

## Article

# The Process of Forming Research Questions: Undergraduate Students' Writing Graduation Theses at Waseda University

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### Abstract

The purpose of this study is to investigate how undergraduate students in a liberal arts program form their research questions when they write their graduation theses. Five fourth-year Japanese students at the School of International Liberal Studies (SILS) at Waseda University, who attended the same advanced seminar, were observed over six months of period. Class observation, weekly interviews with each of the students in April, and submitted documents including parts of their thesis chapters were analyzed. The study was conducted along ethnographic methodologies to highlight the variability and difficulty for students in an undergraduate liberal arts program. Analyses revealed that each student went through different processes in forming their research questions although they studied in the same educational environment. This result indicated the difficulty of developing a general model of forming research questions which has been suggested in Suzuki and Sugitani (2012) and Flick (2006). On the other hand, common to all five students' aspects which influenced their processes of forming research questions, the following eight aspects were coded from the five cases: "Continuous interests initially shaped in childhood," "Learning in university curriculum," "Social obligation," "Utilization of relevant studies," "Dependence on relevant studies," "Professor's instruction on research feasibility," "Data availability," and "Peer interaction." These results supported the idea of Ivanič (1998) that the act of writing is not completed only in the head of the writer, but it is socially constructed through the interactions within the broad context.

**Key words:** research question, graduation thesis, undergraduate student

## Introduction

It is a common tradition in Japanese universities to have the students write a graduation thesis in their fourth year. Some studies emphasize that writing a graduation thesis provides students with great educational experiences. For example, Kitano (2013), based on his teaching experience, asserted that writing a graduation thesis is “a special educational experience” (p.149) which cannot be replaced by any other learning opportunities in undergraduate education. Moreover, he emphasized the uniqueness of the process of writing a graduation thesis comparing with that of writing a general class assignment paper as follows:

Graduation theses are different from general class assignment papers which just expect students to study about given topics and put them into a good shape. In Japan, the process of writing a graduation thesis is a sequence of actions seeking for a new academic discovery. It requires students to set verifiable and original research questions in each specialized field and to answer them with appropriate methods. (p.149, translated by the author)

As Kitano pointed out, the experience of writing a graduation thesis has the unique educational significance which provides students with the opportunity to address their “original research questions” and to seek for “a new academic discovery” by themselves.

However, while the educational significance of graduation theses is pointed out, many students seemed to be struggling with writing their thesis. According to a survey conducted by Research Institute for Humanities in Gakushuin University (2012), only 8% of the 603 graduating students answered that they were “satisfied with their graduation thesis” (p. 9) despite the fact that over 80% of the students were aware of its importance. More specifically, Hashimoto (2011) which investigated the students’ perception on the experiences of writing their graduation thesis revealed that the largest number of the students had difficulties especially in setting a research topic of their thesis. Nevertheless, there has been little research helpful for students and teachers’ instruction on graduation theses.

The present study focuses on the process of forming research questions in students’ thesis and reveals how they experience the process in detail. The results of this study could help teachers understand how undergraduate students go through the process of forming research questions and develop more effective ways to support students. Moreover, future students, who are going to write their graduation thesis, could prepare for predictable difficulties through the five cases.

## LITERATURE REVIEW

Many previous studies on undergraduate students' perception of graduation theses have taken a quantitative approach (Hashimoto, 2011; Kodama, 2013; Tanaka, Yamada, & Kato, 2011a, 2011b; Yamamoto, Iwamoto, & Haraguchi, 2012). For example, Hashimoto (2011) investigated the students' perception on the writing process of their thesis using psychological scales and open questions. The results showed that students became more concerned with their progress as the submission deadline approached, and such growing concern positively correlated with their feelings of depression. Also, it was revealed that they felt both enjoyments and difficulties during their writing process, and these two aspects seemed inextricably linked with each other. For example, the largest number of students answered that they felt both enjoyments and difficulties in the stage of setting a research topic. They enjoyed "learning new things from reading materials" and "addressing the topic of interest" (p. 498). Meanwhile, they had difficulties in "knowing what I am really interested in," "organizing my ideas," and "making association with relevant studies" (p. 499). These results implied that the stage of setting a research topic was perceived the most enjoyable but also the most difficult stage among the whole process of writing a graduation thesis.

Regarding the process of setting a research topic, Suzuki and Sugitani (2012) suggested a model of problem setting in essay writing based on the problem finding theory of Pretz, Naples and Sternbert (2003). They suggested that the problem setting process was composed of "Notice, Sophistication, and Formulation" (p. 156). "Notice" was the phase of "picking up topics to be discussed from literature, materials, and data" (p. 162); "Sophistication" was the phase of "establishing a consistent problem by connecting the information gained in 'Notice' process" (p. 162); "Formulation" was the phase of "adjusting the problem to the task requirements" (p. 162). In thesis writing, the problem which has been well specified is usually called "research question". Sadoshima and Yoshino (2008) define the research question as "the question(s) written in interrogative sentence(s) which is addressed in the study" (p. 132), and emphasized that it should be "specific," "not loaded," "verifiable," and "not inquiring about a spurious correlation" (p. 133). As for the setting process of research questions, Flick (2006) suggested a step-by-step model which is composed of the following steps: "Formulation of the overall question," "Formulation of specific research questions," "Formulation of sensitizing concepts," "Selection of research objects," "Selection of appropriate designs and methods," "Evaluation and reformulation of the specific research questions," "Collection of data," and "Evaluation and reformulation of the specific research questions" again (p. 107).

