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# Schemata, Acculturation, and Cognition

## Expatriates in Japan's Software Industry

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**Abstract**—This multiple case based empirical study expands the knowledge around North American software and IT workers in Japan as well as the expatriate literature and discussion of cognitive schemata in cross cultural settings. The study includes eleven individuals, nine of them in software. Evidence of selection, rejection, and adjustment of cognitive schemata found in Japan's business world is presented. Changes in schemata drive cultural adjustment and acculturation. North American software and IT workers in Japan must maneuver through unfamiliar and often complex schemata to motivate, lead, manipulate, and communicate with coworkers and partners and thereby gain success.

**Keywords**—software business; acculturation; cognitive schemata; expatriate; Japan

### INTRODUCTION

Tens of thousands of foreign IT workers find employment in Japan, despite it being considered a difficult host culture for expatriate workers [1] and hard for foreign companies to communicate in [2]. Despite the recognition of challenges, there is a lack of information on IT workers meeting the difficulties of Japan. How do software and IT workers adjust? What must they do to find success? Must they accept the host culture entirely or can they reject or change certain aspects of it? This study meets a gap in the literature about the software and IT industry and expatriate acculturation to business and business thinking in Japan. Academic articles on North American and other Western expatriates in Japan over the past 10 years are relatively few [1], [3]–[11] and only one [12] specifically deals with software and IT sector workers. However those expatriates are important, encompassing 28,000 North American IT workers, including software and other descriptions, in Japan [13]. This study summarizes data from eleven cases built on in depth interviews with North Americans working in Japan's IT sector, mainly in software, and reports key findings in cross cultural acculturation and cognition. Findings help understand how those workers change cognitively and interact with their business environment in order to succeed in the work environment of the host culture.

This paper concerns itself only with IT workers from North America in order to narrow the variability of the study population. The software and IT sector was chosen in order to minimize confounding factors due to different industry

cultures. Eleven cases are included, nine of them are software workers.

The cases of expatriates discussed here originating in the USA include: #1) software engineer and liaison to US industry; #2) software services sales and project management; #3, #4, #5, and #6) software development and project management; #7) ITC sales and sales engineer; #9 and #11) software developers and entrepreneurs. Cases #8) software engineer; and #10) (project management) are from Canada. All except #8 are in management. Only #10 works primarily outside of IT, in finance, he is however active in IT project management. At the time of interview, all were working in Japan or had left within the previous 3 years except #1 who had retired ten years previously but remains in Japan.

This work takes the individual actor as a unit of study rather than organizations because it is individuals who, especially as business managers, impact the environment around them through their successes and failures. The insights from this research boost academic theory regarding acculturation, metacognition, and cognition in cross cultural contexts, especially regarding Japan, and the software industry. Expatriates are understood here to mean workers from another country whether dispatched from there or locally hired. Their experiences shed light on expatriate metacognition as they use, reject, and adapt cognitive schemata in business to thrive or fail in Japan's software and IT sector.

Research questions proposed in this study include:

- What metacognitive adjustment mechanisms exist in this population?
- Which business related cognitive schemata are important for software workers in Japan?
- How are cognitive schemata important for software workers in Japan?
- What implications for software workers and companies can be drawn?

### LITERATURE REVIEW

Acculturation means changes in how people work, think, behave, and assess their values [14], [15] specifically as a result of cross cultural encounters [16]. Adaptation is an outcome of acculturation [17] based on four acculturation strategies: Integration, Assimilation, Separation, and

Marginalization. This theory applies to individuals rather than groups and is thus particularly appropriate for this research.

Alongside acculturation, metacognition must be considered to understand how business actors switch from one way of thinking to another in order to produce appropriate behavior and decisions. Metacognition refers to knowledge, skills, and beliefs about learning and learning including self-monitoring and checking that may be aware or unaware [18] yet only one mechanism has been described in the area of business [19]. This paper identifies one additional metacognitive mechanism in the context of cross cultural business.

The term cognitive schema refers to a set ideas, processes, feelings, facts, etc. that comprise an understanding or conceptualization. Schemata can include for example social roles, contexts, procedures, and strategies; these four types among eight [20] arose in the study as useful for adjusting to Japan's work world. Schemata organize knowledge and guide responses to input [21], [22]. The cases reviewed here found how expatriate IT and software workers in Japan use, adjust, and reject Japanese business schemata. Because schemata are part of the deep knowledge about a culture [23], they help individuals gain access and success.

#### METHODOLOGY

The individuals interviewed for this article were selected as members of the target population: North Americans in Japan's IT sector. They were selected through snowballing allowing similar individuals to be contacted for gathering data rather than testing hypotheses. Snowballing can reach individuals anonymously and safely who may be disinclined to speak due to bad experiences [24] – some individuals with uncomfortable experiences in Japan agreed to join. Recruitment for the survey and interviews mainly got those with managerial experience.

The cases additionally were screened for specific criteria, i.e. criterion sampling [25], [26] in order to ensure they were part of the target population. Case #10 was included opportunistically because the communication before the interview suggested it was a critical case [25], [27], [28].

