Self-Assessment of Cognitive Development of Japanese University Students

-Using Perry's Developmental Model-

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Abstract: Active attitudes towards learning and knowledge are keys to success in college education. For Japanese university students, there is a significant gap between their college learning from the exam-prep educations that they have had. By evaluating the students' developmental stages using Perry's cognitive developmental model, this study highlights the characteristics of the views and attitudes on complex knowledge that freshman and sophomore students in Japanese universities have, in order to promote their transformation through the lessons.

Keywords: Higher Education, Cognitive Development, Developmental Education, Self-Directed Learning,

INTRODUCTION

The readiness to survive university education in the freshman students is now crucial in Japan. There appeared to be a significant gap between the university entrance preparation and the actual learning in the curriculum of universities. At the beginnings of the academic year in April, the freshman students start their new learning journey, completely distinct from the one that they have experienced throughout in their past school lives. The most part of the university admission in Japan assesses the students by one-time exam test scores. OECD (2011) describes that "the exams emphasize memorizing and accumulating facts and mastering procedures, rather than analytical thinking, creativity or the capacity for innovation". All of sudden after the entrance, the critical transformation is required for the freshman to survive in the universities, whose goal is what OECD (2011) pointed out that the Japanese exam system lacks.

Having faced with the critical situations in our instructional settings, it was the purpose of this study to assess the students' cognitive developmental level in their thoughts and attitudes on the complex knowledge.

COGNITIVE DEVELOPMENT FOR COLLEGE LEARNING

Perry's (1970) developmental model, that illustrates and structures university students' reform in their views and attitudes toward complex knowledge, would be suitable for a theoretical approach tackling with this issue. Perry' model captures the intellectual and moral developmental stages of college students towards their independence in learning, and this study uses his model as the theoretical framework. It includes four stages of Dualism, Multiplicity, Relativism, and Commitment (Seller et al., 2014) as follows:

1) Dualism seeks correct answers, and learning is memorizing.
2) Multiplicity views knowledge being based on opinion.
3) Relativism sees knowledge being depending on the context and free to question everything.
4) Commitment is ready to decide how you live and commit to beliefs and works.

In the past research in relation to Perry's model, Zhang and Watkins (2001) compared cross-cultural analysis between the Chinese and U.S. university students' cognitive development and learning styles. The researchers discovered the differences in the developmental patterns between the US students and Chinese students through their research over the years. They also found the differences in the relationships between the cognitive development stages and learning approaches. Whereas their study compared just two countries and did not include Japanese university students.

The current study asked a questionnaire, rephrasing Suzuki's (2018) Japanese translated version, as a self-evaluation chart for students to evaluate their own stages. Comparison between the formative and summative questionnaires across the semesters will

track their changes. In addition, our research interests are to know what learning activities in the semesters had or did not have impacts on the students if there was any change in their cognitive level.

RESEARCH DESIGN

Around 130 university freshman and sophomore students from the three private universities in the Tokyo region responded to the questionnaire in their first university lessons. The questionnaire has been edited into a self-evaluation that is originally structured by Seller et al. (2014) and translated into Japanese by Suzuki (2018).

In this study, the students chose the closest choices among four for each question asking their perspective on knowledge, instructors' role, goal of learning, expectations, assessment, and grades. Table 1 excerpts Perry's cognitive developmental stages summarized by Seller et al. (2014).

The same questions will be asked when the first semester ends. The result will highlight the characteristics of the Japanese students in their views towards knowledge, relationship between instructors and acceptance of assessments in their university life. The summative questionnaire will also ask the impacts and reaction of each instructional activities during the semester, if they promote any changes. The students will choose activities that they feel the most useful, relevant to their future, interested, changed their view. They will be asked if they experience any changes in their view on knowledge.

RESULTS AND DISCUSSION

The formative Questionnaire highlighted the strong preferences of objective test styles, including true/false questions and multiple-choice questions. In relation to Perry's model, this is categorized in the youngest stage, Dualism. In the same way, almost 65% responded that they expected to be graded by their efforts in the process of reaching the correct answers. It is the second youngest level, Multiplicity. While the students are still in the young stages in the test and grade preferences, their response to the knowledge perception is relatively matured, compared to the other questions. They chose Relativism perceiving that knowledge is related to contexts and not always concrete. Figure 1 shows the results from the formative stage from the first period of their course.

Table 1. Excerpts from Perry's Stages of Cognitive Development by Seller et al. (2014)

	Dualism	**Multiplicity**	**Relativism**	**Commitment**
Knowledge Perspective	Knowledge is either right or wrong, good or bad.	When authorities do not know the answer, everyone has a right to their own opinion.	Knowledge in relation to context. Everything is valid, but not always equal.	I make a commitment, and affirmation or a decision.
Instructor	She is responsible for teaching me.	He is the authority on the topic; he will provide the answers.	She provides guidance and many sources of learning.	He allows me to form my own opinion.
Goal of learning	Leaning is mastered by memorizing.	I comprehend the material. Begin to see the importance of ideas.	I apply and analyze what I am learning.	I synthesize and evaluate the information.
Expectations	Please tell me what to learn.	Help me understand how different pieces of information relate.	Do not give me answers; let me struggle to solve problems	My answer is correct as long as I can support it with evidence.
Test Method	I prefer true/false, multiple choice matching.	I prefer short answer and fill in the blank.	I prefer supporting my answer with evidence.	I prefer making commitment to a choice or an opinion.
Grade	If I get all the collect answers, then I will earn an A.	I hope my teacher allows for effort, especially if I understand the process of getting the correct answers.	My grades should reflect my ability to support my answers with reasoning and evidence.	Grades are important but I learn for the sake of learning and expanding my knowledge.