Over the past decades, cognitive writing models have been suggested to understand the process of writing (Flower & Hayes, 1981; Hayes, 1996; Hayes, 2012; Roman, 1965). However, limitations of these cognitive models have been pointed out from the viewpoint of social constructionism. For example, Lave and Wenger (1991) "emphasized the significance of shifting

the analytic focus from the individual as learner to learning as participation in the social world, and from the concept of cognitive process to the more-encompassing view of social practice.” (p. 43) They also pointed out that “painting a picture of the person as a primarily ‘cognitive’ entity tends to promote a nonpersonal view of knowledge, skills, tasks, activities, and learning” (p. 52). These statements imply that the analysis which focuses only on the cognition of an individual writer has a risk of overlooking the learning possibilities through social interactions.

Along with the attention for writing as a social practice, the importance of the effects of writers’ internal resources on their writing has been pointed out as well. Ivanič (1998) focused on “Discoursal Self” which is writer’s “impression” actually portrayed “in a particular written text” (p. 25). She proposed that the “Discoursal Self”, or writer identity, entirely depended “on the intersection of the writer’s history of intermental encounters and the discourse conventions in the social context” (p. 55), and emphasized the influence of writers’ past experiences on their present act of writing as follows:

All our writing is influenced by our life histories. Each word we write represents an encounter, possibly a struggle, between our multiple past experience and the demands of a new context. Writing is not some neutral activity which we just learn like a physical skill, but it implicates every fiber of the writer’s multifaceted being. Who we are affects how we write, whatever we are writing, whether it is a letter to a friend or a dissertation. (pp. 182-183)

As Ivanič mentioned, the writing is influenced by writers’ “life histories,” and it represents “fiber of the writer’s multifaceted being” at any time when people write something.

The relevant studies on graduation theses revealed how undergraduate students perceived graduation thesis in a quantitative way by creating psychological scales. They revealed that the stage of setting a research topic was perceived the most enjoyable but the most difficult stage for students. Moreover, the conditions for good research questions in a thesis and some models of forming a research question have been suggested in relevant studies. However, studies have not investigated how each student actually goes through the process of forming research questions for their graduation thesis. As Ivanič (1998) indicated that the act of writing involves “every fiber of the writer’s multifaceted being,” it is necessary to consider their present and past social contexts to exactly understand their writing processes.

Thus, the present study investigates how undergraduate students go through the process of forming research questions in their graduation thesis in an ethnographic approach to highlight the detailed interactions of their present and past social contexts through the process. This study especially focuses on the educational site, liberal arts program in Waseda University, where students can choose their research topic under less restriction of their major. Student’s choices are usually restricted according to their major or seminar research area. According to LeCompte

and Preissle (2008), ethnography in education examines “the processes of teaching and learning, the intended and unintended consequences of observed interaction patterns, and the relationships among such educational actors as parents, teachers, and learners and the sociocultural contexts” in order to “facilitate these educators to respond more flexibly and appropriately to their [students’ and school communities’] changes” (p. 28). Therefore, this unique educational site, liberal arts program, will enable the researcher to observe the variabilities the students face in the process of forming research questions more comprehensively. It will also contribute to the development of liberal arts education which is relatively new in Japanese universities.

The study aims to answer the following two questions:

- (1) How do undergraduate students in a liberal arts program form their research questions for their graduation thesis?
- (2) What aspects influence the process of forming their research questions?

## **METHODS**

### **Settings and Participants**

The participants of this study were five Japanese fourth-year female students who studied at the same advanced seminar instructed by professor Sadoshima in the School of International Liberal Studies (SILS) at Waseda University. Although the seminar was on Education and Communication, each student was allowed to choose their research topic according to their interests based on the class discussion and the consultation with the professor. Each student had studied abroad for a year as part of the curriculum in SILS just before they applied for the advanced seminar. Then, they participated in the seminar for three consecutive semesters as their final stage of their Bachelor’s degree. Since participating in an advanced seminar is optional in the SILS curriculum, these five students could be said to have a rather stronger motivation in writing a thesis than those who did not participate in any advanced seminar. In the first semester of the three, they conducted a group project in pairs to acquire general knowledge about research methodologies. Then, they started their own research project. Students’ names are replaced by pseudonyms in this study.

### **Data Collection**

#### **Class observation**

The researcher participated in the fifteen meetings from April to July 2015 and took notes on class activities. The student-professor interactions and student-student interactions were recorded with an IC recorder.

### **Semi-formal interviews**

Semi-formal interviews with each student were conducted in Japanese in order to ask about their research progress, especially on the process of forming their research questions and difficulties they were facing. During the data collection period, from April to September 2015, 21 interviews were conducted in total, including 5 that were conducted with the seminar professor. Each interview took around 40 to 50 minutes. The interviews were recorded with an IC recorder. In addition to these interviews, Interview data collected for Shimada (2015) as a pilot study was also used with participants' permission.

### **Submitted documents**

The students brought a presentation handout to class each week and also regularly submitted a part of their thesis. A part of the thesis included Introduction, Literature Review, and a Methods chapter. In addition, the diary contents which were originally collected for the pilot study by Shimada (2015) were used as data with participants' permission.