Data collection included a survey with 61 items covering preferences and network in work and living environments as well as Cultural Intelligence (CQ) in addition to demographic information. Qualitative information was collected through structured in depth interviews ranging from 45 minutes to 1.5 hours, or in some cases, multiple interviews and follow ups in offices, cafes and via Skype. The resulting data was interpreted by researcher and study subjects in a joint sense making approach that set understanding in context – expatriate workers in Japan's software/IT industry – used in cases based research in business studies [29]. The structured and open format of the interviews plus the survey allowed triangulation to clarify information and reinforce salient data [30].

#### FINDINGS AND DISCUSSION

Of the eight schemata types [20], role schemata, procedure schemata, context schemata, and strategy schemata were found in the Japanese work world as experienced by North Americans. The schemata in this article are shown in Table I;

they represent a non-exhaustive catalog of business schemata encountered by North American software workers in Japan.

TABLE I. BUSINESS SCHEMATA IDENTIFIED AS SALIENT IN JAPAN'S SOFTWARE BUSINESS

Schema	Description
Morning meetings (choureshiki, 朝礼式)	A procedure schema that is widely known in Japan though now less widely practiced. Highly formalized site-wide or team events start the day such as a company song, group exercise, reading of company philosophy, or exhortations as all members stand at attention.
Covering up for partners	Procedure schemata for hiding lapses in performance or limiting impact on formal relationships and processes.
Feigning drunkenness to promote frankness	A strategy schema used by team members. After work, the group may eat and drink together. Drinking provides cover to air negative opinions, conflict, and feelings. Events are seemingly forgotten the next day, however.
After hours eating and drinking	A context schema for team interaction. Teams may have food and drinks irregularly through the week. A strong unwritten norm, it may lead to a relaxed atmosphere for the team to bond and share understandings about work.
Exploitation of workers	A context schema for managers. Low level permanent or temporary staff may be kept working for very long hours and weekends. This practice has led to legislation against death by overwork (karoshi 過労死).
Professional advisor relationships	A role schema for clients and advisors. Advisors such as lawyers and accountants may not legally be able to provide interpretation of laws, however they may give advice "unofficially" to partners.
Client supplier relationships	A context schema for client/supplier relationships. These relationships are strongly hierarchical based on company size and prestige. Inappropriate behavior may damage or destroy a relationship.
Gaijin power	A role schema for non-Japanese workers. Refers to the ability that foreigners (gaijin 外人) have to make social errors but experience little or no social punishment.
Keep harmony (wa 和) in the group)	A context schema for teams and groups. Harmony may be a high goal of a group and may come at the expense of individuals: those who disrupt the group harmony may be shunned or otherwise punished.
Nemawashi (根回し)	A procedure schema for developing consensus and testing proposals. Visits made to decision makers individually or in small informal groups in advance of decisions to promote plans and gather information.
Boss as bully	A role schema for leaders who rely on intimidation. Bullying bosses persist despite the rise of harassment suits in recent years.
Presence over work quality	A context schema for workers to meet the expectations and norms of the workplace. Visible presence at the workplace is seen as promoting group cohesion whereas work quality is not judged to benefit or harm the group.
Surrender ownership of ideas	A context schema for norming and performing [31] with a group. Ideas usually lose personal ownership as the group considers and develops them. Group ownership and group success supersede individual interests.
Conform to hierarchy	A context schema for selecting the correct behaviors and role depending rank. Many companies are strongly hierarchical; misinterpreting or ignoring one's position or that of another may lead to social sanctions.
Reading the atmosphere	A context schema for determining the prevailing thinking or feeling of a group especially with regard to difficult decisions. Often the reader is trying to conform to the prevailing opinion of the group.
Talk it through again	A context schema for communicating and managing risk aversion. A coworker or partner may prefer to repeatedly walk through all the steps of a proposal with attention to multiple possible outcomes and secondary and tertiary effects before agreeing. Case #11 notes that workers may not be motivated unless they fully see the

	purpose and relationships of the project.
Negotiation approaches	Strategy schemata for negotiation including various approaches appropriate for customers, partners, competitors, and other actors in various situations.

The schemata in Table I were all identified during the case interviews and confirmed as salient during review and follow up. While these were found in the context of software business sector, they are also identified in literature about business in Japan in other sectors beyond the scope of this study.

TABLE II. APPROPRIATION AND REJECTION OF SCHEMATA

Case	Schemata appropriated	Schemata rejected
#1	Conform to hierarchy	Morning meetings
#2	Keep harmony in the group; Negotiation approaches; Presence over work quality	NA
#3	Feigning drunkenness to gain frankness; Gaijin power;	Boss as bully
#4	NA	Boss as bully; Presence over work quality
#5	Nemawashi	After hours drinking
#6	Conform to hierarchy	NA
#7	Negotiation approaches; Conform to hierarchy;	NA
#8	Surrender ownership of ideas; Conform to hierarchy;	Presence over work quality
#9	Nemawashi; Negotiation approaches; Conform to hierarchy; Professional advisor relationships; Client supplier relationships; Gaijin power	Exploitation of workers; Covering up for partners Boss as bully; Conform to hierarchy
#10	Negotiation approaches; Reading the atmosphere	Keep harmony in the group; Surrender ownership of ideas; Conform to hierarchy; Boss as bully
#11	Negotiation approaches; Talk it through again	Boss as bully; Presence over work quality

The contents of Table II above show that North American IT workers accept and reject various schemata. They are not forced by the norms of the surrounding work world to accommodate all expectations of Japanese partners, co-workers, and counterparties.

