

***AKITA INTERNATIONAL  
UNIVERSITY  
GLOBAL REVIEW***



***Volume IX  
2017***



*AIU*  
*Global Review*

Volume 9  
2017

Published by  
Akita International University  
Press

Akita, Japan  
2017

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ISSN 1883-8243

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**Publisher:** SUZUKI Norihiko  
Akita International University Press  
Akita city, Yuwa, Japan 010-1292  
[web.aiu.ac.jp/press/](http://web.aiu.ac.jp/press/).  
Tel: 81-18 886-5900  
Fax: 81-18-886-5910

Printed in Japan



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## Call for Manuscripts

Manuscripts for Volume 10 (2018) of the AIU Global Review must be sent to AIU Press (aiupress@aiu.ac.jp) as an attachment to an email by September 28, 2018. Manuscripts undergo blind peer review by at least two qualified scholars.

### Manuscripts MUST conform to the following guidelines:

1. All articles must be the result of original academic research bringing new elements to scholarship and of up to 10,000 words (or up to 1,000 words for a book review), including footnotes and bibliography. Please note that the journal also welcomes articles on pedagogy, empirical or theoretical in nature, with a clear potential for contributing to the relevant academic field either by their innovative approaches or by their theoretical elaboration going beyond a narration of personal experiences
2. Manuscripts are to be submitted in Microsoft Word format, **single-spaced**, Times New Roman font, size 11 for texts and size 10 for footnotes. **Margins 25.4 mm** from each of four sides, **with custom page size 159.8 mm wide and 236 mm high.**
3. Include a concise abstract at the beginning of the manuscript, with three to five key words.
4. Capitalize each major word in the manuscript's title (size 14 font), section heading and illustration titles.
5. **Embolden** and **number** section headings.
6. *Italicize* all foreign words (including Japanese words) and titles of books.

7. **No paragraph indentation** but a single space between paragraphs. **No automatic spacing** before and after paragraphs.
8. All sources must be properly cited according to the proper discipline-relevant style, but all major English-language citation systems are accepted (e.g., Chicago, APA, and MLA).
9. All charts, maps or other illustrations can be provided in colors or black-and-white format.
10. Attach a one-paragraph biography when submitting your manuscript.
11. Before submitting your manuscript by September 28, send to the e-mail address below a notice of intent by July 13, with the title and brief description of your article.
12. All correspondence should be sent to [aiupress@aiu.ac.jp](mailto:aiupress@aiu.ac.jp).



## The Onomatopoeia Project as Soft CLIL in Higher Intermediate Japanese Class

HAMADA Hideki

**Abstract:** The significance of teaching critical thinking and the teachers' role in helping students to think critically in their classes have received significant attention since the turn of the 21<sup>st</sup> century. In this paper, a CLIL (Content and Language Integrated Learning) -based project will be examined. This CLIL project has students critically review their textbook's explanation regarding Japanese onomatopoeia by collecting and categorizing their own collected Japanese onomatopoeias. The objectives of this paper are to investigate (1) how students thought critically during this project, (2) how students' attitudes toward critical thinking changed through this project, and (3) how this CLIL-based project encouraged students to think critically.

**Key words:** 21st century skills, CLIL, Critical thinking, Onomatopoeia, Japanese language

### 1. Introduction

In this paper, a CLIL (Content and Language Integrated Learning) -based project will be examined. This CLIL project has students critically review their textbook's explanation regarding Japanese onomatopoeia by collecting and categorizing their own collected Japanese onomatopoeias. The purpose of this paper is to examine (1) how students thought critically during a CLIL project that examined onomatopoeia, (2) how students' attitudes toward critical thinking changed through their engagement in this project, and (3) how this CLIL-based project encouraged students to think critically. In the literature review, an overview of the significance of critical thinking and CLIL, the connection between critical thinking and CLIL, and Japanese onomatopoeia will be introduced. Then, followed by a description of the CLIL-based project, the three research questions will be examined and answered. Finally, implementations and suggestions for applying this project in context will be discussed.

## 2. Literature review

### 2.1 Critical Thinking

The history of critical thinking goes back to ancient Greece. In the modern era, it has been studied academically since the start of the 20th century (Kusumi and Michita, 2015). Currently, research on critical thinking is conducted in various fields such as psychology (Ikeda, 2013), the science of nursing (Kusumi, 2015, Matsuzaki, 2004), media (Nakahashi, 2017), and cross-cultural research (Hirayanagi, 2015). Furthermore, ATC21S (Assessment & Teaching of 21st Century Skills), established by University of Melbourne and ICT (Information & Communication Technology) companies in order for students to obtain information and ICT literacy to live and work in the current information-age society, includes critical thinking as one of these important skills (ATC21S, 2010). ATC21S consists of the ten categories under four sections shown in Table 1.

**Table 1: ATC21S**

| Ways of Thinking  | Tools for Working  |
|---|--|
| Creativity and innovation<br>Critical thinking, problem-solving, decision-making<br>Learning to learn/metacognition (knowledge about cognitive processes) | Information literacy<br>ICT literacy   |
| Ways of Working   | Ways of Living in the World  |
| Communication<br>Collaboration (teamwork)   | Citizenship – local and global<br>Life and career<br>Personal and society responsibility – including cultural awareness and competence |

Among these skills, critical thinking and problem-solving are significant in the context of the 21st century (Kusumi, 2011).

There are many definitions for critical thinking. In this paper, the definition of Kusumi et al. (2013) is adopted, which is “Critical thinking is to carefully listen to others, to examine their own thinking,

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and then to make better decisions.” By carefully listening to others or reading materials and asking questions, trustworthy evidence can be obtained. By “examining their own thinking,” they can reflect themselves to make better decisions. Kusumi et al. continue that this process is the basic skill of the generic skills that are necessary for people in our current society in order to solve social issues in complicated situations where different people with different opinions exist. We need to foster human resources that can make the current society better by using critical thinking to solve such current issues.

Attitudes are also recognized as an important element in critical thinking. Kusumi (2011) argues that attitudes toward critical thinking are as important as critical thinking skills. According to him, there are six important attitudes toward critical thinking, namely deliberate attitude, questioning mind, attitude toward objectivity, attitude for emphasizing on evidence, and awareness to the logical thinking. Deliberate attitude is not to swallow the information without careful consideration. If people have questioning mind, they have desires to seek more information, knowledge, and choices. People can avoid biased opinions with the attitude toward objectivity. The attitude to emphasize on evidence allows you to make fair judgement and final decision based on clear evidence from trustworthy sources. Kusumi continues that you cannot think critically unless you are aware of the importance of logical thinking.

Tsui’s study (2002) suggests how we could foster critical thinking in higher education. Her survey asked over twenty thousand university students how their critical thinking abilities changed after they entered university. Then, she calculated the average score of each university, which she called institutional growth in critical thinking (IGCT), and visited top two universities and bottom two universities of IGCT for field study. Based on class observations and interviews with professors and students, she discovered that the top two universities put an emphasis on writing and discussions in class. In terms of writing, those students have to read classmates’ papers, give feedback to each other, and then revise their own paper based on the feedback. On the other hand, multiple-choice tests and lectures are emphasized in the bottom two universities.

## 2.2 CLIL

In language classes, critical thinking needs to be fostered while students learn language and content since it cannot be mastered after language acquisition and content learning (Sato, Hasegawa, Kumagai & Kamiyoshi, 2016). There are various language teaching methodologies<sup>1</sup> that focus on both language and content such as CBI (Content-based Instruction), CLIL (Content and Language Integrated Learning), EMI (English-Medium Instruction), and Immersion (e.g., immersion program in Canada). Though Hanzawa (2017) argues that it is difficult to define these methodologies and clarify practices in classrooms, Ikeda (2012) summarizes those objectives, teachers, content, and target of evaluation as shown in table 2.

**Table 2: Differences of CBI, CLIL and Immersion**

|                      | CBI               | CLIL                             | Immersion        |
|----------------------|-------------------|----------------------------------|------------------|
| Objective            | Language learning | Language and content learning    | Content learning |
| Teacher              | Language teacher  | Language teacher/Content teacher | Language teacher |
| Content              | Mainly topic      | Topic/Subject                    | Subject          |
| Target of Evaluation | Language          | Language and content             | Content          |

According to this summary, students learn the target language using content in CBI whereas students learn the subject using the language in immersion programs. On the other hand, students learn both content and language in CLIL.

Another aspect of CLIL is to intentionally integrate the 4Cs (Content, Communication, Cognition, and Culture/Community) into teaching materials, lesson plan, class, and evaluation (Ikeda, 2011, 2016). CLIL prompts active learning with these four Cs. Content is divided into two categories, namely declarative knowledge and procedural knowledge. For example, what you have already know about global warming is probably that deforestation and car usage cause temperature rise. This is declarative knowledge. If you apply this knowledge into your daily

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<sup>1</sup> Researchers may call them approaches or curriculums.

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life and try to reduce waste for stopping global warming, that knowledge helping you to translate into action is procedural knowledge.

In communication in CLIL, balance of learning language knowledge (vocabulary, grammar, and pronunciation), training of four skills (reading, writing, listening, and speaking), and use of language skills (language as tools for interpersonal communication and learning) are important. In order to keep this balance, three aspects of language (language of learning, language for learning, and language through learning) have to be considered in CLIL. Language of learning refers to important vocabulary and grammar points for a topic. Language for learning is necessary language and skills for learning, such as how to take notes, discuss with classmates, and how to write reports. Language through learning connects language of learning and language for learning by repeatedly using the language. For instance, students obtain information by reading a newspaper, discuss about the topic, write a paper, and then give a presentation. Through this process, students can enrich their knowledge about the topic and language skills.

With respect to cognition, Higher Order Thinking Skills (HOTS) are considered more important than Lower Order Thinking Skills (LOTS) in CLIL. HOTS is thinking about questions that do not have solid answers. On the other hand, LOTS is thinking about questions that have solid answers. Anderson et al. (2001) modified Bloom's Taxonomy in cognitive domain and created six different categories (i.e., remembering, understanding, applying, analyzing, evaluating, and creating). In CLIL, remembering, understanding, and applying are categorized in LOTS. Analyzing, evaluating, and creating are categorized as HOTS. HOTS are deeply related to critical thinking since people analyze and evaluate when they examine their own thinking. Also, by making better decisions after examining their own thinking, people can create better ideas.

Culture can be called Community. Although the term "Community" has been used in Japan since it suits Japanese society, current practical books use "Culture" instead (Ikeda, 2016). Thus, culture/community is used in this paper. Students work with others in and outside of CLIL class. This is not just to have more opportunities to use the target language but also to learn with other people by sharing opinions and experiences in the community. Through this process, they will be



aware of collaborative learning, cross-cultural understanding, and international understanding.

CLIL has different variations depending on the objective, frequency, ratio, and used language as shown in Table 3 (Ikeda, 2011). If the objective of the class is language education, the class is more toward soft CLIL. If the CLIL class is similar to subject classes taught in the first language, it usually has single subject, such as geography or mathematics, and can be called hard CLIL. Light CLIL has less frequency of CLIL class (e.g., a few times a semester/year). On the other hand, heavy CLIL has a high frequency of CLIL class (e.g., the whole curriculum is created based on CLIL), which can expect more effects of CLIL than light CLIL. Regarding the type of ratio, partial CLIL integrates a few CLIL-based tasks in class whereas the entire class is based on CLIL in total-CLIL class. In CLIL class, it is suggested that the whole class is taught in the target language, which is monolingual CLIL. However, code-switching between the target language and vehicular language can be also used as necessary, which is called bilingual CLIL. These variations allow teachers to be flexible when adopting CLIL into their classes. Due to this flexibility, CLIL can be adopted into various educational settings.

**Table 3: Variations of CLIL**

|   |                                       |
|---|---------------------------------------|
| <b>Objective</b>                                      |                                       |
| Soft CLIL<br>(English Education)                      | Hard CLIL<br>(Subject education)      |
| <b>Frequency</b>                                      |                                       |
| Light CLIL<br>(Low)                                   | Heavy CLIL<br>(High)                  |
| <b>Ratio</b>  |                                       |
| Partial CLIL<br>(A part of class)                     | Total CLIL<br>(All class)             |
| <b>Used Language</b>                                  |                                       |
| Bilingual CLIL<br>(Native language & target language) | Monolingual CLIL<br>(Target language) |

Ball, Kelly, and Clegg (2015) divides CLIL into big two categories; hard CLIL and soft CLIL.

‘Hard’ CLIL programmes are taught by subject teachers with a strong emphasis on the acquisition of subject knowledge,

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occupying all the available hours for the subject for a year or more and sometimes culminating in a public examination. 'Soft' CLIL, on the other hand, is normally a shorter programme, taking up only part of the curriculum time allocated to the subject, valued for its language benefits and often involving language teachers.

Based on this definition, the class that falls into the left side of the table 3 can be generally called 'Soft CLIL.'

### 2.3 Japanese Onomatopoeia

The well regarded Kojien dictionary of Japanese (6th edition 2008), defines Japanese onomatopoeia as follows:

*Giseigo*: Words that imitate human and animal sounds.

*Giongo*: Words that imitate real sounds.

*Gitaigo*: Words that describe visual, tactile, and other non-auditory sensitive impressions.

*Giseigo* and *giongo* are sometimes combined and called *giseigo* or *giongo* that means words that imitate any sounds. Thus, a number of Japanese people think that Japanese onomatopoeia is divided into two categories, *Giseigo/giongo* and *gitaigo*. However, according to Asano and Kindaichi (1978), Japanese onomatopoeia can be divided into five categories, *Giseigo* (animal and human sounds), *Giongo* (actual sounds made by inanimate objects and nature), *Gitaigo* (conditions and states), *Giyougo* (movements and motions) and *Gijougo* (feelings). On the other hand, Atoda and Hoshino (1993) divided *giseigo* and *gitaigo* into four categories, namely sounds, voices, states, and degrees. In this manner, there are various types of Japanese onomatopoeia categories.

Japanese onomatopoeia is one of the topics that Japanese language learners are interested in although mastering them is not easy because of the number of different types of onomatopoeias. Onomatopoeia is usually introduced in the intermediate/advanced Japanese language class. Intermediate Japanese textbooks usually have short explanations about onomatopoeia. In advanced class, it is up to the teacher whether or not onomatopoeia is introduced in class since many teachers of advanced class choose authentic materials and create activities as they like.

### 3. Onomatopoeia Project

The project<sup>2</sup> (hereafter referred to as the onomatopoeia project) was conducted in a higher intermediate Japanese class during spring semester of 2017 at a university in Japan. The objectives of this project were (1) to learn various Japanese onomatopoeias, (2) to think about how the intermediate Japanese textbook explained Japanese onomatopoeia, and (3) to create a Japanese literary work (e.g., poem, cartoon, and short story) using Japanese onomatopoeias. The table 4 shows the procedures for this project.

**Table 4: Procedures of the Onomatopoeia Project**

|         | Class activities  | Activities outside the classroom   |
|---------|---|--|
| Week 10 | Read the explanation of Japanese onomatopoeia in Japanese language textbook.<br>Analyze why the textbook explains Japanese onomatopoeia in such manner. | Collect Japanese onomatopoeia used in real life (e.g., cartoon, the Internet, TV).<br>Create categories of Japanese onomatopoeia based on the onomatopoeias they collected.<br>Ask other people to comment on their analysis regarding the explanation of the Japanese textbook and their categories of Japanese onomatopoeia. |
| Week 11 | Share onomatopoeias that they collected and the categories with classmates.   | Revise their analysis and/or categories based on comments received from other people if revision is necessary.   |
| Week 12 | Share their analysis with classmates and have discussion.   | Create Japanese literary works using Japanese onomatopoeias.   |

<sup>2</sup> This project is the modification of the Katakana Project (Nishimata et al., 2016).

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|         |  |  |
|---------|--|--|
| Week 13 | Share their Japanese literary work with classmates and make comments each other. | Ask other people to comment on their literary works.   |
| Week 14 |  | Revise their literary works based on comments received from other people if revision is necessary. |
| Week 15 | Invite people to show their literary work.                                       |  |

First, the students read the explanation regarding Japanese onomatopoeia written in the intermediate Japanese textbook. This process has two purposes. One is to review Japanese onomatopoeia, and the other is to critically review the explanation. The teacher asked them if the explanation was enough or too much and if it needed to be revised. They wrote their opinions and shared their ideas with their classmates in class.

Next, they searched onomatopoeias from the Internet, comic books, novels, etc. and then categorized those onomatopoeias into categories and wrote the reasons why they categorized in such way. Then, they asked other Japanese speakers (at least three people) to comment on their analysis of the textbook and categorization of collected onomatopoeias. The students revised their analysis and/or categories based on the comments if necessary. Lastly, they created a Japanese literary work using Japanese onomatopoeias. They also asked their classmates and other Japanese speakers to comment on their literary work and revised it as necessary. At the end of the semester, students held an open session for anyone in the university to observe their literary work. Table 5 shows the number of onomatopoeias that each student collected and their sources. All students' names are anonymized.

**Table 5: Number of Onomatopoeias and Sources**

|         | Number of Onomatopoeia | Sources   |
|---------|------------------------|---|
| Isabel  | 19                     | Manga, news, blog, lyrics   |
| Linda*  | 24                     | Manga, books  |
| Mary*   | 26                     | Novels, manga   |
| Nancy*  | 28                     | Japanese textbooks, cartoons, dictionary, books for children, books, Internet   |
| Paula   | 21                     | Movies from YouTube, textbooks, dictionaries, box of snacks, line stamp   |
| Simon   | 20                     | Manga, magazine, lyrics, cartoon, box of cosmetics  |
| Vanessa | 24                     | Manga, advertisement, rice cooker, shampoo bottle, dictionary, boxes of snacks, line stamp, Japanese test, can of Red Bull, card game |

“\*” indicates three participants reported in the result section as case studies.

Based on table 3 “Variations of CLIL,” the onomatopoeia project can be categorized as soft/light/partial CLIL. Also, the definition of soft CLIL by Ball, Kelly, and Clegg (2015) fits this project. Thus, hereinafter, this project is called soft CLIL. All four Cs are considered in this project (Content: Japanese onomatopoeia, Communication: learning onomatopoeia through communicating with others and presenting their literary works to others, Cognition: categorization of onomatopoeia and textbook analysis, and Culture/Community: classroom and commenters as communities).

## 4. Methodology

### 4.1 Participants

Seven students participated in the onomatopoeia project. Five students were international exchange students coming from Brunei, Finland, Germany, and Taiwan. On average, these students had studied Japanese for three years in their countries. Their Japanese is at the level so that many of them could pass the N3 level of the Japanese-Language Proficiency Test, and a few of them, mostly native speakers

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of Chinese, already have N2 before entering this Japanese class. In addition, there were two regular international students from Japan and South Korea. The Japanese international student took this higher intermediate Japanese class since she was raised in Russia until she graduated from elementary school. She went to a Japanese junior high school and senior high school afterwards. Though a native Japanese, she felt her language skills could be improved through the course.

### 4.2 Materials

For the data analysis, students' categorizations of onomatopoeias and analysis of the textbook's explanation regarding Japanese onomatopoeia, comments that they received from other Japanese speakers, field notes taken during class discussion, the results of the survey conducted at the end of the semester, and the results of follow-up interviews were utilized. Since the research was conducted in Japanese, the author translated all the data into English.

### 4.3 Procedures and Analysis

The procedures of the onomatopoeia project are shown in section 3. After this project, five out of seven students participated in the survey that asked for general feedback about the project and how their attitudes changed through their experience of the project (see section 5.4 for more details). Follow-up interviews were conducted as necessary after the project.

This study tries to investigate three things: (1) how students thought critically, (2) how students' attitudes toward critical thinking changed, (3) how this CLIL-based onomatopoeia project supported student to think critically. For question (1), how three students<sup>3</sup> reached their final decisions was examined based on the Kusumi et al.'s definition of critical thinking, "Critical thinking is to carefully listen to others, to examine their own thinking, and then to make better decisions." The researcher extracted these steps from all of the data shown in section 4.2. The main data utilized for question (2) was the results of the

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<sup>3</sup> These three students were chosen as the case studies since they clearly showed their steps of critical thinking. The reasons that the other four students did not clearly show their steps of critical thinking need to be examined in the future study.

survey. However, the field notes and the results of the follow-up interviews were also utilized to clarify students' intentions of answers on the survey. For question (3), the researcher identified how four Cs of CLIL (i.e., content, communication, cognition, and culture/community) are integrated into the onomatopoeia project and then examined how these aspects of four Cs supported students' critical thinking.

## 5. Results

This section introduces how three students categorized their collected onomatopoeias and how they analyzed the onomatopoeia explanation in the Japanese textbook. Further, the results of the survey conducted at the end of the semester will be presented.

### 5.1 Case 1: Mary

Mary came from Germany and stayed at the university for one year. She spoke English, German, and Japanese. Based on the fact that she never missed her homework assignments, it is obvious that she was very serious about learning Japanese. She asked five people to comment on her onomatopoeia categories, textbook analysis, and literary work although the minimum requirement was three people. She made two versions of her onomatopoeia categories by revising the first version based on the comments made on the first version. In the first version, she created five different categories (emotion, sound, movement, touch feeling, and ?). She divided these onomatopoeias into two categories (i.e., mimetic words and onomatopoeic words) in the second version with subcategories (i.e., emotion, movement, and state) under the mimetic-word category. The first person that commented on her first version of onomatopoeia category stated "It is better to categorize onomatopoeias into mimetic words and onomatopoeic words and then make small categories. Also, you should have more onomatopoeic words." Mary explained, "At first I tried sorting the words without separating into *gitaigo* (mimetic words) and *giongo* (onomatopoeic words), but when I made the second version it was easier to divide into two big categories and then into subcategories. After that, since onomatopoeic words became one big category, I added more expressions there."

The second person suggested her that “わなわなと *wanawanato*” (Trembling) and “がっしりと *gasshirito*” (strongly) are not onomatopoeia. However, Mary kept these in her list. She explained “I had looked up the words and they were listed as onomatopoeia in the dictionary, so I left it like that. The Japanese students probably don't know the exact definitions of onomatopoeia either.”

## 5.2 Case 2: Linda

Linda came from Brunei and stayed at the university for one year. Her native language was Malay but she also spoke English and Japanese. She came to Japan to study Japanese while studying psychology in England.

Her onomatopoeia categories were based on Asano and Kindaichi's categorization, which were *giseigo* (animal and human sounds), *giongo* (sounds made by inanimate objects and nature), *gitaigo* (conditions and states), *giyougo* (movements and motions), and *gijougo* (feelings). Although the teacher asked her to create her own onomatopoeia categories, she found this categorization on the Internet and categorized her onomatopoeias under these five categories.

As for the textbook analysis, Linda discovered that the Japanese textbook implicitly explained these five categories. The explanation of the textbook<sup>4</sup> is as follows.

擬音語 (*giongo*: phonomimes, onomatopoeia) represents (1) words that imitate actual sounds. English has some of those, too, such as (2) sounds that animals make. 擬態語 (*gitaigo*: phonomimes, psychomimes) are (3) words that express states, (4) feelings, (5) manners of actions, etc., impressionistically.  
(Numbers and underlines are added by the author.)

According to her explanation, (1) is *giongo*, (2) is *giseigo*, (3) is *gitaigo*, (4) is *gijougo*, and (5) is *giyougo*.

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<sup>4</sup> An Integrated Approach to Intermediate Japanese [Revised Edition] (Miura and McGloin, 2008)



### 5.3 Case 3: Nancy

Nancy's parents were Japanese but she was raised in Russia, so she spoke Japanese and Russian as well as English. She took this higher intermediate Japanese class since she was not confident enough to use Japanese. Since she had been using Japanese with her family members, her spoken Japanese was close to that spoken by native speakers of Japanese.

She categorized her onomatopoeias in five categories (movement, sound, appearance, feeling, and movement/feeling). She was the only student that created a multi-category (i.e., movement/feeling). She explained that she could find the multi-category structure because of one respondent's suggestion. He suggested that “キ ヲ ロ キ ヲ ロ *kyorokyoro*” (looking around restlessly) under the feeling category could also express movement. She looked up the meaning in the dictionary and discovered that “restlessly” expresses feeling and “looking around” expresses movement. Then, she created the “movement/feeling” category.

During the classroom discussion regarding the textbook analysis, Nancy argued that the textbook does not have to be changed although a number of students thought it should have more categories. When the teacher asked her the reason, she explained that the explanation in the textbook should be easy and simple so that intermediate Japanese students can grasp the basic idea of Japanese onomatopoeia. She continued that the two categories (i.e., *giongo* and *gitaigo*) must be easier for the intermediate students of Japanese because onomatopoeia does not exist in many other languages in the same way as the Japanese language and so it is mysterious for those students that do not know much about onomatopoeia. She explained that this argument came from her experience as a learner of Japanese.

### 5.4 Survey Results

Five out of seven students participated in this survey. It consisted of five questions<sup>5</sup>. Table 6 shows the results.

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<sup>5</sup> The survey questions are obtained from Sato, Loetscher & Kumagai (2016).

**Table 6: Results of the Survey**

|   |
|---|
| 1. What did you learn in this project?  |
| How to use Japanese onomatopoeias.<br>Categories of Japanese onomatopoeia. Japanese friends don't really know about them either.<br>Japanese students' way of thinking and opinions toward Japanese onomatopoeia.<br>I now feel writing a poem is fun. I learned many new onomatopoeias. I could confidently listen to Japanese people's opinion.<br>Many Japanese onomatopoeias, of course.  |
| 2. Did your attitudes toward textbooks change through this project? If so, how?   |
| No.<br>Yes. I now deeply understand it. I know when to use certain onomatopoeias.<br>Yes. What's written on the textbook is not necessarily completely right.<br>Yes. I think the explanation of the textbook is easy to understand even now, but it could add more explanations since Japanese onomatopoeia can be used in different ways.<br>Not really, but we have to think by ourselves.   |
| 3. If you could write explanations about Japanese onomatopoeia, do you write in the same way as the Japanese textbook? Would you change something?  |
| Write more categories clearly.<br>I probably write in the same way as the textbook does because it's for intermediate students of Japanese.<br>I would write there are onomatopoeia that could be clearly divided into 擬音語 ( <i>giongo</i> ) and 擬態語 ( <i>gitaigo</i> ) and those that can't be clearly categorized into these two categories.<br>I think the comparison between Japanese onomatopoeia and English onomatopoeia is not necessary. We don't really use "Rolypoly" now, so giving this kind of example might confuse the students.<br>I would use more figures. |
| 4. What do you think about the project?   |
| Interesting.  |

|   |
|---|
| <p>It was fun. It's useful because now I can use more onomatopoeias. I think my Japanese is more natural now.</p> <p>I thought it wasn't fun at beginning, but I learned many onomatopoeias from how my classmates used onomatopoeias on their literary works. The process of making and reading literary work was fun.</p> <p>It was a lot of work to have comments from others, but it was fun to talk with Japanese people. They also said they learned about Japanese onomatopoeia.</p> <p>Asking Japanese friends questions was a good experience.</p> |
| <p>5. Please evaluate this project in 10 scales. Also, write why you think so.</p>  |
| <p>10: one student<br/>9: one student<br/>8: three students</p>   |
| <p>It was fun to create my own literary work and to appreciate my classmates' literary works.</p> <p>Fun.</p> <p>Creating my own categories and reading my classmates' categories were a fun way to study.</p> <p>There are faster ways to learn onomatopoeia, but this project was more fun than the regular studying method because I could create my own things.</p> <p>I think my Japanese was improved by using more onomatopoeias.</p>  |

## 6. Discussion

In this section, in order to answer the first research question and determine how students thought critically in this project, how these three students reached their final decisions is examined based on Kusumi et al.'s definition of critical thinking, "Critical thinking is to carefully listen to others, to examine their own thinking, and then to make better decisions." Further, to answer the second research question which seeks to determine how students' attitudes toward critical thinking changed through this project, the results of the survey, field notes, and results of follow-up interviews will be examined. How the onomatopoeia project's aspects of four Cs in CLIL supported students' critical thinking will be investigated to answer the third and final research question which seeks to determine how this CLIL-based project supported students to think critically. In addition,

implementation strategies and suggestions for teachers contemplating this type of project in their curricula will be introduced.

### 6.1 Students' Critical Thinking

The three students accepted and used others' opinions to make final decisions after careful examinations of the information from their respondents and the Internet. Mary revised her first version of onomatopoeia categories after listening to the respondents' advice. She noticed that having two categories made it easy to categorize her collected onomatopoeias and so followed his advice. Here are the steps that Mary followed to use critical thinking to make her final decision. First, she carefully listened her respondents' opinion. Then, she created second version of her onomatopoeia category. Third, she reflected the new category and thought it looked better than the first version. Finally, she decided to accept her respondent's advice.

Linda first found the five categories of onomatopoeia on the Internet. After discovering that these five categories are actually explained in the textbook, she adopted them as her categorization. Her steps of critical thinking were as follows. First, she found the five onomatopoeia categories on the Internet. Then, she carefully re-read the Japanese textbook and found that it actually had the same five categories. Finally, she decided to accept the five categories as her categories since the five categories and the textbook's explanation matched each other.

One of Nancy's commenters advised her that “キヨロキヨロ” (*kyorokyoro*) (looking around restlessly) under the feeling category could also express movement. She looked the meaning up in the dictionary and realized that it expresses both movement and feeling. Then, she finally decided to create multi-category of movement/feeling. Nancy's steps of critical thinking are as follows. First, she carefully listened to her commenter's idea. Next, she looked the meaning up in the dictionary and discovered that the meaning of “キヨロキヨロ” (*kyorokyoro*) had two different elements, “looking around” and “restlessly,” which are movement and feeling. Finally, she made her final decision to accept her commenter's idea and created the multi-category. Above cases are examples of how students accepted the information from their commenters and the Internet.

On the other hand, there are cases where students made a final decision not to accept the received information from their respondents. For instance, one of Mary's respondents suggested that “わなわなと *wanawanato*” (Trembling) and “がっしりと *gasshiritto*” (strongly) are not onomatopoeia. However, she kept these onomatopoeias in her list since the other people and the dictionary said they were onomatopoeia. She carefully listened to her respondent and examined the respondent's advice and other information from the dictionary as well as the input of other people. Then, she made a final decision not to accept the respondents' advice.

Also, Nancy argued that the Japanese textbook should keep 擬音語 (*giongo*: phonomimes, onomatopoeia) and 擬態語 (*gitaigo*: phenomimes, psychomimes) as it is even though her classmates thought it should have more categories. In the classroom, she stated that Japanese onomatopoeia is very difficult even for her, a person who had been using Japanese with her family members since she was born. Then, she explained that other many other languages do not have onomatopoeia as the Japanese language does and so it is mysterious for those students whose native languages do not have many onomatopoeia expressions. Based on her experience and opinion, she concluded that the Japanese textbook intentionally explains only two categories, which means that she did not merely follow what the other students said but made her decision after careful examination of her experience. Nancy carefully read the textbook's explanation and listened to classmates' opinion. Then, she examined their opinion and her own experience to make a final decision.