### **Data Analysis**

After the recorded data was transcribed in Japanese, the documented data from class observation and interviews were coded in an open mode. The submitted documents and the data collected in the pilot study were also coded and used as evidence. Open coding and axial coding were repeatedly conducted. First, by open coding, labels were inserted at word, phrase, and sentence levels on the document data. Then, by axial coding, more abstract categories were made based on the codes which were made by open coding (Sato, 2008). It was expected that, through going back and forth between open coding and axial coding, the students' learning processes would be captured in detail.

## **RESULTS**

Due to the constraint of words numbers, Mami's case, Aki's case, and Otone's case will be reported out of the five cases. In each of the following sections, their personal background is mentioned first. Then, their research questions are shown. In order to show what they actually wrote in their texts, the research questions written in English are followed by Japanese. Finally, the aspects that influenced the process of forming their research questions are described. After reporting the three cases, aspects that influenced their research questions including the other two cases: Kana's and Risa's cases will be reported in an integrated way.

## The Case of Mami

Mami was a responsible person. She was sincere about learning, and at the same time was the *Zemi cho* in charge of the seminar.

### The forming process of Mami's research questions

During the spring semester, Mami changed her research questions six times. They were presented in class and written in her submitted documents. The date in the parentheses which follow each research question shows the date when she presented or submitted them in class.

[A]

(1) What impression do people receive from the different notations between Hiragana, Katakana, and Kanji? How are they actually used?

(2) What is lost or not lost in translation from Japanese to English? What factors decide the result of the translation? (April 6<sup>th</sup>)

(1) 日本語の「ひらがな・カタカナ・漢字」の3つの表記法に対する意識はどのようなものか。また、実際にはどのように使われているか。

(2) 日本語から英語の翻訳で失われるもの、失われずに残るものは何か。また、結果を左右する要因は何か。

↓

[B] What impression do people receive from the different notations between Hiragana, Katakana, and Kanji? How are they actually used? (April 13<sup>th</sup>)

日本語の「ひらがな・カタカナ・漢字」の3つの表記法に対する意識はどのようなものか。また、実際にはどのように使われているか。

↓

[C] How are the ancient words, used in Japanese classics, understood by young people nowadays? Are there any differences in the usage, and, if so, why? (April 20<sup>th</sup>)

古典で使われている古語は現代の若者にどのように捉えられているのか。現代語の使われ方と違いがある場合は、なぜか。

↓

[D] Is the goal "improvement of imagination" newly added to curriculum guideline achieved in Japanese education? (April 27<sup>th</sup>)

日本語の国語教育において、学習指導要領に新しく追加された想像力を伸ばすという目標は達成されているのか。

↓

[E] How differently do university students read the translated contemporary version and classic version of ○○○? Are there any differences in the way of reading between them?

1) What kind of thought did they get from reading classic version?

2) What kind of thought did they get from reading translated contemporary version?

3) What kind of classic literature education did they receive in the past?

(May 11<sup>th</sup>, First Draft of Intro.)

大学生が○○○の古文と現代文の文章を読むとき、何をどのように考えて読み取りを行っているか。また、古文と現代文で読み取り方は異なるか。

1) 古文を読んで考えたこと、読み取ったことは何か。

2) 現代文を読んで考えたこと、読み取ったことは何か。

3) 過去にどのような古典教育を受けてきたか。

↓

[F] When reading the text of *Torikaebaya*, what kinds of images do university students have about the phrases and texts, and how do they understand them?

1) When reading *Torikaebaya* story, what images do they have about the words used in the story?

2) Are there any differences in their images between people who can get correct answers in an

exam and people who cannot?

3) What influence do the past learning experiences have on the way they get images?

(July 13<sup>th</sup>, Second Draft of Intro., & July 27<sup>th</sup>, Research Plan)

『とりかへばや』の文章を読むとき、大学生は語句・文章に対してどのようなイメージを思い描き、理解をするのか。

1) 『とりかへばや』の文章を読んで、頭に浮かぶことばに対するイメージはどのようなものか。

2) イメージによって、模範解答にたどり着くことができる人とできない人とに差はあるのか。

3) イメージの仕方に、過去の学びや経験はどのように影響しているのか。

On April 6<sup>th</sup>, Mami presented two research questions: “impression” from “different notations” of Japanese language and “translation” from Japanese to English. On April 13<sup>th</sup>, she chose one from the two research questions. She chose the one on “impression” from Japanese “different notations” and left out the other one on “translation.” On April 20<sup>th</sup>, she changed the research question. Her research focus moved on “ancient words” used in “Japanese classics” and the differences in the usage of “ancient words” by “young people” between past and present. On April 27<sup>th</sup>, she changed her research question again to “Japanese education” and the validity of government’s “curriculum guideline” aiming for “improvement of imagination.”

In the first draft submitted on May 11<sup>th</sup>, she wrote the research question followed by three sub-questions. She focused on differences in undergraduate students’ ways of reading the “contemporary version and classic version” of a classic literature. Finally, in the second draft and research plan submitted on July 27<sup>th</sup>, she specified the classic literature: *Torikaebaya*. She also used the word “image” more explicitly and focused on the relation between the “image” and “correct answer” in sub-question 2), and “learning experiences” in sub-question 3).