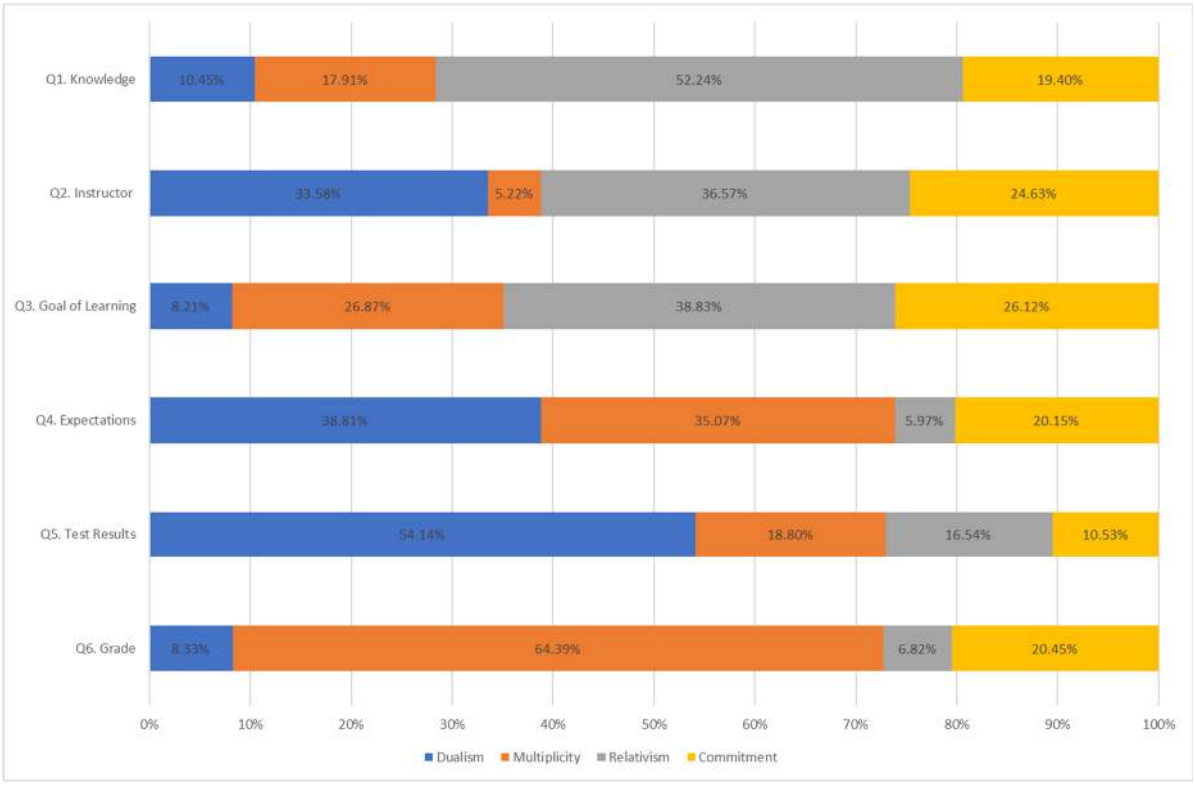

Figure 1. Formative Questionnaire Results

The semester is still being continued, and final results and analysis will be presented at the conference.

The summative results of one university freshman's class remained the characteristics of the cognitive developmental patterns that had been shown in the formative questionnaire. Although 50% of the class members chose Relativism (the 3rd) stage for their knowledge perspective, over 63% of them chose Dualism (the 1st) stage for assessment preference question. That is, a half of the answers in their knowledge perspectives viewed knowledge was not always equal, depending on contexts, rather than merely good or bad choices.

On the other hand, they preferred true or false, multiple-choice questions that are an objective method of testing distinguishing either right or wrong. It could be the influences of the test styles that they have experienced in the former education for long time. Deeper analysis is still continued and will be presented.

Future Directions

We are to continue this research as a longitudinal study, following students' development over the year. It will give us insights for syllabus development, stimulating the university students' promotion of their cognitive development. Having the students self-evaluate their cognitive stages would make them become aware of their views and the next stages towards independent learners.

We would also like to propose this study to instructors from other countries, especially who share the same style of university admissions and educational systems. Through reaching out newly entering university students with passive views on knowledge and learning, we would like to address the needs to fully equip them to commit their own learning and works through the learning in universities.

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