of little importance to the Japanese, it may even be just noise disturbing the perception of what is important. Explicit knowledge has the meaning of something that has been given a form. When internalizing this form one opens it up to become images, smells, tastes, touch and emotions - even sounds. One has to scan the environment with all the senses in order to understand all the hidden meanings. For example, documenting one's experience in the form of photographs, notes, and souvenirs, is an important way for Japanese travelers to internalize their travel experiences.

The Japanese gift-exchange custom provides another example. There is a tradition of wrapping that goes back to the Heian era over a thousand years ago. Love letters in the Heian court were written in an ambiguous symbolic way and wrapped to capture the scent of a seasonal flower. The receiver could learn not only from the multiple meanings in the written text, but also from the style of script, the quality of the paper, and the scent of the flower what the feelings of the sender were. In modern Japan one periodically exchanges gifts with people connected to one's private and business life. These gifts are carefully wrapped and carry multiple symbols, starting from the prestige of the department-store paper bag.

The Development of Sensory Perception in Finland and Japan

I have claimed earlier in this study that the internalization process is affected by the ability to receive signals or knowledge from the environment. Cultural differences were found to exist in perception and sensing: in the West there is generally more focus on verbal cues and the perception of nonverbal signals is not practiced consciously. The Finns also focus on verbal communication, but since the communication style is succinct, the scope of perception is more limited. For the Japanese feeling-based receptivity is the dominant mode from early on, and verbal signals are considered secondary, even disruptive. Since there is similarity in the quantity of verbal messages and tolerance for silent periods in communication, the internalization processes of the Japanese and the Finns appear similar. However, whereas the Finns take succinct verbal messages

literally and pay less attention to nonverbal cues, the Japanese look for hidden meaning behind every word and scan the environment for nonverbal messages.

I discussed studies of American and Japanese mothers in Chapter 3. It seems that, as compared to American caretakers, Finnish mothers, like Japanese mothers, have less verbal communication with their infants. However, Japanese mothers have more physical contact, whereas Finnish society and public opinion encourage the physical separation of the mother and the infant. The Japanese traditionally carry their infants on their backs: this custom persists even today because Japanese streets are unsuitable for baby carriages or prams. The physical closeness with the mother trains the infant in bodily movements, which are part of nonverbal communication in Japan. The concept of space also develops at an early age: there is a custom of 添い寝, co-sleeping of children with their parents. As Caudill and Plath (1974, 277) argue:

> *"The frequency with which children co-sleep with parents expresses a strong cultural emphasis upon the nurturant aspects of family life and a correlative de-emphasis of its sexual aspects."*

Finnish infants seem to lack both verbal communication stimulus and physical contact. A look at the information distributed at maternity-care centers in Finland suggests that Finnish mothers need to be encouraged to talk to their infants and to touch them. It seems that the average Finnish mother does not talk very much with her infant, neither does she have very much physical contact with it: outside the home the baby sleeps in a baby carriage or sits in a pushchair. This is encouraged by society, for example, in that in the Helsinki transportation system one adult travels free of charge if she has a baby in a pushchair (if the baby is being carried the carrier must pay the due fee). The fact that Finnish infants spend longer periods of time, both sleeping and awake (such as when the mother goes shopping), in a baby carriage suggests that they get very little experience of human communication. The view from the baby carriage is literally 'tunnel vision'.

Inside the home the infant sleeps in its own bed or cradle, and preferably in its own room if there is enough space in the home. Again the advice from maternity centers and public opinion encourages this sleeping separation as healthy both for the infant and the marital relationship. The official advice from maternity centers is taken very seriously: breast-feeding has become popular again today, but in the 1970's it decreased drastically since bottle-feeding was considered both healthy and gender-equal (either parent can feed the baby). Finnish infants also sleep out in the fresh air during wintertime. In cities the infant's baby carriage may be placed on the balcony. It could be argued that this time is spent in contact with nature (there is plenty of nature in Finnish cities) since the infant hears and feels natural sounds when sleeping in the open air.

The origins of the Finnish type of communication can be found in her near history. The now middle-aged (35-60yrs) generation was born between 1944-1969, a time of major structural changes in Finnish society marked by rapid industrialization and urbanization. The model of a silent father who had returned emotionally disturbed from the war, and an active mother working both outside and at home, may have influenced the way in which this generation was brought up. In terms of caring for children, this background has certainly had an influence, along with the fact that the dual-income society directs the mothers of small infants to return to full-time work within one year of the birth of the child.

It is clear that cultural variation in communication starts very early in human life. A cultural bias in communication habits in early infanthood is further developed at school age, when achieving literacy also shapes the cultural way of processing and transferring knowledge. This forms the culture-specific knowledge-creation patterns. I have claimed earlier that silence in Finland denotes a lack of communication (*passive silence*), whereas in Japan it is tacit communication (*active silence*). Although Finns and Japanese feel at ease with

each other in silence, the Finns are not able to read the nonverbal stimuli sent by the Japanese.

Learning with the Body

Internalization could be understood as learning. In this study I have analyzed the different learning styles in Finland and Japan that reflect the first learning task, acquiring literacy. Learning for the Finns is abstract and theoretical while for the Japanese it is a physical activity: even the writing system is mastered through the physical repetition of *kanji* (physical memory). Japanese arts such as the tea ceremony, *ikebana* (flower arrangement), and calligraphy are all learned by experience and by observing the master carefully. For example, the body movements in the tea ceremony cannot be verbally explained, they have to be learned with the body.

The Japanese word 体得 is translated as 'realization, experience', and a verb derived from it means to 'realize, learn from experience' (Kenkyusha's 1983). 体 means 'body' and 得 means 'to gain', 'potential' (obtaining something valuable) (Hasshi 1992). Thus learning from experience denotes using the potential of the body. According to Nonaka (1994, 22), commitment to bodily experience means intentional self-involvement in the object and situation, which transcends the subject-object distinction thereby providing access to 'pure experience':

> *"Japanese firms encourage the use of judgement and knowledge formed through interaction with customers - and by personal bodily experience rather than by 'objective', scientific conceptualization. Social interaction between individuals, groups and organizations are fundamental to organizational knowledge creation in Japan."*

Nonaka (1994) warns that this may sometimes lead to a sort of 'experiencism' in which the importance of reflection and logical thinking is neglected. This in turn

could lead to an over-emphasis on action and efficiency at the expense of a search for higher-level concepts that have universal application.

Learning from experience in the Japanese market was considered quite difficult by the Finnish expatriates. One of them noted that even though one might get into the system and learn to understand it,

> *"but on the other hand, no outsider can ever fully understand this society, even if he had lived here throughout his lifetime because one cannot get in everything, and when all this is not part of one's genes". (Interview ウ)*

However, there were also successful learners. As one Japanese interviewee noted of the Finnish expatriate who was a hub in the network in the Finnish-Japanese business society:

> *"He understands well the Japanese because he lives in the same way and not in the residential areas for foreigners". (Interview カ)*

Intuition

Intuition was discussed in this study as an individual-level internalization process. However, intuitive understanding can also be understood as part of the internalization process. As far as Nishida is concerned, knowledge is not limited to reflection, and intuition is also a kind of knowledge. In fact, he claims that "直覚の方がむしろ真の知である。" ("it is intuition rather than [reflection] that is real knowledge). (西田 2004, 228)

Japanese internalization reflects the traditional perception of reality in the East, which can be traced back to the classic Indian theory of perception. More confidence is placed on the direct, immediate perceptions of reality at the ideal 'point instant' of time, and on intuition than on perception of the world filtered by conceptual thought. This assumption is the source of the belief that the world itself is an illusion. (Kinaci 1987, 336)

intuition is discussed in the West in the context of psychotherapy and human-relations training, but it has been considered to be beyond existing methods of empirical research:

> *"Empirical research in the social sciences is very dependent on verbal recall and reporting. Intuitive understanding of some aspect of reality very often cannot be put into words." (Kinkaid 1987, 336)*

There is an important difference between Eastern and Western perspectives on communication: the East remains sceptical of conceptual thought and its verbal representation, while the West remains sceptical of intuitive perception because it is so difficult to represent verbally and to measure. Although conceptual and intuitive thinking is used in both, there are differences in the degree of emphasis and confidence placed on these two terms of perception (information processing) in communication theory and practice. (Kinkaid 1987, 336-337)

One Finnish expatriate who had lived for over ten years in Japan and spoke Japanese, commented:

> "When you have been here long enough then you become kind of local and then you can sense what the others kind of mean with what they say." (Interview I)

When I asked him what he meant by 'sensing', he answered:

> "Well, for example body talk and all that kind of...when it says something so what it means with it...that is not unambiguous...then one can go home and think and is a comparison if with...so what do you think that it meant with it, was it so or was it like this." (Interview I)

Learning Intent in Finland and Japan

It seems that the relative ease of learning to read and write in Finnish fosters a low learning intent. Since the Finnish educational system fosters specialists, the area of interest for learning also tends to be quite narrow later on. Conversely, inherent in the Japanese knowledge-creation pattern is high learning intent based on the efforts necessary for achieving literacy. Sullivan and Nonaka (1986, 144) claim that Japanese managers have 'an insatiable thirst for data':

> *"Japanese managers are inductive decision-makers with an insatiable thirst for data, and the way that senior and junior managers handle data is of greater consequence than the way they work to build trust within the organization".*

This is reflected in the management practices that stress variety amplification: Japanese senior managers follow an information-gathering policy that considers all phenomena relevant; they require all employees to be identifiers of corporate problems and opportunities; they seek a large quantity of information from the environment; they state a desire for the firm to attain an ideal - a dream; they focus on creating challenges - barriers to overcome, problems to solve; and they vitalize people (Sullivan and Nonaka 1986).

Japanese managers are also interested in a variety of things beyond their own field. This was visible in this study, too: whereas the Finnish expatriate managers only commented on the practical differences between the Japanese and Western ways, one of the Japanese informants was able to discuss the philosophical roots of the Japanese way of thinking as follows:

> *"...one of the most difference is base of our feelings...and this is only my personal view...European culture is standing for Jesus Christ, religion, and you have quite clear ethics to everything, therefore you can say this is right this is wrong, this is yes this is no...but actually Japanese people don't have that kind of base in our minds, of course we have Buddhism, but the basic idea of Buddhism is we accept everything...and even Japanese Buddhist is mixture of our original religion and Buddhism...and if you go to a Japanese shrine, Japanese temple...in some temples have shrine in their temple...and this is really convenient way of thinking...and traditional Japanese people think this shrine will protect this temple and this is maybe not be accepted in the European countries...also we have quite many gods in our original way of thinking, like tree is god, sea is god, air is god...and therefore we don't have really stable base to judge things and therefore...always the most important thing is what other people thinks...and how I should take balance in the society...and how to create consensus in a company or in a society...that is the base of Japanese way of thinking I think...that is our biggest difference." (Interview 力)*

In contrast, American management behavior has been described as variety reduction, the tendency of senior managers to state policy focusing only on relevant issues and sources of information; to identify specific employees who will identify problems and opportunities; to seek only high-quality information from the environment; to state a desire for the firm to attain a realistic level - a goal; to focus on taking advantage of opportunities – finding holes in the barrier to crawl through; and to direct people (Sullivan and Nonaka 1986). Finnish management practices also reflect this style: it is important to keep within the area of your own specialization ("*suutari pysyköön lestissään*") and to focus on the topic, and one should confine oneself to minding one's own business. High-

quality information is something that could be considered objective truth, while non-business-related information is not important. As the Japanese see it, Finns concentrate only on work-related things. A Japanese informant suggested that Finnish expatriate managers should change their attitudes when they needed to deal closely with local customers:

> *"For example, when they talk about the very silly game-shows set games so perhaps at least she or he need to show an interest otherwise that OK he is well educated and different person or something like that...this is not too difficult." (Interview キ)*

Sullivan and Nonaka (1986, 142) suggest that where Americans use information to achieve, the Japanese use it to develop feelings and positions that are adaptive to the group and the context. This is important part of doing business in Japan, as one interviewee noted:

> *"It is quite often criticized that the Japanese business efficiency is very low because when we visit the customer maybe it takes about three minutes for real business but another one hour is talking about golfing or ...some other markets, and competitor and what ever so..." (Interview キ)*

Language and Receptivity

Hamel (1990, 85) considers receptivity a function of the language and benchmarking skills of those who operate across the collaborative membrane:

> *"Knowledge, particularly human-embodied knowledge, that is encoded in an unfamiliar language is for practical purposes, inaccessible".*

The quality and amount of information received by the individual depends on the **information space** surrounding him or her. Language skills and education regulate the size of the information space. Consider differences between a literate and an illiterate individual's space in our society; or the existence of professional languages such as legal and medical languages.