As just described, it was found that these three students took the steps toward critical thinking in the way of Kusumi et al.'s definition of critical thinking. If these students had been taught Japanese onomatopoeia just in the classroom without any other information from other sources but the content of the textbook, they probably had not had this critical thinking process. Thus, it can be inferred that the project helped students think critically.

## 6.2 Students' Attitudes toward Critical Thinking

In response to question 2 (Did your attitudes toward textbooks change through this project? If so, how?), three out of five survey participants answered that they have changed their attitudes. To this question,

Nancy answered, “What’s written in the textbook is not necessarily completely right,” although she argued that there is no need to rewrite the Japanese textbook since it is for intermediate students of Japanese. This is because she meant that the textbook does not need more categories but needs to explain the existence of Japanese onomatopoeias that cannot be clearly categorized into these two categories. It is difficult to conclude that her attitude toward textbooks had actually changed even though she answered “yes” on the survey, but she now understands, if not more, that the textbook is not absolutely trustworthy but is an information source that provides necessary information for certain people at certain levels of language study. Students of Japanese tend to treat a Japanese textbook as a bible, and they do not go beyond its contents. However, the information in a textbook is limited since it is written with authors’ selected beliefs, budget offered by the publisher that affects quantity of contents, trend, etc. Thus, what Nancy realized in this project could become a trigger for her to have a deliberate attitude, an attitude of not swallowing the information without careful consideration.

### **6.3 CLIL and Critical Thinking**

The onomatopoeia project was conducted as a soft CLIL to enhance students’ critical thinking. In this section, the relationship between the onomatopoeia project and critical thinking as well as the relationship between CLIL and critical thinking will be discussed. In order to discuss the CLIL-critical-thinking relationship, how the four Cs of CLIL were integrated into this project is summarized in table 7.

First, Japanese onomatopoeia as a language-related content was easily accepted by students, and learning how to use Japanese onomatopoeia (Content: procedural knowledge) became their motivation. As discussed in the section 6.4, keeping up students’ motivation is a key factor in this project. Though a different topic such as Japanese history could motivate them, it can be inferred that the choice of Japanese onomatopoeia, which is directly related to their language learning, was easily accepted by students and maintained their motivation to learn it as a content.

**Table 7: Four Cs of the Project**

|                   |  |
|-------------------|--|
| Content           | Declarative knowledge: Japanese onomatopoeia<br>Procedural knowledge: how to use Japanese onomatopoeia |
| Communication     | Learning onomatopoeia through communicating with others and presenting their literary works to others  |
| Cognition         | Categorization of onomatopoeia and textbook analysis   |
| Culture/Community | Classroom and commenters as communities  |

Second, by discussing the topic with classmates and other Japanese speakers (Communication and Culture/Community), the students gained more information to reflect on their opinions and make final decisions. In addition, based on the answers to question 1 of the survey (What did you learn in this project?), it was discovered that students learned Japanese friends' knowledge and way of thinking on Japanese onomatopoeia. Especially, the fact that Mary noticed that her Japanese friends do not really know about Japanese onomatopoeia is of note since many language learners believe in native speakers' correctness about the language. By talking with five Japanese people, Mary now knew that she has to carefully examine what Japanese people say about the language. This deliberate attitude, not accepting the information without careful consideration, is something that Kusumi (2011) believes is important for critical thinking. The information provided by the study is not adequate to conclude that Mary came to have this attitude through this project, but this occasion might have become an opportunity to strengthen her attitude in this matter.

Finally, categorizing onomatopoeia and the textbook analysis directly became the tasks to take steps for critical thinking. However, students might feel these tasks are merely troublesome work as the students' answers on the survey question 4 (What do you think about the project?) indicate. Suggestions to overcome this issue will be discussed in section 6.4.

It can be assumed that the students were able to take the necessary steps for critical thinking, as discussed in section 6.1, since the onomatopoeia project had aspects, which Tsui (2002) argues, needed

for critical thinking (i.e., discussion and writing/revising based on feedback). This project provided the students opportunities to discuss with their classmates and other Japanese speakers and to revise their onomatopoeia categories and textbook analysis based on the feedback received from those people. However, the teacher needs to remember to check the accuracy of the feedback so that the students will not reach incorrect conclusions. In addition, the teacher should tell the students that it is not necessarily true that native speakers of Japanese give correct information simply because they are native speakers.

#### **6.4 Implementations and Suggestions**

It is not this paper's intention to generalize the results of the project. It is to examine the possibility of the onomatopoeia project as a soft CLIL. Thus, for data analysis, only three students' data are utilized in this paper as case studies. Based on the argument listed above, it seems that the project worked well. However, there was the fact that a Taiwanese student thought that the way the textbook explains Japanese onomatopoeia was fine but could not explain why she thought so. It is fine to accept the textbook's explanation, but the teacher expected her to provide solid reasons to justify her opinion. Thus, the teacher suggested that she think about the problem from different angles and also think together with native Japanese speakers and/or classmates. However, unfortunately, neither of them worked. One possibility for this result is that she did not have enough prior knowledge about Japanese onomatopoeia to evaluate the textbook. The teacher did not provide much information about Japanese onomatopoeia since he assumed that the students had basic knowledge about it, considering their level of Japanese language. However, as mentioned in the section on the onomatopoeia project, how thoroughly Japanese teachers introduce Japanese onomatopoeia differs depending on each teacher. Thus, this Taiwanese student might not have had many opportunities to study or use onomatopoeia in Taiwan. Furthermore, the fact that Japanese people did not know much about Japanese onomatopoeia, which is mentioned by Mary, might have also caused this issue. In other words, there is a possibility that the individuals this student interviewed could not really help her with regard to analyzing the textbook's explanation. In order to overcome this issue, the teacher should have had more instructions on Japanese onomatopoeia before starting the project and suggested to students to include at least one commenter that knew about Japanese onomatopoeia (e.g., Japanese



teacher or student of Japanese who have knowledge on Japanese onomatopoeia).

For those that would like to try this type of project, it is highly recommended to repeatedly instruct the students regarding the significance of the project. As students answered on the survey, “It was a lot of work to have comments from others” and “There are faster ways to learn onomatopoeia,” students tend to view this type of project negatively until they finish the project. Thus, keeping their motivation till the end of the project is a key point for the teacher. The teacher could tell them that they need to ask others for comments to have enough information so that they can reflect and make their final decision. Furthermore, the teacher can explain that this reflection process is directly related to critical thinking that is important to survive in the 21st century. In addition, the teacher could talk what is going to happen if we do not seek other opinions/data/information nor think carefully. For instance, he/she can talk about his/her mistakes that he/she made due to not collecting enough information (e.g., reaching a wrong goal after asking only one person for directions). It is natural that students think about other direct and easy ways to learn Japanese onomatopoeia. That is why the teacher needs to keep explaining the purpose of the project over while the project is running.

## **7. Conclusion**

How students thought critically in this project, how students’ attitudes toward critical thinking changed through this project, and how this CLIL-based project supported students to think critically were discussed in this paper. Critical thinking, as a generic skill, is necessary in our global information society. In order to help students think critically so that they can survive now and in the future, not only should the government and the presidents of schools identify the importance of this skill, but also each teacher needs to consider what he/she can do in their classes to encourage students to develop and hone this skill. Since critical thinking cannot be instantly learned, it is the author’s hope that each teacher provides activities like the onomatopoeia project so that their students can develop his or her own critical thinking skills.

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# Airpower Modernization in East Asia: Evolving Capabilities and Strategies

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**Abstract:** In recent decades, states in the East Asia region have been sharpening their defense strategies and capabilities to effectively deal with their national and regional security uncertainties. Among the various capabilities being modernized, there has been particular emphasis on airpower as a critical means to ensure tactical superiority in the air domain, as well as to establish an anti-access and area-denial arrangement against adversaries.

Against this backdrop, airpower along with seapower will continue to further grow in their importance for the East Asian states. While force modernization efforts may achieve greater security from the state-centric viewpoint, there are numerous concerns in the regional stability context. Focusing on tactical combat aircraft, this study examines the developments in airpower in East Asia and the implications on regional security and stability by addressing the following questions: What are the key characteristics of airpower? How are the East Asian states developing their airpower capabilities, and what are the distinct characteristics of airpower in the region? What are the regional security implications of the developments in airpower? This paper will conclude that while the regional developments in airpower are still in their early stages, the future developments highlight the risks of a regional arms race and actualized conflict, requiring new measures to ensure regional stability.

**Keywords:** East Asia, security, military, airpower

### 1. Introduction

Over the past three decades, the states in East Asia have been proactively sharpening their strategies and capabilities to effectively deal with the regional security uncertainties. These developments are motivated by the combination of regional geopolitical frictions both in form of “hot” and “gray zone” situations, but also the nations’

expanding geostrategic scope. Among the various capabilities undergoing modernization, many of the East Asian states – namely China, Japan, and the Republic of Korea (ROK) – are placing strong emphasis on airpower as a critical means to ensure tactical superiority and building an anti-access arrangement in the aerial domain. The modernization of airpower involved not only the acquisition of next-generation platforms, but also the enhancement of strategic, operational and tactical doctrines. Moreover, the proactive efforts to strengthen airpower capabilities also stem from the strong domestic political and industrial momentum to nurture the states' self-reliant capabilities. Yet while force modernization efforts may achieve greater security from the state-centric viewpoint, there are numerous concerns in the regional stability context.

This study aims to survey the developments in airpower in East Asia with focus on tactical combat aircraft and the implications on regional security and stability. The paper will begin with an overview of the basic characteristics of airpower. Next, the study will look at the key developments in combat aircraft in East Asia. Then, we will look at the impact of the developments, outlining the key risks in the regional security context. This paper will conclude that while the East Asian states are still in the early stages of developing their airpower capabilities, more developments are expected, indicating changes to the status quo and emergence of new regional security risks.

## **2. Evolution in the Understanding of Airpower**

Despite its short history that spans barely more than a century, airpower has made, and continues to make significant developments in the contexts of technology, warfare, and warfighting concepts.<sup>1</sup> Since proving its effectiveness in the First World War, militaries have developed capabilities to overcome physiological and technological challenges in the aerial environment. By the same token, there exists a constellation of scholarly literature to better understand the strategic, operational, and tactical characteristics of airpower. In particular, there have been (and continues to be) a variety of intense conceptual debates ranging from those that define airpower to theories that discuss the

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<sup>1</sup> Martin Van Creveld, *The Age of Airpower*, 1st ed. (New York: PublicAffairs, 2011).

applications of airpower.<sup>2</sup> Early theorists such as Douhet, Trenchard highlighted the strategic importance of airpower. While scholars such as Mitchell argued for the establishment of an autonomous branch focusing on aerial capabilities (i.e. air force) given the specialized aspects of airpower operations. In the post-WWII era, and more so in the post-Cold War era, theorists such as Colin S. Gray and military scholars such as John Boyd and John Warden III also made seminal contributions to the understanding of airpower and its strategic applications.

Despite the various debates, there is a general consensus on the characteristics of airpower. Jordan argues that the attributes of airpower boils down to: Reach, rapidity, height (altitude), flexibility, and impermanence.<sup>3</sup> The attributes of airpower allows ubiquitous and multifaceted applications whether purely in the air domain, or as part of joint operations.<sup>4</sup> In combat, airpower is not only limited to air-to-air, air-to-surface, and surface-to-air combat, but also facilitation of operations in various domains through intelligence, surveillance and reconnaissance (ISR) and transportation. Even in military operations other than war (MOOTW), aircraft play pivotal roles in Humanitarian Assistance and Disaster Relief (HADR) particularly in the transportation of goods to needed areas and evacuation of affected persons. The attributes of airpower allows militaries to utilize and execute particular capabilities and operations that are otherwise unavailable in other domains. The unique nature of airpower led to its development as a distinct profession, whether as a branch in its own right such as an air force, or as a component in the ground or naval forces. Yet despite its significance in warfare, airpower is also sophisticated in its nature, highlighting some key caveats that warrant consideration.

First, technology is vital to airpower, not only limited to the aircraft itself, but assets such as ISR, armaments and munitions, tactical data link (TDL) systems, electronic (EW) warfare systems and so forth. The

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<sup>2</sup> See: Peter W. Gray, *Air Warfare: History, Theory and Practice* (London; New York: Bloomsbury Academic, 2016).

<sup>3</sup> David Jordan, "Concepts and Characteristics of Air and Space Warfare," in *Understanding Modern Warfare*, ed. David Jordan, et al. (Cambridge: Cambridge University Press, 2016). pp. 231-237.

<sup>4</sup> For works on naval airpower, see: Robert C. Rubel, "A Theory of Naval Airpower," *Naval War College Review* 67, no. 3 (2014).

techno-centric nature of airpower also makes it relatively easier to comparatively gauge capabilities. For example, while it is hard to make a comparison of the special operations forces of states, one can gauge a better approximation of a contest between a F-22 Raptor and a MiG-15 (unless the pilot of the latter is extremely competent while the pilot of the former is extremely incompetent). Still, it is important to not be over-captivated by individual equipment and platforms. Given the comprehensive and complex developments in technologies, capabilities cannot be measured by individual systems but rather by the network of systems.<sup>5</sup> As modern warfare advances, combat aircraft are increasingly reliant on force-multiplier technologies such as airborne warning and control system (AWACS) and or airborne early warning and control (AEW&C) aircraft, TDL, as well as the array of assets on the ground and in outerspace that provides ISR, navigation, and logistical support. These assets combined, determines capabilities. Moreover, the effectiveness of technologies also depends on its application. In reality, there are no catch-all capabilities, and each capability is effective in its own context. As Biddle notes, “military strategies prescribes how military instruments are employed to achieve the goals set by grand strategy in a given theatre of war.”<sup>6</sup> Hence while technologies are certainly important, the more critical questions point to how those technologies sync with strategies, operations, and tactics.

Second, “software” aspects such as doctrines make or break capabilities. For instance, Lambeth argues that “employment doctrine, concepts of operations, training, tactics, proficiency, leadership, adaptability, and practical experience” are critical to the effectiveness of airpower.<sup>7</sup> It is also important to note that airpower strategies and doctrines continuously evolve, taking into account of developments in

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<sup>5</sup> The importance of discussing on network-versus-network terms was stressed by Chief of the Air Force David L. Goldfein. See: David L. Goldfein, “The Imperatives of Airpower: Challenges for the Next Fight,” in *Military Strategy Forum* (Washington, DC: CSIS Headquarters, Feb 23, 2017).

<sup>6</sup> Stephen Biddle, “Strategy in War,” in *Inside Defense: Understanding the U.S. Military in the 21st Century*, ed. Derek S. Reveron and Judith Stiehm (New York, NY: Palgrave Macmillan, 2008). p.5

<sup>7</sup> Benjamin S. Lambeth, “The Role of Air Power Going into the 21st Century,” in *Emerging Threats, Force Structures, and the Role of Air Power in Korea*, ed. Chung-in Moon and Natalie W. Crawford (Santa Monica, Calif: RAND, 2000). p.117



technologies, warfare, and geostrategic circumstances. While this is natural to any forms of warfare, the intensity of the conceptual debates in airpower parallels with the technological developments. Due to the young but technology-centric nature of airpower, the air forces of many countries have tended to be more innovative and even futuristic in their doctrines and organizational cultures than other branches.<sup>8</sup> For instance, advancements in technologies such as precision-guided weapons, stealth, and TDL systems have significantly diversified the options at the strategic, operational and tactical levels. Consequently, the developments in technologies lead to formulation of new concepts of operations to enhance the airpower capabilities of states.<sup>9</sup>

Third, based on the first and second points, there are contrasting developments and utility of airpower according to states' strategies, policies, and capacity.<sup>10</sup> In the context of costs, the technological strengths of airpower are also its downsides. Airpower capabilities are costly not only due to the capital-intensive platforms and infrastructures, but also the high operations and maintenance costs that are recurring in nature. Moreover, given the technologies employed and the expertise required, the time and resources required to operationalize capabilities are high and long-term. For instance, it generally takes approximately ten years from the time a platform is selected until they are put into operation, and up to eight years before a recruit can become a formation leader. Consequently, the high criteria makes airpower discriminatory, clearly distinguishing states who have devoted sufficient resources to enhance and operationalize airpower capabilities with those who have not, or are still nascent.

The more important question, however, points to how airpower is applied and conceptualized. Melinger's "Ten Propositions Regarding

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<sup>8</sup> See: United States Air Force, "Air Force Future Operating Concept: A View of the Air Force in 2035," (Washington, D.C.: United States Air Force, 2015).

<sup>9</sup> As an example, Olsen argues for new airpower strategy for NATO. John Andreas Olsen, "The Quest for a New Airpower Strategy," *Air & Space Power Journal* 31, no. 2 (2017).

<sup>10</sup> Colin S. Gray, "Airpower Theory," in *Airpower Reborn: The Strategic Concepts of John Warden and John Boyd*, ed. John Andreas Olsen (Annapolis, Maryland: Naval Institute Press, 2014). pp. 177-178.

Air Power”<sup>11</sup> Empirically, discussions on airpower have been akin to early studies on international relations, dominated by analyses of western states such as the United States (US), Russia, United Kingdom (UK), and to somewhat lesser extent, France and Germany. Yet as the international system became more sophisticated, the importance of understanding the country-specifics of airpower became increasingly evident. In a historical overview of airpower, Parillo argued that “even similar political systems may produce statesmen with markedly different conceptions of the nature and uses of airpower.”<sup>12</sup> Erickson also offers another interesting view, arguing that conceptual discussions on airpower have centered on the west, largely due to the fact that Asian states have not fully embraced nor applied airpower in the strategic sense.<sup>13</sup> Even regarding smaller states, Cai highlights the importance of distinguishing “the size of an air force, and its capability and effectiveness in applying airpower to serve the political objectives of its nation state.”<sup>14</sup> The discussions underscore the fact that we must conceptualize airpower on a case-by-case basis.

### 3. Developments in East Asia

While the strategic rationales for pursuing greater airpower capabilities differ among governments, the common denominator is the recognition of airpower as one of the most effective means to deal with their security uncertainties. However, states in East Asia have been late-comers in post-WWII airpower, and the level of military modernization in the region was modest during much of the Cold War.<sup>15</sup> Yet from the

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<sup>11</sup> Phillip S. Meilinger, *10 Propositions Regarding Air Power*, ed. Centre Australia. Royal Australian Air Force. Air Power Studies, Paper (Australia. Royal Australian Air Force. Air Power Studies Centre); No. 36. (Fairbairn, A.C.T.: Air Power Studies Centre, 1995).

<sup>12</sup> Mark Parillo, “A Century of Airpower,” in *The Influence of Airpower Upon History: Statesmanship, Diplomacy, and Foreign Policy since 1903*, ed. Robin Higham and Mark Parillo (2013). p.281.

<sup>13</sup> Andrew S. Erickson, “Chinese Statesmen and the Use of Airpower,” *ibid.* p.237.

<sup>14</sup> Bernard Hanjie Cai, “Air Power and Small States,” *Pointer* 40, no. 2 (2014). p.56.

<sup>15</sup> Japan could be treated as an exception given their developments in airpower in the first half of the twentieth century, yet their defeat and subsequent dismantlement of the military industry by the US led to the significant weakening of their modern airpower capabilities.

late 1980s, states in East Asia began to make proactive efforts to sharpen their militaries, pursuing airpower and seapower capabilities as critical components of force modernization and strategies. Naturally, many of the states in the region benefited from its allies and benefactors. For example, the modernization of airpower capabilities in Japan and the ROK significantly owes to its alliance with the US. Nevertheless, what is notable is the considerable effort made by the states in East Asia to indigenously develop their indigenous defense capabilities.

Military modernization in East Asia is motivated by a variety of factors. Geopolitically, long-standing conflicts such as those on the Korean peninsula and the Taiwan Straits, as well as growing tensions between China and Japan in the East China Sea have served as catalysts for states to further develop sharper security strategies and capabilities. At the same time, the push for military modernization in East Asia – particularly China, Japan, and the ROK – also owes to the growing political momentum for self-reliant defense capabilities. The push not only reflects the states' greater recognition of the fluid security environment, but also compounded by the rapid economic growth and expanding international security interests. Moreover, the defense industries of East Asian states have made significant strides in recent decades to produce modern equipment and platforms for their own armed forces, but also for export to promote their trade profiles.

While it is the security concerns and political agendas that legitimize military modernization, it is the economic and industrial aspects that enable the actual developments in capabilities. Over the years, there is a general increase in military outlays in almost all East Asian states. According to SIPRI, East Asia made the highest increase in military expenditures among all the regions in the world, recording 74% between 2007 and 2016.<sup>16</sup> Moreover, the economic growth and developments in heavy and high-tech industries have enabled the East Asian states to steadily develop their indigenous capacity to produce advanced military technologies.<sup>17</sup> Indeed, the East Asian states are still far behind the US and Russia in the research and development (R&D)

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<sup>16</sup> Nan Tian et al., "Trends in World Military Expenditure, 2016," in *SIPRI Fact Sheet* (SIPRI, April 2017). p.5.

<sup>17</sup> See: Susan Willett, "East Asia's Changing Defence Industry," *Survival* 39, no. 3 (1997); Richard A. Bitzinger, "Defense Industries in Asia and the Technonationalist Impulse," *Contemporary Security Policy* 36, no. 3 (2015).

of military technologies, and it would be premature to argue that even the most advanced states in the region such as China, Japan, and the ROK are fully self-reliant in their airpower capabilities. Nevertheless, there is clear evidence that East Asian states have made, and will continue to devote much effort in developing next-generation hardware.

In East Asia, China has been most proactive in expanding and modernizing their airpower inventory.<sup>18</sup> China's airpower modernization not only owes to the state's efforts to qualitatively develop its military leverage, but to expand its anti-access and area-denial (A2AD) coverage over its expanding territorial claims and lines of communication in the Asia-Pacific – particularly in the East and South China Sea. Since the 1990s, China has made significant progress in the qualitatively improving the People's Liberation Army Air Force (PLAAF) largely owing to the developments in their indigenous defense industry. The obsolescent tactical aircraft such as J-7 and J-8 that once played central roles decades ago are now being phased out or serve as quantitative backups for the advanced, mainstream combatants such as the J-10, J-11, Su-27, Su-30MKK and has also begun initial operations of the J-20 stealth multirole combat aircraft. In the People's Liberation Army Navy (PLAN), the J-15 carrier-based fighters have also entered service on the Liaoning and is also expected to operate on the Shandong. In the future, China's airpower capabilities will continue to strengthen with the J-31 fifth-generation stealth jet and the Su-35 imported from Russia. In AWACS, PLAAF operates the KJ-2000 (Chinese variant of the Beriev A-50) as well as the Y-8 and Y-9 AEW&C aircraft. Based on the developments, one can argue that China is narrowing the technology gap with the US.<sup>19</sup> Yet despite Beijing's clear efforts, there are questions regarding whether China will be able to effectively operate its combat capabilities beyond its immediate periphery.<sup>20</sup>

Japan has long emphasized airpower as the key means of deterrence and defense against the USSR during the Cold War. Yet in the post-

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<sup>18</sup> Phillip C. Saunders and Joshua K. Wiseman, *Buy, Build, or Steal: China's Quest for Advanced Military Aviation Technologies*, ed. Phillip C. Saunders, vol. 4, Institute for National Strategic Studies China Strategic Perspectives (Washington, D.C: National Defense University Press, 2011).

<sup>19</sup> Ji You, *China's Military Transformation: Politics and War Preparation* (Cambridge, UK; Malden, MA: Polity Press, 2016).

<sup>20</sup> Erickson, "Chinese Statesmen and the Use of Airpower." p.266.

Cold War era, airpower (along with seapower) is gaining greater importance to deal with China's growing military leverage. . For the Japan Air-Self-Defense Force (JASDF), the F-15J and F-2 serve as the main combat assets, and the F-35A Lightning II will be Japan's first fifth-generation stealth fighter to replace the F-4J and older fleet of F-15J. The JASDF's tactical capabilities are also enhanced by the E-767 AWACS and E-2C AEW aircraft, and will be later augmented by the RQ-4B Global Hawk and the E-2D AEW. Moreover, the Acquisition, Technology and Logistics Agency (ATLA) and Mitsubishi Heavy Industries are currently testing Japan's first indigenous stealth jet known as the X-2, with the prototype making its maiden flight on 22 April 2016. Still, there are questions over the success of the X-2 and whether it will become the F-3 given the high R&D costs and actual technological progress. Hence in the medium-to-long term, the degree of progress in Japan's next-generation platforms remains unclear. Moreover, debates over the nature of Japan's defense policies under the current constitution raise critical questions over whether Tokyo needs to adopt offensive capabilities to ensure effective defense in the aerial domain, but also how the JASDF can respond in face of an actual armed attack.

The ROK is also enhancing its airpower not only to gain an edge over the Democratic People's Republic of Korea (DPRK), but also to enhance its aerial layer of defense around the Korean peninsula. Fourth generation fighters such as the F-15K and the F-16C/D Fighting Falcon have been the primary combatants of the Republic of Korea Air Force (ROKAF), and will be further strengthened with the F-35A in 2018. Moreover, the Korea Aerospace Industries (KAI) together with Lockheed Martin produced the T-50 Golden Eagle, a cohort of supersonic aircraft that comprise of both advanced trainer and light combat variants. Yet the ROK faces strong headwinds in the indigenous production of next-generation fighters – known as the F-X program – leading to the ROK government abandoning the production of some parts and contracting with foreign producers to offset the costs. Furthermore, despite the developments in combat aircraft, the ROKAF for a long time lacked its own AEW&C, relying on the US forces until the ROK finally acquired the E-737 in 2011. Thus for the ROK, the central question is how it can enhance its airpower capabilities to sufficient levels amid the other pressing agendas to defend itself from the DPRK in the ground and naval domains.

For Taiwan, airpower has inherently been the critical component to its defense and deterrence against China.<sup>21</sup> Until the early 2000s, the Republic of China Air Force (ROCAF) had a qualitative edge over China in its airpower capabilities with the F-16A/B, Mirage 2000-5Di/Ei, and the F-CK-1 Ching-kuo Indigenous Defense Fighter produced by the state-owned Aerospace Industrial Development Corporation. Much of the developments owed to the relations with the West, but also the industrialization that took place during the Cold War. Yet today, the balance has now reversed with China's military modernization and slowdowns in Taiwan's acquisition of new aerial platforms. Moreover, Taiwan does not possess any modern AWACS and the only AEW unit is the Northrop Grumman E-2 Hawkeye, significantly weakening the ROCAF's ability in the aerial domain. Going forward, Taiwan seeks to update its aging inventory, with strong calls for the purchase of the F-35. Yet for Taiwan, acquisitions and access to technologies are difficult given that any arms transactions automatically provoke sharp responses from China. Even with the US – the main arms supplier – transactions have taken place in strict conformity to the Taiwan Relations Act and often comes under intense debates in Washington. Under such circumstances, Taiwan will face myriad challenges in effectively and efficiently modernizing the ROCAF. Consequently, the acquisition issues create obstacles for the ROCAF in enhancing its airpower capabilities that would be pivotal in effectively defending itself from China.

Among the East Asian states, the DPRK falls far behind in airpower. While quantitatively large, the KPA Air and Anti-Air Force (KPAAAF) fields an array of obsolescent aircraft such as the MiG-17, MiG-19, MiG-21, and the MiG-23.<sup>22</sup> The DPRK's most modern aircraft is the MiG-29 acquired from the Soviet Union in the late 1980s, although their primary role is the defense of Pyongyang rather than serving as frontline fighters. The DPRK also possesses some fighter ground attack aircraft and bombers such as the Il-28, MiG-21, Q-5, Su-25, and the Su-78, though they too are dated and lack in quantity. Moreover,

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<sup>21</sup> See: Tony Mason, "Air Power and Taiwanese Security: Adapting to the Revolution," in *Defending Taiwan: The Future Vision of Taiwan's Defence Policy and Military Strategy*, ed. Martin Edmonds and Michael M. Tsai (London; New York: Routledge, 2003).

<sup>22</sup> International Institute for Strategic Studies, *The Military Balance 2012*, vol. 111 (London, UK: International Institute for Strategic Studies, 2012), p.258.

the KPAAAF lacks any credible AEW&C or aerial refueling platforms, though there are claims that the DPRK has retrofitted some of its transport aircraft such as the An-24 and the Il-76 for such applications.<sup>23</sup> Rather, the DPRK has focused more on the transportation applications of airpower with the variety of platforms ranging from the larger Il-76 to the small, low-speed, low flying biplanes like the An-2 for the infiltration of special operations forces into its southern brethren. The clear weaknesses in aerial and naval domains, combined with their limited industrial capacity and lack of access to technology to develop such capabilities, have given Pyongyang more reasons to depend on the development of strategic weapons, as evidenced by the clear progress in the mobile ballistic missiles in recent years. The combination of limited industrial capacity and lack of access to technology undermines the DPRK's efforts in gaining an edge over the ROK in the aerial domain. Moreover, the DPRK's difficulties have forced Pyongyang to focus more on modest A2AD capabilities to defend its immediate proximity while providing cover for its ballistic missiles.

The abovementioned developments underscore the importance of conceptualizing the region-specific dimensions of airpower in East Asia. Of course, it is important not to generalize the developments in the region. After all, states differ not only in their strategic perceptions and operational concepts, but also the capacity and processes to facilitate the modernization of their forces. Yet despite the differences, there are some common, underlying aspects that warrant attention.

First, there is growing emphasis on airpower and seapower in the national security strategies, defense programs, and doctrines of East Asian states not only as the first lines of defense, but as their central roles in joint operations. The emphasis on airpower is natural, as the strategic and operational psyches of the armed forces in the region have been embedded with the conflicts in the region that are mostly taking place in the air and maritime domains. Indeed, one may claim that the

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<sup>23</sup> Yong-won Yoo, "Bukhan Jaeraesik Gunsaryeok Mit Mugichegye [North Korea's Conventional Military Force and Weapon System]," in *Bukhangun Secret Report (North Korea Military Secret Report)*, ed. Yong-won Yoo, Beom-chul Shin, and Jin-a Kim (Seoul, ROK: Planet Media, 2013). pp. 306.; Joseph S. Bermudez Jr, "MiG-29 in KPAF Service," *KPA Journal* 2, no. 4 (2011).