### Aspects that influenced Mami’s forming process

*Application of a model study.* Mami tended to come up with research questions through applying a model study. For example, when she presented the research question [B], the reason why she chose it was that she found a study which could be a model for her research. She found a paper by Kimura and Taguchi whose methodology could be applicable to her research. Regarding this point, she explained:

“The previous study conducted an experiment which investigated the impressions from different font types of Hiragana, using pieces of paper on which a pair of positive and negative adjectives were written. By applying the same method, I thought I could do my research.”

(interview)

She designed her research by applying the same method of Kimura and Taguchi’s study as a model. In doing so, she seemed to get confidence in conducting her own research project.

She also tried to apply a model study when she decided the research question [C]. This time, Mami chose the study by Kori titled *Goi shi kenkyu wo riyou shita koten kyoiku* [Effectiveness of



lexcology on classical education]. She explained the reason as follows:

“I would like to investigate the differences in the meanings of ancient words, used by young people, between the original meaning and the current meaning. So, I chose this study as a model. The author, Kori Chizuko, focused on the word *Namamekashii* [Amorous]. I have not decided what word I am going to investigate, though.” (*interview*)

Mami tried to decide her research question by applying Kori's method, but, at the same time, she also tried to differentiate her study from the Kori's by changing the target word.

**Reflection on childhood experiences.** In the process of forming Mami's research questions, her childhood experiences had a strong influence. Particularly, when she was stagnated in setting up her research purpose, it was the memory from her childhood experiences that gave her a supportive push.

When Mami presented her research question [B], the following interaction between Mami and the professor was seen in class discussion:

Professor: “The discussion is going to the methodology, but I want to get it back to the discussion on the purpose of your study. What is this study for?”

Mami: “Umm... purpose...”

Professor: “Who do you expect to read your thesis?”

Mami: “People who use Japanese.”

Professor: “All right, you want your thesis to be read by people who use Japanese. So, what do you want them to learn from your thesis?” (*class discussion*)

The professor encouraged her to clarify the purpose of her study by constantly giving questions. After the discussion, she realized she still did not have a clear purpose of her thesis. In the class presentation in the following week, she said:

“When I presented my topic last week [on April 13<sup>th</sup>], I thought the purpose of my thesis was still unstable. So, I tried to reconsider the purpose again, and I found that the purpose of writing my graduation thesis was to increase the number of people who could read properly and enjoy Japanese texts.” (*class presentation*)

While Mami realized that the purpose of her thesis was “still unstable”, she tried to consider the purpose again. As a result, she found herself having a goal: “increase the number of people who could read properly and enjoy Japanese texts” which she strongly wanted to achieve through her thesis. Regarding the reason, she said as follows looking back on her childhood experiences:

“In early childhood, my parents made me read books and they often read books to me. Thanks to that, I made a habit to read books regularly. So I did not need to study Japanese subject in school. ... However, I couldn’t answer how I could answer the exam questions when my friend asked me because I did it all on feel. However, when I looked back on my childhood, I realized that it would have come from the experience of reading books from childhood. So now, I hope that people who cannot enjoy Japanese texts will become able to do it.” (*interview*)

Mami found a goal she wanted to achieve in her thesis from her schooldays experiences, and also realized that a “reading” habit is important to enjoy Japanese texts based on her early childhood experiences.

**“Drawing pictures” idea from Kana’s research.** The “drawing pictures” idea Mami got from Kana’s research gave her a research inspiration, and it led up to the key concept “imagination” in research question [D]. When Mami heard Kana’s presentation in class on April 20<sup>th</sup>, she got an idea from Kana’s research.

“In the seminar, Kana-san introduced a relevant study which asked the participants to draw their original scenery. At that moment, I got some inspiration and I thought that it would be interesting to ask participants to draw an image about what they think when reading a text.” (*interview*)

Mami got an idea “to ask participants to draw an image” from Kana’s research and tried to apply it to her research. About the sequence of the events, she looked back in the interview on September 11<sup>th</sup>:

“When I heard Kana-san was going to use pictures drawn by participants, I thought I could use the idea for my research, too. ... I probably did not pay any attention on such a study unless Kana-san shared it in class.” (*interview*)

Mami got an idea which she could not have come up with alone from Kana’s presentation about a totally different topic: “environment education.” The “drawing pictures” idea helped her find the key concept “imagination” for her research.

## **The Case of Aki**

Aki was a reserved person, and usually spoke with a calm tone. She studied abroad in Germany for one year during her second year. As a personal aspect, she loved cats and had two cats in her

house, and also belonged to an officially registered club called *Waseda Chiiki Neko no Kai* [Club for Community-owned Cats] which cares for the cats living around Waseda campus.

### The forming process of Aki's research questions

During the spring semester, Aki changed her research questions five times.

[A]

- (1) What should we do to eliminate animal disposition?
- (2) What is necessary for appropriate animal shelter operation?
- (3) What made differences in animal disposition between in Japan and Germany? (April 6<sup>th</sup>)
  - (1) 殺処分をなくすにはどうしたらよいか。
  - (2) 動物保護施設の適切な運営に必要なものはなにか。
  - (3) 日本とドイツの殺処分の現状の違いはなぜ生まれたか。

↓

[B]

- (1) What should we do to change awareness of Japanese people on animal disposition?
- (2) Why is there no animal disposition in Germany?
- (3) When do pet owners bring their pets to an animal shelter? (April. 13<sup>th</sup>)
  - (1) 殺処分を「なくてあたりまえ」にするにはどうしたらよいか。
  - (2) なぜドイツでは殺処分ゼロが成り立っているのか。
  - (3) 飼い主がペットを動物保護施設に連れて行くのはどんなときか。

↓

[C]

- (1) Are there any differences in attitude toward pets between German and Japanese?
- (2) When do pet owners bring their pets to an animal shelter? (April 20<sup>th</sup>)
  - (1) ドイツ人と日本人のペットに対する姿勢の違いはあるのか。
  - (2) 飼い主がペットを動物保護施設に連れて行くのはどんなときか。

↓

[D] Why do owners of dogs and cats bring their pets to an animal shelter?