Receptivity of expatriate managers in Japan develops over time, as one informant commented:

> *"The development of knowledge on Japan moves up on a rail by learning more... when one has been in Japan for three months one starts to wonder that now I have understood this system, what these mean and what they twist...but then it kind of develops into a situation and one falls back again." (Interview ウ)*

Although Finns generally know several foreign languages, in 1991 very few expatriate managers in Japan were making an effort to learn Japanese. In 2003, even expatriates who spoke fluent Japanese knew very little script, as one key person estimated:

> *"Big change in that respect...quite many Finns who speak Japanese, in 1988 there were very few, and now in these companies there are already about ten of the kind who can kind of completely take care of things in Japanese here...of those[Finn's ex-patriates] who speak Japanese nobody reads and writes fluently." (Interview ウ)*

One of the Finnish informants was not acquainted with the Japanese writing system, but admired the Japanese who could master it:

> *"Well ...em... it I can't now really know what kind of conclusions one can make of it...that writing system is so complicated and it uses three different letter types mixed or together to express different thoughts...so one has to respect these Japanese who all learn from childhood about the use of this system...it is really fantastic learning result that they know it as a nation." (Interview サ)*

In practice it seems that most of the Finnish and other foreign businessmen in Japan are still illiterate in Japanese. This means that they rely on secondary sources for information on the Japanese market. They either use available English translations or ask their employees or contacts to translate for them. This limits their information space.

Learning to read and write Japanese is time-consuming and very few expatriates can allocate enough time to it:

> *"It is a big threshold...takes a few months of active study so that one can kind of get into it and realizes that this is actually quite interesting." (Interview ウ)*

However, those who had started learning to read the Japanese script considered it very important in understanding the Japanese:

> *"One learns a lot, at least in my opinion quite a lot, about the way of thinking in this culture.... when one learns now these are written, what this sign means." (Interview ウ)*

One informant had taken a sabbatical year in order to enroll in intensive Japanese language training. He reported having spent six hours daily on lectures and from three to five hours on homework. In three months he had learned 600 kanji and about 3000 words: *"By then my spoken Japanese language skills were*

practically zero" (interview ソ). After nine months of study he felt that the logic of the Japanese language had (perhaps?) started to 'stick in his mind' and began to open up for him.

For the Japanese their own writing system is more convenient than the Latin alphabet, as one Japanese informant commented:

> *"Of course Japanese is much, much easier [to read]...because the kanji ...my eyes pick up the kanji so direct like a picture...almost automatically I can understand the meaning of the page by going like this... but in English I have to read ... I can't get the words so easily like in Japanese...that's obvious, it's big difference... feelings are something that you cannot write in foreign language..."(interview ス)*

One Finnish informant who was exceptionally fluent in Japanese said that it was

> *"easier to read by glancing at kanji...even when you don't know the pronunciation, the meaning is transferred." (interview ク)*

Asymmetry in language skills leaves the other partner unable to learn from the cultural experience. The partner "possessing" the cultural mediators can use them as gatekeepers for any type of knowledge. Since you have to know enough of the culture even to ask the right questions, cultural mediators can control what information they want to give you. They can decide what knowledge would be important for you, and then decide how much of it to disclose to you. Hamel (1991, 95) described a frustrated European engineer working with a partner in Japan as being shut out of discussions in Japanese (lacking the language ability), and being told only the information the Japanese collectively considered necessary.

Seen in this light, Ohmae's (1988, 107) suggestion that only the Japanese are able to be mediators between Japan and the rest of the world gives the competitive edge without arguing for the Japanese. Unfortunately, this is also the reality in most of the cooperative ventures between Japan and Western countries. Hamel (1991, 95) also noted that this lack of cultural skills served to limit the transparency of Asian hosts.

Acquiring cultural knowledge is also related to the problem of unlearning, which Hamel (1991, 97) defines as *"not only a cognitive problem - altering perceptual maps - but a problem of driving out old behavior with new behavior"*. The ability to acquire cultural knowledge is an indicator of flexibility and the ability to learn in general.

Both the Japanese and the Finnish expatriate managers who had studied Japanese writing, thought it was a key to understanding the Japanese way of thinking:

> *"If I couldn't read, I wouldn't manage, I would get too pissed off when not getting into this system...yes, I believe that as I said that understand better now the Japanese that when I know what these signs mean." (Interview ウ)*

> *"Yes it's complicated but it's really convenient... that that Japanese writing system is indicating Japanese way of thinking." (Interview カ)*

One Finnish informant started studying Kanji immediately upon arrival in Japan, and reached the level of 500 to 600 Kanji. Now he looks up only the most interesting ones in a dictionary and reads advertisements in Japanese in the commuter train:

> *"My reading still develops all the time, not reading alone...not Japanese vocabulary." (Interview ウ)*

> *"They invent brilliant ways to make use of compact characters and different ways to abbreviate... mobile phone messages are damn compact: from four Kanji maybe only two." (Interview ウ)*

Access to Knowledge

Language skills determine access to Japanese knowledge to a large extent. As one Finnish informant noted:

> *"Those who speak this language get into a larger circle that someone like me who cannot communicate in that way." (Interview ウ)*

However, there are ways to compensate for the lack of language skills. The Finnish business community itself provides a network that can be used for obtaining knowledge:

> *"In fact I still don't have very many Japanese good friends who are in a way my friends, but they are linked with some larger entity." (Interview ウ)*

One significant finding in this study was that the spouses of Finnish expatriates also played an important role in access to knowledge. As one Finnish informant (married to another Finn) commented:

> *"If one is a bachelor then one has only a certain type of network at his disposal, but if one has arrived as a couple or if one has children then it widens the network...there are different levels along..." (Interview A)*

However, another Finnish informant with a spouse and children said that

> *"The old guys know nothing, but young ones are promising. Some of the old ones have a second 'setting': they are married with a Japanese woman or the wife is from somewhere in Asia, for example Singapore." (Interview J)*

It appears from the above discussion on language skills and internalization that receptors must be competent in order to **receive.** Hamel (1990, 86-87) also acknowledged that this was an important notion in terms of learning in joint ventures:

> *"They must be capable of interpreting, collating, and assembling the fragments of knowledge garnered from the partner in the course of the partnership. This implies that while there may be a large gap in organizational capability between the partners, the training, the operating experience, and conceptual skills of operatives should match those of their counterparts in the alliance as closely as possible."*

It is possible that different patterns of knowledge creation are responsible for the differences in receptivity in international joint ventures and the resulting outlearning of partners. However, although internalization patterns are culturally rooted, it is possible to learn to be more receptive and to widen the scope for scanning the environment. Language skills provide access to a larger pool of potential knowledge, and thus international companies could achieve a steeper learning curve by encouraging their managers to acquire local language skills instead of promoting 'geocentric type' of managers who assume they will get by anywhere in the world in English.

6 CONCLUSIONS AND IMPLICATIONS

"Orient und Occident *"East and West*
Sind nicht mehr zu trennen." *Can no longer be kept apart."*

(Goethe)

This final chapter presents the conclusions and major findings of the study. The theoretical contributions to the multidisciplinary fields that are linked with it are presented, and the implications for future studies are discussed.

6.1 Conclusions

The aim of this study was to analyze how knowledge-creation theory can be applied in different cultural contexts. The "simple, elegant model", as Castells (2000, 171) calls Nonaka's knowledge-creation theory, has proved valid and useful in cultural comparison. It is precisely the simplicity of the model that renders it useful in cross-cultural analysis, although it has been criticized for distinguishing tacit and explicit knowledge because these are mutually constituted and inseparately related (Tsoukas 1996; Tuomi 1999). However, Takeuchi (2001, 320) considers such distinction the key to understanding the differences between the Western approach to knowledge (knowledge management) and the Japanese approach (knowledge creation). The West has placed strong emphasis on explicit knowledge, and Japan on tacit knowledge.

In my opinion, it is precisely by separating tacit and explicit knowledge that the theory allows the analysis of these concepts in different languages and cultural contexts. The original theory of knowledge creation put forward by Nonaka generates different cultural patterns. I have called the two emerging styles adopted by Finns and Japanese those of Engineers and Poets.

The general question in this research was How Does Culture Influence the Knowledge-creation Process in International Business? Analysis of the cultural dimensions of knowledge-creation theory generated more focused research questions. I have identified several cultural dimensions that influence the

knowledge-creation process: language (cognitive capacities), the concept of the self, communication style, and receptivity. Figure 28 summarizes the influence of culture on knowledge creation, and I will discuss the major findings in the following.

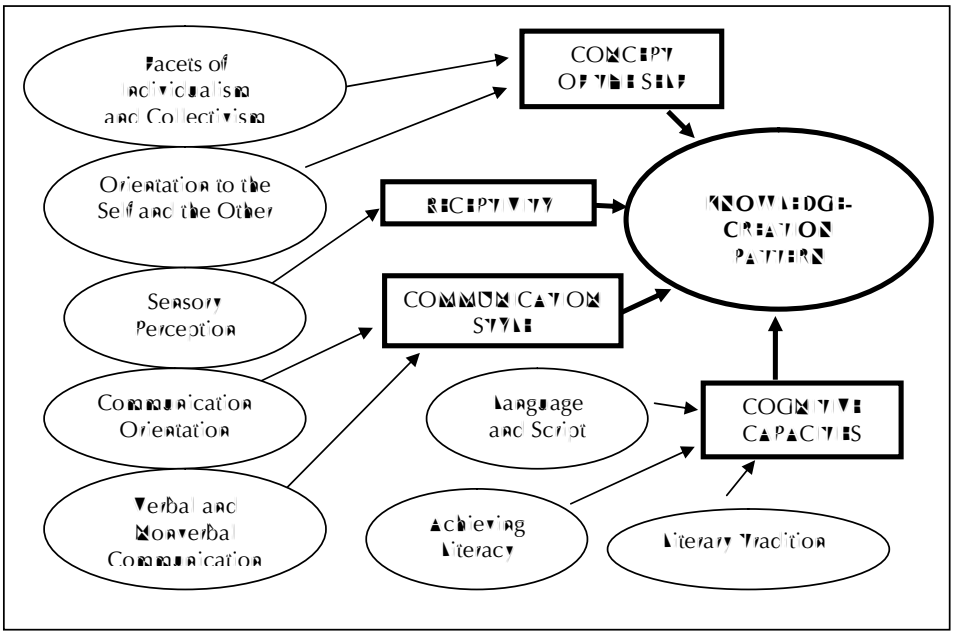


Figure 28: A Theoretical Model of the Influence of Culture on the Knowledge Creation

Language

Language has an important role in knowledge creation since it's a tool for organizing knowledge (conceptualization, logic). It is also used to transfer knowledge between persons.

The role of language in knowledge creation was analyzed from two different perspective, in terms of (a) how the concepts of tacit and explicit knowledge differ in different languages , and (b) how language, especially the script and achieving literacy, influences the development of cognitive capacities.

(a) I analyzed the meaning of the concepts of tacit and explicit knowledge in English, Japanese, and Finnish in chapters 2 and 4. My conclusion was that the concepts tacit explicit knowledge, 暗黙的 形式的知, and

piilotieto/eksplisiittinen tieto all have different meanings and indicate different types of experiential perception. Tacit and explicit knowledge focus on verbal knowledge, the former on the lack of it and the latter on its presence. It seems that the aim of knowledge creation in English is to verbalize tacit knowledge.

The Japanese concept 暗黙的知 draws attention through the metaphorical meaning of the *kanji* used to write it to "a black dog in the dark", which indicates knowledge understood by different sensory channels (auditory, olfactory, tactile, and with a sense of taste). 形式的知 is not the opposite of this, but represents knowledge that has been organized, given a form. The Japanese knowledge creation is not limited to verbalizing tacit knowledge, but rather displays efficient ways of converting and transferring of knowledge in its tacit form. The Japanese style could be described as Poetic.

In Finnish the selection of *piilotieto* to translate tacit knowledge suggests that it is understood as a 'low degree of something'. *Eksplisiittinen tieto* on the other hand reflects the custom of using loan words to create abstract concepts. In practice the Finnish knowledge-creation style focuses on verbalizing knowledge in a precise and succinct way, which is called the Engineer style here.

Cultural analysis of other concepts in knowledge-creation theory would be necessary, but were beyond the scope of this study. I briefly mentioned the differences in understanding the concepts of objective (客観的) and subjective (主観的) in Japanese in chapter 4, and further discussed Nishica's (1990; 西田 2004) view of not distinguishing the subject and the object in the Japanese understanding of experience. These are important notions with regard to the

criticism Nonaka's theory of knowledge creation has received in the West (Crossan 1996). The Western understanding of abstract concepts is not the same as the Japanese concrete writing of these concepts suggests.

(b) A major contribution of this study was in the application of Goody's (1991) Culture-Cognition model to analyze the impact of language on the development of cognitive skills in two very different contexts: the Finnish and Japanese languages and writing systems. Studies conducted by Luria (1976) led me to understand that writing and literacy underlie the conceptual-development process. Goody (1989; 1991) and Ong (1990) also provided evidence of how (alphabetic) writing and literature shape our cognitive capacities and skills. In my study, I have combined these views with certain sinologists' (Hansen 1989; Allinson 1989) understanding of Chinese characters and their influence on thinking. I have also found recent evidence from neuroscientists (Tan et. al 2003) to support the view that languages (and moreover different writing systems) stimulate different types of knowledge processing in the brain.