In rejecting schemata that are seen as Japanese, expatriates make a statement about their preferences and philosophies. Some schemata are used, or rejected, largely to the benefit of the individual and coworkers, for example rejecting bullying due to values. However some are used or rejected in order to manipulate or even antagonize co-workers and customers. Case #9 is perhaps the most successful and advanced of the interviewees in this respect because he can use complex strategic schemata to capture clients and show himself in a very positive light. He also uses nemawashi and negotiation approaches with skill and exploits his ability as a non-Japanese to make intentional errors that seem accidental but benefit his company or business partner. At the same time, he rejects those schemata that do not fit his world view and which brought him negative experiences in the past such as unproductive late hours in the office or bullying by superiors who take advantage of the hierarchical workplace structures common in Japan.

Case #11, also a successful entrepreneur uses schemata adjusting them to the nationality and context of his employees.

One actor, #10, uses his skills with schemata to antagonize his co-workers and break the harmony of the group. Sometimes he does this in order to block bullying or to maintain ownership of a business idea. He does not make material or social gain from his abilities but perhaps does garner personal satisfaction.

Limitations

This study acknowledges limitations including case selection and weak generalizability. Case selection was conducted by the snowballing method rather than randomization. This group cannot be objectively described as typifying the larger population of North American IT and software workers in Japan, and findings cannot automatically generalize to larger populations, however the study provides clues about expatriate adjustment to the Japanese workplace.

CONCLUSION

What metacognitive adjustment mechanisms exist in this population? The interviews with expatriates revealed that they learn about schemata, through observation, experience, discussion with informants, reading, or other means. Then in a metacognitive, decision making process, they accept or reject schemata. Accepted schemata may be applied as understood or adjusted and then used, in either case returning to the learning stage as the very experience of application creates learning about the schemata. Rejected schemata return to the learning stage or leave the process (Quit). In the model below, schemata are central to a metacognitive mechanism that contributes to the individual’s ability to adjust to the host country workplace.

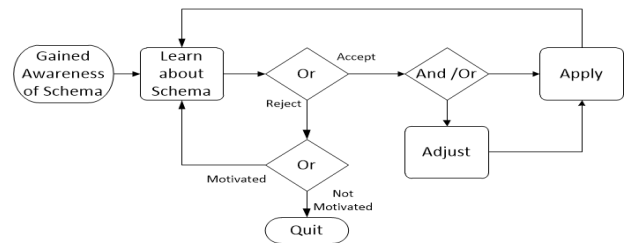


Fig. 1. Schemata Learning and Application (source: authors)

Which business related cognitive schemata are important for software workers in Japan? Table I provides a non-exhaustive catalog of schemata identified by North American software workers as salient to working in Japan.

How are cognitive schemata important for software workers in Japan? A key contribution of this study is to theory around cognitive schemata. Schemata from the host country are employed, adjusted, or rejected to gain nuanced benefits. This ability may be a characteristic of highly acculturated managers, those who are able to integrate [16]. A tentative theoretical model arising from the interviews is that increasing facility with cognitive schemata characteristic of the host country may link with cross cultural competency, as in Fig. 2, developed by the authors. In Fig. 2, cultural competency derives from recognizing and applying schemata and gaining experience.

Here, schemata are important for expatriates because they represent building blocks of cultural competency. Confirmation and explanation of the relationships shown in the figure require further study.

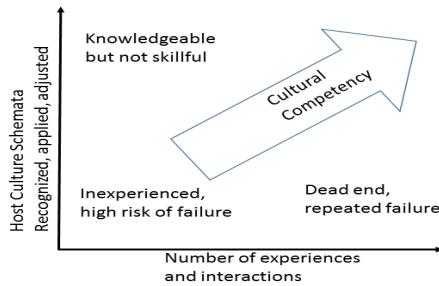


Fig. 2. Schemata and Cultural Competency (source: authors)

*What implications for individual business persons and software companies can be drawn?* Employers can train employees to know and use schemata appropriately. Implications for software and IT workers include the need to know their home and host culture schemata. Some North American schemata about ownership of ideas, merit based advancement, confrontation, decision making, and personal interactions must be adjusted or dropped in Japan. Workers must be ready to adjust Japanese schemata to suit their own purposes, not merely follow them. The most successful individuals in this study, #9 and #11, are able to use schemata with nuanced adjustments. Those with less skill, #4, #5, and #8 have struggled for advancement and success. Expatriates must experience, observe, discuss, and learn about schemata while using them to gain advantages and successes.

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