Korean peninsula to be an exception, given the ground-centric nature of the ROK and DPRK armed forces that are shaped by the conflict along the 38<sup>th</sup> parallel. Yet even here, the ROK has strengthened their airpower to gain an edge over the DPRK, and Pyongyang has responded by strengthening its own anti-air capabilities to circumvent their disadvantages.

Second, East Asian states have developed capabilities mainly for tactical air control and superiority as means of anti-access rather than delivering strategic “shock and awe.” To date, none of the East Asian states have heavily invested in strategic bombers to the extent that the US and Russia have. While strategic bombers have the ability to deliver nuclear or highly-explosive ordinances, and are still used in actual operations or in “show of force,” they have become more vulnerable to the modern-day Air-to-Ship Missile (AAM) and Surface-to-Air Missile/Ship-to-Air (SAM) systems. Moreover, strategic bombers have also arguably lost their value-add over the years, becoming one of the options in conducting strategic strikes along with ballistic and cruise missiles. Indeed, some East Asian states do possess some bomber aircraft. China takes the lead in strategic bombers with the Xian H-6 and Beijing is also working on the Xian H-20. In addition, developments in strike capabilities are seen in the arsenals fitted onto the tactical aircraft, such as the ROK’s Taurus air-launched cruise missile. Japan has likewise unveiled its plans to acquire the Joint Air-to-Surface Standoff Missile (JASSM-ER) and the Long Range Anti-Ship Missile (LRASM) for the F-15J, and the Joint Strike Missile (JSM) for the F-35A. Yet the developments in strike capabilities applicable for strategic applications have been modest, making them more suitable for surgical strikes on installations and vessels as opposed to large-scale strikes like the US’s B-1 Lancer, the B-2 Spirit, the B-21 Raider, the B-52 Stratofortress, or Russia’s Tupolev Tu-160 or the Tu-22M. Hence in this context, one can claim that the East Asian states have saved themselves from heavily investing in strategic bombers and instead have “leapfrogged” to focus more on the use of aircraft for tactical superiority, while reserving strategic strikes for ballistic and cruise missiles.

The developments in East Asia reveal mixed-results. Assessments on the airpower developments in East Asia depend on whether we look at the glass as being half-full or half-empty. Indeed, the states in the region with the exception of the DPRK have made clear strides in



airpower capabilities over the past three decades. In the early 2000s, Lee Chung-min argued that the East Asian states are coming out of their “strategic hibernation” with the developments in airpower.<sup>24</sup> While it is certainly true that airpower is a pivotal part of the military modernization developments in East Asia, from the strategic viewpoint, all the East Asian states lag behind the capabilities of the US, Russia, and even to some extent the UK.

More importantly, the progress and extent to which the East Asian states have modernized their airpower capabilities have been far from smooth. Broadly, the problems in airpower of the East Asian militaries fall into one or more of the following:

- Lack of power projection and firepower
- Issues in acquiring and transitioning to next-generation tactical aircraft
- Lack of AWACS, AEW&C capabilities
- Lack of aerial refueling capabilities
- Imbalance between force structure and operational readiness

The deficiencies in any of the above have constrained East Asian states from fully embracing airpower. As discussed earlier, there are no shortcuts to establishing and strengthening airpower, and technological advancements are only partial in advancing a state’s airpower capabilities. Back in 1997, Dibb correctly argued that the Revolution in Military Affairs (RMA) in East Asia will be slow and piecemeal due to challenges in “systems-integration skills, maintenance and ILS practices, and joint-force operational doctrines.”<sup>25</sup> Despite the many developments twenty years on, the formulation of doctrines to maximize the effectiveness and efficiency of operations, as well as developments in pivotal capabilities such as ISR, logistics, and maintenance remain to be challenges for the governments in the region.

Indeed, we should not dismiss the East Asian states’ airpower capabilities given the developments to date and their future potential. Going forward, there is little doubt that the governments in the East

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<sup>24</sup>Chung-min Lee, “East Asia’s Awakening from Strategic Hibernation and the Role of Air Power,” *Korean Journal of Defense Analysis* 15, no. 1 (2003).

<sup>25</sup> Paul Dibb, “The Revolution in Military Affairs and Asian Security,” *Survival* 39, no. 4 (1997). p.112.

Asia region will continue to utilize and further develop airpower capabilities as a pivotal asset for defense and deterrence. Such developments will not only continue to evolve at great intensity, but will also transform the regional military balance. Already, we are seeing steady progress in the development and utilization of key technologies that will significantly enhance the airpower capabilities of East Asian militaries.

Significant developments are seen in armaments and munitions. The motives to attain tactical air superiority have driven the East Asian states to not only acquire next-generation aircraft, but also the indigenous production of AAM and SAM missiles with longer range and stronger lethality. In particular, China and Japan have domestically produced families of AAM and ASM fitted on their combat aircraft, and Taiwan has also produced two types of AAM. When it comes to SAM, all the states in East Asia have pursued the development of long-range SAM to augment the layers of air defense as well as to offset the burdens on tactical aircraft and vessels. Advancements in guided missiles not only allow the units to have longer reach, but also shortens the time to engage enemy targets. In the long term, laser weapons will also be a key technology as a more cost-effective means of air-to-air or surface-to-air defense.

Clear developments are seen in the development in ISR and network-centric systems such as TDL. In the case of Japan, the JASDF operates not only the AWACS and AEW aircraft, but also an array of radar systems along the Japanese archipelago. Moreover, Japan in 2009 replaced the Base Air Defense Ground Environment (BADGE) system with the Japan Aerospace Defense Ground Environment (JADGE) which integrated the air warning and defense control with ballistic missile sensors and interception systems. Other states, particularly China, the ROK, and Taiwan are also making strides in the development of ISR and TDL systems. Improvements in ISR and network-based systems like TDL not only provides better “eyes” in the aerial domain, but also better accuracy and efficiency in engaging targets. However, indigenous network-centric technologies raise questions over interoperability with other systems (such as those used by the US), which could have negative impact on alliance operations.

Key developments are also taking place in unmanned aircraft system (UAS) – for both combat and ISR applications. Taking advantage of

their strengths in information and robotics technologies, China, Japan, the ROK, and Taiwan have significant potential in the indigenous R&D of UAS to enhance their airpower capabilities but also to promote their status as suppliers in the global arms market. In the future, one can expect East Asian states to work on UAS deployable from vessels given the sensitive developments in the maritime domain. However, while UAS is seen as a key technology in airpower, there are caveats in how they are systemized and utilized. For instance, Shirai correctly argues that the acquisition of UAS would require formulating the right balance with conventional platforms as well as developing and educating UAS culture into the air forces.<sup>26</sup> Hence although states will pursue developments in UAS as key assets to enhance their airpower capabilities, there will be notable operational challenges before such capabilities are fully operational.

The East Asian states have also embraced electronic warfare as offensive and or defensive means to get the upper hand in the aerial domain. Electronic attacks can ground or at least disrupt command and control, navigation, ISR, and targeting systems. Thus, the advancements in cutting-edge equipment and platforms that are dependent on C4ISR systems would be vulnerable against such attacks. Indeed, there are measures to counter and detect electronic attacks, such as electronic protection and electronic support systems; however, the problem is that countermeasures are always one step behind, creating a “cat-and-mouse game.”<sup>27</sup> In particular, for states like the DPRK who are disadvantaged in acquiring next-generation tactical aircraft, electronic warfare systems are an attractive means of levelling the playing field (albeit partially) against technologically superior opponents to create opportunities to gain an edge through asymmetric capabilities.

Questions remain over the pursuit of aircraft carriers by East Asian states. To date, the PLAN remains to be the only navy in East Asia that possesses an aircraft carrier designed specifically for fixed-wing aircraft. Other states such as Japan and the ROK have helicopter destroyers or amphibious assault ship that are, technically capable of

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<sup>26</sup> Ryoji Shirai, “Incorporating Unmanned Aerial Systems into the Japan Air Self-Defense Force,” (September 2014). p.37.

<sup>27</sup> AOC, “Electronic Warfare: The Changing Face of Combat,” (Alexandria, VA: AOC, 2008). p.2.

accommodating fixed-wing aircraft with vertical and/or short take-off and landing (V/STOL) capabilities albeit at a much smaller capacity to rotary-wing aircraft. Also, interlocutors in both Japan and the ROK are also discussing the possibility of constructing light aircraft carriers to enhance their air and naval supremacy, though there are many questions to be addressed before such projects are confirmed. However, the investments in carriers are often taken out of context. While Bitzinger states that the “proliferation of aircraft carriers is a foregone conclusion,” he also points to the major challenges and time it will take before they are operational.<sup>28</sup> Indeed, aircraft carriers are extremely costly, with high investments costs for hardware such as the carrier itself, the cohort of aircraft, and vessels to form the carrier strike group, but also the high operations and maintenance costs. Moreover, the major reconfigurations and training needed to operationalize aircraft carriers would take significant amount of time. Given the challenges, it will be at least another decade before any of the East Asian states possess fully credible and operational carrier fleets – if they choose to go down that path.

How much of, and when the above developments will unfold are uncertain. The degree of developments will much depend on the progress of R&D but also policy and budgetary matters. Yet when one surveys the defense budgets of East Asian states, they will witness strong emphasis on R&D of technologies particularly in the areas of munitions and information and communication technology (ICT). While much of the projects are long-term in nature, much more developments are expected in the coming years, taking the military balance in the East Asia region to new levels.

#### **4. Regional Implications: Simmering Crisis?**

The airpower developments in East Asia indicate that the states will continue to focus on air and naval capabilities as one of the key means to deal with their security uncertainties and achieve their strategic ends. Consequently, this raises critical questions about the impact on, and

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<sup>28</sup> Richard A. Bitzinger, “Coming Soon: Asia’s Great Aircraft Carrier Arms Race?,” *The National Interest* (18 January 2017), <http://nationalinterest.org/blog/the-buzz/coming-soon-asias-great-aircraft-carrier-arms-race-19093>. (Accessed 1 May, 2017)

fate of regional security. Today, the East Asian security environment is plagued not only by the long-standing conflicts such as those on the Korean peninsula and in the Taiwan Straits, but also the “gray zone” situations that feature air and maritime assets. Many have made bold extrapolations that point to regional instability or even war. The fluid nature of the region projects an unclear outlook of the future. At the opening of the 21<sup>st</sup> century, Dibb well notes, “Asia’s security is at a crossroads: the region could go in the direction of peace and cooperation, or it could slide into confrontation and military conflict.”<sup>29</sup> The difficulties in analyzing East Asia is pointed out by Berger, who argues that realist and liberalist paradigms tend to suggest stability while constructivist paradigms (ideology and culture) tend to suggest instability.<sup>30</sup>

One key way to analyze the impact of the developments would be to determine whether the intensions behind the capabilities are offensive or defensive. Yet trying to distinguish offensive and defensive intentions is fraught with complexities. While the East Asian states have sharpened their postures by enhancing anti-access-like strategies, this does not mean that they are purely defense-oriented in the true sense of the word. Rather, the circumstances reflect the notion that even when one’s intentions are defensive, certain levels of offensive capabilities are required to maintain effective defense and deterrence. The greater utility of air and naval assets allows states to expand and thicken their strategic and tactical coverage, creating a forward-leaning line of defense to deal with threats before they penetrate the homeland. A good example is China’s increasingly assertive A2AD coverage over its ever-broadening territorial claims thereby penetrating the territories (actual or claimed) of other states as seen in the East China Sea and South China Sea. In response, states are also sharpening their postures. Even in the US, there are continuous debates over how Washington’s strategy in East Asia needs to be further enhanced to deal with China.<sup>31</sup> The collateral efforts for anti-access or penetration of anti-access arrangements through greater power projection and tactical air and sea

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<sup>29</sup>Paul Dibb, “Strategic Trends (Military and Political in Asia),” *Naval War College Review* 54, no. 1 (2001). p.1.

<sup>30</sup> Thomas Berger, “Set for Stability? Prospects for Conflict and Cooperation in East Asia,” *Review of International Studies* 26, no. 03 (2000).

<sup>31</sup> Aaron L. Friedberg, *Beyond Air–Sea Battle: The Debate over US Military Strategy in Asia*, Adelphi Series (Abingdon, Oxon: Routledge, 2014).

superiority run the risk of “trench warfare in the sea.”<sup>32</sup> As the states in the region face more pressing situations (actual or perceived), they are compelled to adopt sharper response measures.

A notable aspect of China is the expansion of its ADIZ. In November 2013, China unilaterally established its “East Asia Sea ADIZ” that included Japan’s Senkaku Islands and overlapped with the ADIZ of Japan, the ROK, and Taiwan. Naturally, Seoul, Taipei, and Tokyo strongly objected to Beijing’s move, claiming it as a provocative change to the status quo. Governments have called for China to revoke its new ADIZ, and have refused to change their aerial operations. The ROK expanded its own ADIZ, consequently broadening the overlapping ADIZ. The expansion of ADIZ creates issues not only in terms of disputes, but intensifies and increases the contact between the aerial capabilities of East Asian states.

The growing tensions fueled by geopolitical and territorial issues have consequently led to states strengthening their air and naval presence in contentious areas, leading to a significant increase in the number of hot-scrambles in recent years. For instance, Japan’s “hot-scrambles” counted 1168 times in FY2016 with 74% of them against Chinese aircraft and 26% against Russian aircraft.<sup>33</sup> Chinese and Russian strategic bombers have skirted the airspace in northern and southwestern areas of Japan, but also in the Tsushima Strait between Japan and the ROK. In addition, there have also been increased aerial tensions between China and the US in recent months. In May 2017, two Su-30s intercepted a US WC-135 in the Yellow Sea. Nine days later, two J-10 fighters intercepted a US P-3 Orion in the South China Sea. In both cases, the Chinese aircraft came within few hundred feet. While states have restrained themselves from engaging in direct conflict, the increased frequency of hot-scrambles and close-calls heightens the risks of armed conflict.

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<sup>32</sup> For the discussion on A2AD and Air-Sea Battle becoming “trench warfare in the sea,” see: Steven Stashwick, “A New War in the Pacific Could Be ‘Trench Warfare’ at Sea,” *The Diplomat* (18 August 2016), <http://thediplomat.com/2016/08/a-new-war-in-the-pacific-could-be-trench-warfare-at-sea/>. (Accessed 24 November 2016)

<sup>33</sup> Japan Ministry of Defense, “Statistics on Scrambles through FY2016,” Joint Staff Press Release (13 April 2017).

While limited to extreme cases, military tensions also present risks to civil aviation. Airlines flying through a state's sovereign airspace or ADIZ are vulnerable to military attacks via AAM and SAM. The downing of Korean Air Lines Flight 007 by a USSR Su-15 in September 1983 west of Sakhalin, and similarly (but under different circumstances), the shooting down of Malaysia Airlines Flight 17 in July 2014 by a surface-to-air missile while flying over eastern Ukraine were tragic reminders of how civil aviation is vulnerable to conflicts. Indeed improvements in navigation and radar technologies, combined with stricter laws and protocols have significantly lessened the probability of such risks. Yet despite the rare probability, incidents would automatically trigger a conflict situation between states, or even an armed response.

Regardless of offense or defense-oriented, developments in airpower would be viewed by states as not only the opponent's efforts to change the status quo, but a tool that will be for actual use in tense situations, rather than being a pure deterrent. Against this backdrop, states will seek and develop countermeasures, heightening the tensions in the region. Indeed, the probability of a war breaking out would be based more on policies and strategies of states than the actual technologies acquired. Still, the current trajectory would indicate the high likelihood of a multilateral arms race (or at least competition) in the area of airpower capabilities will take place, as well as the increase in "gray zone" situations that could turn into armed conflict if they are improperly handled, such as miscommunication, misinformation, and misjudgment.

The developments raise numerous concerns from the national and regional security viewpoints.<sup>34</sup> Under such tense circumstances, there are two options – state-centric approach and the regional approach. The state-centric approach involves governments autonomously sharpening their aerial capabilities and postures. This, however, is not simply about states investing in new platforms and equipment, or coming up with new strategies and tactics to enhance their deterrence capabilities for denial and punishment, but also includes measures such

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<sup>34</sup> For example of security implications from the Japanese and Japan-US alliance standpoint, see: Oriana Skylar Mastro and Mark Stokes, "Air Power Trends in Northeast Asia: Implications for Japan and the U.S.-Japan Alliance," (Project 2049 Institute, 1 September 2011).

as increasing patrols, exercises and drills, and enhancing crisis management procedures.<sup>35</sup> Furthermore, state-centric measures also include working closely with allies and other like-minded states. For instance, Japan will need to work with the US and also in a trilateral framework with the ROK.<sup>36</sup> The downside of the state-centric approach is that while it may grant stronger capabilities and presence for deterrence and defense, the enemy will take reciprocal measures, thereby illustrating a quintessential episode of the security dilemma that deteriorates the regional security environment.

Multilateral, regional approaches are vital in defusing tensions that could spark conflict (particularly where “gray zone” situations are frequent) and promoting common awareness and cooperation. The first step would be confidence building measures such as setting code-of-conduct in zones of contention, but also enhancement of military-to-military communication through the establishment of hotlines, promotion of greater transparency, as well as joint education, training and exercises. A good example of a multilateral approach was demonstrated by Japan and the ROK when the two governments made a bilateral agreement in 1995 on the respective ADIZ and agreed to give advance notice of one another’s flight plans to avoid incidents and collisions. Similar agreements also need to be made, and properly practiced with China, the DPRK, Russia, and Taiwan to minimize the risks of incidental conflict in the region. Going forward, a more ambitious, but ideal move would be to establish a regional apparatus to bring states together. This is not simply about creating some institution like the North Atlantic Treaty Organization (NATO), but institutionalizing cooperation and coordination to set norms and codes-of-conduct. For instance, the governments in the region could establish an institution that specifically addresses code-of-conduct and facilitates military-to-military communication. East Asian states could also learn from European Organisation for the Safety of Air Navigation (EUROCONTROL) – an intergovernmental organization established

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<sup>35</sup> For more specific studies on crisis management, see: Vincent Alcazer, “Crisis Management and the Anti-Access/Area Denial Problem,” *Strategic Studies Quarterly* 6, no. 4 (2012).

<sup>36</sup> For more on US-Japan-ROK trilateral security cooperation, see: Ryo Hinata-Yamaguchi, “Completing the US-Japan-Korea Alliance Triangle: Prospects and Issues in Japan-Korea Security Cooperation,” *The Korean Journal of Defense Analysis* 28, no. 3 (Fall 2016).



to ensure better safety of both military and civilian aviation operators in the region.

However, while it is easy to make strong calls for institutionalizing security cooperation in East Asia, efforts and progress have been far below desirable levels. Given that the states in East Asia are pursuing their military modernization programs precisely because of their nervous perceptions of the regional security environment, bringing them together into a multilateral initiative will prove to be difficult. Moreover, cooperation is made difficult by the very nature of airpower. In many cases, multilateral security cooperation has been lubricated by non-traditional security concerns including transnational crime and terrorism, safe practices, and humanitarian assistance and disaster relief (HADR). Yet, airpower is inherently dominated by (and designed for) state-to-state, traditional security. Indeed, airpower has essential roles in non-traditional security – particularly in ISR, transportation, and HADR. Nevertheless, beyond these roles, the utility of airpower in non-traditional security is arguably fewer than in the ground and naval domains where there are combined task forces against piracy and terrorism.

The question is not about whether states should take the state or region-centric approach, but rather how they can adopt the right mindset to forge cooperative ties. Governments try to pursue both state and regional approaches, but only on the premise that the latter does not compromise or disrupt their own security agendas. Consequently this causes dilemmas. On the one hand, the state-centric approach will undermine or at least slow the trust-building process to institutionalize security cooperation in the region. On the other hand, states may perceive that the regional approach will force them to compromise their strategic interests which would open up vulnerabilities. Given the fluid security environment and lacking levels of mutual trust, states are skeptical about the regional approach and would prioritize the state-centric approach, making it more difficult to reverse the arms modernization programs in progress.

## **5. Conclusion**

Even though East Asian states have been late comers in modern airpower, they have been fast learners, acquiring new technologies and formulating doctrines. Together with capabilities in the naval, cyber,

and outer-space domains, airpower is central to the military modernization programs of East Asian states to deal with the fluid security uncertainties in the region. Yet at the same time, the states in East Asia are still climbing up the learning curve. While developments are certainly seen in terms of technology, there are incomplete aspects in all the air forces in East Asia, ranging from the absence and or insufficiencies in particular platforms to the nascent systemization and operationalization of new capabilities. Still, given their clear will to strengthen their airpower capabilities, states in East Asia will continue to make heavy investments to overcome the challenges they face.

Looking ahead, more developments are expected in airpower capabilities in the East Asia region. Yet combined with the myriad geopolitical issues in the region, there are genuine concerns over the outlook of the East Asian security environment in the years to come. First, there are clear developments toward more proactive defense postures utilizing air and naval capabilities. While individual states justify such measures in the name of national defense (rather than attack), the collateral nature of developments point to increase in risk of conflict, or at least “gray zone” situations. Second, heavy investments in next-generation platforms by the states in the region increase the probability for a multilateral arms race based on both geostrategic and commercial interests. Statistics have already proved East Asia as the region of intense military expenditures and developments, and will continue to forge an upward trend given the forthcoming modernization plans. While states have their reasons to defend themselves, preventing the outbreak of conflict is of utmost importance. The circumstances call for not only further analysis of the airpower developments in East Asia, but also formulating more innovative solutions to ensure peace and stability in the region.

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## Benefits of Arabic-origin Turkish Vocabulary for Malay-speaking Learners of Turkish

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**Abstract:** Arabic is the largest donor language to Turkish and is also one of the primary donor languages to Malay. This study conducted a vocabulary survey of 30 Arabic-origin Turkish words to help Malay-speaking students learn Turkish. It examined the benefits of presenting Turkish words and those same words but with slightly modified spellings closer to the original pronunciation in Arabic. The participants were 40 Malay-speaking students at a major Malaysian university. Participants had an average of 26.10 correct answers out of 30 questions. They learned 13.05 new words on an average. At a 5% confidence level, a statistically significant difference was found between the participants' scores before and after the demonstration of the rearranged spellings ( $p = 0.000$ ). The study concluded that presenting Turkish words of Arabic origin with modified spellings closer to the original pronunciation could assist Malay-speaking students in learning Turkish vocabulary.

**Keywords:** Turkish, Arabic, similarity, Malay, vocabulary

### 1. Introduction

#### 1.1 Similarities between Turkish and Malay Vocabularies

According to the World Bank's economic overview of Turkey's Gross Domestic Product (GDP) in 2016, Turkey was the 17<sup>th</sup> wealthiest country (the World Bank, 2017). As a result of Turkey's economic growth and increasing economic importance, learners of Turkish as a foreign language have also been increasing worldwide (Yıldız, 2013, p. 1839). Crystal (2010, p. 316), which describes the characteristics of various language families in the world, noted that Turkish belongs to the Turkic group within the Altaic family of languages. Turkish is spoken as the first language of Turkish people, who constitute more than 80% of Turkey's overall population (estimated at approximately 78,740,000 in 2015) (Turkish Statistical Institute, 2016). Of the Turkic languages, Azeri and Turkmen, primarily spoken in Azerbaijan and Turkmenistan respectively, are linguistically close to Turkish. The

Uzbek language, mainly spoken in Uzbekistan, also shares some similarities with Turkish. Therefore, Azeri, Turkmen, and Uzbek speakers face fewer difficulties when learning basic Turkish.

Primarily spoken by Muslims, the Turkic languages have retained thousands of Arabic-origin words with similar meanings and pronunciations as a result of cultural and religious influence from Arabic- and Persian-speaking Muslim people. For example, the Turkish word *mevsim* (“season”) and its Azeri cognate *mövsüm* both stem from the Arabic word [mawsim] (Cowan, 1994, p. 1254). Other basic Turkish words of Arabic origin are *alet* (“tool”), *beden* (“body”), *hediye* (“gift”), *kahve* (“coffee”), *malumat* (“information”), and *nefes* (“breath”). The English word *coffee*, originating from the Arabic word [qahwa], was borrowed from the Ottoman Turkish language (Stevenson & Waite, 2011, p. 278).

Before the adoption of an arranged Roman alphabet at the end of 1928, Turkish was written for centuries in the Arabic alphabet with additional modified letters that are still included in the current Persian alphabet (Stone, 2010, p. 156). In Turkish, the letter ı represents [u] of the International Phonetic Alphabet (IPA), i.e., a close back unrounded vowel; the letters ş and ç correspond to the English sh and ch, respectively. Besides, the Turkish letters j and c correspond to the French j and English j, respectively. Ottoman Turkish mainly borrowed Arabic vocabulary through Persian; the pronunciation and meaning of the majority of contemporary Turkish words of Arabic origin remain close to those of their Persian cognates (Mace, 2003, p. 15). The Turkish letters ö and ü represent vowels similar to those indicated by the German ö and ü.

Most Turkish words of Arabic origin denote abstract concepts: *âdet* (“custom, habit”) from the Arabic word [‘a:da], *fayda* (“benefit”) from [fa:’ida], *hakikat* (“truth”) from [ħaқи:qa], *mana* (“meaning”) from [ma‘na:], and *vakit* (“time”) from [waqt] (Redhouse Press, 1968). Arabic-origin loanwords tend to have more specific meanings than the original Turkish words, which is a major advantage of such loanwords. At the beginning of the 20<sup>th</sup> century, the Ottoman administration tried to decrease the number of Arabic-origin Turkish vocabulary, but the modernization of the Ottoman Empire caused further increase of abstract words of Arabic origin, especially in the legal, academic, and technological fields (Hanioglu, 2011, p. 174).

In the Turkmen language, the Arabic [ħaқи:qa] (“truth”) was changed to *hakykat*, and the Arabic [waqt] (“time”) was borrowed as *wagt* (Awde, Dirks, & Amandurdyev, 2005, pp. 40, 59). The cognates of those words in Uzbek are *haqiqat* (“truth”) and *vagt* (“time”). The Malay equivalents are *hakikat* (“truth”) and *waktu* (“time”). For cultural and religious reasons, the Malay language, which is mainly spoken by Muslims, borrowed thousands of words from Arabic. Malay speakers learning Turkish and other Turkic languages can therefore use their knowledge of Arabic-origin words to enrich their vocabulary.

However, the grammar and original vocabulary of Turkish and Malay are significantly different, with the most common word order in Malay being subject, verb, object (S-V-O) (Liaw, 2012, p. 266), whereas the basic word order in Turkish is subject, object, verb (S-O-V) (Göksel & Kerslake, 2011, p. 230). Despite the syntactic difference, Turkish and Malay share Arabic-origin words, the knowledge of which may assist Malay-speaking students in learning basic Turkish vocabulary by enabling them to recognize the phonetic and semantic similarities between Arabic words in both languages. In addition, a better understanding of Arabic loanwords in Malay and Turkish would enable Malay-speaking students to enrich their vocabulary of Modern Standard Arabic, which is used as an official language in more than 20 countries in the Middle East and parts of Africa.

## 1.2 Value of Shared Arabic Loanwords in Malay and Turkish

Crystal (2010, p. 328) categorized the Malay language as being part of the Austronesian family of languages. Watson-Andaya and Andaya (1982, p. 53) highlighted that Malay had been borrowing Arabic words since the 15<sup>th</sup> century due to the Islamization of several regions within the Malay Peninsula. Jones, Grijns, and de Vries (2007) pointed out that Arabic was in fact the second-largest donor language to Malay. For example, the Malay word *musim* (“season”) is similar to its Turkish equivalent *mevsim* (pronounced almost like [mewsim]).

Similarly, Turkish also has many Arabic loanwords. To analyze the percentages of Arabic, Persian, and French loanwords in Turkish, Moore and Uni (2015) selected 3,270 of the most frequently used Turkish words, which corresponded to the 3,000 most frequently used English words, according to the *Oxford Advanced Learner’s*



*Dictionary*. Moore and Uni's (2015) research found 816 Arabic-origin loanwords (approximately 25% of the selected vocabulary [p. 202]), with loanwords from Persian and French origins at approximately 6% and 7%, indicating that Arabic was the largest donor language to Turkish. For example, the Turkish *nefes* and Malay *nafas* both mean "breath" and stem from the Arabic word [nafas].

With this in mind, it is postulated that an understanding of shared Arabic loanwords could facilitate the learning of fundamental Turkish for Malay speakers. This study examined the usefulness of presenting Arabic-origin Turkish words with modified spellings closer to the original Arabic pronunciation to teach Turkish vocabulary to Malay speakers in Malaysia.

In this paper, Arabic words have been transliterated into a slightly simplified IPA as the Arabic alphabet is unable to show exact pronunciation. A second reason is that many readers of this article may not be able to read Arabic. Since the symbol for the voiced pharyngeal fricative and the sign of pharyngealization that follows a consonant appear garbled on some computers, these have been simplified as [' in this paper, with the glottal stop being simplified as [ʔ]. In addition, the symbol indicating a long vowel has been simplified as [:], and the voiceless and voiced palato-alveolar fricatives have been simplified as [š] and [ž], respectively.

### **1.3 Examples of Shared Arabic-origin Words**

Table 1 shows four examples of Arabic-origin words that appear in both Turkish and Malay. In Malay, the long vowels in Arabic have been shortened; but, despite minor differences, the Turkish and Malay words in Table 1 still retain phonetic and semantic similarities.

Table 1

*Examples of Shared Turkish and Malay Words of Arabic Origin*

| Turkish (with the original Arabic)           | Malay equivalents         |
|--|---------------------------|
| <i>fayda</i> (“benefit”) < Arabic [fa:’ida]  | <i>faedah</i> (“benefit”) |
| <i>had</i> (“limit”) < Arabic [ħadd]         | <i>had</i> (“limit”)      |
| <i>hakikat</i> (“truth”) < Arabic [ħaқи:qa]  | <i>hakikat</i> (“truth”)  |
| <i>hayvan</i> (“animal”) < Arabic [ħajawa:n] | <i>haiwan</i> (“animal”)  |

Source of English translations: Langenscheidt (2006) and Harper Collins (2005)

The meanings of many Malay equivalents are, however, more limited than those of their Turkish cognates. For example, the Turkish word *tarih* (“date, history”) shares its etymology with the Malay *tarikh* (“date”), which does not include the meaning of “history.” To assist Malay-speaking students in learning basic Turkish vocabulary items of Arabic origin, it is therefore desirable to select cognates that are very close in meaning.