I summarized my findings in chapter 5.1. The major difference between the Finnish and Japanese writing systems is in that the Finnish context writing is 'spoken language that is written', whereas in Japanese there is combined use of the phonetic syllables *hiragana* and *katakana*, which allow writing the spoken language, and *kanji* (Chinese characters), which represent 'written language that is spoken'.

Knowledge processing is very different in Japanese and Finnish scripts. In chapter 4.3, I analyzed how images are processed in the Finnish and Japanese languages. The use of *kanji* in the Japanese script facilitates the retention and development of images. I suggested in chapter 4.3 that the *kanji* form a network of concepts that are displayed as images and linked through association. Thus knowledge creation in Japanese does not require phonetic analysis and synthesis, since the graphic shape of the logograph gives its direct meaning. The Finnish language differs from English, for example, in that the close

correspondence between sound and graph requires less analysis of the phonetic composition. However, the use of the phonetic script enhances abstract thinking. The consequent categorization is abstract and linear in Finnish, and concrete and associative in Japanese.

My analysis of the Finnish and Japanese scripts also enhances understanding of how the process of achieving literacy becomes the primary knowledge-creation model in the two contexts. In chapter 4.3 I discussed differences in the sight-learning challenge for the Japanese and the Finns. Achieving literacy in Finnish means learning the 29 Finnish phonetic letters and ten Arabic numerals, and is usually managed during the first school year. After this the child can start using the language creatively for reading and writing. This primary model of knowledge creation thus stimulates relatively low learning intent: learning should be easy.

For the Japanese, learning the two sets of phonetic syllables (*hiragana* and *katakana*), each with 46 graphs, and ten Arabic numerals, is likewise an easy task, and children often learn this prior to school, or at the latest during the first school term. However, basic literacy in Japanese also involves learning over 2,000 *kanji* (Chinese characters) with different pronunciations. Achieving literacy in Japanese thus takes several years, and even after twelve years of education nobody can be considered perfect in the writing system. The never-ending process of learning to read and write in Japanese generates the primary knowledge-creation model with high learning intent.

The complexity of the graphs in the phonetic and logographic scripts influences the way they can be memorized. The relatively simple phonetic graphs in Finnish and Japanese can easily be stored in mind. However, memorizing *kanji*, some of which are written with over twenty strokes is a task that develops a way of learning by experience. The *kanji* are always written in the same predetermined order in a square. By repeating the same logograph several

hundreds of times, one establishes kinaesthetic memory, 'a memory of the hand'. *Kanji* could thus be considered part of embodied knowledge.

I discussed literary tradition as collective memory in chapter 4.4. Shared tacit knowledge can be used efficiently in knowledge creation in the form of common metaphors, and in the socialization process when common experience is complemented or substituted by secondary experience from literature. The Japanese literary tradition stretches back over 1,000 years, and its metaphorical and poetic style of expression persists in present-day Japan. This enables tacit understanding among the Japanese, but at the same time keeps this knowledge opaque for non-Japanese.

The Finnish literary tradition is only about 100 years old, which suggests that the Finnish knowledge-creation style may resemble that of an oral society to some extent. The written (and especially the printed) word is quite often taken as a fact or truth in Finland, and it is interpreted literally. Transparency is valued in Finnish knowledge creation and thus there is emphasis on explicit knowledge.

Individual and Social Levels of Knowledge

Understanding what constitute the individual and the societal levels in knowledge creation was identified as one of the critical issues in the cross-cultural application of the theory, which has been criticized for its approach (Hedlund 1993; Spencer 1996; Tsoukas 1996). It seems to rely on the Western concept of the self and the other, whereas there are cultural differences in how we understand the self and also in varieties of individualism and collectivism.

In chapter 3.5, I developed a model of orientation to the self and the other based on Ting-Toomey's (1988) two-dimensional grid of facework maintenance. I combined this theoretical model with empirical data from Finnish-Japanese business community in my analysis of knowledge-creation patterns in Finland and Japan in chapter 5.3. The Finns are considered autonomous Engineers and the Japanese as interdependent Poets in their knowledge-creation style.

According to the theoretical framework developed by Kim (1995) and presented in chapter 3.5, the Finns are considered in chapter 5.3 to represent an aggregate mode of individualism, which is extremely individualistic to the extent of being self-contained. It is clear that knowledge creation in this kind of cultural context means focusing on the individual level. Knowledge can be shared only when it is in an explicit form. Nedjad (1993) draws attention to the fact that Polanyi focused on personal knowledge, and on the social level tacit knowledge becomes more complex. In an extremely individualistic context tacit knowledge cannot be shared by individuals.

However, the Japanese relational mode of collectivism (chapter 5.3) is based on the fluid concept of the self in a group with a firm boundary. This allows knowledge creation on the group level at all stages. The Japanese do not have to convert tacit knowledge into explicit knowledge in order to share it with others, they rather extend the boundaries of the self to cover the other. Losing individuality in this way would be a nightmare for the autonomous Finn, but becomes an efficient mode of societal-level knowledge creation for the Japanese. Knowledge creation is primarily an individual process for these Engineers, and only in the combination process can explicit knowledge be shared. On the other hand, Poets engage in knowledge creation on both the individual and group levels, and it is sometimes difficult to distinguish the two since the concept of the self is fluid.

Knowledge Creation as Communication

The process of knowledge creation also involves the transfer of knowledge between individuals, although the emphasis is more on the creation of new knowledge. From an individualistic perspective, however, actual knowledge creation takes place only within individuals, and we can only share this knowledge on the group level. According to the SECI model, externalization and combination processes involve the communication to others of what has been discovered by the individual. Thus cross-cultural differences in

communication have been discussed in this study in order to discover how culturally different communication styles influence the knowledge-creation process.

In chapter 3.6 I combined studies on communication in different cultural contexts to provide a model of communication orientation focused on the sender and the receiver. Cultural differences in verbal and nonverbal communication were further analyzed and a two-dimensional model of communication contextuality was proposed. It was already obvious that the concepts of explicit and tacit knowledge in Finnish focused on the verbalization of knowledge, whereas the Japanese understanding of these concepts stressed nonverbal understanding.

My analysis of the Finnish and Japanese communication styles in chapter 5.5 revealed that the Finns are sender-oriented and that their communication mode is succinct. The Japanese, on the other hand, are receiver-oriented and their communication mode could be described as telepathic. Although tolerance of silence in communication is a common character in both cultures, I argued in chapter that the meaning of silence is different: for the Finns it is a pause in communication whereas for the Japanese it means active engagement in nonverbal communication.

Receptivity in Knowledge Creation

The internalization process in knowledge creation means converting explicit knowledge into tacit knowledge, which involves receiving signals from the environment and perceiving them. I was interested in how cultural differences in receptivity affect the knowledge-creation process. I discussed the capacity to learn, the transparency of knowledge, and receptivity in chapter 3.7. A review of cross-cultural studies suggested that there are cultural differences in how we use sensory channels, and biases toward certain channels are already developed in infanthood.

I compared the development of sensory perception in Finland and Japan in chapter 5.6. It seems that Finns focus on verbal messages (the auditory channel), whereas the Japanese develop more holistic sensory perception. Thus when internalizing knowledge the Finns only consider verbal knowledge worth paying attention to, whereas the Japanese scan a variety of knowledge forms. Nonaka and Sullivan (1986) define Japanese information gathering as variety amplification: a large quantity of non-specialized information is sought from the environment. I compared the variety-reduction style adopted by Finns and Americans in information gathering: perhaps even more than the Americans, Finns focus on their specialization area. This was also noticed by the Japanese key informants in this study, and they recommended that Finnish expatriates should widen their areas of interest.

Receptors must also be able to receive, and in an international context this means that in order to understand even explicit and verbal knowledge one has to understand the language. I discussed language and receptivity in chapter 5.6, and language skills as access to knowledge. Longitudinal observation of the Finnish-Japanese business community disclosed that there has been considerable development in the acquisition of Japanese language skills among Finnish expatriates. While very few Finnish expatriates could speak Japanese in 1991, in 2003 there was a new generation of expatriate managers who were relatively fluent in the language, some because their parents were already working in Japan. However, most Finnish and other Western expatriate managers located in Japan are still illiterate in Japanese. As my analysis of the influence of the writing system on the development of cognitive capacities showed, the Japanese writing system is an important key to understanding the Japanese way of thinking. Furthermore, as long as one cannot read in the local language, one is at the mercy of information gatekeepers in the form of English-language newspapers, translators, and English-speaking employees or colleagues.

As Yamada (1997, 147) notes, *"The power of English has made the English-speaking world complacent, assuming that everything they need to know could be found in English, and never able to know otherwise."* English is the most popular foreign language; American movies are distributed throughout the world, and so called international non-profit organizations are preaching a message of 'transparency' based on the Western worldview and values. According to Yamada (1997, 147-148), there is a learning gap between the English-speaking world and the rest: while all Japanese students begin studying English from junior high school onwards, a mere 45,700 students, mostly at university level, were studying Japanese in the US in 1992. There is also a huge information gap between the worlds: in 1990, the Japanese translated more than three thousand books written in English, but the Americans translated and published only eighty-two from Japanese.

6.2 Theoretical Contributions

This study is multidisciplinary and thus linked to several research traditions and previous studies. Its major contribution is in the field of **organizational learning**: By showing that the theory of knowledge creation developed by Nonaka can be extended cross-culturally to describe cultural patterns of knowledge creation, I am adding new understanding to the study of organizational learning in international business. Earlier studies have indicated that there are differences in how Japanese and Western managers process knowledge; however, I have identified cultural factors that explain why these different patterns of knowledge creation will emerge.

I have also been able to explain some unanswered questions from earlier studies to do with why out-learning takes place among partners in Japanese-American joint ventures (Hamel 1990). The transparency of the Western script and its focus on verbal knowledge gives easy access to outsiders. In addition, the Japanese knowledge-creation style involves high intent to learn. On the other hand, the ambiguity of the Japanese language (and the Americans' lack of

Japanese language skills) makes it opaque for outsiders. Moreover, low learning intent reduces the capacity to learn in Americans.

Hamel used the term 'transparency of knowledge' to indicate openness and accessibility of skills. He was referring to situations in which one partner would unreservedly give the other partner access to these skills by the other partner, and noted that asymmetry of transparency was inevitable (Hamel 1990, 17; 51). My study indicates that both the transparency of knowledge and the intent to learn are culturally dependent qualities. This does not mean that outsiders cannot acquire these skills as well, however, provided that there is a willingness to learn.

The contribution of this study **to research on internationalization** is that it suggests a final stage to the internationalization process: internal internalization, which means developing the cultural skills necessary for understanding the cultural contexts in which the company is operating. Longitudinal observation of the Finnish-Japanese business community in 1991-2003 showed evidence of improved Japanese language skills among Finnish expatriates, and increased networking among the Finnish companies operating in Japan.

Language and communication studies have been an important dimension of this study, and along with the search for explanatory factors in cultural differences in knowledge creation, I have also further developed existing theories. My two-dimensional model of contextuality is an extension of Hall's (1977) concepts of high- and low-context communication. It was developed based on insight of the meaning regarding silence in Finnish and Japanese communication.

In explaining how language influences the knowledge-creation process I have applied Gooody's (1989; 1991) culture-cognition model, and used the studies conducted by Luria (1973; 1976). However, my original contribution was to apply this knowledge to a non-alphabetic script, the Japanese writing system. It is my own discovery that Japanese associative logic in fact reflects the *kanji*

script, and that *kanji* could be considered not just a writing system, but also a set of independent concepts. I also discovered that the *kanji* form a network of associated concepts.

Goody and Luria have shown how achieving literacy influences cognitive capacities. I am further claiming that different types of script develop different types of cognitive abilities and skills. Moreover, learning to read and write develops the first mode of knowledge processing, which later dominates knowledge creation. For the Japanese this means learning by repetition and the subsequent development of kinaesthetic memory.

Finally, I believe that my study also makes a modest contribution to the emergence of a **new world paradigm** by strengthening the realization that 'our way', the traditional Western way, is not the only way. The Latin alphabetic writing system dominates the Western world, and gives the impression that it is universal. If we were to understand that the Western pattern of knowledge processing is just one pattern among several, we could start learning from the different ways of creating knowledge.