(April 27<sup>th</sup> and May 11<sup>th</sup>, First Draft of Intro.)

なぜ犬猫の飼い主は犬猫を手放し、動物保護施設に引き渡すのか?

↓

[E] What problems do groups for community-owned-cats activity face? What could be solutions to them?

- 1) What are the problems they face?
- 2) What could be solutions to the problems? (July 13<sup>th</sup>, Second Draft of Intro., & July 27<sup>th</sup>, Research Plan)

地域猫活動を行う団体の抱える課題とその解決策はなにか。

- 1) 地域猫活動の課題はなにか?
- 2) 地域猫活動の課題に対する解決策はなにか?

On April 6<sup>th</sup>, Aki presented three research questions which were all related to “animal disposition,” but each of their focus was different. On April 13<sup>th</sup>, she slightly changed some wording and added a new research question (3) while she left out the research question on the “operation” of animal shelters. On April 20<sup>th</sup>, Aki presented two research questions. One was on “differences in attitude toward pets between German and Japanese,” and the other one was on the timing of pet owners’ bringing their pets to an animal shelter.

Until the submission of her first introduction draft on May 11<sup>th</sup>, Aki decided to focus on one research question about the reasons why pet owners bring their pets to an animal shelter. However, in the second draft submitted on July 13<sup>th</sup> and research plan submitted on July 27<sup>th</sup>, she totally changed her research question. She wrote the research question which focused on “groups for community-owned cats.”

### **Aspects that influenced Aki’s forming process**

*Accessible research resource.* Aki had been struggling with coming up with a realistic research question over the first three weeks. However, it was her independent-minded action that changed the situation. The start was that she spontaneously sent an e-mail to an animal shelter in Chiba Prefecture to inquire about its practices and request for cooperation with her research.

“I sent an e-mail to an animal shelter in Chiba Prefecture, inquiring about whether they usually ask pet owners about the reason why pet owners have brought their pets and, if they ask the owners, whether I can view the data or not. I have not got a response yet.” (*class presentation*)

This action was not specially instructed by the professor. She spontaneously wrote an e-mail in order to get an access to her research resource. On April 27<sup>th</sup>, she reported that she got a response from the animal shelter.

“About two weeks ago, I sent an e-mail to an animal shelter in Chiba Prefecture. Now, I’ve got a response, and they said that they usually asked pet owners about the reasons why they brought their pets, but they didn’t compile statistics. ...I also asked if I could conduct an interview. Then, they said it was possible if I made an appointment in advance. So, I am thinking I will do semi-formal interviews. ... for now, at least, I made up my mind to conduct interviews with the staff in the animal shelter” (*class presentation*)

By getting access to the resource for her research, Aki could “made up my[her] mind” and focus on the research question [D]. This indicates the research feasibility was an important factor for her when deciding her research questions. This was also understandable from her comments on January 26<sup>th</sup> written after finishing a group project in her third year:

*Through actually conducting a research, I can feel familiar with research. I was thinking that research was only for researchers, but now, I am happy that even I can feel I could do research. However, this time, I cooperated with Mami-san. So, it is still new for me to do it all by myself. (class diary)*

After Aki finished a group project, she felt research more “familiar” to her than before, but, at the same time, she showed some anxiety for doing research “all by myself [herself].” That is why her success of gaining an access to the research resource would have given her confidence to conduct a research by herself.

**Modification of her original assumption based on data.** Aki loved cats, and she sometimes got emotional while talking about cats. She considered the existence of the pet owners who “bring their pets to animal shelters with terrible reasons” as a serious problem and seemed to have a strong resentment toward such terrible pet owners because of her compassion for cats. However, after she submitted the first draft of her Introduction chapter, she modified her assumption on terrible pet owners by reading the statistical data.

“In the past, I didn’t understand why pet owners brought their pets to an animal shelter because I believed that pet owners were supposed to care for their pets. However, as my research progressed, I realized that there were not as many such terrible pet owners as I thought. Viewing some web pages, I found lots of stupid reasons. However, I thought it was not reasonable to judge there are many pet owners who bring their pets with such terrible reasons only from the Web information.” (*interview*)

This modification of her assumption influenced the research question [E]. Regarding the reasons behind the change, Aki looked back as follows:

“Of course, I still want to know the reasons why pet owners bring their pets to an animal shelter. However, when I researched where those animals came from, I found that the number of animals brought by pet owners has been decreasing. On the other hand, the number of stray cats has been rather increasing. Then, I thought it would be better to do research on the increasing stray cats, and I changed the research focus from pet owners to stray cats. And also, I found that community-owned-cats activity was said to be the best resolution for the stray cats problem. Therefore, I decided to do research on that topic.” (*interview*)

While Aki’s research question [D] was based on her personal resentment toward terrible pet owners, the research question [E] came from more public perspectives which could practically contribute to the elimination of animal disposition.