## 2. Hypothesis and Objectives

This study hypothesizes that demonstrating Turkish words of Arabic origin with modified spellings closer to the original pronunciation in Arabic could assist Malay speakers in learning the basic vocabulary for Turkish as a foreign language. Furthermore, this method could enable Malay-speaking learners to more effectively read and write in Turkish for daily communication with Turkish speakers. Such learners would also gain a deeper understanding of the value of the Arabic-origin words shared among Malay, Turkish, and other languages as a common linguistic and cultural heritage. Cowan (1994), an Arabic-English dictionary, was the reference for the Arabic vocabulary in this study. The objectives of this study were as follows:

1. To conduct a vocabulary survey using 30 Turkish words of Arabic origin, whose cognates in Malay share phonetic and semantic similarities

2. To examine the usefulness of demonstrating the 30 Turkish words, using modified spellings, which are closer to the original pronunciation when teaching Turkish vocabulary to Malay-speaking students

### 3. Literature Review

#### 3.1 Characteristics of Arabic-origin words in Malay

Jones, Grijns, and de Vries (2007) described the etymologies of foreign-origin Malay words, which included thousands of words that had originated from Arabic and other languages, and provided transliterations close to the original pronunciation. One of the major phonetic changes between the Arabic loanwords and the Malay equivalents was the simplification of double consonants. For example, the Malay *lazat* (“delicious”) originated from the Arabic [laððɑ] (“pleasure”) (Jones et al., 2007, p. 182). In addition to the simplification of consonants, the voiced dental fricative [ð] has changed to [z] in Malay.

A similar phonetic simplification can be observed in the Turkish equivalent *lezzet* (“taste”), which, however, has retained the double consonant.

Several studies have been conducted on Malay words of Arabic origin. For example, Uni (2015) explored the benefits of Arabic-origin Malay words in assisting Arabic-speaking students at a major Malaysian university when learning basic Malay vocabulary. However, the focus of Uni’s (2015) study was on Arabic-origin words in Malay and those in Turkish were not examined.

Richards (1993, p. 3) points out that the Mughal Empire ruled by Muslim leaders expanded in the 16<sup>th</sup> and 17<sup>th</sup> centuries, primarily in the northern part of the Indian subcontinent. The Hindustani language, which is the base of present-day Hindi and Urdu, borrowed many words from Arabic and Persian. Hindi has a higher percentage of Sanskrit-based vocabulary than Urdu, which is based on the Muslim culture; however, both languages retain many Arabic and Persian loanwords. A few examples of such Hindi and Urdu words are [kita:b] (“book”), originating from the Arabic [kita:b], and [sabzi:] (“vegetables”), borrowed from the Persian [sæbzi:]. The Turkish

cognates of these words are *kitap* (“book”) and *sebze* (“vegetables”). The [p] sound at the end of the Turkish cognate *kitap* changes to the original [b] sound when the noun is joined with a vowel; an example of this inflection is *kitabım* (“my book”).

Uni (2017) examined the benefits of using Arabic- and Sanskrit-origin Malay words to help Nepali-speaking people in Malaysia learn basic Malay vocabulary. That study suggests using Arabic-origin Malay words such as *dunia* (“world”), *faedah* (“benefit”), and *musim* (“season”), whose cognates in Nepali and Hindi share phonetic and semantic similarities. Their Hindi cognates are [dunija:] (“world”), [fa:jda:] (“benefit”), and [mawsam] (“season”) (Verma & Sahai, 2003). Although Uni’s (2017) study did not mention the fact, these Malay and Hindi words remain semantically and phonetically similar to their cognates in Turkish, i.e., *dünya* (“world”),  *fayda* (“benefit”), and  *mevsim* (“season”). This suggests that Arabic-origin loanwords have an important role to play in facilitating the learning of vocabulary items shared among Malay, Nepali, Hindi, and Turkish.

### **3.2 Benefits of “Cognates” in Foreign Language Acquisition**

Ringbom (2007, p. 73) emphasized the usefulness of cognates, which were defined as “historically related, formally similar words, whose meanings may be identical, similar, or partly different,” when teaching foreign languages. Ellis and Beaton (1993) compared the difference in learnability of cognate words and non-cognate words when teaching English as a foreign language. They found that the participants more easily learned cognates that were phonetically similar to their equivalents in their first language. Granger (1993) emphasized the benefits of cognates with almost identical meanings between English and other European languages, but also pointed out the possible disadvantages of using of cognates with partly different meanings when teaching foreign language vocabulary. Granger’s study suggested that it was important to carefully select the cognates to be taught by verifying the degree of phonetic and semantic similarities between the learners’ first language and the target language.

Melka (1997, p. 96) found that cognates borrowed from another language belonging to the same language family often benefited the vocabulary learning of a foreign language that was close to the learners’ first language, but that such loaned cognates could have more limited

meanings than the original words. This study used words of Arabic origin that had similar or the same meanings in Malay and Turkish to teach Turkish to Malay-speaking students. The results of this study could suggest benefits for the use of phonetically and semantically close words in languages in different language families such as Turkish and Malay. These studies suggest that using cognates in foreign language acquisition could be effective, especially when phonetic and semantic similarities exist between the learners' first language and the target language.

#### 4. Methodology

##### 4.1 Participants

The researcher asked 50 Malay-speaking students at a major Malaysian university whether they had learned Modern Standard Arabic, Persian, Hindi, or Urdu at any institution formally or informally. Ten students who had previous knowledge of the specified languages were excluded. The questionnaire was then administered. The participants in this study were 40 Malay-speaking students at a major urban university in Malaysia. Prior to the vocabulary survey, they had not learned Arabic as a foreign language at any academic institution. All participants were at a beginner level of mastery of Turkish and had knowledge of the alphabet. They were able to use fewer than 50 words and phrases for daily communication, including greetings such as *merhaba* (“hello”) and *teşekkür ederim* (“thank you”). The words *merhaba* (“hello”) and *teşekkür* (“expression of gratitude”) originate from the Arabic words [marhaban] (“hello”) and [tašakkur] (“expression of gratitude”), and the Turkish verb *ederim* means “I do.” The participants were familiar with the following correspondences between sounds in Turkish and Malay:

Table 2

*Correspondences between Sounds in the Turkish and Malay Alphabets*

| Turkish | Malay  |
|---------|--------|
| ş       | sy [š] |
| ç       | c [tš] |
| c       | j [dž] |

Among these participants, 35 majored in natural science and the other five specialized in law, sociology, or architecture. All the students were learning Turkish only out of personal interest, and the language had no relationship to the subjects in which they majored. The questionnaire consisted of a check sheet on Page 1 and 30 multiple-choice questions based on 30 Turkish words of Arabic origin on Page 2. After the participants completed the questionnaire, correct answers and newly learned words for each participant were counted. The average number of correct answers on Pages 1 and 2 were analyzed using a *t*-test to determine the benefits of demonstrating Turkish words with modified spellings closer to their original pronunciation in Arabic. The “newly learned words” in this study refer to those words that were identified as unknown from the answers on Page 1 of the survey but were understood after the participants read the rearranged spellings on Page 2 (see Table 4). This conventionally formatted questionnaire was a printed document. Its first page was a simple checklist of 30 Turkish words of Arabic origin with modified spellings to bring them closer to their Arabic originals, and on its second page were 30 multiple-choice questions about these loanwords. The participants were given 30 minutes to read and answer the checklist on Page 1 and another 30 minutes to answer the 30 multiple-choice questions on Page 2. No additional instructions were given.

## 4.2 Questionnaire

The multiple-choice vocabulary survey comprised of 30 Turkish words of Arabic origin. Except “digestion” and “prosperous,” the English words used as the correct answers on Page 2 were from the list of 3,000 most frequently used words according to the *Oxford Advanced Learner’s Dictionary* (Hornby, 2010). Therefore, the selection of words taught and tested appeared to be appropriate for beginners of Turkish as a foreign language. The pronunciation of the 30 Turkish words still retained many features of the original Arabic forms, although one or more consonants or vowels had changed in Turkish. For example, the Arabic [s‘abr] (“patience”) was borrowed and changed in Turkish to *sabir* and in Malay to *sabar*, so the original [s‘] had been simplified as [s].

Page 1 of the questionnaire was a checklist used for the verification of the participants’ previous knowledge of the listed Turkish words. On this page, 30 Turkish words of Arabic origin were associated with a

yes/no column. If participants thought they knew the meaning of the Turkish word, they checked “yes” and wrote the primary meaning in the blank space. If they encountered an unknown word, they simply checked “no.” On Page 2, the 30 listed words were accompanied by modified spellings closer to the original Arabic pronunciation and multiple-choice questions from which the participants were required to choose the most appropriate meaning from four options. For example, the options on Page 2 for the Turkish word *asıl* (“origin”) were “reality,” “truth,” “origin,” and “purity.” Even if the participants correctly defined a word on Page 1, that answer was not considered correct if they selected an incorrect answer on Page 2. Modified spellings closer to the original Arabic pronunciation were presented alongside the words to help participants guess the correct meanings for the Turkish words.

Table 3  
*Example from Page 1 of the Questionnaire*

---

Can you guess the meaning of the following Turkish words? Please check “YES” or “NO.” If yes, please write the meaning of the word in English in the blank space.

---

|                           |
|---------------------------|
| âdet (NO/YES) (      )    |
| akıl (NO/YES) (      )    |
| alet (NO/YES) (      )    |
| asıl (NO/YES) (      )    |
| beden (NO/YES) (      )   |
| cevap (NO/YES) (      )   |
| cinayet (NO/YES) (      ) |
| derece (NO/YES) (      )  |
| haber (NO/YES) (      )   |
| ilan (NO/YES) (      )    |

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For example, the rearranged spelling for the Turkish *cevap* was *jevap*, which more clearly indicates the original sound in Arabic [džawa:b] and is also phonetically similar to the Malay equivalent *jawab*. The modified Turkish spellings presented on Page 2 of the questionnaire used only one amended letter. If more letters were changed, there would have been little difference between the rearranged spellings and those of the Malay equivalents. None of the pages in the questionnaire provided any explanation regarding the phonetic or semantic changes that occurred in the listed Turkish words. This is the definition of an “explicit presentation” in this study. The rearranged spellings on Page

2 were therefore the only clue to help the participants guess the correct meanings of the vocabulary in the questions.

Table 4

Example of Questions on Page 2 of the Questionnaire

Please check the most appropriate meaning for the following Turkish words. Words shown in parentheses are written with modified spellings closer to the original Arabic sounds.

- âdet (âdât) 1. custom 2. history 3. tradition 4. etiquette  
 akıl (akl) 1. knowledge 2. understanding 3. intelligence 4. comprehension  
 alet (alât) 1. means 2. tool 3. way 4. material  
 asıl (asl) 1. reality 2. truth 3. origin 4. purity  
 beden (bâden) 1. physical 2. obesity 3. organization 4. body  
 cevap (jevap) 1. reply 2. return 3. reception 4. reaction  
 cinayet (jinayet) 1. fraud 2. threat 3. crime 4. offense  
 derece (dereje) 1. stage 2. grade 3. class 4. progress  
 haber (khaber) 1. knowledge 2. notice 3. news 4. message  
 ilan (i‘lan) 1. advertisement 2. press 3. poster 4. media

### 4.3 Survey Vocabulary

A number of consonants in the 30 Turkish words had changed from the original Arabic forms. The voiced pharyngeal fricative [‘] that precedes a vowel in Arabic, for example, has disappeared from Turkish and Malay, so the Arabic word [‘a:da] (“custom”) corresponds to *âdet* in Turkish and *adat* in Malay, with the Turkish and Malay words retaining an almost identical meaning. The voiceless uvular stop [q] in Arabic usually corresponds to a [k] in Malay and Turkish, so [‘aql] (“intelligence”) corresponds to *akal* in Malay, and *akıl* in Turkish. Double consonants in Arabic appear to have become assimilated with a vowel in Malay—such as in *kuat* (“strong”) from the Arabic [quwwa] (“power”)—which has the Turkish equivalent *kuvvet* (“strength, power”). In Malay, multiple consonants rarely appear in syllable codas. Arabic loanwords, therefore, include epenthetic vowels, usually with an additional [a] for easier pronunciation. For example, the Arabic [had‘m] (“digestion”) has become the Malay *hadam* (“to digest”). In addition, some long vowels in Arabic have become simplified and shortened in Malay. For example, the Arabic [džawa:b] (“reply” as a noun) has become *jawab* (“to reply” as a verb) in Malay and *cevap* (“reply” as a noun) in Turkish.



#### 4.4 Results

The average number of correct answers after the presentation of the modified spellings was 26.1/30, and 13.05 for the newly learned words. Table 5 shows the participants' correct answers for Pages 1 and 2, labeled T1 through T40.

Table 5  
*Number of Correctly Defined or Identified Words on Page 1 (Top Row) and Page 2 (Bottom Row)*

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| T1  | T2  | T3  | T4  | T5  | T6  | T7  | T8  | T9  | T10 |
| 5   | 8   | 8   | 8   | 9   | 10  | 10  | 10  | 10  | 10  |
| 28  | 23  | 24  | 25  | 24  | 24  | 24  | 25  | 26  | 26  |
| T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | T20 |
| 10  | 11  | 11  | 11  | 11  | 11  | 11  | 11  | 12  | 13  |
| 28  | 23  | 23  | 26  | 27  | 27  | 27  | 29  | 27  | 24  |
| T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 |
| 13  | 13  | 13  | 13  | 14  | 14  | 14  | 15  | 15  | 15  |
| 26  | 27  | 27  | 29  | 26  | 27  | 28  | 21  | 25  | 26  |
| T31 | T32 | T33 | T34 | T35 | T36 | T37 | T38 | T39 | T40 |
| 15  | 17  | 17  | 18  | 18  | 18  | 19  | 19  | 20  | 20  |
| 27  | 24  | 28  | 26  | 26  | 29  | 30  | 30  | 26  | 27  |

Correlations between the test scores before and after the demonstration of the rearranged spellings for the 30 Turkish words were statistically analyzed. At a 5% confidence level, a significant difference was found between the scores before and after the presentation ( $p = 0.000$ ). Table 6 presents the statistical results; the  $t$ -value was 23.31.

Table 6  
*Results of the t-Test*

|                 | Total Numbers of Words Known before the Presentation of Modified Spellings on Page 2 | Total Numbers of Correct Answers on Page 2 |
|-----------------|--|--|
| Total Scores    | 522  | 1044                                       |
| <i>p</i> -Value | 0.000*   |  |
| <i>t</i> -Value | 23.31  |  |
| <i>Df</i>       | 38   |  |

Table 7  
*The 10 Most Newly Learned Turkish Words*

| Turkish                        | Malay Equivalent                | Numbers of Correct Answers on Pgs 1-2 ( <i>n</i> = 40) |
|--------------------------------|---------------------------------|--|
| <i>ilan</i> (“advertisement”)  | <i>iklan</i> (“advertisement”)  | 3 (39) (+36)   |
| <i>kuvvet</i> (“strength”)     | <i>kuat</i> (“strong”)          | 7 (39) (+32)   |
| <i>niüsha</i> (“copy”)         | <i>naskhah</i> (“copy”)         | 0 (32) (+32)   |
| <i>tercüme</i> (“translation”) | <i>terjemah</i> (“translation”) | 1 (32) (+31)   |
| <i>nispet</i> (“proportion”)   | <i>nisbah</i> (“proportion”)    | 5 (32) (+27)   |
| <i>asil</i> (“origin”)         | <i>asal</i> (“origin”)          | 13 (39) (+26)  |
| <i>cevap</i> (“answer, reply”) | <i>jawab</i> (“to reply”)       | 14 (39) (+25)  |
| <i>mevsim</i> (“season”)       | <i>musim</i> (“season”)         | 12 (40) (+28)  |
| <i>alet</i> (“tool”)           | <i>alat</i> (“tool”)            | 20 (40) (+20)  |
| <i>üart</i> (“condition”)      | <i>syarat</i> (“condition”)     | 15 (34) (+19)  |

Table 7 shows the 10 most newly learned Turkish words. The most newly learned word was *ilan* (“advertisement”) with 36 participants being unable to identify it on Page 1 but guessing the correct meaning on reading Page 2. The modified spelling was *i'lan*, which stemmed from the Arabic [i'la:n]. Only one participant successfully defined the meaning of the Turkish *tercüme* (“translation”) on Page 1, and 31 participants newly recognized it on reading the rearranged form, *terjüme*, on Page 2, which more explicitly presented the original Arabic

form [tardžuma].

Additionally, 32 participants newly learned *nüsha* (“copy”), which originated from the Arabic [nusxa]. The rearranged spelling of *nüsha* was *nüskha*, which more clearly indicates the original [x] (*kh*) sound; however, eight participants answered incorrectly because the phonetic difference in the first vowel between the Turkish *nüsha* and the Malay equivalent *naskhah* appeared to be confusing. The Turkish *kuvvet* (“strength”) and *nispet* (“proportion”), newly recognized by 32 and 27 participants, stemmed from the Arabic [quwwa] and [nisba], respectively. *Kuvvet* was followed by the rearranged spelling *kuvvät* on Page 2 of the questionnaire, which has the Malay equivalent *kuat* (“strong”). In the Malay word, the original double [w] sound had been assimilated with the preceding *u*. *Mevsim* (“season”) retains similar pronunciation to the original Arabic [mawsim], with the Malay cognate *musim* having a simplified [u]. After participants read the rearranged spelling *mewsim*, as shown on Page 2, 28 of them identified the correct meaning. The modified spelling *nisbet* for the listed word *nispet* appeared to assist participants in understanding the phonetic change from [sb] to [sp] and so correctly guess the meaning.

Only 13 participants correctly guessed the meaning of *asıl* (“origin”) on Page 1, but 27 understood the meaning from the modified spelling *asl*, which is almost identical to the Arabic [as‘l] and close to its Malay equivalent (*asal*). The listed word *cevap* (“answer, reply”) includes a *c* (pronounced [dž] in Turkish). Although most participants knew the pronunciation of the Turkish letter *c*, only 14 were able to identify the word correctly on Page 1. After reading the rearranged spelling *jevap*, an additional 25 participants realized the phonetic and semantic correspondence to the Malay cognate *jawab*. The Turkish *alet* and Malay *alat*, which both refer to “tool,” only differ by one vowel, but the modified spelling (*alät*) allowed 20 participants to recognize the exact meaning.

Table 8 presents the results of the other 12 words correctly identified by most participants.

On Page 2, all participants successfully selected the meanings for the listed words *malumat* (“information”), *mesele* (“problem”), *nefes* (“breath”), and *sabır* (“patience”). Twenty-four participants guessed the meaning of *lezzet* (“taste”) on Page 1 and an additional 15 comprehended the meaning by reading the rearranged form *lezzät*. Its

Malay cognate is *lazat* (“delicious”). For the Turkish *haber* (“news”), 20 participants understood the meaning after being provided with the modified form *khaber*, which explicitly indicated the original [x] sound in Arabic. Its Malay equivalent is *khabar* (“news”).

Table 8  
*The Other 12 Words Correctly Identified by Most Participants*

| Turkish                        | Malay Equivalents               | Number of Correct Answers on Pages 1 and 2 (n = 40) |
|--------------------------------|---------------------------------|---|
| <i>malumat</i> (“information”) | <i>maklumat</i> (“information”) | 40 (40)   |
| <i>mesele</i> (“problem”)      | <i>masalah</i> (“problem”)      | 36 (40)   |
| <i>nefes</i> (“breath”)        | <i>nafas</i> (“breath”)         | 35 (40)   |
| <i>sabır</i> (“patience”)      | <i>sabar</i> (“patient”)        | 31 (40)   |
| <i>lezzet</i> (“taste”)        | <i>lazat</i> (“delicious”)      | 24 (39)   |
| <i>haber</i> (“news”)          | <i>khabar</i> (“news”)          | 19 (39)   |
| <i>işaret</i> (“sign, signal”) | <i>isyarat</i> (“signal”)       | 34 (38)   |
| <i>beden</i> (“body”)          | <i>badan</i> (“body”)           | 22 (38)   |
| <i>niyet</i> (“intention”)     | <i>niat</i> (“intention”)       | 26 (37)   |
| <i>cinayet</i> (“crime”)       | <i>jenayah</i> (“crime”)        | 18 (36)   |
| <i>esas</i> (“foundation”)     | <i>asas</i> (“foundation”)      | 20 (37)   |
| <i>şirket</i> (“company”)      | <i>syarikat</i> (“company”)     | 17 (37)   |

On Page 1, 26 participants correctly defined the meaning of *niyet* (“intention”), which originated from the Arabic [nijja], and an additional 11 identified the meaning after seeing the rearranged form (*niyät*) on Page 2. The disappearance of the y sound in the Malay cognate *niat* (“intention”) negatively affected three participants. Of the 36 participants who correctly recognized *cinayet* (“crime”) on Page 2, 18 identified the meaning after reading the rearranged form *jinayet*. Its Malay cognate is *jenayah* (“crime”).

The replacement of the *e* with an *ä* in the questionnaire appeared to be helpful in understanding Turkish words that differed from the Malay cognates by only one or two letters. The meanings for *beden* (“body”) and *esas* (“foundation”), rearranged as *bäden* and *äsas* on Page 2, were identified by 16 and 17 participants, respectively. The Malay cognates for these Turkish words are *badan* and *asas*. The Turkish *şirket* (“company”) and its Malay equivalent *syarikat* share fewer phonetic

similarities than most of the listed words and their Malay cognates, but the modified form *shirket* enabled 20 participants to identify the meaning after having read Page 2.

Table 9  
*The Eight Least Recognized Turkish Words*

| Turkish                         | Malay Equivalents                  | Numbers of Correct Answers on Pages 1 and 2 ( $n = 40$ ) |
|---------------------------------|------------------------------------|--|
| <i>derece</i> (“grade”)         | <i>darjah</i> (“grade”)            | 1 (21)   |
| <i>hediye</i> (“gift”)          | <i>hadiah</i> (“gift”)             | 19 (22)  |
| <i>âdet</i> (“custom”)          | <i>adat</i> (“custom”)             | 15 (25)  |
| <i>hazım</i> (“digestion”)      | <i>hadam</i> (“to digest”)         | 0 (25)   |
| <i>akıl</i><br>(“intelligence”) | <i>akal</i> (“intelligence”)       | 14 (26)  |
| <i>hizmet</i> (“service”)       | <i>khidmat</i> (“service”)         | 8 (27)   |
| <i>vekil</i> (“agent”)          | <i>wakil</i><br>(“representative”) | 25 (35)  |
| <i>mamur</i><br>(“prosperous”)  | <i>makmur</i><br>(“prosperous”)    | 28 (36)  |

Table 9 shows the eight words most infrequently identified by the participants. The Turkish *hediye* (“gift”), originating from the Arabic [hadijja], was correctly identified by only 22 out of 40 participants; most of whom chose “guidance” as the correct definition as they may have confused it with another Arabic word [hida:ja] (“divine guidance”), which primarily appears in religious texts in Malay. On Page 1, only one respondent knew the meaning of the Turkish *derece* (“grade”), originating from the Arabic [daradža]. The rearranged spelling (*dereje*) presented on Page 2 enabled an additional 20 participants to identify the meaning correctly. The listed words *âdet* (“custom”) (rearranged as *âdät*) and *hizmet* (“service”) (rearranged as *khizmet*) were correctly identified by 25 and 27 participants, respectively. The Malay word equivalents to *âdet* and *hizmet* are *adat* and *khidmat*. Each cognate pair has a very similar pronunciation and meaning. However, incorrect options such as “tradition” for the former and “assistance” for the latter hindered participants in identifying the correct word meaning.

In addition, no participant correctly identified the meaning of the Turkish *hazım* (“digestion”), originating from the Arabic [had‘m], but

25 participants correctly identified the meaning after being provided with the rearranged spelling (*hazm*). However, 15 were still unable to recognize the correspondence to the Malay *hadam* (“to digest”) because of the phonetic difference between [z] and [d] in Turkish and Malay. The Turkish *akıl* (“intelligence”) from the Arabic [‘aql] was correctly identified by only 26 participants, even though the modified spelling *akl* and the Malay equivalent *akal* differed in only one letter.

The rearranged spelling for the Turkish *vekil* (“agent”) was *väkil*, which more clearly indicates the original sound in Arabic [waki:l]. Thirty-five participants identified the exact meaning of *vekil*. *Mamur* (“prosperous”) (modified as *ma‘mur*) was correctly defined by 28 participants on Page 1. The original Arabic pronunciation is [ma‘mu:r] and the rearranged spelling including the [‘] sign was added to the Turkish spelling *mamur* to indicate the Arabic [‘]. Reading the rearranged spelling on Page 2, an additional eight participants noticed the similarity to the Malay cognate *makmur*, and identified the correct meaning of the listed word.

## 5. Discussion

The major pedagogical recommendation based on the results of this study is that the Arabic-origin Turkish words and their Malay cognates shown in Table 10 should be explicitly demonstrated. Since the Turkish cognates and the original Arabic words retain phonetic and semantic similarities, these cognates would assist Malay-speaking learners of basic Turkish and Modern Standard Arabic. As Malay-speaking learners become aware of phonetic and semantic similarities among Malay, Turkish, and Arabic vocabulary items that share the same origin, they will deepen their comprehension of the historical linkages among the Malay, Turkish, and Arab cultures, which could allow them to come to understand the shared linguistic and cultural elements as a continuum.

Table 10  
*Turkish and Malay Cognates Suggested for Future Studies*

| Turkish Words               | Malay Words and the Original Arabic Words | Turkish Words                | Malay Words and the Original Arabic Words |
|-----------------------------|---|------------------------------|---|
| <i>bereket</i> (“blessing”) | <i>berkat</i> < [baraka]                  | <i>dünya</i> (“world”)       | <i>dunia</i> < [dunja:]                   |
| <i>hürmet</i> (“respect”)   | <i>hormat</i> < [hurma]                   | <i>izin</i> (“permission”)   | <i>izin</i> < [iðn]                       |
| <i>kimya</i> (“chemistry”)  | <i>kimia</i> < [kimja:]                   | <i>kurban</i> (“victim”)     | <i>korban</i> < [qurba:n]                 |
| <i>mahir</i> (“skillful”)   | <i>mahir</i> < [ma:hir]                   | <i>mahkeme</i> (“law court”) | <i>mahkamah</i> < [mahkama]               |
| <i>mana</i> (“meaning”)     | <i>makna</i> < [ma‘na:]                   | <i>nasihat</i> (“advice”)    | <i>nasihat</i> < [nas‘i:ha]               |
| <i>resmi</i> (“official”)   | <i>rasmi</i> < [rasmi:]                   | <i>ruh</i> (“soul”)          | <i>roh</i> < [ru:h]                       |
| <i>sebeb</i> (“reason”)     | <i>sebab</i> < [sabab]                    | <i>sual</i> (“question”)     | <i>soalan</i> < [su‘a:l]                  |
| <i>vacip</i> (“obligatory”) | <i>wajib</i> < [wa:džib]                  | <i>vakit</i> (“time”)        | <i>waktu</i> < [waqt]                     |
| <i>vâris</i> (“heir”)       | <i>waris</i> < [wa:riθ/<br>wari:θ]        | <i>vücut</i> (“existence”)   | <i>wujud</i> < [wudžu:d]                  |

## 6. Conclusion

This study has examined the usefulness of an explicit demonstration of 30 Arabic-origin Turkish words in the context of teaching basic Turkish vocabulary to Malay-speaking students at a major Malaysian university. The participants completed a vocabulary questionnaire with 30 multiple-choice questions on the meanings of 30 Turkish words. There was an average of 26.10 correct answers and participants learned 13.05 new words on an average. A significant difference was found between the scores before and after the demonstration of the modified Turkish spellings ( $p = 0.000$ ).

More than 30 of the 40 participants identified the correct meanings for the Turkish words *asil* (“origin”) (modified as *asl*), *ilan* (“advertisement”) (modified as *i‘lan*), *kuvvet* (“strength”) (modified as

*kuvvât*), *mevsim* (“season”) (modified as *mewsim*), and *tercüme* (“translation”) (modified as *terjüme*) after having reading the rearranged forms presented on Page 2 of the questionnaire. The results of the present study indicate that it is beneficial to raise Malay-speaking learners’ awareness of Turkish words of Arabic origin whose Malay cognates also frequently appear in Malay. In addition, the results of this study suggest that etymological connections between Turkish and Malay words that share fewer phonetic similarities, such as the Turkish *derece* (“grade”) and the Malay *darjah* (“grade”), would need to be demonstrated to learners with additional explicit explanations.

Malay speakers have almost no advantage in learning Turkish vocabulary items that do not originate from Arabic. However, Malay and Turkish share several words of Persian origin, such as the Malay word *badam* and the Turkish *badem*, both meaning *almond*. The Persian word [ba:da:m] (“almond”) is also used in Hindi and Urdu, its meaning being identical to the original and its pronunciation being very similar. Groups of cognates assembled in a similar way would also benefit Malay-speaking learners. Phonetic and semantic similarities among the vocabularies of different languages continue to enable learners to discover the significance of broadening knowledge of languages as a precious heritage shared by all human beings.



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## A Comparison of Surface Pitch Patterns of Initialisms in English and Tokyo Japanese

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**Abstract:** The Japanese loanword prosodic feature has been a major obstacle to learning Japanese as a foreign language because of enormous dissimilarities in the sound impression between loanwords and their source words, which are mainly from English vocabulary items (Quackenbush 1977). On the other hand, many English initialisms, such as CD and ATM, and their loaned counterparts in Japanese share strikingly similar prosodic features (Kubozono 2003, 2006, 2010). This paper discusses the similarities and the differences in the initialisms in both languages, as well as the cause of the similarities. Then, this paper will suggest how the similarities can be used to help English speaking learners acquire the prosodic feature of Japanese.

**Keywords:** prosody, pitch patterns, lexical accents, initialisms

### 1. The Purpose of this Study

The main purpose of this study is not to make learners sound like a native speaker, but rather to facilitate learners' communication. Previous studies show that loanwords from English are difficult to acquire for learners of Japanese for various reasons (Quackenbush 1977). One prominent reason for the difficulty is the orthography used in English loanwords. Japanese has adopted a vast number of vocabulary items from various languages. Such loanwords are mainly originated from Chinese and English. When Chinese loanwords are transliterated, Chinese characters are used, whereas English loanwords are transliterated in *katakana*, one of the syllabaries in Japanese. Because *katakana* fails to transliterate many phonological elements of the source word, meanings of *katakana* loanwords are generally obscure for native speakers of English. For example, take a look at the English loanword *rokku* [rokku]. Not having /l/ in the phonemic inventory in Japanese, the word *rokku* [rokku] can mean either 'rock' or 'lock'. Furthermore, the lack of a coda consonant in the general syllable structure of Japanese forces epenthesis of the vowel [u],

resulting in re-syllabification. Another reason for the difficulty is the pitch pattern, which does not appear in the writing systems of Japanese and English. For example, “McDonald’s” has a stress accent on the penultimate syllable “Don”, while the loaned version “*Makudonarudo*” has a lexical pitch accent on the antepenultimate syllable “na”. Consequently, “McDonald’s” has a pitch drop at the last syllable and “*Makudonarudo*” has one at the penultimate syllable, creating different pitch patterns.