6.3 Implications for Future Studies

Clarke (1997) analyzed the encounter between Asian and Western thought, and showed that Eastern thinking had influenced several important Western thinkers apart from Jung, including Leibniz and Voltaire. Martin Buber (1878-1965) was another early advocate of the idea of dialogue between Eastern and Western religions, and especially of the comparative study of mysticism. His development of communication in 'I-Thou' and 'I-It' relationships draws on Taoist ideas. (Buber 1965; Friedman 1956; Clarke 1997)

Although there are these notable representatives of Western thinkers interested in and influenced by Eastern thought, Clarke (1997, 7) noted that the approach by the West to the East has been more that of

> *"systematically imposing its religions, its values, and its legal and political systems on Eastern nations, frequently careless local sensitivities and indifferent to indigenous traditions". Recent postcolonial studies point at the way in which "oppressive and racist attitudes not only are to be found in the historical reality of empire, but also have become firmly inscribed in Western discourse at many levels...".*

Some non-Western writers also remind us that the West has to learn from the East, to look at the rest of the world in 'a new light, a perspective illuminated by humility and sincerity': *"...the West needs to accept other languages of discourse apart from the one presented since the Renaissance and the Enlightenment"* (Ibrahim 1997, 43). Oliver (1989, 24) notes that although there was a need for Westerners dealing with the East to be aware of the differences that had to be bridged, and to learn how to bridge them, it was the leaders of the East who had to acquire the requisite communicative understanding since the West had the power, the wealth, and the technology that the East wanted.

It is thus clear that knowledge about 'the other' is not symmetrical: due to Western economic dominance the rest of the world has been learning about Western culture. The multiple existing worlds are asymmetrical in the sense that they may partly resemble each other. The Western worldview includes the idea of 'either/or', it implies selecting among alternatives. When we look at another culture and see differences, we tend to think that these disclose similarities in the same variables. This results in dichotomies: if we are logical, then they are illogical; if we are rational, then they are irrational, and so on. However, another worldview may be based on inclusion, not selection. It is possible to be rational and emotional at the same time, or to combine linear logic and associative logic. The other world may resemble our world, and yet have something more in it.

Allinson (1989, 23) points out in an overview of the Chinese mind that we could integrate the different approaches in East and West:

> *"As the world shrinks both physically through advances in telecommunication and transportation and mentally (as we all become more monolithically Western), we must make great attempts not only to understand East and West by attempting to understand the two different*

> *thought tendencies as analogous, but we must be careful to preserve the differences. As in the metaphor of the yin and the yang, East and West require each other for their own existence, and future development depends **not on one system of thought replacing the other, but on an integrated growth** which maintains and expands both tendencies." (Emphasis mine)*

The way in which the Japanese have been adopting foreign ideas, starting with contact with the Chinese and Koreans, and especially with Westerners after the Meiji Restoration (1868), has been that of 合わせ *awase*, adjusting, rather than 選び *erabi*, selection. Thus the Japanese world already includes some aspects of our Western world (Sugimoto and Swain 1989). The information space of Japanese is wide because they seek to understand the Western culture in addition to their national culture. The Latin script is comprehensible to them, whereas for most Westerners simple texts in Japanese such as ヘルシンキ[60] or 東京[61] are completely incomprehensible.

The fact that we live in multiple objective worlds does not mean that the other world is a mirror image of our world, as is often thought. We tend to assume structural similarity when we compare different cultures: looking at Japanese society, in which it is men who mostly work and women who look after the home and children, we make conclusions about the equality of genders. However, it is precisely the structure that is different. Continuing the mirror metaphor, perhaps instead of looking we should close our eyes and listen, or smell, taste, and touch, or just feel.

Neither does it mean that others are fundamentally alien to us. As Shweder (1991, 5) points out, they are

> *"just inconsistently and importantly different in their conception of things (as expressed in their texts, in their discourse, in their institutions, in their personalities) from our conception of things, at the moment."*

[60] 'Helsinki' in written Japanese phonetic script *katakana*
[61] 'Tokyo' written in *kanji*

This implies that it is possible to understand the conceptions held by others, and in doing so we would also be able to understand more about ourselves.

Applying Nonaka's knowledge-creation theory to different contexts does not make us cultural imperialists: we are dancing partners. We are inviting our partner to dance (Allinson 1989, 3 about imposing Western categories on the Chinese mind). Clarke (1997, 15) quotes the Cistercian monk Thomas Merton as one of the bridge-builders between East and West in the following:

> *"…it is no longer sufficient merely to go back over the Christian and European cultural traditions. The horizons of the world are no longer confined to Europe and America. We have to gain new perspectives, and on this our spiritual and even our physical survival depends." (Merton 1961, 80)*

In this study, it is suggested that interpretation of the origins of different ways of thinking and knowledge processing will be an integral part of crossing boundaries, and will help also in building bridges between East and West in International Business.

APPENDIX 1: *Kanji* learned at Primary School in Japan

常用漢字学年別一覧表

1. Grade, 1 年生 (80 字)

一 右 雨 円 王 音 下 火 花 貝 学 気 休 玉 金 九 空 月 犬 見 五 口 校
左 三 山 四 子 糸 字 耳 七 車 手 十 出 女 小 上 森 人 水 正 生 青 石
赤 先 千 川 早 草 足 村 大 男 竹 中 虫 町 天 田 土 二 日 入 年 白 八
百 文 本 名 木 目 夕 立 力 林 六

2. Grade, 2 年生 (160 字)

引 羽 雲 園 遠 黄 何 夏 家 科 歌 画 会 回 海 絵 外 角 楽 活 間 丸 岩
顔 帰 汽 記 弓 牛 魚 京 強 教 近 兄 形 計 元 原 言 古 戸 午 後 語 交
光 公 工 広 考 行 高 合 国 黒 今 才 細 作 算 姉 市 思 止 紙 寺 時 自
室 社 弱 首 秋 週 春 書 少 場 色 食 心 新 親 図 数 星 晴 声 西 切 雪
線 船 前 組 走 多 太 体 台 谷 知 地 池 茶 昼 朝 長 鳥 直 通 弟 店 点
電 冬 刀 東 当 答 頭 同 道 読 内 南 肉 馬 買 売 麦 半 番 父 風 分 聞
米 歩 母 方 北 妹 毎 万 明 鳴 毛 門 夜 野 矢 友 曜 用 来 理 里 話

3. Grade, 3 年生 (200 字)

悪 安 暗 委 意 医 育 員 飲 院 運 泳 駅 央 横 屋 温 化 荷 界 開 階 寒
感 漢 館 岸 期 起 客 宮 急 球 究 級 去 橋 業 局 曲 銀 区 苦 具 君 係
軽 決 血 研 県 庫 湖 向 幸 港 号 根 祭 坂 皿 仕 使 始 指 死 詩 歯 事
持 次 式 実 写 者 主 取 守 酒 受 州 拾 終 習 集 住 重 宿 所 暑 助 勝
商 昭 消 章 乗 植 深 申 真 神 身 進 世 整 昔 全 想 相 送 息 速 族 他
打 対 待 代 第 題 炭 短 談 着 柱 注 丁 帳 調 追 定 庭 笛 鉄 転 登 都
度 島 投 湯 等 豆 動 童 農 波 配 倍 箱 畑 発 反 板 悲 皮 美 鼻 筆
氷 表 病 秒 品 負 部 服 福 物 平 返 勉 放 味 命 面 問 役 薬 油 有 由
遊 予 様 洋 羊 葉 陽 落 流 旅 両 緑 礼 列 練 路 和

4. Grade, 4 年生 (200 字)

愛 案 以 位 囲 胃 衣 印 栄 英 塩 億 加 果 課 貨 芽 改 械 害 街 各 覚
完 官 管 観 関 願 喜 器 希 旗 機 季 紀 議 救 求 泣 給 挙 漁 競 共 協
鏡 極 訓 軍 郡 型 径 景 芸 欠 結 健 建 験 固 候 功 好 康 航 告 差 最
菜 材 昨 刷 察 札 殺 参 散 産 残 司 史 士 氏 試 児 治 辞 失 借 種 周
祝 順 初 唱 松 焼 照 省 笑 象 賞 信 臣 成 清 静 席 積 折 節 説 戦 浅
選 然 倉 巣 争 側 束 続 卒 孫 帯 隊 達 単 置 仲 貯 兆 腸 低 停 底 的
典 伝 徒 努 灯 働 堂 得 特 毒 熱 念 敗 梅 博 飯 費 飛 必 標 票 不
付 夫 府 副 粉 兵 別 変 辺 便 包 法 望 牧 末 満 未 脈 民 無 約 勇 要
養 浴 利 陸 料 良 量 輪 類 令 例 冷 歴 連 労 老 録

5. Grade, 5 年生 (185 字)

圧 易 移 因 営 永 衛 液 益 演 往 応 恩 仮 価 可 河 過 賀 解 快 格 確
額 刊 幹 慣 眼 基 寄 規 技 義 逆 久 旧 居 許 境 興 均 禁 句 群 経 潔
件 券 検 険 減 現 限 個 故 護 効 厚 構 耕 講 鉱 混 査 再 妻 採 災 際
在 罪 財 桜 雑 賛 酸 師 志 支 枝 資 飼 似 示 識 質 舎 謝 授 修 術 述
準 序 承 招 証 常 情 条 状 織 職 制 勢 性 政 精 製 税 績 責 接 設 絶
舌 銭 祖 素 総 像 増 造 則 測 属 損 態 貸 退 団 断 築 張 提 程 敵 適
統 導 銅 徳 独 任 燃 能 破 判 版 犯 比 肥 非 備 俵 評 貧 婦 富 布
武 復 複 仏 編 弁 保 墓 報 豊 暴 貿 防 務 夢 迷 綿 輸 余 預 容 率 略
留 領

6. Grade, 6 年生 (181 字)

異 遺 域 宇 映 延 沿 我 灰 拡 閣 革 割 株 巻 干 看 簡 危 揮 机 貴 疑
吸 供 胸 郷 勤 筋 敬 系 警 劇 激 穴 憲 権 絹 厳 源 呼 己 誤 后 孝 皇
紅 鋼 降 刻 穀 骨 困 砂 座 済 裁 策 冊 蚕 姿 私 至 視 詞 誌 磁 射 捨
尺 若 樹 収 宗 就 衆 従 縦 縮 熟 純 処 署 諸 除 傷 将 障 城 蒸 針 仁
垂 推 寸 盛 聖 誠 宣 専 泉 洗 染 善 創 奏 層 操 窓 装 臓 蔵 存 尊 宅
担 探 誕 暖 段 値 宙 忠 著 庁 潮 頂 賃 痛 展 党 糖 討 届 難 乳 認 納
脳 派 俳 拝 背 肺 班 晩 否 批 秘 腹 奮 並 閉 陛 片 補 暮 宝 訪 亡
忘 棒 枚 幕 密 盟 模 訳 優 郵 幼 欲 翌 乱 卵 覧 裏 律 臨 朗 論

REFERENCES

Abe, Masao (1990) Introduction, vii-xxvi in Nishida, Kitarō (1990), *An Inquiry into the Good*. Yale University Press: New Haven and London.

Ackerman, Diane (1991) *Aistien historia* (original title: A Natural History of the Senses, 1990). WSOY: Porvoo.

Adler, Nancy (1983) A Typology of Management Studies Involving Culture. *Journal of International Business Studies*, Fall 1983, Vol. 14, 29-47.

Agar, M. (1980) *The Professional Stranger*. Academic Press, New York.

Aitchison, Jean (1996) *The seeds of speech: Language origin and evolution*. Cambridge University Press: Cambridge.

Alanne, V. S. (1980) *Suomalais-englantilainen suursanakirja* (The Finnish-English General Dictionary). WSOY, Porvoo.

Allinson, Robert E. (1989) An Overview of the Chinese Mind. 1-25 in *Understanding the Chinese Mind: The Philosophical Roots*. Edited by Robert E. Allinson. Oxford University Press: Hong Kong.

Aoshima, Yaichi (2002) Transfer of System Knowledge Across Generations in New Product Development: Empirical Observations from Japanese Automobile Development. *Industrial relations*, Vol. 41, No. 4, October.

Arai, S., Ishikawa, J., and Toshima, K. (1958) Développement psychomoteur des enfants japonais. *La Revue de Neuropsychiatrie Infantile et d'Hygiène Mentale l'Enfance* 6: 262-269 - after Caudill and Weinstein 1994, 275.

Asahi Shinbun (2004) *A land of poets blessed with `soul' of words.* January 23. http://www.asahi.com/english/vox/TKY200401240134.html accessed 14.05.2004.

Atherton, J. S. (2002) *Learning and Teaching Piaget's developmental Psychology.* [On-line]: UK: Available: http://www.dmu.ac.uk/~jamesa/learning/piaget.htm . Accessed: 27 July 2003.

Azuma, H. (1986) Why study child development in Japan? Pp. 3-12 in *Child Development and Education in Japan*. Edited by H. Stevenson, H. Azuma and K. Hakuta. W.H. Freeman: New York.

Barnett, Adrian (2004) For want of a word: Interview with Alexadra Aikhenvald. *New Scientist*, Vol 181, Issue 2432 - 31 January 2004, page 44.

Barnlund, Dean (1974) The Public Self and Private Self in Japan and the United States. Chapter 2, 27-96 in *Intercultural Encounters with Japan: Communication, Contact and Conflict* (1974). Edited by John C. Condon and Mitsuko Saito. The Simul Press, Inc.: Tokyo.