## **The Case of Otone**

Among the five members, Otone was the only student who planned to go to a graduate school. While other students were job hunting, she was preparing for the exam to enter the Graduate

School at the University of Tokyo. Her father is a researcher in the field of Botany, and her mother used to be a researcher. Thus, she was raised in an environment where she felt familiar with academia.

### The forming process of Otone's research questions

During the spring semester, Otone changed her research questions six times.

[A] Do university students feel guilty about doing something bad that many people do? How does the scale of a group relate to the guilt feeling? How long does it take not to feel guilty anymore? (April 6<sup>th</sup>)

大学生は、多くの人が行っている良くないことを自分がすることにおいて罪悪感を感じるか。感じるときは、どの集団の大きさから感じるのか。また、どのくらいの期間から感じなくなるのか。

↓

[B] Do university students feel guilty when they are conformed to do something bad in their belonging groups? How does the scale of the group influence the level of guilt? (April 13<sup>th</sup>)

大学生は、集団につられてよくない行動をするときに、罪悪感を持つのか。持つときは、どの集団の大きさまで持つのか。

↓

[C] Do university students feel guilty when they break the rules in an anonymous group?

(April 20<sup>th</sup>)

大学生は集合（見知らぬ集団）で規則を破る行動に同調した際に、罪悪感は喚起されるのか。

↓

[D] What is the rate of university students who feel guilty when they do an antisocial behavior in a group? How do they deal with the guilt feeling? (April 27<sup>th</sup>)

大学生が反社会的行動をする集団で行動をする際に、罪悪感が喚起される対応とその割合はいくらか。

↓

[E] Do people who are easy to feel guilty tend to be conformed? (May 11<sup>th</sup>, First Draft of Intro.)

罪悪感を感じやすい人は同調しやすいか。

↓

[F] Does the guilt influence conforming behaviors or not?

(1) What were the experiences like when people were conformed with other people even though they felt guilty?

(2) What were the experiences like when people were not conformed with other people because they felt guilty?

(3) What are the characteristics of each case (1) and (2)?

(July 13<sup>th</sup>, Second Draft of Intro., & July 27<sup>th</sup>, Research Plan)

罪悪感と同調・非同調行動に影響を与えるか。

(1) 罪悪感を持ちながら、仲間と同調した経験はどのようなものであるか。

(2) 罪悪感を持った故に、仲間と同調しなかった経験はどのようなものであるか。

(3) (1)、(2)のそれぞれの事例の特徴はどのようなものであるか。

On April 6<sup>th</sup>, Otone presented a research question which focused on the “guilt feeling” of “university students” and its relation with “the scale of a group” and the length of time until “not to feel guilty anymore.” On April 13<sup>th</sup>, she specified the situation to “their [students’] belonging groups,” but left out the question about the length of time. On April 20<sup>th</sup>, the situation was further specified as where “students break the rules,” and “groups” was also specified as an “anonymous group.” On April 27<sup>th</sup>, she slightly changed the focus of her research question. She

became interested in the “rate” of the number of university students who feel guilty when doing “an antisocial behavior in a group” and the methods of coping with their “guilt feeling.”

In her first draft of the introduction submitted on May 11<sup>th</sup>, Otone wrote a simplified research question that focused on the relation between guilt and conforming behaviors. In the second draft submitted on July 13<sup>th</sup> and research plan submitted on July 27<sup>th</sup>, Otone wrote a research question followed by three sub-questions. Although her research question was similar in focusing on the relation between “guilt” and “conforming behaviors,” she, at the time, added the participants’ real “experiences” when they felt guilty in all the sub-research questions.

### **Aspects that influenced Otone’s forming process**

**Key concept “guilt” from a textbook on social psychology.** Throughout the process of forming Otone’s research questions, the key concept “guilt,” which was borrowed from a textbook, strongly influenced them. Although Otone had general interests in “social psychology” from the beginning, she did not have a specific research interest. Therefore, she seemed to have difficulties in narrowing down her research questions. As a strategy, she tried to read a basic textbook on social psychology and find some “key concepts” that matched her interests.

On April 6<sup>th</sup>, Otone presented the research question [A], which was based on the key concept “guilt” borrowed from a textbook of social psychology.

“During the spring vacation, I was wondering what topic I should pick out. Eventually, I decided the key concept “guilt” first and then looked for relevant studies. That [research question A] is what I decided after such processes.” (*class presentation*)

Otone, however, could not explain why she chose “guilt” as the key concept at that time. The following quote is what she said in an interview in September looking back on when she came up with the research question [A].

“When I heard I could choose any topics for my graduation thesis, I was a little confused. I just tried to look for topics around my interests. So, when the professor asked me if it [research question A] was what I really wanted to do, I didn’t know how much I wanted to do it.” (*interview*)

Otone was “confused” by the freedom of choice and had difficulty in finding what she really wanted to do. At the time when she presented her research question [A], her research question seemed still a borrowed one, which was not well-connected with her interests.

**“Jigsaw puzzle” image of academic paper.** Otone’s “jigsaw puzzle” image of academic paper influenced the process of forming her research questions. She always showed up with a

pile of copies of journal articles to the interviews. However, because of reading the huge amount of relevant studies, she seemed stuck in an extreme image of academic paper. Otone continued changing her research questions since she presented her research questions for the first time. Although it is natural to change research questions, she seemed to make her decision based on the relevant studies. Otone frequently mentioned if there were relevant studies on the same topic or not.