Contrary to the dissimilarities between English loans in Japanese and their source words, initialisms in both languages show striking similarities, at least regarding the orthographies and the pitch patterns (Kubozono 2003, 2006, 2010). The orthographic similarity is that initialisms are written with the Roman alphabet in both languages. Prosodically, most alphabetical characters have one syllable, and an initialism usually has a lexical accent on the last character in both languages, making the pitch patterns of alphabetic characters in both languages similar.

This study focuses on the pitch patterns of initialisms of both languages, and investigate the cause of their similarity. Furthermore, possibilities to use the similarity to facilitate teaching pitch patterns of loanwords from English to learners of Japanese who speak English will be discussed. Since “Japanese dialects exhibit tremendous variation as regards the accent of (Kubozono 2010:2323)” initialisms, the pitch pattern of Tokyo Japanese (henceforth ‘Japanese’ for short) will be solely discussed.

## 2. Overview of Japanese and English Prosody

Prosody is the patterns of stress, pitch, and timing in a language. Generally speaking, it is believed that while Japanese is a pitch-accent language, English is a stress-accent language. In a pitch-accent language, such as Japanese, a stressed mora is followed by a sudden pitch descent in a word; on the other hand, in a stress-accent language, such as English, stressed syllables are marked primarily by longer and louder vowels (Beckman and Pierrehumbert 1986). Although Japanese and English prosody may appear dissimilar, some researchers claim that they do have some common features with respect to pitch pattern (Beckman and Pierrehumbert 1986, Sugito 2012).

### **3. Pitch Pattern and Lexicon**

Pitch patterns – systematic transitions of vocal pitch within an utterance – can be observed in many languages, but their functions may differ language to language. In tone languages, such as Standard Chinese, a tone (pitch pattern in a word or a syllable) can be used to differentiate word meaning (Lin 2007). As discussed above, Japanese is called a pitch-accent language. The pitch accent in a Japanese word is marked by a relatively steep descent in pitch (Vance 2008). English, on the other hand, is a stress-accent language, and lexical stress is determined by an enhancement in loudness and duration in the vocabulary item. Japanese uses pitch patterns, and not loudness and duration to determine lexical accent (Beckman and Pierrehumbert 1986). However, English uses all three. Thus, even English, a stress-accent language, is not immune to lexical pitch patterns. For example, pitch pattern (or tonal pattern) in English is associated with lexical stress (lexically determined enhancement in loudness and duration). Beckman and Pierrehumbert (1986) claim that there are a total of six tonal patterns consist of either high or low tones in English, and any one of them can be associated to a lexically designated syllable. Sugito (2012) also reports that both Japanese speakers and English speakers make use of pitch patterns when they identify an accented syllable or mora, sensing a steep descent in pitch. Sugito (ibid.) recorded and analyzed 400 English words spoken by English speakers, and 550 Japanese words spoken by Japanese speakers. The results showed that an English lexical accent falls on the syllable with the highest pitch in a word, or on the syllable followed by one with a pitch drop, just like the Japanese lexical pitch accent. There were only 4 out of 400 English words which did not follow this pattern.

## **4. Pitch Patterns of English and Japanese**

### **4.1. Accents vs. Pitch Patterns**

As discussed above, accentuation of Japanese and English are based on different criteria. Nonetheless, previous studies compare prosody of the two languages in respect of accent (Kubozono 2003, 2006, 2010). In this paper, I examine pitch patterns of the two languages in order to indicate more consistent comparisons. Pitch patterns may not be as significant as the pitch accent or the stress accent; however, they exist in both Japanese and English. The accents, whether they are the pitch

accent or the stress accent, may not be good criteria when analyzing two languages with different accentuation systems. Pitch patterns are influenced by both pitch accent and stress accent, as discussed above; however, indicating the stress-accent alone is not sufficient to demonstrate the pitch movement in English accurately. For example, compare the pitch patterns of the words ‘peacock’ and ‘beauty’. The underlines indicate that there are pitch drops (Watanabe 2011, 2015).

|            | IPA      | IPA with underline |
|------------|----------|--------------------|
| a. peacock | [pí:kàk] | [pí:k <u>àk</u> ]  |
| b. beauty  | [bjú:di] | [bjú: <u>d</u> i]  |

Notice that in both words, the first syllable is accented; and thus, a stress falls on the first syllable of each word. However, while the pitch does not descend until the second syllable in the word ‘peacock’, the pitch in ‘beauty’ starts falling in the middle of the first syllable.

Similar cases may be observed in Japanese as well. Compare the words ‘*Makudonarudo*’ [makudonárudo] McDonald’s and ‘*shīrakansu*’ [ei:rakansu] coelacanth.

|                        | IPA            | IPA with underline      | gloss      |
|------------------------|----------------|-------------------------|------------|
| a. <i>Makudonarudo</i> | [makudonárudo] | [ <u>makudonárudo</u> ] | McDonald’s |
| b. <i>shīrakansu</i>   | [ei:rakansu]   | [ei:rak <u>ansu</u> ]   | coelacanth |

The lexical pitch accent falls on the antepenultimate mora, and the pitch drops thereafter in both words. The noticeable difference is that the pitch of the first mora of ‘*Makudonarudo*’ also drops, but not so in the case of ‘*shīrakansu*’. As observed in ‘*Makudonarudo*’, the pitch of the first mora of a phrase in Japanese is lower than the second mora to indicate a syntactic phrase boundary (Pierrehumbert and Beckman 1988; Backley and Nasukawa 2013). Backley and Nasukawa (2013) call this phenomenon ‘prosodic L’ as opposed to ‘lexical L’. In this study, the term ‘phrasal pitch lowering’ is used instead. The phrasal pitch lowering does not occur when the second mora of the phrase has a lexical pitch drop (Backley and Nasukawa 2013), or when the first syllable is long, that is to say, when the syllable has two moras (Pierrehumbert and Beckman 1988), as observed in ‘*shīrakansu*’.

Since the phrasal pitch lowering, or prosodic L, specifies the location of prosodic domains (Backley and Nasukawa 2013), as shown below, when a word is in a phrase, whether the pitch of the first mora of the word drops or not depends on the preceding pitch.

|                             | IPA with underline                  | gloss            |
|-----------------------------|-------------------------------------|------------------|
| a. <i>Makudonarudo</i>      | [ <u>makudonár<u>u</u>do</u> ]      | McDonald's       |
| b. <i>Kono Makudonarudo</i> | [ <u>kono makudonár<u>u</u>do</u> ] | This McDonald's  |
| c. <i>Dono Makudonarudo</i> | [ <u>dono makudonár<u>u</u>do</u> ] | Which McDonald's |

As shown above, in Japanese, there are two kinds of pitch drops: lexical and phrasal. The lexical pitch accent indicates lexical pitch drop as well, but not phrasal pitch lowering. Therefore, indicating the lexical pitch accent only does not demonstrate the pitch pattern of the word. Note that this is not to claim that the lexical pitch accent is inadequate. It simply does not present the surface pitch pattern directly without some phonological derivation.

### 5. Comparison of English and Japanese Pitch Patterns

In this section, some surface pitch patterns of English and Japanese are compared.

|             |                     | IPA with underline             |
|-------------|---------------------|--------------------------------|
| a. English  | McDonald's          | [ <u>mək<u>d</u>ánəldz</u> ]   |
| b. Japanese | <i>Makudonarudo</i> | [ <u>makudonár<u>u</u>do</u> ] |

The two words are different in terms of the location of the lexical accent. The different accent locations create different patterns of pitch drop. Another difference is that the vowel [u] and [o] are inserted in the Japanese word to avoid consonant clusters and coda consonants, increasing the number of the syllables of the word from three to 6. Consequently, McDonald's [məkdánəldz] has only one syllable that is high, whereas *Makudonarudo* [makudonárudo] has three. The following pair has the same lexical accent position.

|            |          | IPA with underline           |
|------------|----------|------------------------------|
| a. English | computer | [ <u>kəm<u>p</u>jú:tər</u> ] |

b. Japanese            *conpyūtā*            [kompjú:ta:]

In these examples, the lexical accent falls on the same position. The word ‘computer’ [kəmpjú:tər] and ‘*conpyūtā*’ [kompjú:ta:] share the same number of syllables; they both have three syllables, and both the stress accent and the lexical pitch accent falls on the penultimate syllable [pjú:]. Nevertheless, their pitch patterns do not sound similar, because of the lack of phrasal pitch lowering in ‘*conpyūtā*’ [kompjú:ta:] due to the long syllable [kom].

Some English loanwords with fewer syllables share similar pitch patterns with their source words. The pitch patterns of the word ‘type’ and its loaned form ‘*taipu*’ may be almost identical.

|             |              |                           |
|-------------|--------------|---------------------------|
|             |              | IPA with underline        |
| a. English  | type         | [tá <u>ɪ</u> p]           |
| b. Japanese | <i>taipu</i> | [tá <u>ɪ</u> p <u>u</u> ] |

The pitch patterns of the two words are alike except for the vowel [u] in ‘*taipu*’ [táɪpu]. The last vowel of ‘*taipu*’ [táɪpu] are frequently reduced because it is preceded by a voiceless consonant and followed by no segment (Vance 2008). The reduction of the vowel [u] in ‘*taipu*’ [táɪpu] contributes to enhance the similarities of the two items.

English loanwords and their source words may share the similar pitch patterns. However, in most cases they are different, especially when the words are long.

## 6. Pitch Patterns of Roman Alphabetic Characters in English and Japanese

In this section, pitch patterns of alphabetic characters in English and Japanese are discussed. As demonstrated below, alphabetic characters in both languages are pronounced in similar pitch patterns, probably because they have very few syllables. In this paper, a pitch descent is indicated by underlining the corresponding mora. The following is a list of the pitch patterns of the Roman alphabetic letters when pronounced in isolation.



|   | <i>English</i> | <i>Japanese</i> |   | <i>English</i> | <i>Japanese</i> |
|---|----------------|-----------------|---|----------------|-----------------|
| A | [éí]           | [é:]            | N | [én]           | [énu]           |
| B | [bí]           | [bí:]           | O | [óu]           | [ó:]            |
| C | [sí]           | [sí:]           | P | [pí:]          | [pí:]           |
| D | [dí:]          | [dí:]           | Q | [kjú:]         | [kjú:]          |
| E | [í:]           | [í:]            | R | [á:r]/[á:]     | [á:ru]          |
| F | [éf]           | [é <u>fu</u> ]  | S | [és]           | [ésu]           |
| G | [dʒí:]         | [dʒí:]          | T | [tí:]          | [tí:]           |
| H | [éɪ]           | [éitei]         | U | [jú:]          | [jú:]           |
| I | [ái]           | [ái]            | V | [ví:]          | [bú:]           |
| J | [dʒéɪ]         | [dzé:]/[dzéi]   | W | [dʌb(ə)ju:]    | [dáburuju:]     |
| K | [kéɪ]          | [ké:] [kéi]     | X | [éks]          | [ékkusu]        |
| L | [él]           | [éru]           | Y | [wáɪ]          | [uá:]           |
| M | [ém]           | [ému]           | Z | [zí:] [zéɪd]   | [dzétto]        |

Since Japanese does not allow an obstruent except for [N] at the word final position, an extra vowel is inserted in F [éfu], H [éitei], L [éru], M [ému], N [énu], R [á:ru], S [ésu], X [ékkusu], and Z [dzétto].

As shown above, English stressed short vowels have an accent, as well as a pitch drop (F [éf], L [él], M [ém], N [én], S [és], X [éks], and Z [zéɪd]), which might give an impression that these items are wrongly transcribed because the vowels are marked twice. The pitch in these alphabetic characters moves from high to low within a short vowel. The accent mark “ ’ ” signifies the high pitch as well as stress, and the underline indicates that there is a pitch descent. This intricate pitch pattern is not observed in Japanese; therefore, underlining alone is not sufficient to describe the pitch movement. Nevertheless, the combination of the accent mark and the underline adequately transcribe the pitch pattern. Consequently, English F [éf], L [él], M [ém], N [én], X [éks], and Z [zéɪd], and their loaned forms F [éfu], L [éru], M [ému], N [énu], S [ésu], X [ékkusu], and Z [dzétto] all have a high pitch at the first vowel immediately followed by a pitch drop, which makes their pitch patterns alike.

## 7. Pitch Patterns of Initialisms in English and Japanese

In this section, pitch patterns of initialisms in both languages are compared side by side. First, initialisms that are pronounced with similar pitch patterns in both languages are presented. Then, initialisms with different pitch patterns in English and Japanese are discussed.

### 7.1. Initialisms with Similar Pitch Patterns

Unlike regular vocabulary items such as ‘computer’ and ‘McDonald’s’, many initialisms share very similar, if not identical, pitch patterns in both English and Japanese. One of the reasons for the similarity is the place of lexical accents. The lexical accent falls on the accented syllable of the last elements in both languages (Kubozono 2003, 2006, 2010), and the accentuation patterns of each element in both languages are already similar as shown in the previous section. Another reason for the similarity is the lack of phrasal pitch lowering when the initial syllable is bimoraic. Consequently, alphabetic letters with monomoraic syllables, such as F [éfu], L [éru], M [ému], N [énu], S [ésu], X [ékkusu], and Z [dzéto] sound somewhat dissimilar to English pitch patterns when they are in the first position of an initialism because of phrasal pitch lowering. ‘LED’ in the list below is an example of this case.

|      | <i>English</i>   | <i>Japanese</i>  |
|------|------------------|------------------|
| CD   | [sí:dí:]         | [ei:dí:]         |
| CG   | [sí:dʒí:]        | [ei:dʒí:]        |
| UV   | [jú:ví:]         | [ju:bú:]         |
| CEO  | [sí:i:óu]        | [ei:i:óu]        |
| ATM  | [éti:ém]         | [eti:ém]         |
| DNA  | [dí:éné:]        | [di:enué:]       |
| DVD  | [dí:vi:dí:]      | [di:buidí:]      |
| EMS  | [í:émés]         | [i:emuésu]       |
| CNN  | [sí:éné:]        | [ei:enuéné:]     |
| BBC  | [bí:bi:sí:]      | [bi:bi:ei:]      |
| HTML | [éɸí:émé:]       | [eiteiti:emuéru] |
| PTSD | [pí:éstí:dí:]    | [pi:esuti:dí:]   |
| BMW  | [bí:émdʌb(ə)ju:] | [bi:emudáburju:] |
| LED  | [élí:dí:]        | [erui:dí:]       |

### 7.2 Initialisms with Dissimilar Pitch Patterns

In Japanese, an initialism is unaccented, meaning has no lexical pitch drop, when it is “four moras long and ends in a sequence of light, i.e. monomoraic, syllables (Kubozono 2010: 2327)”. Alphabetic letters pronounced with monomoraic syllables in Japanese are: F [éfu], L [éru], L [énu], and L [ésu]. Consequently, words such as SF (science fiction), SL (steam locomotive), OL (office lady, female office worker),

FM, and BS (broadcast satellite) are pronounced without a lexical pitch drop, making them sound dissimilar to English pitch patterns (Kubozono 2010).

### 7.3. Exceptions

I could find two exceptions: ‘OK’ and ‘SOS’.

|     | English  | Japanese              |
|-----|----------|-----------------------|
| OK  | [òʊkɛ̃]  | [ó:ke:]/[ókke:]       |
| SOS | [ésóúés] | [esuo:ésu]/[esuo:ésu] |

The word ‘OK’ is frequently used in Japan. Interestingly, the pitch pattern of ‘OK’ in English does not follow the typical pattern of initialism in English, either. ‘SOS’ in Japanese pronunciation has both typical and exceptional pitch patterns in variation.

### 8. Causes of Similarities and Dissimilarities

As we have seen, in both languages, pitch patterns of initialisms are different from the ones in regular words with multiple syllables. English words typically have an accent on the penultimate syllable, and Japanese words typically have an accent on the antepenultimate syllable. However, initialisms in both languages have an accent on the accented syllable of the final letter. Most alphabetic characters are monosyllabic in both language, and all multi-syllabic characters have an accent on the first syllable.

Placing an accent on the last element of a word consists of multiple components can be observed in both languages. Japanese initialisms appear to follow the tendencies of pitch patterns of compound nouns. The most general pattern of compound nouns is that the lexical pitch drop of the final element is preserved, while all other lexical pitch drops are deleted (Kubozono 2010). English initialisms, on the other hand, do not follow the compound rule. English compound words generally have a stress on the first element, which is different from the pattern in the initialisms. English initialisms seem to follow the rules of given name-family name sequences (Kubozono 2010) and large numbers (Vance 2016). Regardless of the numbers of the figures, the stress always falls on the lexically stressed syllable of the last digit (Vance *ibid*).

The rareness of phrasal pitch lowering of Japanese initialisms due to the fact that most letters are bimoraic heavy syllables contributes to the similarities.

The cause of the dissimilarities is attributed to the four-mora word tendency of Japanese. Whether it is a compound or not, a loanword with four moras long tends to be unaccented (Nakagawa, et al. 2009).

|                         |  |   |
|-------------------------|--|---|
| <b>Adjective + Noun</b> | <i>English</i><br>2 <sup>nd</sup> element is higher<br>Secondary stress +<br>Primary stress<br>white bóard | <i>Japanese</i><br>1 <sup>st</sup> element is higher<br>regardless of accentuation<br><u>shiró</u> <u>íta</u> (a white board)   |
| <b>Compound Noun</b>    | 1 <sup>st</sup> element is higher<br><br>Primary stress + no stress<br>whíte + bóard =<br>whiteboard       | <b><u>no pitch drop until the last element</u></b><br><b><u>(in most cases)</u></b><br>no accent + accent (in most cases)<br><u>howáito</u> + <u>bóodo</u> =<br><u>howaitobóodo</u> |
| <b>Large Numbers</b>    | <b><u>no pitch drop until the last element</u></b>   | accentuated in almost every digit   |
| <b>Initialisms</b>      | <b><u>no pitch drop until the last element</u></b>   | <b><u>no pitch drop until the last element</u></b><br><b><u>(in most cases)</u></b>   |

In conclusion, the resemblance of the pitch pattern in initialisms in English and Japanese is coincidental, by following each language's existing phonological rules.

## 9. Educational Implications

Judging from the fact that even a dictionary that specializes in pitch patterns does not accurately document the pitch pattern system of initialism in Japanese (Kubozono 2003), not very many people who are engaged in Japanese language education are conscious of the similarity between the pitch patterns of Japanese and English initialism. Likewise, it is assumed that not very many people (even if they are native speakers of English) are aware of the fact that pitch patterns in English

change systematically according to grammar. This is not to say that Japanese and English speakers cannot hear the difference in pitch patterns. For anecdotal example, every time the author demonstrates to his English speaking undergraduate students and Japanese graduate students that the pitch pattern of the first ‘N’ and the second ‘N’ in the initialism ‘CNN’ are different, they generally agree. Nonetheless, they seemed to have had no prior knowledge of pitch patterns of English. The resemblance of English and Japanese pitch patterns can be used to teach Japanese pitch patterns to learners of Japanese who speak English. By showing that the pitch pattern of the first ‘N’ and the second ‘N’ in the initialism ‘CNN’ are different, teachers can make learners notice that pitch patterns exist in English as well, and the pitch changes systematically according to grammar, not randomly.

### 10. Residual Issues

As shown in EMS [i:émés] (English) [i:emuéssu] (Japanese), when an English initialism ends with a consonant, the preceding vowel contains a stress accent as well as a pitch drop creating an acute pitch movement from high to low within a monomoraic vowel, whereas, Japanese corresponding vowels never show such a pitch drop.

Anecdotally, the author has noticed in pronunciation courses he teaches that every semester some Mandarin Chinese speaking learners of Japanese pronounce the initialism EMS [i:emuéssu] as [i:emués:su] by lengthening the [e] in “S” and adding a pitch drop to the lengthened mora [ɿ]. This error is noticeable and persistent. These learners may be trying to dissect the pitch pattern of [és] in English [i:émés], which is doubly marked, so that the pitch pattern is pronounceable in Japanese. Since Mandarin is a tone language and these learners are also fluent in English, they may be sensitive to the pitch pattern of the source word. Although pitch patterns of [i:émés] and [i:emuéssu] sound similar to Japanese speakers, they may sound distinct for tone language speakers. In such a case, it may not be helpful to present the information that the pitch patterns of initialisms are alike in English and Japanese.

### 11. Conclusion

This study presented side-by-side direct comparisons of surface pitch patterns of English and Japanese, using the traditional lexical accent marker and the underline, which indicates lexical and phrasal pitch drops. The resemblance between the two languages may be useful for

informing pitch pattern systems of both English and Japanese. At the same time, presentation of more careful and detailed information is required for tone language speakers, who are typically more sensitive to the pitch movement within a syllable than Japanese speakers.

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## The Natural World of the Colorful Realm: Traces of a *honzōgaku* worldview in the works of Itō Jakuchū

Sean O'REILLY

**Abstract:** How did eighteenth-century intellectuals in Japan make sense of the natural world? They were presented with two diverging choices of approach. Either they could remain with the primarily Chinese worldview, representing the world according to the stylized rules of, e.g., bird and flower paintings and the often efficacious but occasionally fanciful notions of traditional Chinese medicine, or they could embrace the Linnaean Western view and aspire to a more photo-representational approach in their paintings and other creative works, attempting to catalogue and record information through such heretofore purely artistic activities as painting. The late eighteenth century became a fascinating point in history where these two worldviews began to merge, ultimately into the Japanese practice of *honzōgaku*. But this syncretic approach did not arise thanks to an exceptional few; instead, it came into being as a result of sophisticated networks of information (and collection) sharing. Thus, painters like Itō Jakuchū, when attempting an approach of greater verisimilitude in his depictions of the natural world, were only able to manage this because they were participants in wide-ranging networks of like-minded individuals. Standing behind the achievements of any one individual, then, is a powerful support network which literally informed any single person's work.

**Keywords:** early modern Japan, *honzōgaku*, Itō Jakuchū, natural philosophy, art history, literati networks

### 1. Introduction: Worldviews before the Rise of Natural History

During the Tokugawa era (1603-1868), China loomed large in the cultural imagination of many Japanese artists. In this period, painting (and poetry) circles emerged in which participants cultivated identities as *bunjin*, or Chinese-style literati—amateur painter-poets whose aesthetic refinement and skills, not their birth privileges, earned them entry into such circles, which were among the few horizontally



structured groups available during the Tokugawa period. Such circles or networks have been dubbed “aesthetic publics” by Eiko Ikegami in the context of the groups that formed around aesthetic pursuits like poetry or painting in order to circumvent the shogunal prohibition against forming “parties.”<sup>1</sup> The extent to which eighteenth century intellectuals were influenced by and interested in China is illustrated in the extraordinary proportion of such figures that were involved in one or more of *kangaku* (“Chinese studies,” meaning the study of classical literature, philology, and so forth), painting (usually Sinophile in nature), *kanshi* (poetry in literary Chinese), and calligraphy, the four most common activities of intellectuals in this century, even more popular than other pastimes like *waka* (Japanese poetry) and so forth.<sup>2</sup> Nor can the heavy influence of China be attributed to samurai Sinophilia; beginning in the eighteenth century, there was a sharp rise in the numbers of non-samurai participating in such networks, until by the latter half of the century fully 80% of the members of the various known networks in all three major cities were non-samurai.<sup>3</sup>

In one such aesthetic network, participants carried their adulation of China to the point of attempting to craft a space that could function as a “China within Japan.”<sup>4</sup> This salon, which coalesced around the figure of Baisaō Kō Yūgai, the famed promoter of the drinking and ceremony of *sencha* or steeped (as opposed to powdered, or *matcha*) green tea, featured several notables of mid-eighteenth century Japan, including among others the poet-monk Daiten Kenjō (1719-1801), the painter Ike Taiga (1723-1776) and his student/patron Kimura Kenkadō (1736-1802), and the painter Itō Jakuchū (1716-1800).<sup>5</sup> It was Jakuchū who painted the wall panels at the salon’s meeting place, the Daijoin, a sub-building of Rokuonji temple (better known as Kinkakuji), in such a way as to evoke a distinctly Chinese atmosphere, which was only reinforced by Daiten’s inscription (which was, of course, written in

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<sup>1</sup> Eiko Ikegami, *Bonds of Civility*, p. 39.

<sup>2</sup> See Anna Beerens, *Friends, Acquaintances, Pupils and Patrons*, pp. 233-4 for a chart of the percentages of the 173 figures she studied (all active in the late eighteenth century) known to have been involved in each of those activities.

<sup>3</sup> Beerens, p. 194. Only 36 out of the 173 individuals for which she collected data were from samurai backgrounds.

<sup>4</sup> Hans Thomsen, *The Visual Salon* (dissertation), p. 385.

<sup>5</sup> See Thomsen, p. 24 for a justification of the use of the word “salon” (despite the French overtones) to describe this sort of group.

literary Chinese, the lingua franca of the East Asian aesthetic world).<sup>6</sup> And it is this select group of figures, in particular Jakuchū and Kenkadō—their activities and most importantly their extraordinary degree of interconnectedness—that will form the central body of evidence for the central contention of this article: that the late eighteenth century witnessed a wide-ranging revolution in how to conceive of and depict the natural world, and that the works of Itō Jakuchū are excellent examples of this paradigm shift towards natural history and the accurate depiction of natural objects.

## 2. Jakuchū as Networker, Jakuchū as Student

Abundant evidence survives, in the form of hanging scroll portraits of Baisaō done by Jakuchū and Taiga and inscribed by Daiten and Kenkadō, that the abovementioned figures were participants in the salon and knew both each other and Baisaō (see Fig. 1 for an example of such collaborative activities in honor of Baisaō). There is also an extant piece of calligraphy done by Baisaō in 1760 praising Jakuchū and his work, whose translation reads, “Enlivened by his hand, his paintings are filled with a mysterious spirit.”<sup>7</sup> Jakuchū was so moved by this gesture of respect from Baisaō that he had a seal made featuring this phrase, and gave this calligraphy to Shōkokuji when he presented his gift of the *Dōshoku sai-e* (Colorful Realm of Living Beings); indeed, some have argued that Baisaō may have served as the inspiration for much of Jakuchū’s subsequent eremitic lifestyle.<sup>8</sup>

Daiten was also heavily influenced by Baisaō, as his writing of both the biography of Baisaō in, and the epilogue for, the 1763 commemorative compilation of Baisaō’s poems and writings known as *Baisaō gego*, not to mention several of his own poems in the appendix.<sup>9</sup> Taiga, in addition to his own portraits of Baisaō, is known to have collaborated with Jakuchū in one project commemorating the tea master,<sup>10</sup> and as for Kenkadō, his devotion to the tea master is clear. It was Kenkadō who early in the 1750s—or in other words, while he was

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<sup>6</sup> For more information on the salon that met at Rokuonji, see Thomsen, especially pp. 51-2.

<sup>7</sup> Hickman, p. 25.

<sup>8</sup> *Ibid.*, p. 138.

<sup>9</sup> *Ibid.*, p. 139.

<sup>10</sup> Takahashi Hiromi, *Kyōto geien no nettowāku*, p. 41.

still in his teens or early twenties—organized (and undoubtedly funded) the Seifūsha, what Thomsen terms the “Fresh Breeze Society,” which met several times a year and formed around the figure of Baisaō and the art of *sencha*; in fact this very group formed the nucleus of the Rokuonji salon.<sup>11</sup>

After the master’s death Kenkadō painstakingly reassembled many of Baisaō’s tea implements, as well as a few of Jakuchū’s painted portraits of Baisaō (including Fig. 1 above and another that he actually commissioned of Jakuchū), for his own collection, and also became involved, beginning in 1764, in a series of publishing projects, together with Daiten, concerning the propagation of *sencha*.<sup>12</sup> These *sencha*-related activities, and especially Jakuchū’s paintings for the salon space, are important, in a negative sense, to the story of the birth of a new consciousness of the natural world, because they show all our protagonists still steeped in the older, more stylized Chinese pictorial worldview, and in Chinese culture in general, through the 1750s; if a new perspective arose, it must have been in coexistence with the older worldview.

Unlike the prolific Kenkadō, Jakuchū wrote almost nothing, and relatively little is known of his life beyond what can be gleaned from the inscriptions and writings of his close friend Daiten. Yet his merchant origins are clear: to borrow terms from David Howell, his formal *occupation*, as determined by his merchant status, was to work as the fourth-generation head of the Masugen wholesale greengrocer in Kyoto starting at the age of 23, when his father died, even if his actual *livelihood* eventually came more from painting.<sup>13</sup> By all accounts the greengrocer operation the Itō family managed was quite large,<sup>14</sup> so

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<sup>11</sup> Thomsen, pp. 50-1.

<sup>12</sup> Graham, *Tea of the Sages*, p. 78. One interesting project Daiten and Kenkadō collaborated on, and finished in 1774, was the publication of a key *sencha*-related text (which of course was written in literary Chinese) in vernacular Japanese, thereby opening the way for the wider popularization of *sencha*. See Graham, p. 79.

<sup>13</sup> Howell, *Geographies of Identity*, p. 34. Note that Ikegami, by contrast, focuses on the notion of *yaku*, or “obligation.” See Ikegami, p. 148.

<sup>14</sup> The scale of their wholesale operations are revealed in an account given by Hiraga Hakusan (Shōsai, 1745-1805) in his *Shōsai hikki*, in which Hakusan mentions that during a dispute (incidentally caused by Jakuchū’s irresponsible absence from Kyoto), three thousand peddlers assembled to

Jakuchū perfectly fits the profile of the rising “nouveau riche” urban merchant sub-class described by Ikegami, and as such is precisely the sort of person to whom aesthetic pursuits could potentially offer a way to circumvent the Tokugawa status system.<sup>15</sup> In Jakuchū’s case, he took this longing for release from the obligations incumbent on those within the status system quite far, in that he resigned his headship of the family business in favor of his younger brother and thereafter appears to have devoted himself more or less single-mindedly to painting.

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claim monetary compensation; even if this number is exaggerated or imprecise, it still reveals the extensive mercantile connections of the Masugen family. See Hickman, p. 18.

<sup>15</sup> Ikegami p. 149.