Beare, Hedley and Slaughter, Richard (1993) *Education for the Twenty-first Century*, Routledge, London and New York.

Berger, Peter (1963) Invitation to Sociology: A humanistic perspective. Garden City, N.Y. Doubleday. After Berreman 1972, p. 227 in Spradley, James P. (1972) (Editor) *Culture and Cognition: Rules, Maps, and Plans.* Waveland Press, Inc.: Prospect Heights, Illinois.

Bergström, Matti (1989) Meaning and the Living Brain. Pp. 124-154 in *The Search for Meaning: The New Spirit in Science and Philosophy*. Edited by Paavo Pylkkänen. The Aquarian Press: Chatham, Kent.

Bernard, H. Russell (1990) *Research Methods in Cultural Anthropology*. Sage Publications: Newbury Park, CA.

Bernard, H. Russell (1994) *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Second Edition. Sage Publications: Thousand Oaks.

Berry, John W., Ype H. Poortinga, Marshall H.; Seagall, and Dasen, Pierre R. (1992) *Cross-cultural psychology: Research and applications.*Cambridge University Press: Cambridge.

Birdwishstell, Ray (1952) *Introduction to Kinesics*. University of Louisville Press: Louisville. After Littlejohn 1978, 100

Blonder, Lee Xenakis (1999) Chapter 8: Brain and emotion relations in culturally diverse populations, 274-296 in *Biocultural Approaches* to the Emotion (1999), edited by Alexander Laban Hinton. Cambridge University Press: Cambridge.

Bochner, S. (1982) *Cultures in Contact: Studies in Cross-cultural Interaction*. Pergamon: Oxford.

Boisot, Max H. (1986) Markets and Hierarchies in a Cultural Perspective. *Organization Studies*, Vol. 7, No. 2, 135-158

Branch, Hannele (2003) *The Finnish Language.* http://virtual.finland.fi/finfo/english/finnlang.html accessed 14.11.2003

Brannen, Mary Yoko (1996) Ethnographic international management research. Pp. 115-143 in *Handbook for International Management Research*. Edited by Punnett, Betty Jane and Shenkar, Oded. Blackwell: Cambridge MA.

Bresman, Henrik; Birkinshaw, Julian and Nobel, Robert (1999) Knowledge Transfer in International Acquisitions. 472-504 in *Journal of International Business Studies*, Volume 30, Issue 3.

Brown, P. and Levinson, S. (1978) Universals in language usage: Politeness phenomenon. In E. Goody (Ed.), *Questions and politeness: Strategies in social Interaction*. Cambridge University Press: Cambridge. After Gudykunst and Ting-Toomey 1988.

Bryman, Alan and Burgess, Robert G. (1994a) Developments in qualitative data analysis: an introduction. 1-17 in *Analyzing Qualitative Data*. Edited by Alan Bryman and Robert G. Burgess. Routledge: London.

Bryman, Alan and Burgess, Robert G. (1994b) Reflections on qualitative data analysis. Chapter 11, 216-226 in *Analyzing Qualitative Data*. Edited by Alan Bryman and Robert G. Burgess. Routledge: London.

Buber, Martin (1965) *The Knowledge of Man*. George Allen & Unwin Ltd: London.

Burton, David (1999) *Emptiness Appraised: A Critical Study of Nãgãrjuna's Philosophy*. Curzon Press: Richmond, Surrey.

Capra, Fritjof (1991) *The Turning Point: Science, Society and the Rising Culture*. Fontana Paperbacks: London.

Castells, Manuel (2000) *The Rise of the Network Society.* Volume I in The Information Age. Sceond edition, Blöackwell Publishers: Oxford.

Castells, Manuel and Himanen, Pekka (2001) *Suomi tietoyhteiskuntana* (The Finnish Model of the Information Society). SITRA and WSOY: Vantaa.

Caudill, William and Weinstein, Helen (1974) Maternal Care and Infant Behavior in Japan and America. In Part III, 225-276 in *Japanese Culture and Behavior: Selected Readings.* Edited by Takie Sugiyama Lebra and William P. Lebra. The University Press of Hawaii: Honolulu.

Caudill, William and Plath, David W. (1974) Who Sleeps by Whom? Parent Child Involvement in Urban Japanese Families. In Part III, 277-312 in *Japanese Culture and Behavior: Selected Readings*. Edited by Takie Sugiyama Lebra and William P. Lebra.The University Press of Hawaii: Honolulu.

Cheng, Chung-Ying (1989) Chinese Metaphysics and Non-metaphysics: Confucian and Taoist Insights into the Nature of Reality. Chapter 6, 166-207 in *Understanding the Chinese Mind: The Philosophical Roots*. Edited by Robert E. Allinson. Oxford University Press: Hong Kong.

Chomsky, Noam (1980) *Rules and Representations*. Blackwell: Oxford.

Chrystal, David (1987) *The Cambridge encyclopedia of languages.* Cambridge University Press: Cambridge.

Clarke, J.J. (1997) *Oriental Enlightenment. The Encounter Between Asian and Western Thought*. Routledge, London.

Collins, James and Michaels, Sarah (1986) Speaking and writing: discourse strategies and the acquisition of literacy. 207-222 in *The Social Construction of Literacy*. Edited by Jenny Cook-Gumperz. Cambridge University Press: Cambridge.

Cooke, Maeve (1994) *Language and Reason: A Study of Habermas's Pragmatics.* The MIT Press: Cambridge, Massachusetts.

Cook-Gumperz, Jenny (1986) Introduction: the social construction of literacy. 1-15 in *The Social Construction of Literacy (1986).* Edited by Jenny Cook-Gumperz. Cambridge University Press: Cambridge.

Coulmas, Florian (1987) Why Speak English? Pp. 95-107 in *Analyzing Intercultural Communication.* Edited by Karlfried Knapp, Werner Enninger, and Annelie Knapp-Potthoff. Mouton de Gruyter: Berlin, New York, Amsterdam.

Crossan, Mary M. (1996) Review of Nonaka Ikujiro and Takeuchi Hirotaka, The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. *Journal of International Business* Studies. First Quarter, 196-201.

Csikszentmihalyi, M. (1991) *Flow: The Psychology of Optimal Experience*. Harper Perennial: New York.

Cushman, Donald P. and Kincaid, D. Lawrence (1987) Introduction and Initial Insights. 1-10 in *Communication Theory: Eastern and Western Perspectives*. Edited by D. Lawrence Kincaid. Academic Press, Inc.: San Diego.

Dale, Peter N. (1990) The Myth of Japanese Uniqueness. Routledge and Nissan Institute for Japanese Studies, University of Oxford: London.

Damasio, Antonio R. (2001) *Descartesin virhe. Emootio, Järki ja ihmisen aivot*. (Descartes' Error. Emotion, Reason and the Human Brain, 1994). Translated by Kimmo Pietiläinen.Terra Cognita Oy: Helsinki.

Damen, Louise (1987) *Culture Learning: The Fifth Dimension in the Language Classroom.* Addison-Wesley Publishing Company:Reading.

Dasen, Pierre R. (1977) Introduction, pp.1-25 in *Piagetian Psychology: Cross-Cultural Contributions*. Edited by Pierre R. Dasen. Gardner - Press, Inc.: New York.

Dennett, Daniel C. (1999) *Tietoisuuden selitys*. (Consciousness Explained). Art House: Jyväskylä.

Dennett, Daniel C. (1995) Review of Antonio R. Damasio, Descartes' Error: Emotion, Reason, and the Human Brain, 1994. In the *Times Literary Supplement*, August 25, 3-4.

Diamond, Jared (1998) *Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years.* Vintage: London.

Dierkes, Meinolf; Berthoin Antal, Ariane; Child, John and Nonaka, Ikujiro (Eds.) (2001) *Handbook of Organizational Learning and Knowledge*. Oxford University Press: Oxford.

Dissanayake, Wimal (1987) The Guiding Image in Indian Culture and Its Implications for Communication. Chapter 11, 151-160 in *Communication Theory: Eastern and Western Perspectives*. Edited by D. Lawrence Kincaid. Academic Press, Inc.: San Diego.

Dittman, Allen T. (1978) Interpersonal Messages of Emotions, New York: Springer Publishing Co., 1972. After Littlejohn, Stephen W. (1978) *Theories of Human Communication*. Columbus, Charles E. Merill Publishing Company: Ohio (105-106).

Dixon, Robert M.W. (1997) *The rise and fall of languages*. Cambridge University Press: Cambridge.

Doi, Takeo (1974a) Amae: A Key Concept for Understanding Japanese Personality Structure. Part II, 145-154 in *Japanese Culture and Behavior: Selected Readings*. Edited by Takie Sugiyama Lebra and William P. Lebra. The University Press of Hawaii: Honolulu.

Doi, Takeo (1974b) Some Psychological Themes in Japanese Human Relationships. Chapter 1, pp. 17-26 in *Intercultural Encounters with Japan: Communication, Contact and Conflict*. Edited by John C. Condon and Mitsuko Saito. The Simul Press, Inc.: Tokyo.

Doi, Takeo (1983) *The Anatomy of Dependence*. Kodansha International: Tokyo.

土居健郎 (1985) (Doi, Takeo) *表と裏* (Ura and Omote) 弘文堂: 東京.

Doi, Takeo (1986) *The Anatomy of Self. The Individual Versus Society*. Kodansha International: Tokyo.

土居健郎 (1987) (Doi, Takeo) *甘えの周辺* (The Perimeter of Amae) 弘文堂: 東京.

.

Donahue, Ray T. (1998) *Japanese Culture and Communication: Critical Cultural Analysis.* University Press of America: Lanham.

Eisenberg, Abne M. and Smith, Ralph R. (1971) *Nonverbal Communication*. Bobbs-Merrill: Indianapolis. After Littlejohn, Stephen W. (1978) *Theories of Human Communication*. Columbus, Charles E. Merill Publishing Company: Ohio (99).

Farace, Richard; Monge, Peter R. and Russell, Hamish M. (1977) *Communicating and Organizing*. Addison-Wesley Publishing Company, Inc.: London.

Foster, George M. (1965) *Traditional cultures: and the impact of technological change.* Jointly published by Harper & Row, New York, Evanston & London and John Weatherhill, Inc.: Tokyo.

Freilich, M. (1977) [Editor] *Marginal natives at Work: Anthropologists in the Field.* 2nd edition, Schenkman: Cambridge, MA.

Friedman, Maurice S. (1956) *Martin Buber. The Life of Dialogue*. The University of Chicago Press, Chicago, Illinois

Fukuda, K. John (1991) *Japanese-style management transferred. The Experience of East Asia*. Routledge: London.

Fukuyama, Francis (1992) *The End of History and the Last Man*. Free Press: New York.

Furnham, Adrian and Bochner, Stephen (1994) *Culture Shock: Psychological reactions to unfamiliar environments.* Routledge: London.

Gao, Ge and Ting-Toomey, Stella (1998) *Communicating Effectively with the Chinese.* Sage Publications: Thousand Oaks.

Gardner, Howard (1984) The development of competence in culturally defined domains: A preliminary framework. Chapter 10, 257-275 in *Culture Theory: Essays on mind, self, and emotion*. Edited by Richard A. Shweder, Robert A. Le Vine. Cambridge University Press: Cambridge.

Gaur, Albertine (1995) Scripts and Writing Systems: A Historical Perspective. 19-30 in *Scripts and Literacy: Reading and Learning to Read Alphabets, Syllabaries and Characters.* Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers: Dordrecht/Boston/London.

Gell, Alfred (1992) T*he Anthropology of Time: Cultural Constructions of Temporal Maps and Images*. Berg: Oxford.

Gibbs, W. Wayt (2002) Saving Dying Languages, 63-69 in *Scientific American,* August 2002.

Glaser and Strauss (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine: Chicago.

Glynn, Shawn M.; Law, Michael and Doster, Elizabeth C. (1998) Making Text Meaningful: The Role of Analogies. Chapter 9, pp. 193-208, in *Learning From Text Across Conceptual Domains*. Edited by Cynthia R. Hynd. Mahwah. Lawrence Erlbaum Associate Publishers: New Jersey & London.

Goleman, Daniel (1996) *Emotional Intelligence: Why It Can Matter More Than IQ*. Bloomsbury: London.

Goodenough, W. (1956) Componential analysis and the study of meaning. *Language*, 32: 195-216 After Bernard, H. Russell (1994) *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Second Edition. Sage Publications: Thousand Oaks.

Goodnow, Jacqueline J. (1992) The Socialization of cognition: what's involved? Pp. 259-286 in *Cultural Psychology: Essays on comparative human development*. Edited by James W. Stigler, Richard A. Shweder and Gilbert Herdt. Cambridge University Press: New York.

Goody, Jack (1989) *The Logic of Writing and the Organization of Society*. Cambridge University Press: Cambridge.

Goody, Jack (1991) The *Interface between the Written and the Oral.* Cambridge University Press: Cambridge.