“I know what I want to know. It is written as it is. However, I am not sure how much I really want to know that. Thus, if I find there is another study on the same topic, I might give up my research. Because I didn’ t have a strong motivation enough to go beyond such other studies.”  
(*interview*)

Otone was confused about what she really wanted to do. Instead, she seemed to try to compensate her unclear research interests with relevant studies to make her paper look academic. Such attitude was also reflected on her writing. At the first draft of introduction submitted on May 11<sup>th</sup>, she introduced as many as eight relevant studies only in one-page introduction. In the interview in September, she confessed that she thought the writing process was like a “jigsaw puzzle” of relevant studies. She mentioned: “Um... so, I wondered what I should write in the middle of writing the first draft. I got terribly confused by quoting a lot from relevant studies. Eventually, I lost what I should do.” She considered the writing process as “jigsaw puzzle,” which would have caused the difficulty in reflecting her personal interests on her writing. That is, the space for expressing her thoughts would have been almost occupied by quotes from relevant studies. Looking back on the period of time, Otone talked about a risk of reading relevant studies in class discussion as follows:

Researcher: “If you read too many relevant studies, do you think you would be more difficult to find your interests?”

Otone: “Um... Yes.”

Researcher: “Did you experience that?”

Otone: “Yes, I did. I didn’ t start from what I wanted to do. Instead, I started from the key concept ‘guilt’ .”

Researcher: “So, you did not think about the reason why you chose the key concept so much, but you moved on searching relevant studies soon?”

Otone: “Yes, I checked what has been done or not in the study field.”

Researcher: “Because you thought it was what you needed to make your paper more academic?”

Otone: “Yes. Maybe, because of that, I couldn’ t come up with any research significance



of my research. I did not like research significance. I was not sure what this research could contribute for." (*class discussion*)

From the interaction above, it seems that Otone struggled with filling in the gap between her real interests and relevant studies because of the "jigsaw puzzle" image of academic paper.

***"I didn't have to write like this": Learning from reading other members' introductions.***

The chance of reading other member's introductions made Otone notice her writing was different from others', and it also influenced her research questions as well as her writing style. When she submitted her first draft of the introduction, it was not sure whether the research question really reflected her personal interests well enough to motivate her to conduct the research all by herself. The professor also told her in the interview: "I think what you need is the reason why you are really interested in this topic. It would be better if readers can understand it from your writing." However, in another interview with the researcher, Otone said "Academic paper has unique characteristics, doesn't it? There are almost no 'I' subjects, and when the authors say something, they always quote others' opinions. So, academic paper should be like this." From her remarks, she seemed to have an assumption that she must not express her opinions in an academic paper. She also said writing personal things was a sort of "fillers."

However, when Otone read other seminar members' introductions in May 11<sup>th</sup> class, she realized her writing was different from others'.

"I thought other members' writings differed from my image of an academic paper. In the feedback comments, I found they said my paper was hard to read because of lots of quotes and technical words. Then, I realized I did not have to write like this. I mean it doesn't have to be so serious. ... I thought I didn't have to use such many quotes from readings." (*interview*)

After reading other members' writings and having her writing read by others, Otone's obsession with a mechanical image on an academic paper seemed to be gradually disappearing. As a result, her writing changed. At the first paragraph of her research plan, she mentioned the background information of recent juvenile delinquency, and then she clearly expressed her personal interests in her own words:

*What do followers think about when they do an anti-social behavior with other members? Are they conformed to others reluctantly even if they feel guilty? Or do they try to convince others not to do that when they feel guilty about it? (submitted document)*

These interests would have underlain her research questions from the beginning. However, they

seemed to be hidden under the large amount of information from relevant studies until she noticed she could express her interests on paper. Otone could finally reflect her personal interests on research question [E] with a focus on participants' real experiences at more concrete level.

### **The Aspects that Influenced the Process of Forming Research Questions in All Five Cases**

The 8 aspects found in all five cases will be reported in an integrated way. Due to the constraint of words numbers, only three aspects each from Mami's, Aki's, and Otone's cases have been described, but this section analyzes all aspects of all the five cases, including Kana's and Risa's cases. The words enclosed in double quotation marks indicate the coded aspects from the five cases.

***Continuous interests initially shaped in childhood.*** Mami's "Continuous commitment to 'language'" which originated in her reading custom in early childhood and "Reflection on childhood experiences" influenced her research questions. Kana also had "Continuous interest in the environment" originally rooted in her childhood experiences of playing in nature both in Japan and the U.S. Moreover, Risa's "Persistence to language use" of "decent words" was shaped in her childhood being influenced by her parents' job as churchmen.

***Learning in university curriculum.*** Mami's learnings in "First-year seminar learning in SILS" on language translation and translatability appeared in her research questions. Aki's realization of "Cultural differences in animal disposition between Japan and Germany" through studying abroad in the SILS curriculum also underlain her research questions.

***Social obligation.*** Although Kana's and Risa's case could not be described, the aspect of "social obligation" was found from the two cases. Kana's "Social obligation to change the environmental education" came from the result of witnessing the problem of Japanese environment education by comparing that in the U.S. Also, Risa's "Social obligation to change the education system in Japan" came from her problem consciousness for lack of honorific words education against the growing demand in the Japanese society.