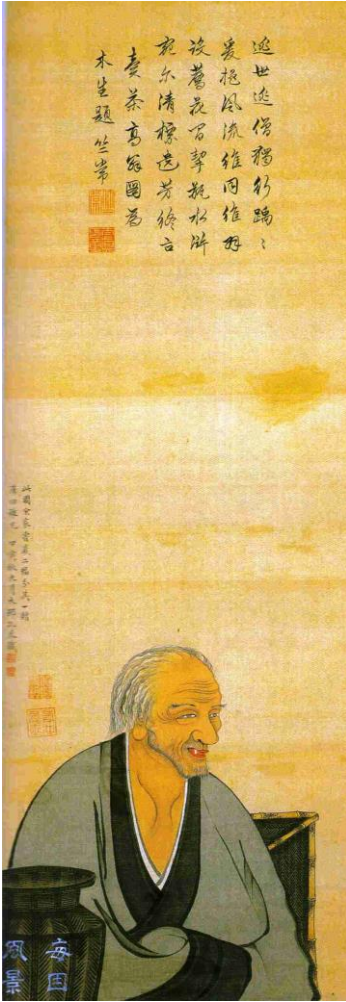


Figure 1: Portrait of Baisao owned and inscribed by Kenkadō<sup>16</sup>

Jakuchū must have had a painting teacher or teachers, and indeed one inscription about him notes vaguely that he studied “with a Kanō school painter.”<sup>17</sup> Some have argued that this teacher was probably

<sup>16</sup> *Portrait of Baisao*. Painting by Ito Jakuchu (1716-1800), inscriptions by Daiten and Kenkadō. Private Collection. Hanging scroll, ink and colors on paper, reproduced from Thomsen, p. 451.

<sup>17</sup> Hickman, p. 33.

Ooka Shunboku due to circumstantial evidence in the form of an early artist name, Shunkyō, that Jakuchū seems to have employed.<sup>18</sup> That both of these artists were among the very few to have experimented with the *takuhanga* (Chinese stone rubbing) intaglio style of woodblock printing strengthens the case that Shunboku was Jakuchū's teacher.<sup>19</sup> Yet regardless of the precise identity of his teacher, Jakuchū often chose traditional motifs to depict in his earliest works, which reveal a certain lack of sophistication and even, according to some specialists, evidence in their brushwork of influence from the Kanō school; a good example is his *Phoenix and Sun*, currently at the Museum of Fine Arts, Boston.<sup>20</sup>

In works like *Phoenix and Sun*, Jakuchū made no attempt to depict a naturalistic setting for the bird, choosing instead to situate it directly in front of a bright red sun in a manner typical of the Chinese precedents for such phoenix paintings.<sup>21</sup> This absence of attention to naturalistic detail, as well as the choice of a mythical creature for which a direct real-life model could not exist, characterize many of Jakuchū's early works, including his Tiger (dated to 1755, now held at the Los Angeles County Museum of Art), which has been conclusively shown to be a copy of another painting of a tiger held at Shōdenji temple in Kyoto.<sup>22</sup> In the first part of the inscription on the 1755 work, Jakuchū declares, "When I paint natural phenomena, depiction is impossible without a true model."<sup>23</sup> Thus, even from early on in his artistic career, Jakuchū professed a keen interest in finding real-life subjects on which to base his paintings; he simply was unable to do so in many cases, perhaps because of the choice of mythical or exotic motifs.

In the Rokuonji Ensemble, which is what Hans Thomsen terms Jakuchū's series of panel paintings for the salon space at Rokuonji,

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<sup>18</sup> Hickman, p. 34.

<sup>19</sup> *Ibid.*, p. 38. Note that if Ooka was Jakuchū's teacher, this would be another bond between him and Kenkadō.

<sup>20</sup> Tsuji, Nobuo. *Jakuchū*. Tokyo: Bijutsu shuppansha, 1974, p. 226. Tsuji describes the brushwork in this work, known in Japanese as 日出鳳凰図, as "extremely timid" (my translation).

<sup>21</sup> For how this is typical—and perhaps simply derivative—of earlier examples of phoenix paintings, both of the Kanō school and older Chinese examples, see Hickman, p. 41.

<sup>22</sup> Hickman, p. 47.

<sup>23</sup> *Ibid.*, p. 46.

Jakuchū worked in monochrome and created a group of works that—given their intended purpose of conjuring forth an echo of China—show a mannered if masterful treatment of their more familiar motifs (i.e. those native to Japan), with, for example, bamboo depicted in curious wedge-strokes for a visual effect that certainly does not strike the viewer as verisimilitudinal. Yet the plants and other motifs native to China which Jakuchū depicts in the ensemble are rendered in naturalistic detail (if in monochrome), indicating that Jakuchū was aware of and interested in the notion of representationally depicting natural objects; he simply picked and chose in which contexts to deploy his representational skills.<sup>24</sup>

### 3. Nanga, *shasei*, and Natural History

In the *Dōshoku sai-e* (the Colorful Realm of Living Beings, hereinafter the “Colorful Realm”), Jakuchū’s greatest masterwork, the needle has clearly shifted more towards verisimilitude. Not all the motifs depicted in this 30-scroll set exhibit the same level of attention to naturalistic detail—indeed, since he continued to depict mythical (a phoenix) or stylistically predetermined exotic (Chinese garden rocks) motifs, representational painting was not an option in some cases.<sup>25</sup> But if we may speak of the overall artistic flavor of the Colorful Realm, it is definitely one of attention to the lush detail nature provides. Even in paintings where the central motif is mythical, as for example in *White Phoenix and Old Pine*, everything is superbly detailed, from the mythical bird’s feathers down to the naturalistically rendered blue

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<sup>24</sup> For Thomsen, this dichotomy between the realistically depicted plants of China and the mannered, exoticized motifs of Japan forms one of the key supporting proofs of his thesis that the Rokuonji Ensemble was meant to transport salon goers and other visitors to China. See Thomsen, pp. 387-8.

<sup>25</sup> The Colorful Realm consists of 30 scrolls, colors on silk, depicting various natural motifs (often birds and flowers but also aquatic life, etc.), plus a Shakyamuni triptych, also in color, for a total of 33 scrolls, a number that may, given the timing of when Jakuchū began work on the series, have been intended to commemorate the 33<sup>rd</sup> anniversary of his father’s death, though the more widely accepted hypothesis, which is based on the timing of their donation to Shōkokuji, is that they were intended to commemorate the death of his younger brother Sōjaku; see Hickman, p. 110.

flowers in the lower right.<sup>26</sup> In many other works in the series, like the Herbaceous Peonies and Butterflies (Fig. 2), in fact thought to be the very first of the sequence to be begun and thus tentatively dated to 1757 or 1758, all the motifs shown are done representationally, to the point that experts in natural science could presumably identify quite easily which species appear.<sup>27</sup> Several of the butterflies are rendered in such detail even a non-expert like myself was able to guess the species; for example, the large yellow butterfly with black highlights positioned top-left appears to be an Old World Swallowtail (pictured in Fig. 2b), a species common to the Japanese archipelago, among other places.

When an artist goes to such effort to render his subjects legible, his works acquire a new dimension not seen in Nanga (Southern Chinese paintings) of the literati style: a taxonomic dimension. In other words, paintings done in this sort of representational mode, in addition to their aesthetic qualities, can also be regarded as guides for would-be students of the natural world. By the same token, many painters must have studied collections of plants, insects and so forth assiduously in order to acquire the knowledge necessary to render subjects true to life. In the case of Jakuchū, we have already noted his preference for models from life when painting; there is every indication, therefore, that whenever he did not possess real-life examples of an object ready at hand, Jakuchū must have sought out and studied botanic and other collections to use as models for the motifs in his paintings.<sup>28</sup>

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<sup>26</sup> This work is thought to be the twenty-fifth in sequence to be completed, according to Akiyama Teruō's research for the 1926 Ueno exhibition. See Hickman, pp. 56-7.

<sup>27</sup> *Ibid.*, p. 56.

<sup>28</sup> Jakuchū is said by Daiten to have kept chickens himself, though Thomsen, referencing Melinda Takeuchi, has argued that in terms of anatomical correctness, Jakuchū's chickens are as fanciful as his phoenixes; see Thomsen, p. 237.



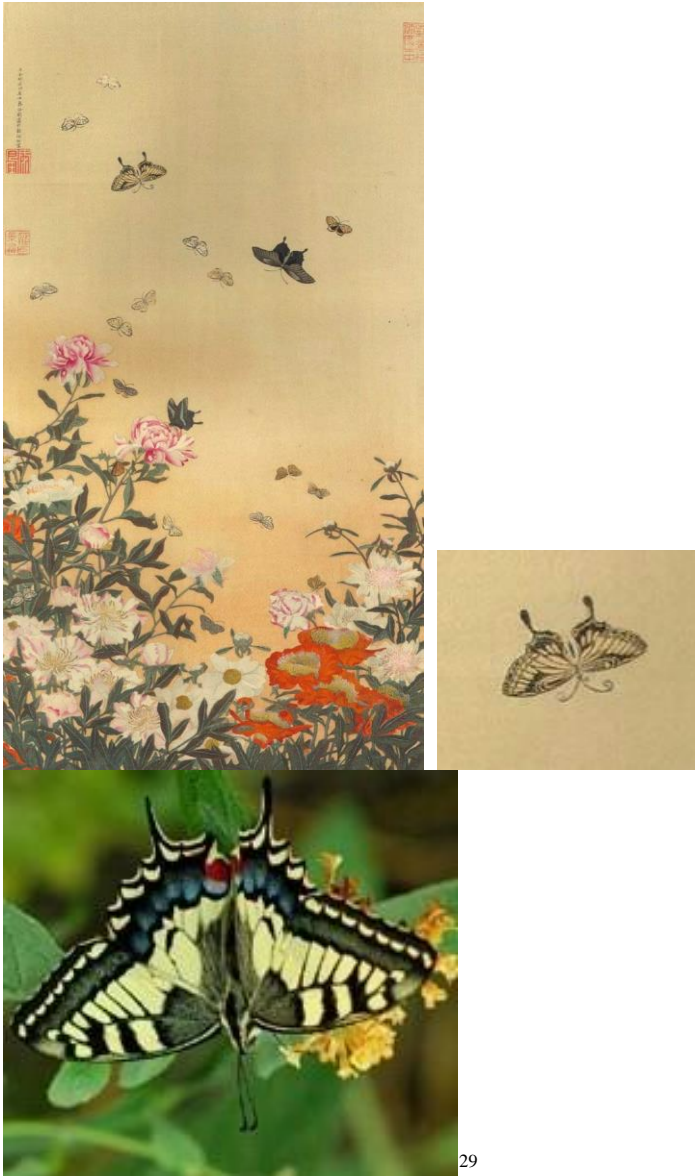


Figure 2: Herbaceous Peonies and Butterflies<sup>30</sup> Figure 2a: Detail  
Figure 2b: Old World Swallowtail

<sup>29</sup> This photograph was taken from:  
<http://www.mytoptenbutterflies.co.uk/butterflies.htm>

If the models for would-be painters had heretofore been Chinese or earlier Japanese works, as for example Daiten's comment in his *Ketsumei* that Jakuchū studied first the Kanō school, then Song and Yuan dynasty Chinese works, now the primary models for paintings in the new representational style had in some sense become the natural objects themselves.<sup>31</sup> No longer did one necessarily need to consult past masterworks depicting butterflies, for example, nor did one need to paint only those shapes and colors for which precedents existed.<sup>32</sup>

Representational painting, which is called *shasei* in Japanese and stands in contrast with the Nanga or *bunjin* (literati) painting of figures like Yosa Buson or Ike Taiga, is usually associated most strongly with Maruyama Ōkyo, and is rarely mentioned in the context of Jakuchū's work.<sup>33</sup> To be sure, comparing the works of Ōkyo with those of Jakuchū does reveal an even greater attempt at realism than that evinced by Jakuchū. A good contrastive example would be the scene of the Yodo River painted by Ōkyo compared with *Jōkyōshū*, the 1767 *taku-hanga* (intaglio) woodblock print done of much the same riverboat journey by Jakuchū; in Ōkyo's fastidiously detailed landscape, it is possible to identify actual places, something to which the more sketch-like *Jōkyōshū* does not lend itself.

Nevertheless, many of Jakuchū's works, not only the Colorful Realm series but also later works like the *Yasai nehan* (Vegetal Parinirvana, ca. 1780) and the 1792 *Saichūfu* (Plants and Insects), reveal precisely

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<sup>30</sup> The first painting in the Colorful Realm series; colors on silk, currently in the Imperial Household Collection. The color reproduction is taken from: [http://www.baxleystamps.com/litho/sr/jak\\_1904.shtml](http://www.baxleystamps.com/litho/sr/jak_1904.shtml)

<sup>31</sup> Hickman, p. 20.

<sup>32</sup> Of course, other paintings in the representational mode might well serve as useful technical examples of how to achieve certain verisimilitudinal effects, and I certainly do not wish to suggest that representational painters from the mid-eighteenth century on stopped consulting prior paintings as models. Indeed, many, including Jakuchū, show continuing influence from the Shen Nanpin school of Western-influenced representational painting; for background on Shen Nanpin and his influence in Japan, see Hidemi Kondō, "Shen Nanpin's Japanese Roots," *Ars Orientalis*, vol. 19, pp. 77-100.

<sup>33</sup> *Japanese Painting in Kyoto, from Okyo Maruyama to the Present Generation*, Tokyo, The National Museum of Art, 1964, English introduction, first thru second pages (no page numbers).

the careful attention to naturalistic detail one expects of the representational school. Moreover, Ōkyo and Jakuchū were close associates, and this combined with the fact that Ōkyo's scroll was produced in 1765 makes it almost certain that Ōkyo's own scroll heavily influenced Jakuchū and Daiten's own attempt to capture the riverboat journey; perhaps Jakuchū chose not to depict the riverbanks with topographical accuracy simply because his friend Ōkyo had just done so a mere two years earlier.<sup>34</sup> There was a significant overlap in their general artistic production, as well; Ōkyo is known to have produced meticulous sketches of both insects and shellfish, motifs also painted by Jakuchū.<sup>35</sup> In any case, based on the Colorful Realm and the other later works mentioned, of the two influential painting schools in eighteenth-century Kyoto, literati and representational, Jakuchū seems to belong more to the latter than the former.

Yet just how influential was the representational school? One contemporary source, the 1775 edition of the *Heian jinbutsushi*, helps shed light on the question of relative importance in ranking Ōkyo and Jakuchū first and second, respectively, and thus ahead of everyone else, including famous literati painters like Yosa Buson and Ike Taiga; this one-two ranking also held true in the 1782 edition.<sup>36</sup> Ōkyo's own lineage, which came to be known as the Maruyama-Shijō school, remained influential even after the master's death, and his many students continued painting representationally. Clearly, the representational school had both contemporary popularity and staying power.

One key feature appearing in representational painting is the influence of Western painting techniques and technologies. Indeed, Ōkyo's first paintings were *megane-e*, pictures designed to be viewed with *nozoki karakuri*, a kind of optical viewing toy invented in Europe and soon manufactured in China.<sup>37</sup> Among various aesthetic networks interest

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<sup>34</sup> For more information on Jakuchū and Daiten's scroll, and the comparison with Ōkyo's, see Hiroshi Onishi, "On a Riverboat Journey: A Handscroll by Ito Jakuchū with Poems by Daiten," New York: 1989, especially pp. 10-12.

<sup>35</sup> Tsuji, *Jakuchū*, p. 2.

<sup>36</sup> Hickman, p. 26.

<sup>37</sup> See *Ōkyo and the Maruyama-Shijō School of Japanese Painting*, Saint Louis, MO: Saint Louis Art Museum, 1980, p. 27. Ōkyo thus seems to have imbibed Western influence, in the form of perspective, from very early in his career.

in the West increased sharply in the 1730s and onward, a trend spurred on—or at least made possible—by Yoshimune’s decision in 1720 to allow the importation of a greater number of Chinese and Western books (provided they were non-Christian in nature).<sup>38</sup> Indeed, Yoshimune became something of an official patron both of *rangaku* (“Dutch” and by extension Western learning) and of *honzōgaku*, a pursuit that initially could be translated as “Chinese pharmacology” (the use of plants for medicinal purposes) but gradually grew to have extensive taxonomic features and by the late eighteenth century could well be called “natural history.”

*Honzōgaku* had existed in Japan since the early seventeenth century, when it first rose to prominence thanks to writer-practitioners like Hayashi Razan; but starting in the 1720s, under Yoshimune’s patronage it became a much more high-profile activity and discipline, as can be seen when the botanist Niwa Seisaku was officially commissioned by Yoshimune in 1721 to travel all over the country and collect medicinal herbs.<sup>39</sup> Federico Marcon has argued that this bolstered interest in *honzōgaku* knowledge, even at the highest levels of society, transformed the practice of *honzōgaku* into a financially viable vocation, as opposed to a hobby; the surge in practitioners, in turn, helped provoke a conceptual shift away from thinking of the objects of study as things valuable only for their uses (i.e., as medicines, etc.) but as worthy objects of interest in their own right, as objects of and from the natural world.<sup>40</sup>

This key conceptual transition from utility to scientific inquiry also had explicit repercussions in the field of pictorial representation. In 1737, Yoshimune is known to have commissioned Kanō Harunobu, a leading Kanō school master of his generation, to make a series of paintings on herbs. Since these paintings were at least partly to aid in classifying and distinguishing various herbs, the paintings, whatever aesthetic properties they had, were representative of a growing nationwide interest both in accurate representation of the natural world and a mounting fascination with nature itself.<sup>41</sup> And just as the new

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<sup>38</sup> Nakamura, p. 7.

<sup>39</sup> *Ibid.*, p. 95.

<sup>40</sup> Marcon, *The Names of Nature* (dissertation), p. 272.

<sup>41</sup> *Ōkyo and the Maruyama-Shijō School of Japanese Painting*, Saint Louis, MO: Saint Louis Art Museum, 1980, p. 27.

intellectual climate of the eighteenth century emancipated writers and thinkers from slavish dependence on earlier works and worldviews on the natural world, so too it helped open the door to new possibilities in the world of painting, and reduced reliance on standard models.<sup>42</sup>

In fact, holders of one key bureaucratic post in the shogunate, namely the Inspector of Chinese Paintings (*kara-e mekiki*), were required to sketch—accurately—all foreign objects, from paintings to animals to foreigners themselves, arriving at Nagasaki; inspectors were often simultaneously court painters to the shogunate or one of the daimyo, and their own works, despite being intended to regulate the influx of foreign ideas, later ended up contributing to the rise of the heavily Westernized-influenced Nagasaki school.<sup>43</sup> Evidently, the conceptual revolution towards an understanding of natural history predicated on realistic depiction could not be stopped by any regulatory power the shogunate possessed.

Nor were artists like Ike Taiga, normally associated with the more stylized literati/Nanga school, immune to the rise of a representational worldview. In fact, Taiga's interest in the accurate depiction of places was sparked at the beginning of his career, as an early encounter with the painter Nankai shows, and it was partly the pervasive new preoccupation with the natural world and its accurate representation that spurred Taiga and Buson to create their *shinkeizu* ("true view" paintings).<sup>44</sup> Even poetry showed some influence from the trend towards realism; in fact, at a certain poetry salon meeting hosted by Kimura Kenkadō in Kyoto in 1773, Taiga apparently was unable to come up with any poem—the ostensible goal of the gathering—and chose to paint a true view of the scene instead, thereby arguing that painting and poetry, if properly realistic, could fulfill the same function.<sup>45</sup>

The spirit of scientific inquiry and desire for at least somewhat realistic depiction in literati like Taiga owed much to Zhu Xi's (Neo-Confucian) notion of the "extension of knowledge by the investigation of things"

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<sup>42</sup> Marcon, p. 274.

<sup>43</sup> *Ōkyo and the Maruyama-Shijō School of Japanese Painting*, Saint Louis, MO: Saint Louis Art Museum, 1980, pp. 28-9.

<sup>44</sup> Melinda Takeuchi, *Taiga's True Views*, p. 22.

<sup>45</sup> *Ibid*, p. 65.

(*kakubutsu kyūri*), and indeed, an aesthetic network devoted to painting and poetry but also to herbalism, cultural geography (the subject of many of his paintings being, after all, landscapes) and mountain climbing, coalesced around Taiga himself.<sup>46</sup> It is thus simply not possible to argue that the new realism (especially if conceived as having originated, at least in part, due to the influence of Western techniques like perspective) in eighteenth century painting was in a simple oppositional relationship to the influence of China; it is more helpful to see this matter as a continuum, showing the relative weight placed on representational technique and accuracy in depicting nature. Yet on the realism continuum, even Taiga's true view paintings, while doubtless more accurate in topographical detail than most non-true view landscapes of the Nanga school, still fall far short of the realism one sees in works by Ōkyo or even Jakuchū; in fact, realism was neither the express goal nor the unambiguous result of such true views, nor can "true" be equated with realism in this context.<sup>47</sup> As such, with one notable exception, Taiga and his literati compatriots will figure little in the subsequent analysis of the traces of a natural history worldview in the paintings of Jakuchū.

#### 4. Kenkadō the Polymath

The exception is none other than Kimura Kenkadō, a truly extraordinary man with a bewildering array of multiple identities. He can be variously identified as a commoner, merchant, literatus, botanist, natural historian, sake brewer, commercial publisher (of Daiten's works in particular), seal carver, landscape painter, student of Taiga, patron of Taiga, *sencha* enthusiast, *kanshi* (literary Chinese) poet, collector of curiosities Japanese, Chinese and Western, master and founder (in 1769) of a school called the Kenkadō which centered around his museum of collected objects, exposition organizer, eldest son and therefore family head,<sup>48</sup> neighborhood *toshiyori* (elder), husband, father (though his daughter died very young), and finally, friend—of everyone from nativists (Motoori Norinaga and Ueda

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<sup>46</sup> Ibid., pp. 115-6.

<sup>47</sup> Ibid., p. 145.

<sup>48</sup> An incidental point he had in common with Jakuchū is that both of their fathers died rather young, leaving each of them, as the eldest sons of their respective families, in charge of the family business—yet both found themselves much more drawn to artistic and other cultural pursuits. See Thomsen dissertation, p. 70.

Akinari, most famously) and Kyoto artists (Taiga himself and Maruyama Ōkyo as well as Itō Jakuchū) to daimyo (Masuyama Sessai of Nagashima domain).<sup>49</sup>

Among his host of teachers, he is known to have studied painting with Ooka Shunboku beginning at age five or six, Kakutei Jōkō (who began teaching him the Shen Nanpin style when he was twelve<sup>50</sup>) and then, in 1748, with Taiga;<sup>51</sup> *sencha* under Baisaō and alongside Taiga, Daiten, and Jakuchū; Chinese poetry and philology with Katayama Hokkai (founder of the Kontonsha or “Elegant Confusion” society, a select group of which Kenkadō was a member), and later in life, botany with Ono Ranzan—indeed, he was considered so knowledgeable about plants that he was asked to teach at Ranzan’s school.<sup>52</sup> His huge library and his collection of curious objects, in particular, became so famous nationwide that thousands of fellow *honzōgaku* or other scholars came from all over Japan to see it, and to see him, a steady stream of visitors that he meticulously recorded in his diary.<sup>53</sup> Anna Beerens applied prosopographical principles to a body of over 170 intellectuals active in the late eighteenth century, meticulously recording their known teachers, patrons, and contacts, and Kenkadō’s list of contacts is surely the longest of all the figures she examined.<sup>54</sup> In short, Kenkadō knew everyone who was anyone—and everyone knew him.

Given this profusion of identities, it will come as no surprise that he also had a great many names,<sup>55</sup> of which Kenkadō (taken from the name of his school, the Kenkadō) was perhaps the most widely used and the most interesting etymologically. Ueda Akinari, a nativist friend of Kenkadō’s, was even more impressed by his reinterpretation of the classical Japanese term *ashikabi*—which read in the sinic

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<sup>49</sup> Beerens, pp. 90-1.

<sup>50</sup> Nakamura Shinichirō, *Kimura Kenkadō no saron*, p. 88.

<sup>51</sup> See Takeuchi, “Ike Taiga: a Biographical Study,” p. 143.

<sup>52</sup> Takeuchi, *True Views*, p. 117.

<sup>53</sup> See *Kenkadō nikki* for the complete list of the thousands that visited him.

<sup>54</sup> See Beerens, p. 90 for the actual list of known contacts. Most intellectuals she examines have roughly 2-5 contacts, whereas Kenkadō has more than 35. By contrast, Jakuchū has five and even Daiten has only ten.

<sup>55</sup> His *na* was Kōkyō (孔恭), his *azana* was Seishuku (世肅), and his *gō* included Kinson (巾巽), Sonsai (遜齋), and Kenkadō (兼葭堂); see Takigawa, p. 3.

pronunciation is “Kenka”—than by any of his many other accomplishments; the term means “reed” and thus “Kenkadō” could simply be interpreted as “the Reed Hall” (and indeed Kenkadō’s property, which was relocated to a marshy area of Osaka, was surrounded by reeds and waterways, the latter of which Fig. 3, a surviving sketch of his house, helps illustrate<sup>56</sup>) but during Kenkadō’s lifetime *ashikabi* also came to refer to the systematic collection, observation, and study of things (like natural objects, for instance), and thus Akinari’s appreciation for the clever turn of phrase—in fact, he even wrote a poem in praise of Kenkadō.<sup>57</sup>

Those historians of the Tokugawa period who even mention Kenkadō tend to limit the extraordinary complexity and interconnectivity of his life by assigning him just one (or two) terms as a descriptor. For example, Tetsuo Najita calls him an “eccentric merchant intellectual.”<sup>58</sup> To Melinda Takeuchi, he was a “wealthy merchant” as well as a “pupil-patron” of Ike Taiga’s.<sup>59</sup> In one article, Patricia Graham identifies Kenkadō in passing as a “Confucian scholar and Nanga painter.”<sup>60</sup> And one German scholar refers to him only as a “Sakebrauer” and botany student.<sup>61</sup>

All of these descriptions are true, but then that is the point—they are *all* true, so no single one can serve as an exhaustive description. The Linnaean compulsion to find the true name for something and then assign and classify it apparently still exists today, among biographically minded historians, yet ironically historians’ interests might well be better served by employing a more *honzōgaku*-inflected approach, which would focus more on recording the multitude of names and competing identities by which anyone—and especially a

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<sup>56</sup> For more information about Kenkadō’s house, see Hickman, p. 212, note 7, which also indicates the Chinese origin of the term Kenkadō, a point which seems to have been (perhaps intentionally?) lost on, or at least ignored by, Ueda Akinari in his praise for the resuscitation of what to him was a uniquely Japanese term.

<sup>57</sup> Najita, p. 290.

<sup>58</sup> *Ibid.*, p. 4.

<sup>59</sup> Takeuchi, p. 136.

<sup>60</sup> Patricia Graham, “A Heterodox Painting of Shussan Shaka in Late Tokugawa Japan, Part One,” *Artibus Asiae*, Vol. 51, No. 3/4 (1991), p. 277.

<sup>61</sup> Rose Hempel, “Die Juwelen des Ärmels,” *Artibus Asiae*, Vol. 53, No. 3/4 (1993), p. 459. The author also errs on Kenkadō’s dates.



polymath like Kenkadō—was known and then attempt to understand the essence of the object of study for its own sake. Kenkadō is a vital link in reconstructing evidence of a natural history worldview in Jakuchū’s works, and as a result, the hit-or-miss nature of writing on Kenkadō constitutes a serious obstacle; without taking account of all of these aspects of his life, he may not seem relevant to our story.

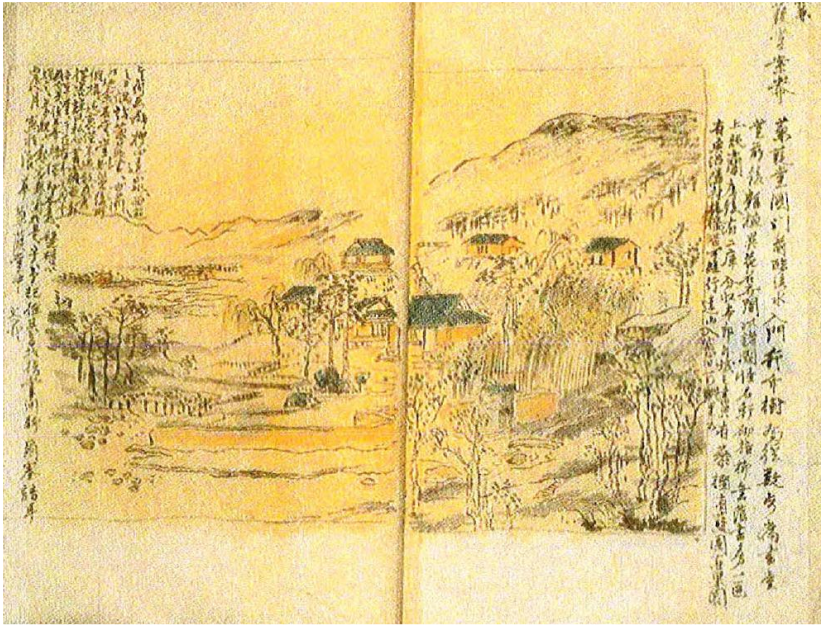


Figure 3: Sketch of Kenkadō's House<sup>62</sup>

Let us then turn to one key aspect of Kenkadō’s multifaceted life—his relationship with Itō Jakuchū. Kenkadō and Jakuchū knew each other quite well. They first met in the salon centered around Baisaō, but their friendship continued long past his death in 1763, as evidenced by the fact that in 1767, when Daiten and Jakuchū went on their riverboat journey to Osaka, commemorated in the *Jōkyōshū* intaglio printed hand-scroll, they stayed with Kenkadō. Daiten, considering his very close relationship with Jakuchū and his status as Taiga’s *kanshi* poetry teacher as well as the writer of many of the works Kenkadō published, appears to have been the key intermediary between the two.<sup>63</sup> Kenkadō

<sup>62</sup> “Kenkadō’s House,” manuscript, ink and colors on paper, in a private collection and reproduced from Hans Thomsen, p. 460.

<sup>63</sup> On Daiten as Taiga’s teacher, see Takeuchi, *Taiga’s True Views*, p. 65.

had become active in publishing in 1761; the first work he published was in fact by Daiten.<sup>64</sup> Given the timing of the 1767 riverboat excursion by Jakuchū and Daiten, coupled with the fact that they are known to have sojourned several months in Osaka—where their closest contact was almost certainly Kenkadō himself—and initially stayed with Kenkadō, it seems reasonable to speculate that Kenkadō may even have been involved, at least in a networking capacity, in facilitating Jakuchū's first (that is, the *Jōkyōshū* itself) and subsequent *taku-hanga* printing experiments.