Greenfield, Susan (2001) *The Brain of the Future*. Transcript of speech at Capitol Theatre, May 12, 2001.http://www.abc.net.au/rn/deakin/stories/s296994.htm accessed 13.03.2004.

Gudykunst, William B. and Ting-Toomey, Stella (1988) *Culture and Interpersonal Communication*. Sage: London.

Gummesson, Evert (1991) *Qualitative Methods in Management Research*. Sage Publications, Inc.: London.

Gurova, Lilia (1999) *Piaget and Categorization Debate in Cognitive Science*. 11th International Congress of Logic, Methodology and Philosophy of Science. August 20-26, 1999. Volume of abstracts, p.360. Cracow.

Hall, Edward T. (1977) *Beyond Culture.* Doubleday, Anchor Press: New York.

Hall, Edward T. (1983) The Dance of Life. The Other Dimension of Time. Doubleday: New York.

Hall, Edward T. (1990) *The Silent Language.* Anchor Book, Doubleday: New York.

Hall, Edward T. and Hall, Mildred Reed (1990) *Hidden Differences: Doing Business with the Japanese.* Anchor Book, Doubleday: New York.

Hamel, Gary Paul (1990) *Competitive Collaboration: Learning, power and Dependence in International Strategic Alliances*. Unpublished Doctoral dissertation, Graduate School of Business Administration, University of Michigan

Hamel, Gary (1991) Competition for Competence and Interpartner Learning Within Organizational Strategic Alliances. *Strategic Management Journal*, Vol. 12, 83-103.

Hansen, Chad (1989) Language in the Heart-mind. Chapter 4, 75-123 in *Understanding the Chinese Mind: The Philosophical Roots*. Edited by Robert E. Allinson. Oxford University Press: Hong Kong.

Harrison, Randall (1973) "Nonverbal Communication", in Handbook of Communication, Ithiel de sola Pool, et al. (Eds.). Rand McNally: Chicago. After Littlejohn, Stephen W. (1978) *Theories of Human Communication*. Columbus, Charles E. Merill Publishing Company: Ohio. (p. 99)

Hatta, T. (1977) Recognition of Japanese *Kanji* in the left and right visual fields. *Neuropsychologia*, 15, 685-688.

Havelock, E.A. (1976) Origins of Western Literacy. *Monograph Series*, No. 14. The Ontario Institute for Studies in Education

Hedlund, Gunnar (1993) Assumptions of Hierarchy and Heterarchy, with Applications to the Management of the Multinational Corporation. 211-236 in *Organization Theory and the Multinational Corporation*. Edited by Sumantra Ghoshal and D. Eleanor Westney. St. Martin's Press: London.

Hedlund, Gunnar (1994) A Model of Knowledge Management and the N Form Corporation. *Strategic Management Journal*, Vol. 15, 73-90.

Hedlund, Gunnar and Ikujiro Nonaka (1993) Models of Knowledge Management in the West and Japan. 117-144 in *Implementing Strategic Processes: Change, learning and Co-operation*. Edited by Peter Lorange, Bala Chakravarthy, Johan Roos and Andrew Van de Ven. Blackwell: Oxford.

Heft, Jeff (2003) Oldest known Chinese script discovered. P. 16 in *New Scientist,* Vol. 178, Issue 2393 - 03 May.

Henshall, Kenneth G. (1992) *A Guide to Remembering Japanese Characters*. Charles E. Tuttle Company: Tokyo.

Herskovits, Melville J. (1948) *Acculturation. The Study of Culture Contact.* Peter Smith: Gloucester, Mass.

Himanen, Pekka (2001*) Hakkerietiikka ja informaatioajan henki*. (Originally: The Hacker Ethic -and the Spirit of information Age) WSOY: Helsinki.

Hirst, Paul and Woolley, Penny (1982) Social Relations and Human Attributes. Tavistock Publications: London and New York.

Hofstede, Geert (1984) *Culture's consequences: international differences in work-related values*. Sage: Beverly Hills, CA.

Hofstede, Geert (1991) *Cultures and Organizations: Software of the Mind. Intercultural Cooperation and its Importance for Survival*. McGraw-Hill Book Company: London.

Hudson, R. A. (1980) *Sociolinguistics.* Cambridge University Press: Cambridge.

Hurme, Raija and Pesonen, Maritta (1982) *Englantilais-suomalainen suursanakirja.* (English-Finnish General Dictionary.) WSOY: Porvoo.

Hymer, Stephen Herbert (1960) *The International Operations of National Firms: A Study of Direct Investment*. Dissertation, M.I.T., Massachusetts.

Hörnell, Erik; Vahlne, Jan-Erik and Wiedersheim-Paul, Finn (1973) *Export och utlandsetableringar*. Almqvist & Wiksel: Uppsala.

Ibrahim, Anwar (1997) *The Asian Renaissance*. Times Books International: Kuala Lumpur.

Imai, Ken-ichi; Nonaka, Ikujiro and Takeuchi, Hirotaka (1985) Managing the New Product Development Process: How Japanese Companies Learn and Unlearn. Chapter 8, pp. 337-381 in *The Uneasy Alliance. Managing the Productivity-technology Dilemma*, ed. by Kim B. Clark, Robert H. Hayes and Cristopher Lorenz. Harvard Business School Press: Boston, Massachusetts.

Itami, H. and Roehl, T.W. (1987) *Mobilizing Invisible Assets*. Harvard University Press: Cambridge, Mass.

Iwai, Katsuhito (2004) The Company in Postindustrial Capitalism: Part 1. The Duality of Person and Thing. *Japan Echo*, February 2004, 26-32.

Jemison, D. B. and Sitkin, S. B. (1986) Corporate acquisitions: A process perspective. *Academy of Management Review*, Vol 11, 145-163.

Johanson, Jan and Vahlne, Jan-Erik (1977) The Internationalization Process of the Firm - A Model of Knowledge Development and Increasing Foreign Market Commitments. *Journal of International Business Studies,* Vol. 8, Spring/Summer, Nr.1, pp. 23-31.

Johanson, Jan and Vahlne, Jan-Erik (1990) The Mechanism of Internationalization, *International Marketing Review,* Vol. 7, No. 4, pp. 11-24.

Johanson, Jan and Wiedersheim-Paul, Finn (1975) The Internationalization of the Firm: Four Swedish Cases. *The Journal of Management Studies*, Vol. 12, No.3.

Johansson, Johnny K. and Nonaka, Ikujiro (1996) *Relentless: The Japanese Way of Marketing*. Harper Business: New York.

Jung, Carl G. (1978) [Ed.] *Man and his Symbols*. Picador, Pan Books: London.

Jung, Carl G. (1990) Memories, Dreams, Reflections. Flamingo/Fontana Paperbacks, Collins Publishing Group: London.

Kagono, Tadao; Nonaka, Ikujiro; Sakakibara, Kiyonori and Okumura, Akihiro (1989) *Strategic vs. Evolutionary Management. A U.S.-Japan comparison of strategy and organization.* Second printing, North-Holland: Amsterdam.

漢字学習辞典(1983) (*Kanji Study Dictionary*) 角川書店, 東京.

Karppinen-Shetta, Merja (1996) Cultural Analysis of Working Time in Japan and Finland. 151-167 in *Loisir et Société/Society and Leisure*, Vol 19, No 1, Spring.

Karppinen-Takada, Merja (1994) *Internationalization and Foreign Market Penetration Patterns: Finnish Companies Operating in Japan*, Helsinki School of Economics Publications B-144, Helsinki.

Karttunen, Frances (1994) *Between Worlds. Interpreters, Guides, and Survivors*. Rutgers University Press: New Brunswick, New Jersey.

Kelles, Anita (1984) *Antropologisen kenttätyön ongelmia: tutkijan persoonan, sukupuolen ja kulttuuritaustan vaikutuksista antropologiseen tutkimukseen.* (Critical Questions in Anthropological Fieldwork: about the influence of the personality, gender, and cultural background of the researcher on anthropological research) Unpublished Pro Graduate Thesis at Helsinki University.

Kenkyusha's (1983) New Japanese-English Dictionary 新和英大辞典, Fourth edition. Kenkyusha: Tokyo.

Kim, Uichol (1995) *Individualism and Collectivism. A Psychological, Cultural and Ecological Analysis.* NIAS Report Series No. 21. NIAS Publishing: Copenhagen.

Kincaid, D. Lawrence (1987) Communication East and West: Points of Departure. 331-340 in *Communication Theory: Eastern and Western Perspectives.* Edited by Kincaid, D. Lawrence. Human Communication Research Series. Academic Press, Inc.: San Diego.

Kivikk'aho, Eila (1961) Flock/Parvi. Translation by Herbert Lomas, *Contemporary Finnish Poetry*, 65. Bloodaxe Books: Glasgow.

The Kodansha (2001) *Kanji Learner's Dictionary*. Edited by Jack Halpern. Kodansha International, Tokyo.

Kogut, Bruce (1988) Joint ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, 9: 319-322.

Kogut, Bruce and Singh, Harbir (1988) The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*, Vol XIX, Nr. 3, Fall, 411-432.

Kogut, Bruce and Zander, Udo (1992) Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science,* 3 (3): 383-397.

Konner, M. (1981) Evolution of human behavior development. In R.H. Munroe, R.L. Munroe, and B.B. Whiting (Eds.), *Handbook of cross-cultural human development* (pp. 3-51), Garland: New York. After Berry, John W., Ype H. Poortinga, Marshall H. Seagall, and Pierre R. Dasen (1992), Cross-cultural psychology: Research and applications. Cambridge: Cambridge University Press.

Kroeber, A.L. and C. Kluckhohn (1952) Culture: A Critical Review of Concepts and Definitions. *Peabody Museum Papers*, Vol. 47, No. 1, Cambridge, MA.

Kubota, Ryuko (2001) My Experience of Learning to Read and Write in Japanese as L1 and English as L2. Pp. 96-109 in *Reflections on Multiliterate Lives*. Edited by Diane Belcher and Ulla Connor. Multilingual Matters Ltd.: Clevedon.

Kuhn, Thomas S. (1962) The Structure of Scientific Revolutions, University of Chicago Press: Chicago.

Lane, Henry W and Joseph J. DiStefano (1992) *International Management Behavior: From Policy to Practice.* PWS-Kent Publishing Company: Boston.

Lebra, Takie Sugiyama (1976) Japanese Patterns of Behavior. University of Hawaii Press: Honololu.

Lee, Shin-Ying; Uttal, David H. and Chen, Chuansheng (1995) Writing Systems and Acquisition of Reading in American, Chinese, and Japanese First-Graders, Ch. 16, pp. 247-263 in *Scripts and Literacy*: Reading and Learning to Read Alphabets, Syllabaries and Characters. Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers, Dordrecht/Boston/London.

LeVine, Robert (1992) Infant environments in psychoanalysis: a cross cultural view. Pp. 454-476 in *Cultural Psychology: Essays on comparative human development*. Edited by James W. Stigler, Richard A. Shweder and Gilbert Herdt. Cambridge University Press: New York.

Littlejohn, Stephen W. (1978) *Theories of Human Communication*. Columbus, Charles E. Merill Publishing Company: Ohio.

Ljatker, Jakov (1984) *Descartes.* Kustannusliike Progress: Moskova.

Luft, Joseph (1969) *Of Human Interaction*. National Press Books: Palo Alto.

Luostarinen, Reijo (1979) *Internationalization of the Firm. An Empirical Study of the Internationalization of Firms with Small and Open Domestic Markets with Special Emphasis on Lateral Rigidity as behavior Characteristic in Strategic Decision-making*. Helsinki School of Economics, Series A: 30, Helsinki.

Luostarinen, Reijo (1991) Development of Strategic Thinking in International Business, pp. 257-274 in *Arenas of Strategic Thinking*, edited by Juha Näsi, Helsinki.

Luostarinen, Reijo and Welch, Lawrence (1990) *International Business Operations*. Helsinki.

Luria, Alexander R. (1973) *The Working Brain. An Introduction to Neuropsychology.* Penguin Books: Middlesex, England.

Luria, Alexander R. (1976) *Cognitive Development: Its Cultural and Social Foundation.* Translated by Martin Lopez-Morillas and Lynn Solotaroff. Edited by Michael Cole. Harvard University Press: Cambridge, Massachusetts and London, England.

Luria, Alexander R. (1979) *The Making of Mind. A Personal Account of Soviet Psychology.* Edited by Michael Cole and Sheila Cole. Harvard University Press: Cambridge, Massachusetts, and London, England.

Makkonen, Anna (2003) Kirjoituksella on kirjoittamaton historia (Writing has unwritten history). *Helsingin Sanomat*, Vieraskynä, 08.11.2003.

Manner, Eeva-Liisa (1968) If Grief Soked/Jos sielu savuaisi (1968). Translation by Herbert Lomas, *Contemporary Finnish Poetry*, 51. Bloodaxe Books: Glasgow.