***Utilization of relevant studies.*** As positive aspects of using relevant studies, Mami used a relevant study whose method could be applicable as a model for her research in "Applying a model study." Also, Aki modified her original assumption about vicious pet owners by reading data in relevant studies in "Modification of original assumption based on data." Regarding this aspect, Kana also got a new perspective from a relevant study and reflected it on her research question in "Inspiration from relevant study on 'individual's primal scene'." Moreover, Risa tried to find a room which was not examined in relevant studies to assure the originality of her research question in "Untouched area of relevant study: focus on 'bilingual' research."

***Dependence on relevant studies.*** As negative aspects of using relevant studies, Otone

decided a key concept for her research before she recognized her own interests clearly in “Key concept ‘guilt’ from a textbook on social psychology.” Also, Otone quoted so many studies in her paper and suffered from reflecting her interest on research questions because of the jigsaw puzzle image shaped by reading many academic paper in “‘jigsaw puzzle’ image of academic paper.” Moreover, Mami’s “Applying a model study” had also the aspect of dependence on relevant studies. While Mami utilized model studies for applying the methods to her research, she sometimes rather lost her own research purpose due to an application of model studies.

***Professor’s instruction on research feasibility.*** Aki could not assess the feasibility of her research, and then the professor gave her explicit advice from an academic perspective. Also, Otone got professor’s suggestion to change her research methodology because she was stuck on using statistical methodology without enough statistics knowledge.

***Data Availability.*** Aki sent an e-mail to an animal shelter in Chiba Prefecture and got permission of collecting data, which helped her to decide her research question. Kana also tried to use accessible teachers’ guides as a research material, planning to address a research question through a literature research.

***Peer Interaction.*** Mami got an idea of asking participants to draw pictures from a class presentation by Kana, and she tried to apply the idea to her research questions. Otone could relativize her writing by reading other members’ introductions and become free from the mechanical image of academic paper.

## DISCUSSION

In the present study, each student went through different processes of forming research questions even though they studied in the same educational environment. Suzuki and Sugitani (2012) suggested that the process of problem setting was composed of “Notice, Sophistication, and Formulation” (p. 156). The suggested model could be applied to the cases in the present study to some extent, but the results of the study indicate that there is a great variability in the way of “Notice, Sophistication, and Formulation.” Moreover, the suggested model assumed that problem setting was made by oneself, and it did not consider the interactions with other people. However, as seen in the present study, the students needed help from other people during the process of forming research questions. Flick (2006) also suggested that the “elaboration” of forming research questions progress in the linear way. According to his model, the formulation of research questions comes before “Selection of appropriate designs and methods” (p. 107). However, it was not the case with undergraduate students who did not have enough knowledge and experiences on research. As seen from the findings, the research feasibility greatly influenced the formulation of their research questions because their main concern seemed whether they could actually conduct their own research by themselves. Thus, it would be difficult to consider the stages of “Formulation

of research question” and “Selection of appropriate designs and methods” separately in the case of undergraduate students.

As for the aspects that influenced the process of forming research questions, “Continuous interests initially shaped in childhood,” “Learning in university curriculum,” and “Social obligation” were not clearly apparent in research questions. However, those aspects certainly underlain research questions and can be a great incentive for students. Ivanič (1998) also pointed out that “writer’s experiences including direct and indirect encounters with people,” “interest,” and “ideas, opinions and commitments” are certainly reflected on the present act of writing (p. 183). The reasons why students chose their research questions are usually not written on paper clearly. However, as seen especially in the cases of Mami, Kana, and Risa, their research questions were strongly connected with their continuous interests initially shaped in childhood, and such interests gave them a big motive to conduct their research.

“Utilization of relevant studies,” “Dependence on relevant studies,” “Professor’s instruction on research feasibility,” “Data Availability,” and “Peer Interaction” were all showing external aspects that influenced the students. According to Ivanič (1998)’s illustration of “social forces” which influence the processes of writing a text, “Peer Interaction” and “Data Availability” could be considered as “mental, social and physical processes, practices and procedures.” Furthermore, “Utilization of relevant studies,” “Dependence on relevant studies,” and “Professor’s instruction on research feasibility” could be considered as “constant interaction of competing systems of values, beliefs, practices, norms, conventions and relations of power” (p. 42). Reading relevant studies includes interactions in academic context, which usually provide students with unfamiliar academic “systems.” Also, instruction by the professor from academic perspective usually has “relations of power” as well as offering academic perspectives to students. The process of forming research questions, which is a part of writing a thesis, is constructed not only in the head of students but also in the interaction or cooperation with external aspects of writers. These finding indicates that the seminar learning environment which provides rich external aspects is important for undergraduate students to write their graduation thesis.

Some pedagogical implication can be pointed out from the findings. In a liberal arts program, interests and research experiences of each student are different in many cases. Therefore, professors need to watch carefully each student’s research progress without pushing them to move onto the next step. Moreover, considering the unfixed students’ major and lack of research experiences in specialized area, facilitating the students to always keep the link between their personal interests and academic contexts, and giving explicit instructions on the feasibility of the research design will be also helpful for students. Finally, professors can also provide the students with opportunities to learn from each other, which may help students get new perspectives from other students who study different research topics.

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