### 5. The *Baikōzu*, a Collaborative Natural History Catalog

Yet what significance does Kenkadō have in recovering traces of a realistic *honzōgaku* mentality in Jakuchū's works? Jakuchū, after all, worked as a wholesale greengrocer for many years, and as such must have acquired just the sort of taxonomic or even encyclopedic knowledge of vegetables, in particular, on which he later drew for such works as the 1780 *Vegetal Parinirvana* and the *Saichūfu*. And as for chickens—perhaps his most characteristic and commonly depicted motif—he is thought to have kept them himself. In other words, perhaps what traces there are in Jakuchū's oeuvre of *honzōgaku* and representational realism can be explained without reference to any outside influences or factors, simply as the result of his own personal knowledge.

This explanation cannot hold, however, when one examines works like the *Saichūfu* more closely, or indeed when one stops to consider the collective nature of artistic endeavor in eighteenth-century Japan. Even so-called eccentrics like Jakuchū, with their highly individualistic styles, were integrated into a larger web of contacts to an extraordinary degree; one cannot make sense of a work like the *Jōkyōshū* without reference to its collaborative nature, a product of both Jakuchū and Daiten as well as anyone else who may have been involved in the printing.

In other words, I contend that there are few works “by” Jakuchū alone, and a close reading of nearly any painting of his, either directly or indirectly, will reveal an element of artistic collaboration. For example, Jakuchū, in addition to his dozens of works depicting chickens, also

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<sup>64</sup> Beerens, p. 91.

painted (and arranged the wood-block printing of) several exotic species of birds, the cockatoo and the Chinese pheasant among others, which were not native to Japan; his presumable access to live specimens of such birds must therefore be predicated on his connectedness to a network of *honzōgaku* practitioner-collectors, the only sources where such exotica would be available.<sup>65</sup> This sort of network collaboration is most obvious in cases where there are poetic inscriptions, as with the 1792 *Saichūfu*, whose title calligraphy was done by Fukuoka Nakakuni, a literatus from Osaka, and whose colophon was done by fellow Osaka resident Hosoai Hansai.<sup>66</sup> Beyond the clear evidence of interconnectedness that can be gleaned simply from the existence of two different inscribers is a fascinating story of ownership and spatio-temporality: judging from the 1796 date given in the colophon as well as a comment Hosoai makes that Fukuoka was waiting for Jakuchū's work, the scroll was probably executed for Fukuoka and the colophon added several years later—in Kyoto, as a matter of fact.<sup>67</sup>

Hosoai was an expert calligrapher (as evidenced by the fact that he wrote the titles to Ike Taiga's *Twelve Views of Mount Fuji*<sup>68</sup>) but also a member, like Kenkadō, in the Kontonsha, and was the match-maker in Kenkadō's 1756 wedding.<sup>69</sup> More significantly, the movement of Jakuchū's work back and forth from Osaka to Kyoto reflects the artistic (and, for Jakuchū, likely the economic) interdependence between the two great cities, as figures like Hosoai and Jakuchū himself maintained a web of contacts in both and traveled back and forth fairly frequently, in Jakuchū's case especially after the 1788 Tenmei fire, following which he made two visits to Kenkadō (on the 21<sup>st</sup> and 29<sup>th</sup> days of the tenth month of 1788) and probably relied for a time on his contacts in Osaka for economic support.<sup>70</sup> Kenkadō's diary in its current form unfortunately covers only the last twenty or so years of his life; given what we already know of Jakuchū's visit in 1767, were the diary to extend back into the 1760s there would almost certainly be many more

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<sup>65</sup> Hickman, p. 73.

<sup>66</sup> *Traditions Unbound*, p. 56.

<sup>67</sup> *Ibid.*, p. 56.

<sup>68</sup> *Ibid.*, p. 59.

<sup>69</sup> Beerens, p. 91.

<sup>70</sup> *Kenkadō nikki*, p. 236.

mentions of Jakuchū, and that is to say nothing of Kenkadō's frequent visits to Kyoto.

It is this specific relationship between Jakuchū and Kenkadō, more than any general consideration of the extraordinary interconnectedness of eighteenth-century intellectual and artistic life in the Kamigata region, which will be the central theme of the below discussion of one specific painting in Jakuchū's *Colorful Realm* series. The painting is called the *Baikōzu* (貝甲図) or *Shellfish*, and depicts over a hundred shellfish at low tide (see Fig. 4). It is thought to be the twenty-fourth in the series; if this is correct, than it was among the second group of twelve completed and must have been among the twenty-four donated to Shōkokuji in 1765, meaning we can tentatively date the work from between 1761 (by which date, according to Daiten, the first twelve had been completed) and 1765.<sup>71</sup> It is a fascinating juxtaposition of the representational realism associated with *honzōgaku*, or natural history, in the painting of most of the shellfish themselves, and the far from realistic, mannered techniques used in depicting such motifs as the whimsical, meandering whitecaps.<sup>72</sup>

As regards the realism of natural history in this painting, several of the shellfish depicted are painted with sufficient attention to detail to allow even non-specialists to identify the species shown. To give a handful of examples, the reddish bivalve shell in the very bottom-left corner is a *hiōgigai* (*Mimachlamys nobilis*) or “folding-fan” scallop, so named, presumably, for the distinctive radial ribbing along the shell, which does indeed resemble the latticed structure of a folding fan. A spiked spiral sea snail near the bottom-center of the composition is a mollusk of the *Guildfordia triumphans* species, native to the southwest Pacific and Japan.<sup>73</sup> And one of the largest and most eye-catching shells in

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<sup>71</sup> Hickman, p. 57.

<sup>72</sup> On pp. 115-116, Hickman et al note the presence of a bizarre-looking flat shell middle-right, which they describe as demonic, and compare the perforated rock formation at bottom-right, combined with the rivulet running just past it, as like a skull with protruding tongue. Whether one agrees with this assessment or not, it is clear enough that the painting is not entirely devoted to the accurate representation of nature!

<sup>73</sup> The distribution map of this species can be found at the following website: <http://v2.iobis.org/OBISWEB/ObisControllerServlet?searchCategory=/AdvancedSearchServlet&genus=Guildfordia&species=triumphans&Subspecies=>

the entire work, the six-pronged shell located left and slightly above center, is unmistakably a Geography Cone, native to Indonesia. I will have more to say on what the appearance of an Indonesian shell may mean for this work below.

According to the analysis released by the Museum of the Imperial Collections (the Imperial Household Agency acquired the entire Colorful Realm series from Shōkokuji in the late nineteenth century, and it remains in their collection today), *Shellfish* features several instances of *urazaishiki* (verso pigmentation), namely extra ink applied to the background, white added to the coral, and finally highlights to a few of the shells, including the light red highlights added to one shell identified as an *obakegai* or “monster shellfish.”<sup>74</sup>

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<sup>74</sup> *Dōshoku sai-e: Jakuchū, byōsha no myōgi*. Tokyo: Museum of the Imperial Collections, 2006, p. 9. It is possible the shell referred to as a “monster” is the very one identified by Hickman as “demonic” (see above note).



Figure 4: 貝甲図 (Baikōzu), or *Shellfish*, 142cm by 79.1 cm<sup>75</sup>

<sup>75</sup> Colors on silk, in the Imperial Household Collection. Round intaglio seal: *jokin*, round relief: *Jakuchū koji* (see *Dōshoku sai-e: Jakuchū, byōsha no myōgi*, pp. 62-3 for more on seals). Image from Hickman, p. 118.

The sandy ground is depicted in a vegetal yellow-brown (perhaps loess<sup>76</sup>) with an ink wash applied to darken the overall tone; this wash is applied everywhere except in the area immediately around the Geography Cone, creating a subtle halo effect around it. The shells are done in a variety of colors, but the pigment perhaps most frequently used is—ironically—*gofun*, the lustrous white made of ground-up shells. One cannot help but wonder whether Jakuchū himself felt any sense of irony when painting the work.

What makes the painting even more puzzling is that apart from a single documented trip he made in 1764 to Shikoku (which would necessarily have involved exposure to the sea), there is no evidence to suggest Jakuchū had any direct experience with the sea (or its creatures) at all.<sup>77</sup> To be sure, this probable lack of familiarity with the ocean may help to explain Jakuchū's bizarre portrayal of curly-cue whitecaps in *Shellfish*, but how then are we to explain the taxonomic precision, as outlined above, with which he painted several of the shells? The answer, as well as strong circumstantial evidence of the influence of *honzōgaku* on Jakuchū, lies with Kimura Kenkadō.

Kenkadō first began studying *honzōgaku* at age sixteen under the tutelage of Tsushima Tsunenoshin (Nyoran) in Kyoto, and indeed may have participated in the first-ever *honzōkai* (a meeting to discuss and examine natural history products) held in Japan, which occurred in Osaka in 1751.<sup>78</sup> He would continue his *honzōgaku* activities for the rest of his life, eventually coming to study with Ono Ranzan, and from early on also began collecting many books and curiosities from Japan, China and the West, and assembled a vast array of unusual items, a collection that would form the nucleus of his famous museum/school, the *Kenkadō*, which so many came to see over the years.<sup>79</sup> One of his most fascinating, if relatively little studied, collections is his

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<sup>76</sup> Ōta Aya argues that loess is one of the more frequently used materials to get a yellow or yellowish-brown color in the Colorful Realm. See *ibid.*, p. v.

<sup>77</sup> Hickman, p. 23.

<sup>78</sup> Endō Shōji, *Honzōgaku to yōgaku—Ono Ranzan gakutō no kenkyū*, Kyoto: Shimokaku, 2003, p. 57. Note that the famous meeting to discuss medicines held by Tamura in Edo, the more usual candidate for first ever *honzōgaku* meeting in Japan, did not occur until 1757.

<sup>79</sup> *Kimura Kenkadō—Naniwa chi no kyōjin*, p. 75.

assortment of shells, called the *Kairui hyōhon* (貝類標本), or “collection of shell specimens.” Kenkadō was an enthusiastic natural historian when it came to shells, as both his letter correspondence and his own written works (and shell collection!) attest.

A letter addressed to him by his teacher Ono Ranzan, apparently in response to an inquiry he had made about the names by which the shell he identifies as *monjugai* (Manjusri Mollusk) is known in other parts of the country, informs him that in Tango Province (today the northern half of Kyoto Prefecture) this shell is known as *kagamikai* (Mirror Mollusk) while in Chikuzen (modern-day Fukuoka Pref. in Kyushu) it was called *mirugai* (the Seeing Shell).<sup>80</sup> The notion of the accurate representation of objects in the natural world had a corollary in the discipline of cataloging all the multiplicity of names by which the various plants, shells, and so forth were known in various regions, so as to create a body of information that would be nationally comprehensible. Thus it is no surprise that we find Kenkadō involved in this sort of investigative project, and Ranzan his teacher involved with him.

Figures like Kenkadō were able to store up enormous amounts of cultural capital, not through their actual wealth or even through their collections per se so much as through their knowledge of natural history.<sup>81</sup> This knowledge brought with it very tangible benefits, as without his status as an expert in *honzōgaku* he may not have been able to cultivate the sort of connections to powerful figures like the daimyo Masuyama Sessai that would serve him in such good stead when he was temporarily banished from Osaka in 1790 after exceeding his *sake* production quota in late 1789 (the time of the Tenmei famine, doubtless the source of the increased anxiety over how much rice was being used for *sake* brewing).<sup>82</sup> The tangible political benefits the knowledge associated with *honzōgaku* or other aesthetic fields could and did provide, as well as the extraordinarily far-reaching network of

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<sup>80</sup> Ibid., pp. 93, 188. Note that although the year of the letter is unknown, considering that Kenkadō's did not pledge to be Ranzan's student until he was forty-nine, or roughly 1785, the letter is likely to date somewhere between 1785 and 1802, when Kenkadō died. Kenkadō was evidently quite interested in this particular shell, as it also appears in his *Kibai zufu*.

<sup>81</sup> Marcon, p. 240.

<sup>82</sup> Beerens, p. 91.



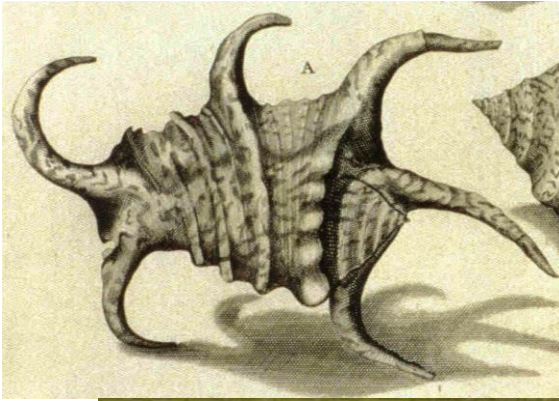
horizontal connections maintained by social giants like Kenkadō, call into question Ikegami's assertion that such networks are best conceived of as essentially limited to aesthetic matters.<sup>83</sup>

Kenkadō also collected a great number of books, including many Western books, over the course of his life; among his library, one volume is of particular interest to our analysis of Jakuchū's *Shellfish*. Kenkadō made several sketches from a Dutch book on the rare products of the Ambon Islands in Indonesia, which in the eighteenth century was under Dutch colonial administration. The book, entitled *'De Amboinsche rariteitkamer*, was written by G.E. Rumphius and published posthumously in 1705; Kenkadō evidently managed to acquire a copy, from which he made a sketch of a rare shellfish native to the Ambon Islands, namely the above-mentioned Geography Cone (Fig. 5), clearly the source for Jakuchū's own image (Fig. 5a) of this type of shellfish.<sup>84</sup>

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<sup>83</sup> See Ikegami, pp. 380-1, where she seems to dismiss much of the political potential of these horizontal associations because they do not fit the narrow criteria of Habermas' public sphere.

<sup>84</sup> Visual analysis comparing the image from which Kenkadō made his sketch and the image Jakuchū painted confirms an exact structural match between the two Geography Cones. See *Kimura Kenkadō—Naniwa chi no kyojin*, pp. 91, 188.



**Figure 5: Geography Cone, detail from 1705 Dutch book<sup>85</sup> Figure 5a: Detail (center-left) from *Shellfish***

Nor is Kenkadō's connection to the Ambon Islands limited to this single shellfish; in a letter to Tanaka Mototsugu, he mentioned that a Dutch ship captain had just given him a drinking cup made from a

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<sup>85</sup> This image is reproduced from *Kimura Kenkadō—Naniwa chi no kyojin*, p. 91, which is itself a reproduction of the original 1705 work; it was based off of these pages that Kenkadō made sketches of the Cones, though whether Jakuchū viewed Kenkadō's sketches or perhaps even had a chance to see the original, more thorough book is unclear; however, the latter seems more likely considering that it is actually the reverse profile of the shell that Jakuchū chose to depict (as demonstrated by the orientation of the spine-legs), and as such the sketch reproduced on p. 91 of *Naniwa chi no kyojin* would not necessarily have helped Jakuchū in depicting the opposite side.

Nautilus shell (see Fig. 6 below) native to the Ambon Islands, something he wished Tanaka to come see.<sup>86</sup> This connection to and interest in Nautilus shells is significant in the context of Jakuchū's *Shellfish* because the work prominently features just such a shell to the center-left (see Fig. 6a).

Though no Geography Cones or Nautilus shells are preserved in Kenkadō's own collection, he was clearly well aware of their existence and had copied Dutch naturalistic sketches of the former, strongly suggesting Kenkadō was Jakuchū's direct source of inspiration in painting these rare shells.

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<sup>86</sup> Kimura Kenkadō—*Naniwa chi no kyōjin*, pp. 91, 188.



**Figure 6: Nautilus pompilius shell<sup>87</sup>**  
**Figure 6a: Detail (center-left) from *Shellfish*<sup>88</sup>**

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<sup>87</sup> Image of the Nautilus pompilius taken from:  
<http://en.wikipedia.org/wiki/Nautilus>. The distribution map of this species of Nautilus—which confirms that they are limited to the seas of southeast Asia—may be accessed at:

<http://v2.iobis.org/OBISWEB/ObisControllerServlet?searchCategory=/AdvancedSearchServlet&genus=Nautilus&species=pompilius&Subspecies=>

<sup>88</sup> From the center, extreme left of Jakuchū's *Shellfish*. Note the use of *gofun* (shell-white) pigment to accent the color contrast between the dark lines jutting toward the center of the shell and the white of the shell's main body.

A great deal more evidence supporting the conclusion that Jakuchū relied on Kenkadō to execute his painting exists in the form of Kenkadō's shell collection itself (Fig. 7). With the help of the website of the current owners of the collection, namely the Osaka Museum of Natural History—which has a page entirely dedicated to documenting each shell in the collection—it was possible to find more than a dozen shells present in the collection and match the high-quality images on the website with their probable counterparts in Jakuchū's painting.<sup>89</sup> It seems clear that many more shells in Jakuchū's painting were drawn from real life examples owned by his friend Kenkadō, though for reasons of time this article focuses only on the most easily identifiable shells in both the painting and the collection.



**Figure 7: Kenkadō's Shell Collection (held by the Osaka Museum of Natural History)<sup>90</sup>**

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<sup>89</sup> The specific webpage dedicated to Kenkadō's shell collection can be accessed at: [http://www.mus-nh.city.osaka.jp/collection/kenkado/top\\_05kairui\\_1.html](http://www.mus-nh.city.osaka.jp/collection/kenkado/top_05kairui_1.html) See Appendix for a full account of the shells in the collection that I believe match some of those painted.

<sup>90</sup> This image is reproduced from *Kimura Kenkadō—Naniwa chi no kyōjin*, p. 89.

Both the red bivalve already mentioned as occupying a noticeable place in the painting (bottom left corner) and the spiked sea snail in the lower middle of the painting also figure prominently in Kenkadō's collection (the upper half of drawer seven and the middle-right of drawer six, respectively). One more shell specimen from the upper left of drawer six also appears in the painting, namely the light blue-ish oval-shaped shell (*Hiatula atrata*) in the upper center on the edge of the water. And there are several more shells from the collection that appear to pop up in the painting—see the Appendix for image comparison and full details, scientific names and so forth, for all the probable matches found so far.

Kenkadō also created a short book of sketches, in color, on the topic of shells, entitled the *Kibai zufu* or “Illustrated Catalog of Unusual Shells,” which does not appear to have been published, at least fully, complete with the color illustrations, while he was alive.<sup>91</sup> In this work, which is devoted mainly to shells he did not himself own (as is made clear from the annotations he includes next to many of the shells detailing in whose collection he saw them), he catalogues the names and appearances of some of the rarer shells he had come across among his extensive network of fellow *honzōgaku* practitioner-collectors. And sure enough, several of the shells Kenkadō sketched so carefully make an appearance in Jakuchū's painting. One notable example is Fig. 8 below, of which Fig. 8a is a very close match.

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<sup>91</sup> Kimura Kenkadō—*Naniwa chi no kyojin*, p. 188.



**Figure 8:** One page from Kenkadō's *Kibai zufu*<sup>92</sup>  
**Figure 8a:** Detail (bottom-right) of *Shellfish*

Another perfect if easy to miss match is the pagoda-like shell (Fig. 9), called for that reason, presumably, a *kuringai* by Kenkadō in his *Kibai zufu*, and the small identically shaped shell in the middle of Jakuchū's work, relatively isolated from the other shells and framed by swirling tides (Fig. 9a). One more example of correspondence between *Kibai zufu* and *Shellfish* is the curious star-patterned circular shell, which Kenkadō notes was known as the *hasu no ha kai* or “lotus-leaf shellfish,” shown below in Fig. 10. Though partially obscured by other shells, a very similar-looking lotus-leaf shell makes an appearance in *Shellfish*, as Fig. 10a makes clear. Kenkadō was clearly quite interested in this type of shell, as a very similar-looking item also appears sketched in the *Kenkadō zatsuroku* (Fig. 10b).

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<sup>92</sup> This page from the *Kibai zufu*, which I have rotated, was taken from *Kimura Kenkadō—Naniwa chi no kyojin*, p. 92.



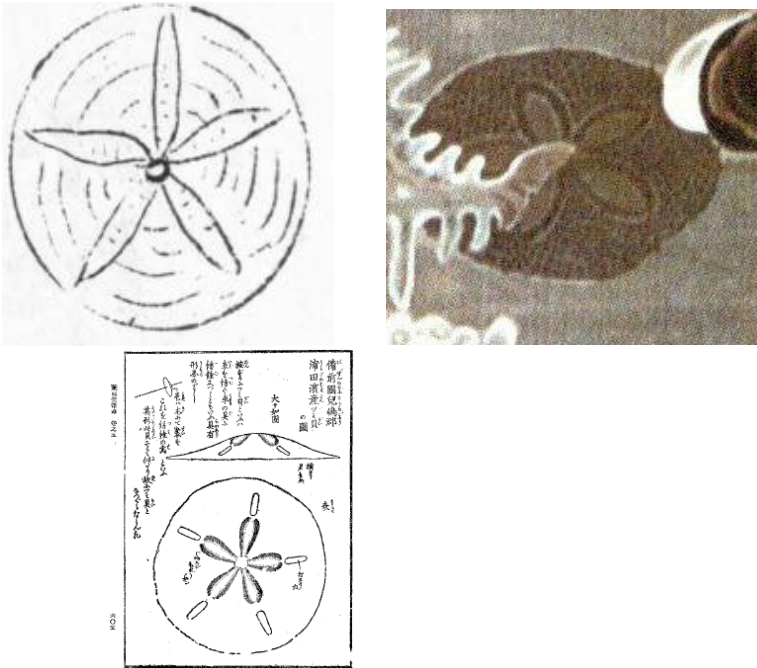
**Fig. 9: Detail from *Kibai zufu*<sup>93</sup> Fig. 9a: Detail (center) from *Shellfish*<sup>94</sup>**

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<sup>93</sup> Ibid., p. 92.

<sup>94</sup> Both this image and the one immediately below it are details taken from the scan of *Shellfish* found in Tsuji, *Jakuchū*, color print number five.





**Fig. 10:** Sketch from *Kibai zufu*<sup>95</sup> **Fig. 10a:** Detail (upper-mid.) from *Shellfish*  
**Fig. 10b:** Kenkadō zatsuroku sketch<sup>96</sup>

In short, there is a great deal of evidence suggesting that Jakuchū's *Shellfish* simply could not have been made without the help of Kenkadō, be it through his shells themselves or his sketches. But of course there are some shells in Jakuchū's painting that appear to correspond to none of the shells in either Kenkadō's personal collection or in his drawings, so perhaps Jakuchū called upon a wider network of *honzōgaku* practitioner-collectors in order to obtain first-hand visual knowledge of a wide range of shells. Yet even in this Kenkadō likely would have played a role, as he was actively involved in the organizing of several exhibitions of curiosities; at such exhibitions, shells were undoubtedly among the objects displayed. Kenkadō even appears to have been involved in art exhibitions geared toward sales after his

<sup>95</sup> Unfortunately no color reproduction of this page of the *Kibai zufu* exists, to my knowledge, so I have substituted a black-and-white reproduction from the 1926 edition of *Kenkadō ibutsu*, vol. 2 (a reprinting of *Kibai zufu*).

<sup>96</sup> The *Kenkadō zatsuroku* is reprinted in *Nihonn zuihitsu zenshū*, vol. 5; this image is from page 605.

fortune was confiscated in 1790.<sup>97</sup> In particular, Kenkadō was involved in the very first such exhibition of natural history objects, called a *bussankai*, ever held; it took place in Kyoto in 1759, and Kenkadō also participated in the next such gathering of natural history experts and collectors, also in Kyoto, in 1763, at which over two hundred natural history objects (including multiple types of the same object, for example different species of bamboo) were displayed.<sup>98</sup> Given their close association, it is not unreasonable to speculate that Jakuchū—especially considering his stated desire for real-life models from which to paint—might well have been invited, and eager, to view the items in some capacity, and this sort of event is just the situation in which he might have gained the level of exposure to shell specimens he needed to paint such a naturalistic profusion.

## 6. Afterward: Shells and Realms of Being

How widespread was interest in studying—and painting—shells during this period? We have already noted that others, notably Maruyama Ōkyo, associated with the representational school also produced highly accurate sketches of shells. In addition, Ooka Shunboku, the early teacher of Kenkadō and thought to be that of Jakuchū as well, also showed some interest in depicting shells, as his 1734 *Ranma Zushiki*, which features a page devoted to shells and waves (and whose waves are not wholly unlike Jakuchū's, in their tendril-like curliness), makes clear.<sup>99</sup> With the rise of a new consciousness of natural history, they also became immediate targets for collectors, as Kenkadō's *Kibai zufu* (which catalogs shells owned by various other collectors) demonstrates.

More generally, shells during the Edo period were also the subject of sufficient interest to warrant the continued creation of shell-themed poetry, as for example in the 1690 *Rokuroku kaiawase waka*, a collection of 36 *waka* poems, each mentioning a shell and paired with an illustration of that specific shell.<sup>100</sup> Widespread interest in shells during the Edo period also gave rise to the intriguing evolution of a

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<sup>97</sup> Patricia Graham, "Lifestyles of Scholar-Painters in Edo Japan," p. 272.

<sup>98</sup> Thomsen, pp. 74-5.

<sup>99</sup> For more information on the *Ranma zushiki* and to see a reproduction of the page featuring shells and waves, see Hickman, p. 40.

<sup>100</sup> Marcon, p. 108.

leisure game called *kaiawase*, which in its earliest (Heian) form involved writing poems on shells but in the Edo period changed into shell-matching, or in other words, trying to identify as many shells as possible.<sup>101</sup> Given this context, renowned experts in the study of shells—and in the late eighteenth century there was perhaps no one more well-known in this regard than Kenkadō himself—would have been in particularly high demand for demonstrations (and exhibitions) of their acumen.

Yet despite all this considerable background interest in shells, the fact remains that paintings of shells on silk seem to be rather rare. This knowledge further accentuates the uniqueness of Jakuchū's *Shellfish* as a work of art. It is important to remember that, despite the strong case for its taxonomic properties, the painting remains precisely that, a painting, and moreover one of a series heavily inflected by the Buddhist worldview which sees the profusion of living beings in the Three Realms (China, India, and Japan), not the myriad realms of *honzōgaku*. That these two worldviews are forced into a somewhat uneasy coexistence in the Colorful Realm can help explain why the paintings are so captivating: they allow the viewer to see the world with two different sets of eyes, to see both the phoenix and the flowers growing nearby, the surreal whitecaps but also the diverse and taxonomically precise array of shellfish, or in a sense, to see both the spiritual whole, the forest, as a Buddhist but also the individual profusion of parts, the trees, as a natural historian.

As we have seen, the revolution in understanding the natural world, of which Kenkadō was a major participant, also extended through him to figures like Jakuchū. No one was immune from this new conceptual understanding brought by natural history, and Jakuchū's work, with the advent of the dual-nature Colorful Realm in 1758 and especially his *Shellfish*, provides surprisingly good examples of how knowledge of and interest in natural history began to change how the natural world was painted—and conceived.

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<sup>101</sup> Ibid., p. 223.

**Appendix: Selected Shells from Kenkadō's Collection that Match Shells in Jakuchū's *Shellfish***

**Shells in the Collection:**

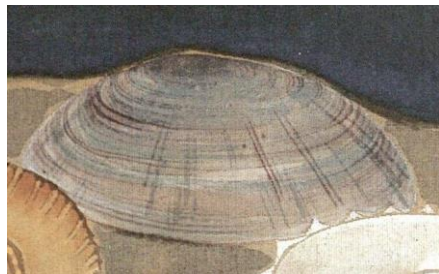


102

**Shells from the Painting:**



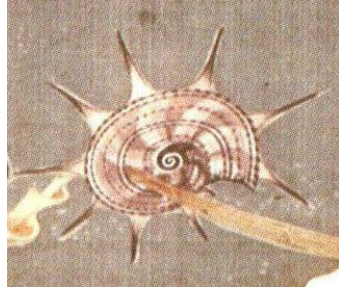
L: The *hiōgigai* (*Chlamys nobilis*) R: Detail from *Shellfish*, lower left from drawer 7 of Kenkadō's collection, labeled *tsubamegai* (燕介)



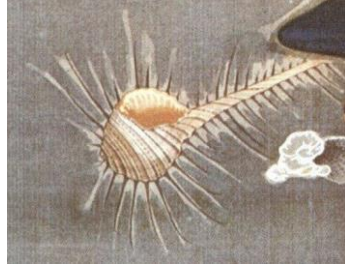
L: *akebonokinuta* (*Hiatula atrata*) from drawer six (Kenkadō labeled it *roba*) R: Detail, top center

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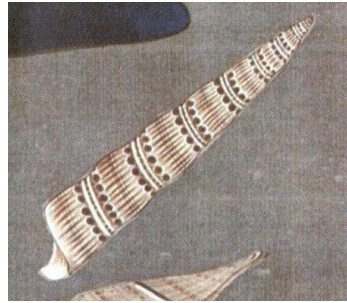
<sup>102</sup> This and all other images in the left column are taken from the Osaka Museum of Natural History website, whose page on Kenkadō's shell collection is at: [http://www.mus-nh.city.osaka.jp/collection/kenkado/top\\_01intro.html](http://www.mus-nh.city.osaka.jp/collection/kenkado/top_01intro.html)



L: *rinbōgai* (*guildfordia triumphans*) R: Detail, center from drawer six (Kenkadō labeled it *yonakigai*)



L: *honegai* (*Murex pecten*), drawer four R: Detail, center-top

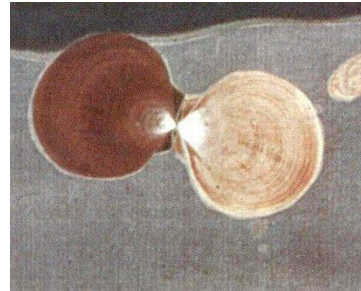


L: *kanimorigai* (*Ochetoclava kochi*) from drawer one, row six R: Detail, center-left



L: *kariganeegai* (*Barbatia cirescens*)  
from drawer two, row one

R: Detail, upper right



L: *isoshijimi* (*Nuttala japonica*) from  
drawer six (note that Jakuchū may be depicting reverse side)

R: Detail, top-left



L: *tōgatakanimori* (*Ochetoclava sinensis*) R:  
Detail, lower left  
from drawer three, row three

Detail, lower left



L: *akamate* (*Solen gordonis*)  
from drawer four, row three



R: Detail, upper left (note that  
Itō painted it closed, i.e. alive)

Though not all of the painted images may resemble the shell specimens perfectly, I believe the above examples are sufficiently close matches to justify the claim that Kenkadō's shell collection, such as it was in the early 1760s, formed the nucleus of Jakuchū's real-life models used to paint *Shellfish*. It goes without saying that some inexactness in the matches may be due either to Jakuchū's imperfect attempts when painting to recreate the shells' appearance or to a gradual deterioration in the quality of the shells themselves over the last two hundred years.

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<sup>103</sup> All the above images in the right-hand column are details from the color reproduction of *Shellfish* found in Tsuji, *Jakuchū* (color print number five).