March, James G. and Olsen, Johan P. (1979) *Ambiguity and Choice in Organizations*. Second edition. Universitetsforlaget: Bergen.

Markus, H. and Kitayama, S. (1991) Culture and Self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224-253

Marsella, Anthony J.; DeVos, George and Hsu, Francis L.K. (1985) (Editors) *Culture and Self: Asian and Western Perspectives.* Tavistock Publications: New York and London.

Maslow, Abraham H. (1993) The Farther Reaches of Human Nature. (First published in 1971) Penguin Arkana: New York.

Masuda, Yonechi (1980) *The Information Society as Post Industrial Society.* World Future Society: Washington.

Matsumoto, David (1996) *Unmasking Japan: Myths and Realities About the Emotions of the Japanese.* Stanford University Press: Stanford.

Maula, Marjatta (1999) Multinational Companies as Learning and Evolving Systems. A Multiple-Case Study of Knowledge-Intensive Service Companies. An Application of Autopoiesis Theory. Helsinki School of Economics and Business Administration A-154, Helsinki.

Maynard, Senko K. (1997) *Japanese Communication. Language and Thought in Context*. University of Hawai'i Press: Honolulu.

McCarthy, Suzanne (1995) The Cree Syllabary and the Writing System Riddle: A Paradigm in Crisis. 59-76 in *Scripts and Literacy: Reading and Learning to Read Alphabets, Syllabaries and Characters*. Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers: Dordrecht/Boston/London.

McGraw, Karen L. and Harbison-Briggs, Karan (1989) *Knowledge Acquisition*. Prentice-Hall International Editions: London.

McLuhan, Marshall (1962) *The Gutenberg Galaxy: The making of typographical man.* University of Toronto Press: Toronto.

McLuhan, Marshall (1987) *Understanding Media: The Extensions of Man.* Ark Paperbacks: London and New York (original in 1964).

McQuail, Denis (1975) *Communication*. Longman Group Limited: London and New York.

Mead, Margaret (1976) Towards a Human Science. Science 191. After Kelles, Anita (1984) *Antropologisen kenttätyön ongelmia: tutkijan persoonan, sukupuolen ja kulttuuritaustan vaikutuksista antropologiseen tutkimukseen.* (Critical Questions in Anthropological Fieldwork: about the influence of the personality, gender, and cultural background of the researcher on anthropological research) Unpublished Pro Graduate Thesis at Helsinki University.

Miike, Yoshitaka and Ishii, Satoshi (1997) An Analysis of the English Language Literature on Japanese Nonverbal Communication (1966-1997): Part I (in Japanese). *Intercultural Communication Studies*, 10: 119-135. After Rogers, Everett M., Hart, William B., and Miike, Yoshitaka (2002) Edward T. Hall and the History of Intercultural Communication: The United States and Japan. Keio Communication Review No. 24, 3-26.

Miike, Yoshitaka and Ishii, Satoshi (1998) An Analysis of the English Language Literature on Japanese Nonverbal Communication (1966-1997): Part II (in Japanese). *Intercultural Communication Studies*, 11: 137-150. After Rogers, Everett M., Hart, William B., and Miike, Yoshitaka (2002) Edward T. Hall and the History of Intercultural Communication: The United States and Japan. Keio Communication Review No. 24, 3-26.

Miller, Roy Andrew (1977) *The Japanese Language in Contemporary Japan. Some sociolinguistic observations*. AEI-Hoover Policy Studies 22, American Enterprise Institute for Public Policy Research, Washington, D.C.

Ministry of Education (2004) http://www.minedu.fi/ accessed on 14.05.2004

Miyamoto, Shoson (1987) The Relation of Philosophical Theory to Practical Affairs in Japan. 4-23 in *The Japanese Mind: Essentials of Japanese Philosophy and Culture*. Edited by Charles A. Moore. University of Hawaii Press: Honolulu.

宮田雅之 (2000) (Miyata Masayuki) 万葉逍遥 (Man'yoo Promenade).

p. 10-15 in 万葉恋歌 (Manyōkoiuta, Love Songs from the Man'yōshū)

誇談社インターナショナル株式会社: 東京.

Mumby, Dennis K. (1988) *Communication and power in organizations.* Ablex Publishing Corporation: USA.

Muter, Paul (1986) Blissymbolics, Cognition, and the Handicapped. Pp. 233-251 in Communication and Handicap: Aspects of Psychological Compensation and technical Aids. Edited by E. Hjelmquist and L-G-Nilsson. Elsevier Science Publishers B.V.: North-Holland.

Nakamura, Hajime (1987) Consciousness of the Individual and the Universal Among the Japanese. Pp. 179-200 in *The Japanese Mind (1987): Essentials of Japanese Philosophy and Culture*. Edited by Charles A. Moore. University of Hawaii Press: Honolulu.

Nakane, Chie (1984) *Japanese society*. Charles E. Tuttle Company: Tokyo.

Nakanishi, Akira (1989) *Writing Systems of the World: Alphabets, Syllabaries, Pictograms.* Charles E. Tuttle Company: Tokyo.

Nelson, Andrew N. (1982) *The Modern Readers Japanese-English Character Dictionary.* Second Revised Edition. Charles E. Tuttle Company: Tokyo.

Neustupný, J. V. (1987) Communicating with the Japanese. The Japan Times, Tokyo.

Newkirk, T. (1989) *More than stories: the range of children's writing*. Heinemann: Portsmouth, N.H. After Tobin, Joseph; Wu, David Y. H. and Davidson, Dana H. (1989) *Preschool in Three Cultures: Japan, China, and the United States*. New Haven and Yale University Press: London.

日本型システム (1992) *人類文明の一つの型* (Japanese Systems: An Alternative Civilization?) 財団法人マスだ国際交流教育財団, 日本型システム研究会編 (The Research Project Team for Japanese Systems, Masuda Foundation). 平成 4 年, セコタック株式会社横浜市.

Nisbett, Richard E. (2003) *The Geography of Thought: How Asians and Westerners Think Differently…and Why.* The Free Press: New York.

Nisbett, R. E. and Ross, L. D. (1980) *Human Inference: Strategies and Shortcomings of Social Judgment*. Prentice-Hall: Englewood Cliffs, NJ.

西田幾多郎(2004) (Nishida, Kitarō) *善の研究* (Zen no kenkyū - A Study of the Good) 株式会社岩波書店, 東京(originally in 1921).

Nishida, Kitarō (1990) *An Inquiry into the Good.* Yale University Press: New Haven and London.

Nokia (2004) http://www.nokia.com/. Accessed on 13.05.2004.

Nolan, Michael J. (1975) The Relationship between Verbal and Nonverbal Communication. 98-119 in *Communication and Behavior*. Edited by Hanneman, Gerhard and McEwen, William. Addison Wesley: Reading, Mass.

野中郁次郎(1990) (Nonaka, Ikujiro) 知識創造*の経営　日本企業のエピステモロジー* (Management of Knowledge Creation - Epistemology of Japanese Enterprise - A Theory of Organizational Knowledge Creation). 日本経済新聞社: 東京.

Nonaka, Ikujiro (1991a) Managing the Firm as an Information Creation Process. Advances *in International Processing in Organizations*. Volume 4, pp. 239-275.

Nonaka, Ikujiro (1991b) The knowledge-creating company. *Harvard Business Review*, Nov/Dec 91, Vol. 69, Issue 6.

Nonaka, Ikujiro (1994) A Dynamic Theory of Organizational Knowledge Creation. *Organizational Science*, Vol. 5, No.1, 14-37.

Nonaka, Ikujiro and Hedlund, Gunnar (1991*) Models of Knowledge Management in the West and Japan.* Working Paper, September. Institute of International Business at the Stockholm School of Economics: Stockholm

Nonaka, Ikujiro and Johansson, J. K. (1985) Japanese management: What about the hard skills? *Academy of Mangement Review*, 10, 181-191.

Nonaka, Ikujiro and Takeuchi, Hirotaka (1995) *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation.* Oxford University Press: New York/Oxford.

Nonaka, Ikujiro and Toyama, Ryoko (2003) The knowledge-creating theory revisited: knowledge creation as a synthesizing process*. Knowledge Management Research & Practise* (2003) 00, 1-9

Nonaka, Ikujiro; Toyama, Ryoko and Byosière, Philippe (2001) A Theory of Organizational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge. Pp. 491-517 in *Handbook of Organizational Learning and Knowledge.* Edited by Meinolf Dierkes, Ariane Berthoin Antal, John Child, and Ikujiro Nonaka. Oxford University Press: Oxford.

Nonaka, Ikujiro; Toyama, Ryoko and Konno, Noboru (2001) SECI, *Ba* and Leadership: a Unified Model of Dynamic Knowledge Creation. Chapter1, pp. 13-43 in *Managing Industrial Knowledge: Creation, Transfer and Utilization*. Edited by Ikujiro Nonaka and David Teece. Sage Publications: London.

Nonaka, Ikujiro and Yamanouchi, Teruo (1989) Managing Innovation as a Self-Renewing Process. *Journal of Business Venturing* 4, pp. 299-315.

Nordström, Kjell A. (1991) *The Internationalization Process of the Firm - Searching for New Patterns and Explanations.* Stockholm School of Economics, Institute of International Business: Stockholm.

Nurminen, Raija (2000) Intuitio ja hiljainen tieto ja hoitotyössä (Intuition and Tacit Knowledge in Nursing). Kuopion yliopiston julkaisuja E, yhteiskuntatieteet 80. (Doctoral Dissertation at Kuopio University)

Nykysuomen sanakirja (1996) (*The Dictionary of Modern Finnish).* Lyhentämätön kansanpainos. WSOY, Helsinki.

OECD (2000) www.pisa.oecd.org. Accessed on 03.08.2003

Ogbu, John U. (1992) Cultural mode, identity, and literacy. Pp. 520-541 in *Cultural Psychology: Essays on comparative human development*. Edited by James W. Stigler, Richard A. Shweder and Gilbert Herdt. Cambridge University Press: New York.

Ohmae, Kenichi (1988) *Beyond national Borders*. Kodansha International: Tokyo.

Okely, Judith (1994) Thinking through fieldwork. Chapter 1, pp. 18-34 in *Analyzing Qualitative Data*. Edited by Alan Bryman and Robert G. Burgess. Routledge: London.

Oliver, Robert T. (1989) *Leadership in Asia. Persuasive Communication in the Making of Nations, 1850-1950.* Associated University Presses: Cranbury.

Ong, Walter J. (1990) *Orality and Literacy. The Technologizing of the Word.* Routledge: London and New York.

Ouchi, William G. (1981) *Theory Z: How American Business Can Meet the Japanese Challenge.* Addison-Wesley: Reading, MA.

Penrose, Roger (1990) *The Emperor's New Mind. Concerning Computers, Minds and The Law of Physics*. Vintage: London.

Perfetti, Charles A. (2003) *The Cognitive Science of Word Reading: What has been Learned from Comparisons across Writing Systems?* http://logos.mind.sccs.chukyo-u.ac.jp/jcss/ICCS/99/olp/pt9/pt9.htm accessed in 20.11.2003.

Piaget, Jean (1959) *The Language and Thought of a Child.* Translated by Marjorie and Ruth Gabain. Latimer Trend & Co Ltd, Whitstable

Polanyi, Michael (1966/1983) *The Tacit Dimension.* Doubleday & Company Inc.: Gloucester, Mass.

Quinn, Robert E. and McGrath, Michael R. (1985)The Transformation of Organizational Cultures: A Competing Values Perspective. Chapter 18, pp. 315-334 in *Organizational Culture*. Edited by Peter J. Frost, Larry F. Moore, Meryl Reis Louis, Craig C. Lundberg and Joanne Martin. Sage Publications: Beverly Hills.

Redding, S. Gordon (1990) *The Spirit of Chinese Capitalism*. Walter de Gruyter: New York.

Reischauer, Edwin O. (1989) *Japan: The Story of a Nation.* Charles E. Tuttle Co.: Publishers: Tokyo.

Rogers, Everett M., Hart, William B., and Miike, Yoshitaka (2002) Edward T. Hall and the History of Intercultural Communication: The United States and Japan. Keio Communication Review No. 24, 3-26.

Rozak, Theodore (1986) *The Cult of Information*. The Folklore of Computers and the True Art of Thinking. Lutterworth Press, Cambridge

Rozak, Theodore (1999) *The Gendered Atom: Reflections on the Sexual Psychology of Science*. Conari Press: Berkley, California.

Said, Edward W. (1996) *Representations of the Intellectual: The 1993 Reith Lectures*. Vintage Books, Random House, Inc: New York.

Sampson, E.E. (1977) Psychology and the American Ideal. *Journal of Personality and Social Psychology*, 35, 767-782.

Sampson, Geoffrey (1985) *Writing Systems. A linguistic introduction*. Hutchinson: London.

Sapir, Edward (1921) *Language. An Introduction to the Study of Speech*. A Harvest Book. Rupert Hart-Davis- Soho Square: London.