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worldview in the works of Itō Jakuchū

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## Implementing Residential Learning Communities at a Liberal Arts College in Japan: A CHAT Analysis.

James REID

**Abstract:** This paper tests the heuristic power of Cultural Historical Activity System Theory (CHAT) to analyze the implementation of residential learning communities, known as Themed Houses, at an English medium of instruction liberal arts college in Japan. The study examines the practice of implementation from the point of view of administration, faculty supervisors and the student residents. It identifies contradictions arising from the dynamic activity systems that mediate the implementation of Themed Houses, examines how these contradictions have been or could be resolved, and then develops generalizable findings that can be used by other colleges that may be considering similar initiatives.

**Key Words:** Residential Learning Communities, Themed Houses, Cultural Historical Activity Theory, CHAT.

### 1. Introduction

This paper tests the heuristic power of Cultural Historical Activity System Theory (CHAT) (Engeström, 1987, 1990) to analyze the implementation of Themed Houses at a public English medium liberal arts university (University A) in Japan. The study examines the practice of implementation from the point of view of administration, faculty supervisors and the student residents. It identifies contradictions arising from the dynamic activity systems that mediate the implementation of Themed Houses, examines how these contradictions have been or could be resolved, and then develops generalizable findings that can be used by other colleges that may be considering similar initiatives.

Themed Houses are typically referred to in the literature as residential learning communities that allow students, faculty and staff to focus on a ‘theme’ outside of class. In residential learning communities, students reside together on campus, often with one or more Resident

Assistants who have been trained to provide peer guidance. Seminars and activities related to the theme are often overseen by a faculty supervisor.

At University A, the establishment of Themed Houses is one major strand of a government funded decade long project that seeks to promote the university as a world class liberal arts college. From 2015 to present, three to eight Themed Houses have been in operation housing 5% to 8.5% of the domestic student population and 7.5% of the international exchange student population (see Table 3). University A intends to increase participation rate for all eligible students to 75% by 2024 (TGU Proposal, 2014, p.85).

The main objective of Themed Houses came to be the provision of “around-the-clock liberal arts education” by taking advantage of the fact that 90% of the domestic students and 100% of international exchange students live on campus (TGU Proposal, 2014, p.10). Additionally, in response to student demand and in line with university policy, the provision of houses that enhance intercultural communication between domestic Japanese students and international exchange students was highlighted. Initially, there was also a secondary objective for students to form communities that would focus on their future careers (TGU Proposal, 2014, p.80). These contradictory objectives were resolved from 2016 onwards as University A dropped the requirement for Themed Houses to focus on future careers and instead developed common themes supportive of a liberal arts agenda for each house to explore. From 2015 to present, the hard work of faculty supervisors has been essential in coordinating Themed House activities and innovating resolutions to the internal contradictions which I identify later in this paper.

## **2. Methodology and Methods**

Predicated on the assumption that policy enactment is *ad hoc*, contested and dynamic (Kogan 1978; Ball, 1994) I chose inductive, interpretative and qualitative methodologies to analyze the implementation of residential learning communities. I conducted semi-structured interviews of three of the four faculty supervisors, the Director of the Program and two other members of faculty who were involved with the Top Global University proposal which the Themed Houses arose from. The internal documents analyzed in the study

consist of the Top Global University Proposal in 2014, two student surveys on the residential communities in 2014 and 2015, the university's self-evaluation report to the Ministry of Education submitted in autumn 2016, and the Themed House reports compiled by students and faculty supervisors.

As information from the interviews began to point toward how faculty supervisors sought to resolve ‘problems’ with regard to structuring learning communities – problems primarily concerned with tools, rules, time, funding, motivation, communication, and community identity– I came to see these ‘problems’ as *contradictions* within activity systems and decided to use Cultural Historical Activity Theory (CHAT) to analyze the data. My research questions became:

1. What contradictions exist in the activity systems involved in the implementation of residential learning communities at University A?
2. What are effective ways in which relevant faculty can resolve these contradictions?
3. What are the generalizable conditions for success which may inform the design of themed residential learning communities at other universities?
4. How useful is CHAT as a heuristic for analyzing this issue?

Before providing an overview of Cultural-Historical Activity Theory and examining the responses to *contradictions* the university came up with, it will be useful to review the literature on residential learning and understand University A’s context.

### **3. Literature Review: How Can Themed Houses Help Students?**

My first question for the respondents was, ‘In your opinion, why has the university established Themed Houses?’ All faculty supervisors agreed that the underlying motive was to create a 24-hour liberal arts learning environment. The Director of the Program highlighted the dimensions of student autonomy, intercultural communication and enjoyment as important in the co-development of social experience and learning:

*The themed house project is to bring life and learning together at students' initiatives, which enriches the student life and makes their learning more enjoyable. It should also promote international and intercultural understanding through shared experience of living together and engaging in common activities. By implementing the themed house project, we can create a momentum for the merger of life and learning on our campus. Since we have 90% of students living on campus, this would be quite valuable (Respondent A)*

Respondent E added that s/he thought it was based on the fact that Themed Residential Learning communities are associated with colleges in the United States:

*I think it was thought that because American colleges do it, it must be a good idea to do it here too (Respondent E).*

While the decision to propose the implementation of residential learning communities may have arisen from senior management's knowledge of liberal arts colleges in the United States, conditions at University A are significantly different from the American experience. Unlike American colleges which have heterogeneous populations of students living on and off campus, 90% of University A's students live on campus and therefore already benefit from many of the advantages residential accommodation provides.

Regardless of whether students are living in special themed residential learning communities or simply living at the university while they study, research demonstrates that they are advantaged over their off-campus peers. Pascarella *et al.*, (1992) show that living on campus can positively impact cognition and help develop social, emotional, physical and spiritual character. Since residential students spend more time socializing with their peers, engaging in extracurricular activity and interacting with staff and faculty, their development and academic learning become positively entwined in a self-reinforcing fashion (Keeling, 2004), thus students in residential environments show greater positive gains in autonomy, intellectual values, social and political

liberalism and secularism (Astin, 1977, Astin, 1993, Luzzo et al., 1999; Pascarella 1991; Tinto, 1998).

Research by Lenning and Ebbers (1999) documents the benefits of learning communities, residential or otherwise, when these are linked by a common theme. Brower and Dettinger (1998), contend that learning communities are designed to promote group identity and create supportive learning environments that integrate social and academic activities and enhance interdisciplinary connections. Residential learning communities are often implemented on the basis that students with similar interests living in close proximity are enabled to have more out-of-class interactions and supplementary, experiential and reflective learning. It is argued that active faculty members are able to mentor other faculty and students, and that student development can be both academic and socially mediated. Empirical support for the positive effects on student participation in residential learning communities is provided by Frazier and Eighmy (2012) who show that students have reported higher satisfaction levels when the theme that unites their residence is related to their major, and when they receive intentional faculty interaction. They also show that residents of such communities rate their living facilities higher, despite these being exactly identical to students in non-learning community residences. Other research (St. Onge et al, 2003; Tinto, 1998) positively correlates successful residential learning communities with student satisfaction, translating into higher retention rates (Levitz et al, 1999). Finally, retention of marginalized students can be enhanced when residential learning communities provide a space for these groups to thrive on campus; though such spaces have been criticized for imposing self-segregation (Lum, 2008).

However, since Japan's culture already places a high emphasis on completing university graduation and therefore entry into the workplace, retention was not an issue to be addressed at University A. Furthermore, the homogenous nature of the student population means there is little demand for residences segregated according to ethnic identity (though some student responses to the survey instruments advocated for an LGBT Themed House).

In line with the two stated objectives of Themed Houses: (1) to promote 24-hour liberal education; and (2) to provide themed accommodation for students focusing on their future careers, a number of quite different

Houses were set up. These included Japanese Culture, Japanese Language, Romance Languages, Fitness, and International Customs to satisfy objective 1, and Public Policy, Graduate Track and Entrepreneur to satisfy objective 2.

The second objective was discontinued from the second year of the project, while the first objective was expanded to include the component of intercultural exchange by mandating a minimum number of Japanese and international exchange students in each house (From 2017, for a house capacity of 18 the minimum is 10 Japanese students and 2 international exchange students).

It is important to realize that, like much policy implementation, the development of Themed Houses at University A has been contingent and somewhat extemporaneous. By using Cultural-Historical Activity Theory, we can systematically examine how practice is enacted and identify contradictions that need resolution.

#### **4. Cultural-Historical Activity Theory**

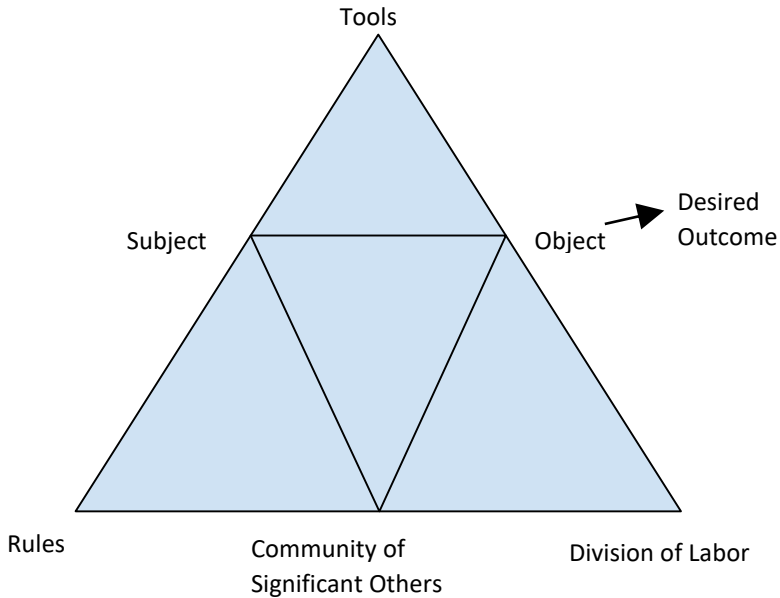
Cultural-Historical Activity Theory (CHAT) is a research approach that can be used to analyze professional work practices (Engeström, 1987). The word *Cultural* signifies that the actions of people are informed by their cultural backgrounds. *Historical* means that as the cultures of people change and evolve over time an understanding of the historical path these cultures take is important in analyzing actions. *Activity* refers to what the community is doing together and how it is modified by culture and history. By incorporating the roles of mediating artefacts (tools), cultural and historical motives of community members, conventions and norms (rules), the *use* and *exchange value* of actions and the psychological dimensions of externalized and internalized operations, CHAT provides a multi-layered and multi-voiced way of understanding how communities work toward an objective, and provides a lens through which communities can reflect on their practice.

Activity Theory is predicated on Vygotsky's (1978) insight that people act together and learn experientially. They create and innovate tools (both physical and intellectual) to learn and communicate, and community is where meaning-making and interpretation of meaning is conducted. CHAT analyses attempt to see human activities holistically



rather than analyzing individual aspects in isolation. CHAT views activities as continually changing in response to the resolution of internal and external *contradictions*; those occurring within one particular activity system and those occurring when two or more activity systems interact.

**Figure 1: Model of an Activity System (Engeström, 1987, p.78)**



In the triangular model of an Activity System above we can see there are six nodes: *Subject* (actor/s); *Object* (focus or desired outcome); *Tools* (material or conceptual) used for communication and learning to achieve the object; *Community of Significant Others* referring to the people interested in the activity and involvement with the object; *Rules* (policy, norms, conventions and beliefs) which mediate the relationship between the Community and the Subject(s), and the *Division of Labor* which includes vertical and horizontal planes of power relations. These six nodes will always be acting on each other, but it is the hallmark of CHAT that the whole activity can be analyzed, not as behavior which in Western psychology often focuses on the actions of individuals, but as an indivisible and dynamic process of

community involvement working toward an *Object* (Engeström, 1987; Vygotsky, 1978; Leont'ev, 1978).

## **5. CHAT Applied to University A's implementation of Themed Houses**

For University A, the implementation of Themed Houses began with a proposal by the *Subject* (Senior Management) to create Themed Houses (as well as other change initiatives) in order to secure a government grant (*Object*) that would enhance the university's goal of becoming a globally important liberal arts college (*Desired Outcome*). Although the above diagram has an arrow pointing to the *Desired Outcome*, in Russian, the language in which Activity Theory was first developed by Vygotsky (1978) and Leon'tev (1978), the word for *Object* allows for a multidimensional view that also incorporates the concept of *Desired Outcome*. In fact, an *Object* embodies at least three functions: it is something to be acted upon, in this case a way of strengthening residential university learning; it is a motive - the development of a successful proposal; and it is the *Desired Outcome*.

The *Division of Labor* was initially the senior executive committee and support staff operating on a vertical plane. Analysis of the *Division of Labor* reveals who is responsible for what in relation to the *Object* and which *Tools* each uses. The *Division of Labor* is typically nested within the cultural-historical milieu of the community of the activity and that of the community at large; thus, in this case it is mediated by the conventions and discourse of Japanese society and the relational norms of University A's internal power structure and its relationship with the Ministry of Education.

The *Community of Significant Others* would eventually include all students, faculty and staff, but initially to secure the government funding it would comprise the university administration and the relevant section in the Ministry of Education. Thus, the *Tools* (as well as the obvious physical ones used for communication) would also include university and government protocols and formats, and culturally mediated norms of discourse. This means that some of these *Tools* also act as the *Rules* of the activity, since the *Rules* circumscribe how the *Tools* (or mediating artefacts) can be used.

The multi-dimensional *Object* can be viewed differently by the *Subject(s)* depending on their personal and cultural-historical experiences and relationship with the community (Engeström, 1990). For instance, while some members of the Senior Executive Committee highlighted the enhancement of liberal arts education as the key motive for the establishment of Themed Houses, others saw the need for Themed Houses to focus on students' future career trajectories, while others wanted to include the provision of intercultural communication by requiring Japanese and international students to share residency of the houses. All three motivations can be found in different sections, not necessarily explicitly related to Themed Houses, of the proposal presented to the government (TGU Proposal, 2014).

An important concept in CHAT analysis is that *Activity Systems* are dynamic and influenced by other *Activity Systems* and environmental changes. A *Contradiction* is the term given to a problem or breakdown that occurs when a misfit occurs within the system as a whole. A fundamental *Contradiction* occurring in *Activity Systems* is the relationship between *Use Value* and *Exchange Value*. *Use Value* refers to direct benefits to the participants of the activity while *Exchange Value* means the exchangeable worth of something. Internal *Contradictions* around the *Use Value* and *Exchange Value* can be plotted within each of the six nodes of the activity system triangle: *Subject*, *Tool*, *Object*, *Rules*, *Community of Significant Others* and, *Division of Labor* (Engeström, 1987, pp. 84-85). However, CHAT views *Contradictions* not as problems that necessarily need money or other tools to be dealt with, but as opportunities for innovation and development. Examples of innovation around *Contradictions* are given below.

## 6. Context and Communication

Understanding the cultural-historical context in which Themed Houses could be set up and then providing clear communication to the *Community of Significant Others* is vitally important. After receiving government funding for the project, senior management sought faculty input into potential themes to present to students. It is clear from the pre-determined themes decided upon that theming around gender, sexuality and ethnicity was not seen as suitable in this context. A 2014 Student survey was used to gain students' opinions, but no summary of research on the benefits of residential learning communities was

presented to students or faculty, nor was follow up communication given on the process of theme selection. I problematize the failure to provide a brief literature review on the benefits of residential learning communities as an interrelated factor accounting for the declining number of applications to some of the Themed Houses. The description of Themed Houses given to the students is notably short:

*Themed house(s) are defined as a global living place with a mix of Japanese and international students'*  
(Student Survey, 15th September, 2014).

The indication that Themed Houses had been proposed as part of a general policy initiative to satisfy the goal of providing 24/7 liberal arts learning or to foster future careers was not articulated, though this statement did address an oft heard desire amongst domestic students to mix with international students, as can be seen by the popularity of the proposed Global Issue house in Table 1.

Prior to establishing Themed Houses, the university conducted a student survey in 2014. There were 365 responses, with 67 students (18.36%) stating that they had no interest in living in a themed house. The categories are ranked according to popularity:

**Table 1: Results of 2014 Student Survey**

|  | Percentage of responses | Number of Responses |
|--|-------------------------|---------------------|
| Global Issue House (International student interaction and participation) | 30.14%                  | 110                 |
| Honors House (High GPA students)   | 25.48%                  | 93                  |
| I have no interest in living in a Themed House                           | 18.36%                  | 67                  |
| Glocal House (interaction with local environment)                        | 18.36%                  | 67                  |

|  |        |    |
|--|--------|----|
| Japanese Language/Culture House  | 18.08% | 66 |
| Diplomat and National Government Officials House (For students who aim to take national exams/civil service exams) | 16.71% | 61 |
| Music House (for students who engage in academic music)  | 16.44% | 60 |
| Future English Teacher House   | 15.07% | 55 |
| Graduate School/Researcher Training House (for Graduate school in Japan/overseas)                                  | 12.60% | 46 |
| Entrepreneurial Incubation (for students who want to establish their own business)                                 | 11.23% | 41 |
| French Language/Culture House  | 8.49%  | 31 |
| Chinese Language/Culture House   | 7.95%  | 29 |

To define the theme for each house the university took the students' preferences and comments into account in choosing to open three Themed Houses, but then did not inform the wider community on how these decisions were made. In response to my request about the decision-making process involved, the future director of Themed Houses responded:

*The first three Themed Houses, set up in April 2015, were the Japanese Arts and Culture House, Grad Track House and Public Policy House. The Japanese Arts and Culture House were conceived as something to combine the Japan House (18.08% of popularity) and the Global House (18.36% of popularity). The Grad Track House and the Public Policy House (alias Civil Service Exam house) were promoted by the administration which wished to establish the*



*Object* of the Themed Houses would be themed residential learning and intercultural communication.

With only the Japanese Arts and Culture House surviving into the next year, a second student survey was administered in the autumn of 2015. Again, it is clear from the survey results that houses involving interaction with international students and exposure to other cultures remained popular.

**Table 2: Results of 2015 Student Survey**

| Themed House Proposals  | % of Responses | # of Students<br>271 |
|---|----------------|----------------------|
| Multi-Language / Culture House (for students who would like to share and enjoy the different culture) | 26.2%          | 71                   |
| English Language House (for students who would like to improve English)                               | 25.9%          | 68                   |
| Healthy House (for students who would like to have a healthy life)                                    | 21.4%          | 58                   |
| Latin Language House (French, Spanish, and Italian)   | 20.03%         | 55                   |
| I have no interest in "themed house". I do not want to live in any of the themed house(s)             | 16.97%         | 46                   |
| Global Issue House (international student interaction and participation)                              | 16.61%         | 45                   |
| Japanese Arts and Culture House 1 (Traditional and Classical)   | 15.87%         | 43                   |

| Art/Culture)   |        |    |
|--|--------|----|
| Glocal House (interaction and considering about local environment and people)            | 14.76% | 40 |
| Entrepreneurial Incubation House (for students who want to establish their own business) | 14.39% | 39 |
| Japanese Arts and Culture House 2 (Modern Art and Popular culture)                       | 12.18% | 33 |
| Grad Track House (for students who aim to go to graduate school in Japan or overseas)    | 11.44% | 31 |
| Public Policy House (for students who aim to take national civil service exams)          | 11.44% | 31 |
| Scholar House (for students who would like to research and discuss interesting articles) | 8.49%  | 23 |
| Japanese Language House (for students who would like to improve Japanese)                | 6.27%  | 17 |

As we can see in Table 3 below, three Themed Houses– Japanese Culture and Arts, Graduate Track and Public Policy – existed in the spring and fall semesters of 2015. The latter two were discontinued in the following year as objective 2 (future career) was dropped and they were replaced by five new houses – Fitness, Japanese Language, Romance Languages, International Customs and Entrepreneur. In fall 2016, International Customs House and Entrepreneur House were discontinued because being dependent on guest speakers and workshops they were unable to inspire regular community learning and thus lost popularity. This left four houses, Japanese Culture and Arts, Japanese Language, Romance Languages and Fitness. Of these,



Japanese Culture and Arts had experienced a sharp decline in residents, Japanese Language a smaller decline – though retaining the loyalty of 5 core members and attracting 7 international exchange students and 2 domestic students - Fitness remained very popular with maximum residency, as did Romance Languages house with its smaller maximum of 8. For each semester, the percentage of eligible students accommodated in a Themed House ranged from 5% to 8.5%. The percentage of international exchange students accommodated in Themed Houses is only available from fall 2016 where it stood at 7.5%.

**Table 3: Themed Houses and Student Numbers**

|                                 | Spring 2015 | Fall 2015 | Spring 2016  | Fall 2016                             |
|---------------------------------|-------------|-----------|--------------|---------------------------------------|
| Japanese Culture and Arts House | 20          | 16        | 10           | 6 (3 continuing, 1 new, 2 exchange)   |
| Graduate Track House            | 13          | 5         | discontinued | discontinued                          |
| Public Policy House             | 8           | 8         | discontinued | discontinued                          |
| Fitness House                   |             |           | 18           | 18 (15 continuing, 3 new, 0 exchange) |
| Japanese language House         |             |           | 18           | 14 (5 continuing, 2 new, 7 exchange)  |
| Romance languages House         |             |           | 8            | 8 (5 continuing, 1 new, 2 exchange)   |
| International Customs House     |             |           | 8            | discontinued                          |
| Entrepreneur House              |             |           | 6            | discontinued                          |
| TOTAL # Students                | 41          | 29        | 68           | 46                                    |

|   |     |      |      |      |
|---|-----|------|------|------|
| Percentage of domestic students               | 5%  | 3.6% | 8.5% | 5.7% |
| Percentage of International Exchange Students | N/A | N/A  | N/A  | 7.5% |

A number of popular houses were not implemented. These include the Music House and Future English Teacher House due to inability to secure funding for sound proofing for the former, and lack of applicants for the latter. Again, however, the wider community was not informed of the reasoning behind these decisions.

The Entrepreneur House, seen as suited to international community building, was established in spring 2016 but only attracted six residents and was discontinued after just one semester. The French Language House proposal was expanded to include Spanish as well and was established as the Romance Languages House in spring 2016 and has retained its popularity to present. Analysis of the student comments section of the survey revealed there was a strong interest in fitness and health, and therefore a Fitness House was established in Spring 2016, which remains popular.

*Contradictions* arising from tensions between the *Community* preferences and *Rules*, the *Subject* and the multi-dimensional *Object* were beginning to be resolved. There remained the lack of transparency in communication to faculty and students as to why some houses were combined and renamed, others were discontinued and other popular choices not established. It is clear that student and faculty considerations were at all times analyzed and taken into account by the decision makers, but a failure to communicate these processes may have led to a lowering of motivation and involvement of the *Community of Significant Others*.

## 7. Tools, Rules and Contradictions

A *Contradiction* between *Use Value* and *Exchange Value* can be found in the commissioning and refurbishing of the residential learning

community buildings. A number of apartment buildings each with 10 suites were utilized. Nine of these suites were fitted out for two students with beds and study areas, with the tenth suite being designated as a shared lounge for the community to use. Each suite can be accessed independently without students having to interact with other members of their ‘house’; thus, the apartment buildings not being built as actual ‘houses’ can also be turned back into non-learning community residences at a future date. Importantly, the provisioning of these buildings was performed within a pre-existing *Activity System* that handles the commissioning of student housing according to established *Rules* (relevant policy and protocols). This sets up a *Contradiction* between *Tools* (the buildings) and the *Object* (learning community) since the architecture does not naturally align itself to the formation of a community. In 2016, after the Themed House project had been running for a year, the Director identified this *Contradiction*:

*It is difficult to create a momentum for students to work together simply living in the same building. An architectural structure where every single room is inaccessible without going through a large common room (“hall structure”) is desirable to create a natural momentum for students to get to know each other and think about doing something together. The dormitories used for the Themed Houses do not have such a structure. That is one of reasons why many of Themed Houses faced difficulties in bringing students together. (Respondent A)*

When a *Tool* begins to function as a *Rule* in that it affects the *Subject`s* (faculty supervisor or student) relationship with the *Community* (students), a secondary *Contradiction* needs to be addressed. For instance, the initial policy (*Rules*) for students to obtain the key to the shared lounge from the Administrative Office was discontinued after the first semester since this policy was seen to inhibit community building. From spring 2016, each student was given a key to their own apartment and a key to the shared lounge. Other innovations faculty supervisors came up with to resolve the *Contradiction* were the implementation of designated activities to be undertaken in the study lounges and the provision of useful *Tools* with which to do these activities. For example, the Fitness House purchased gym equipment for their lounge and the Romance Languages house purchased a

*Kotatsu* (a heated table covered by a heavy blanket) for students to stay warm while practicing French and Spanish. Items for cooking were also provided for each lounge so that students would have more autonomy in conducting community building activities. The following is one such example:

*Sometimes students make activities related to cultural events from Romance language speaking countries. In those events, RL house residents invited international students, so they can talk and eat dishes related to this event. For instance, they celebrated "the day of the death," a Mexican celebration to which they invited a Mexican student. He spoke about it and cooked together Mexican dishes that people cook that day.*  
(Respondent B)

From the second semester, resident students were given even more autonomy in how they used their shared lounges. One of the criticisms levelled at Themed Houses by non-residents is that shared lounges are used for parties, having guests over, and for residents to benefit from free heating and air-conditioning. However, this points to some level of informal community building within the house because residents have to negotiate the use of the lounges for these purposes. In response to my query about this, Respondent D replied:

*Students can let in non-residents, as long as the host (residents) are with them and responsible for keeping the lounge room clean and tidy* (Respondent D)

We can see that this *Contradiction* between a *Tool* acting as a *Rule* and the *Object* has led to innovation and development in what Engeström refers to as an ‘expansive cycle’ (1990). The *Contradiction* is therefore seen as a developmental opportunity for faculty supervisors and students to explore. It seems that increasing residents’ autonomy about the kind of learning activity they engage in is one key in building a community of learners. One faculty supervisor explained how s/he came to this realization:

*I used to give weekly lectures on Romance cultures but the students didn't really want this and only half turned up. They told me they want to have more*





## **8. Motivation, Time Constraints and Community Identity**

As already discussed, the lack of communication may have impacted students' motivation to apply for Themed Houses, but other motivators and de-motivators also apply. In both student surveys a significant proportion of students expressed their wish to be left alone from 24-hour learning. They commented that both the class time and homework requirements of the university as well as the wealth of clubs and activities that the majority of students attend, account for a significant percentage of their time. The following comments from both student surveys are representative of such responses:

*It is a good idea to do learning exchanges through clubs and circles, and I strongly believe there is no need to share dwellings (Student Survey, 2014)*

*I think that Themed Houses are an interesting idea, but I am usually challenged with tasks and group homework (Student Survey, 2015)*

A number of responses to the student surveys also advocated that Themed Houses be themed around student clubs. As University A continues to note the importance of organizing Themed Houses around common themes that promote regular interaction, and as the experience of faculty supervisors grows, it is expected that the most popular Themed Houses will continue to attract applicants. However, to promote community building more successfully it is important to vet applicants more rigorously. All faculty supervisors observed that a significant proportion of the residents do not involve themselves in community activities. This is not just because the architecture of the residences allows them to sequester themselves away unseen, but also because of time constraints, and because some have ulterior motives for joining the residences. Some are seeking to secure their on-campus accommodation for fear that there will not be enough campus residences as the university expands.

*If you lose out on the residence lottery and have to live outside the university, your life rhythm with people living in the university will not match and group work and club activities will be hindered. (Student Survey, 2015)*





intercultural exchange, or some combination of the above. The culture must understand which types of residential learning communities are required, if any.

2. **Communication:** The rationale for and benefits of residential learning communities should be clearly communicated to the *Community of Significant Others*: students, faculty, staff and other stakeholders. When student and faculty surveys are used to inform decisions about residential learning communities, feedback on how the data has been incorporated into the decision-making process should be made clear. Without clear communication, satisfaction and motivation may decline.
3. **Tools:** Appropriate mediating artefacts are needed. Ideally, the architecture of a residential learning environment should be designed more like a conventional house so that students naturally interact on a daily basis. In the absence of such a design, appropriate tools can be provisioned in shared spaces that students are attracted to use communally
4. **Community identity:** Residential learning communities need to be organized around common themes of interest for students. These themes are ones which require regular interaction and practice. For example, the practice of language, exercise, music and academic study around a common major. Activities should be arranged on a regular basis that promotes community involvement.
5. **Motivation:** an understanding of the *Use Value* and *Exchange Value* of an activity is required. For busy faculty and staff to supervise residential learning communities and to meaningfully interact with students outside of class time, some kind of extrinsic motivation – money, research opportunities, or beneficial annual evaluation - should supplement the intrinsic motivation that many profess. Equally, for busy students, extrinsic motivation in the form of extra credit(s) or measurable academic/social development is required. Additionally, rigorous interviews must be conducted to ensure applicants join residential learning communities for the appropriate reasons.



intellectual and social gains. The *primary contradictions* arising from rules over funding have been addressed by innovative supervisors sharing the costs of private coach hire among different Themed Houses, or by offering *quid pro quos* to sites who will provide free transportation; but other faculty supervisors who lack the language skills or networks necessary for such negotiation remain disadvantaged. The suborning of non-government funds has to some extent freed up the Themed Houses to purchase food items, though unnecessary paperwork still impedes the spontaneity desirable for community building. The *contradiction* arising from the architecture of the Themed Houses provides a physical impediment to informal community building. Faculty supervisors have responded by giving each student their own key to the shared lounge, by provisioning these lounges with tools that help students engage in their themes, and by allowing students more autonomy to use the lounges for their own purposes. The most important consideration, however, has been the realization that Themed Houses need to focus on common themes, such as language learning, shared academic interest and fitness goals that require students to regularly interact. The initial objective for students to share houses that focused on future careers was dropped because it did not require regular interaction and also excluded international exchange students. Finally, the lack of effective communication to the *Community of Significant Others* has been problematized. University A needs to be aware that the timely communication of decision-making processes that are informed by empirical research empowers the community and intrinsically motivates them to engage with the initiatives being advanced.

CHAT has proven to be a useful heuristic for examining ‘problems’ that arise during policy implementation. By seeing problems in a positive light as *contradictions* that can be resolved, this analysis gives us the ability to consider solutions in a collegial fashion. A draft of this paper has been disseminated among the *Community of Significant Others* and the findings used in policy meetings. Innovations around the identified *contradictions* are now being internalized as successful strategies. At the same time, management has been made aware of the impediments to community building that still exist and has begun to take appropriate actions to address them. Finally, the generalizable findings, acting as a kind of executive summary, can be used by other colleges and institutions who are in the process of, or thinking about, implementing their own residential learning communities.

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