Satō, Yasumasa (1958) Typeface and printing. In Kotoba no kōgaku (Language engineering). v. 6 Kotoba no kagaku (Science of language). Nakamura Shoten: Tokyo. Quoted in Taylor, Insup and M. Martin Taylor (1995) Writing and Literacy in Chinese,Korean and Japanese. John Benjamins Publishing Company, Amsterdam/Philadelphia.

Saville-Troike, M. (1982) *The ethnography of communication: an introduction*. University Park Press: Baltimore.

Schacter, Daniel L. (1996) *Searching for Memory - the brain, the mind, and the past*. Basic Books: New York.

Scharmer, Claus Otto (2001) Self-transcending Knowledge: Organizing Around Emerging Realities. 68-90 in *Managing Industrial Knowledge: Creation, Transfer and Utilization.* Edited by Ikujiro Nonaka and David Teece. Sage Publications: London.

Schatzman, L. and Strauss, A. (1973) *Field Research. Strategies for a Natural Sociology*. Prentice Hall: Englewood Cliffs, NJ.

Scheder, Klaus R. and Tran, Véronique (2001) Effects of Emotion on the Process of Organizational Learning. Pp. 369-394 in Dierkes, Meinolf; Berthoin Antal, Ariane; Child, John and Nonaka, Ikujiro (Eds.) (2001) *Handbook of Organizational Learning and Knowledge*. Oxford University Press: Oxford.

Scribner, Sylvia and Cole, Michael (1981) *The Psychology of Literacy*. Cambridge, Mass.

Selinger, Herbert and Shohamy, Elana (1989) *Second Language Research Methods*. Oxford University Press: Oxford.

Shweder, Richard A. (1991) *Thinking though cultures. Expeditions in Cultural Psychology*. Harvard University Press: Cambridge (Mass.).

Shweder, R. A. and Bourne, E.J. (1984) Does the concept of the person vary cross-culturally? Pp. 158-199 in *Culture theory: Essays on mind, self and emotion.* Edited by R.A. Shweder and R.A. LeVine. Cambridge University Press: Cambridge.

Siltala, Juha (1992) *Suomalainen ahdistus. Huoli sielun pelastumisesta*. (Finnish Anxiety/Distress: Worry about the saving the soul). Otava: Helsinki.

Simons, Herbert and Murphy, Sandra (1986) Spoken language strategies and reading acquisition. 185-206 in *The Social Construction of Literacy* (1986) Edited by Jenny Cook-Gumperz. Cambridge University Press: Cambridge.

Spence, J. (1985) Achievement American style: The rewards and costs of individualism. *American Psychologist*, 40, 1285-1295.

Spender, J.-C. (1996) Making Knowledge the Basis of a Dynamic Theory of the Firm. 45-62 in *Strategic Management Journal*, Vol. 17 (Winter Special Issue).

Sugimoto, Masayoshi and Swain, David L. (1989) *Science & Culture in Traditional Japan*. Charles E. Tuttle Company: Rutland, Vermont & Tokyo.

Sullivan, Jeremiah J. and Nonaka, Ikujiro (1986) The Application of organizational learning theory to Japanese and American Management. *Journal if International Business Studies*, Vol. 17, No. 3 (Autumn), 127-147.

Suzuki, Daisetz Teitaro (1987) Reason and Intuition in Buddhist Philosophy. 66-109 in *The Japanese Mind: Essentials of Japanese Philosophy and Culture*. Edited by Charles A. Moore. University of Hawaii Press: Honolulu.

Sveiby, Karl-Erik (1990) *Kunskapsledning: 101 råd till ledare i kunskapsintensiva organisationer* (Knowledge Management: 101 advice for managers in knowledge-intensive organizations). Affärsvärlden Förlag: Sweden. Also available at http://www.sveiby.com/articles/ Kunskapsledning/ KunskLedning.thm.

Sveiby, Karl-Erik (1997) *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets*. Berrett-Koehler: San Francisco, CA.

Sveiby, Karl-Erik (2001) *What is Knowledge Management?* Updated version (original in 1996) http://www.sveiby.com/articles/KnowledgeManagement.html. Accessed on 13.7.2003.

Takahara, Nicole (1974) Semantic Concepts of "Marriage", "Work", "Friendship" and "Foreigner" in Three Cultures, Chapter 7, 205-216 in *Intercultural Encounters with Japan. Communication, Contact and Conflict*. Edited by John C. Condon and Mitsuko Saito. The Simul Press, Inc.: Tokyo.

Takeuchi, Hirotaka (2001) Towards a Universal Management Concept of Knowledge. Chapter 15, 315-329 in *Managing Industrial Knowledge: Creation, Transfer and Utilization*. Edited by Ikujiro Nonaka and David Teece. London: Sage Publications.

Tan, Li Hai; Spinks, John A.; Feng, Ching-mai ; Siok, Wai Ting; Perfetti, Charles A.; Xiong, Jinhu ; Fox, Peter T. and Gao, Jia-Hong (2003) Neural Systems of Second Language Reading Are Shaped by Native Language. *Human Brain Mapping* 18: 158-166.

Taylor, Insup and Taylor, M. Martin (1990) *Psycholinguistics: Learning and Using Language*. Prentice Hall: Englewood Cliffs, New Jersey.

Taylor, Insup and Taylor, M. Martin (1995) *Writing and Literacy in Chinese, Korean and Japanese.* John Benjamins Publishing Company: Amsterdam/Philadelphia.

Taylor, Insup and Olson, David R. (1995) An Introduction to Reading the World's Scripts. Chapter 1, 1-15 in *Scripts and Literacy: Reading and Learning to Read Alphabets, Syllabaries and Characters*. Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers: Dordrecht/Boston/London.

Ting-Toomey, Stella (1988) A face-negotiation theory. In Y. Kim & W. Gudykunst (Eds.)*Theory in intercultural communication.* Sage: Newbury Park, CA.

Ting-Toomey, Stella (1994) (Editor) *The Challenge of Facework: Cross Cultural and Interpersonal Issues.* State University of New York Press: Albany.

Tobin, Joseph; Wu, David Y. H. and Davidson, Dana H. (1989) *Preschool in Three Cultures: Japan, China, and the United States*. New Haven and Yale University Press: London.

Toffler, Alvin and Toffler, Heidi (1994) *War and Anti-War: Survival at the Dawn of the 21st Century*. Warner Books, Little, Brown and Company Ltd.: London.

Trager, G.L. (1958) "Paralanguage: A First Approximation", *Studies in Linguistics*, 13 (1958): 1-12. After (p. 103 Littlejohn, Stephen W. (1978) *Theories of Human Communication*. Columbus, Charles E. Merill Publishing Company: Ohio.

Tsoukas, Haridimos (1991)The Missing Link: A Transformational View of Metaphors in Organizational Science. *Academy of Management Review*, Vol. 16, No. 3, 566-585.

Tsoukas, Haridimos (1996) The Firm as a Distributed Knowledge System: A Constructionist Approach. *Strategic Management Journal*, Vol. 17, December, Special Issue, 11-25.

Tsunoda, Tadanobu (1985) The Japanese Brain. Uniqueness and Universality. Translated by Yoshinori Oiwa (英文日本人の脳) 角田　忠信　訳者 大岩, 大修館書店 Taishukan Publishing Company: Tokyo.

Tuomi, Ilkka (1999) *Corporate Knowledge. Theory and Practice of Intelligent Organizations*. Metaxis: Helsinki.

Unger, J. Marshall and De Francis, John (1995) Logographic and Semasiographic Writing Systems: A Critique of Sampson's Classification. Pp. 45-58 in Taylor, Insup and David R. Olson, *An Introduction to Reading the World's Scripts.* Chapter 1, 1-15 in Scripts and Literacy (1995). Reading and Learning to Read Alphabets, Syllabaries and Characters. Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers: Dordrecht/Boston/London.

Usunier, Jean Claude (1998) *International and Cross-Cultural Management Research*. Sage Publications: London.

Vahlne, Jan-Erik and Nordström, Kjell A. (1990*) Is the Globe Shrinking? - Psychic Distance and the Establishment of Swedish Sales Subsidiaries During the Last 100 Years*. Conference Paper presented at EIBA 1990 Annual Seminar in Madrid.

Vaid, Jyotsna (1995) Script Directionality Affects Nonlinguistic Performance: Evidence from Hindi and Urdu. Chapter 19, 295-310 in *Scripts and Literacy: Reading and Learning to Read Alphabets,Syllabaries and Characters*. Edited by Insup Taylor and David R. Olson. Kluwer Academic Publishers: Dordrecht/Boston/London.

Vaid, J. and Singh, M. (1989) Asymmetries in the perception of facial affect: Is there an influence of reading habits? *Neuropsychologia* 27: 1277-1287.

Varis, Markku (1998) *Sumea kieli. Kiertoilmauksen muoto ja intention nykysuomessa*. (Fuzzy language. The form and intention of roundabout expressions in Finnish). Suomalaisen Kirjallisuuden Seura: Helsinki.

Varley, Paul (2000) *Japanese Culture*. Fourth edition, updated and expanded. University of Hawai'i Press: Honolulu.

Virtual Finland (2003) http://virtual.finland.fi/finfo/english/chrohist.html. Accessed on 14.11.2003.

Webster's (1989) *Encyclopedic Unabridged Dictionary of the English Language.* Random House Company: New York.

Wells, Gordon (1986) The language experience of five-year-old children at home and at school. 69-93 in *The Social Construction of Literacy.* Edited by Jenny Cook-Gumperz. Cambridge University Press: Cambridge.

Westney, Eleanor D. (1988) Domestic and foreign learning curves in managing international cooperative strategies. In F. Contractor and P. Lorange, editors, Cooperative strategies in international business. New Lexington Press: San Francisco.

Whorf, B. L. (1956) *Language, thought and reality*. J. Carroll (Ed.) Cambridge, MA: MIT Press. After Berry, John W., Ype H. Poortinga, Marshall H. Seagall, and Pierre R. Dasen (1992), Cross-cultural psychology: Research and applications. Cambridge University Press: Cambridge.

Widén, Pertti J. (1986) Cross-cultural communication between Finland and America. In *Dimensions in American Studies*, edited by J.D. Hopkins. University of Tampere.

Wieger, Léon (1965) *Chinese Characters: Their Origin, Etymology, History, Classification and Signification. A Thorough Study from Chinese Documents.* Dover Publications: New York.

Wierzbicka, Anna (1999) *Emotion Across Languages and Cultures: Diversity and Universals.* Cambridge University Press: Cambridge.

Wober, M. (1966) Sensotypes. *Journal of Social Psychology*, 70, 181-189. After Berry, John W., Ype H. Poortinga, Marshall H. Seagall, and Pierre R. Dasen (1992), Cross-cultural psychology: Research and applications. Cambridge University Press: Cambridge.

Van Wolferen, Karel (1990) *Enigma of Japanese Power: People and Politic in a Stateless Nation*. Charles E. Tuttle: Tokyo.

Wu, Kuang-Ming (1989) Chinese Aesthetics, Chapter 8, 236-263 in *Understanding the Chinese Mind: The Philosophical Roots*. Edited by Robert E. Allinson. Oxford University Press: Hong Kong.

Yamada, Haru (1992) *American and Japanese Business Discourse: A Comparison of Interactional Styles*. Volume XLV in the series Advances in Discourse Processes. Ablex Publishing Corporation: Norwood, New Jersey.

Yamada, Haru (1997) *Different Games, Different Rules. Why Americans and Japanese Misunderstand Each Other*. Oxford University Press: New York/Oxford.

Yamaori, Tetsuo (2003) The Warped Wisdom of Religious Thought in Modern Japan. Pp. 44-47 in *Japan Echo,* June.

Yin, Robert K. (1986) *Case Study Research: Design and Methods*. Sage Publications: Beverly Hills.

Yoshikawa, Muneo (1987)The Double-Swing Model of Intercultural Communication Between the East and West, Chapter 22, 319-330 in *Communication Theory: Eastern and Western Perspectives*. Edited by D. Lawrence Kincaid. Academic Press, Inc.: San Diego.

Yukawa, Hideki (1987) Modern Trend of Western Civilization and Cultural Peculiarities in Japan. 52-65 in *The Japanese Mind: Essentials of Japanese Philosophy and Culture*. Edited by Charles A. Moore. University of Hawaii Press, Honolulu

Yum, June-Ock (1987) Korean Philosophy and Communication. 71-100 in *Communication Theory: Eastern and Western Perspectives*. Edited by D. Lawrence Kincaid. Academic Press, Inc.: San Diego.

Zander, Udo (1991) Exploiting a technological edge: Voluntary and involuntary dissemination of technology. Stockholm: Institute of International Business.

Zevin, Jason and Seidenberg, Mark S. (2002) Age of Acquisition Effects in Word Reading and Other Tasks. In *Journal of Memory and Language*. http://cogprints.ecs.soton.ac.uk/archive/00002149/00/zevin_seidenberg_aoa_2002.pdf accessed 20.11.2003.

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