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Comparison of Terms and Concepts used in Different Subject Pedagogies and Academic Research Associations in Japan

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Abstract

Since 2022, the Research Promotion Committee of the Japan Consortium for Subject Pedagogy Associations has compared the terminology of various subject pedagogies. This study focuses on three terms: “inquiry”, “criticism” and “understanding.” It compares their actual use of them in each subject of the Japan National Courses of Study as well as in the glossaries published by each subject-pedagogy-related academic association in order to identify similarities and differences between subject areas and clarify each characteristic.

In natural science-oriented subject pedagogy such as science and mathematics, or semi-natural-science-oriented subject pedagogy such as home economics, “inquiry,” “criticism,” and “understanding” were defined as they are in the learning sciences by J. Schwab, R. Ennis, R. J. Marzano, and others. This may be because “inquiry”, “criticism” and “understanding” were associated with scientific thinking in the learning sciences, convenient for natural-science-oriented subject areas.

However, in subject pedagogy in the humanities domain, such as in Japanese language, definitions from critical pedagogy and Geisteswissenschaften (hermeneutics) have influenced the language use and are actively in circulation. In subject pedagogies that straddled the social science and humanities domains, such as social studies, definitions taken from the learning sciences, from critical pedagogy or from the Geisteswissenschaften were used. This is the case because the learning science approach, which links “inquiry,” “criticism,” and “understanding” with scientific thinking, objectivity, and rationality, cannot incorporate the philosophy of some subject pedagogy, such as Japanese language and social studies, or explain the reality of these subject education.

Keywords

terminology, humanities-oriented subject pedagogy, natural-sciences-oriented subject pedagogy, scientific thinking

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1 Data Generation and Research Methods of the Study

Since 2022, the Research Promotion Committee of the Japan Consortium for Subject Pedagogy Associations has compared the terminology of various subject pedagogies. Here, research collaborators from 14 subject pedagogy-related academic associations (members of this committee) participated, including the Japan Society for Pedagogy of Physical Education, the Japan Association of Home Economics Education, and the Japan Association of Social Studies (JASS). The reason why the Committee initiated this research was the following: it was observed that some terms are used differently in different subject areas, and one was afraid that such different uses of terms could cause difficulties in understanding and cooperating between individual researchers, between subject pedagogies and subject pedagogy-related academic associations. On the other hand, it was hoped and expected that the very existence of these terms would reaffirm the significance and scientific status of each subject pedagogy.

The following questions were asked and discussed: What terms or concepts are used in each subject area and how often? How are these common terms understood and are there any significant differences in the interpretation of those terms between subject areas? If any differences would exist, how could these terms be transferred to each area anyhow? Accordingly and specifically, major terms were extracted from glossaries (mainly dictionaries, encyclopedias, handbooks, etc., published after 2000), edited by each academic association or written by related parties or persons, and these terms were compiled. As a result, a list was drafted which included approximately 4,500 terms. The authors classified these terms and selected 35 key terms based on their versatility, educational significance, and popularity (see Table 1).

Category	Terms and concepts
Educational purpose	Educational goals, subject goals, values, child image
Learning content	Educational content, subject content, learning content, instructional content, subject materials, unit, subject matter, language activities
Educational method	Problem analyzing, problem-solving, **inquiry,** individual optimization, collaborative learning, independent-interactive-deep learning
Epistemology	Recognition, thinking, expression, **understanding**, acquisition and organization of knowledge, justification, views and ideas, nature of the discipline (subject matter)
Capabilities and disposition	Literacy, competency, skills, **criticism (critique)**, creativity
Educational evaluation	Assessment, performance evaluation, rubric

Tab. 1: List of key terms (n=35)

In the end, it was decided that this study should focus on three terms: "*inquiry*" within the field of "educational methods", "*criticism*" within "capabilities and disposition," and "*understanding*" as part of "epistemology." The study therefore compares the actual utilization of "inquiry," "criticism," and "understanding" in each subject of the Japan National Courses of Study and in the glossaries published by each subject-pedagogy-related academic association so to identify similarities and differences between subject areas and clarify each characteristic. So the method applied was that of external observation and comparison, without any interviews or discussions interfering.

Shinobu Goto, one of the research collaborator, was primarily responsible for writing the Japanese version of the final report on the "inquiry" and "criticism" sections (Goto, 2024), while other collaborators such as Tatsuya Watanabe and his associates were responsible for writing the specific one on "understanding" (Watanabe et al., 2024). Watanabe then rewrote the overall report in English, based on these two final Japanese reports. In writing this report, it was not necessary for him to create a new analytical framework, since it was agreed beforehand that the Japanese version of the report (by Goto) should share the same analytical categories as the one written in English (by Watanabe). This agreement included, for example, focusing on the number of times the terms appeared in the National Courses of Study and glossary of terms, and on explanations of the terms. However, after Watanabe has compared the terminology of various subject pedagogies, it became clear that there is some common ground, but also diversity in the terminology used by subject pedagogies (which will be discussed mainly in section 6 "Conclusion").

2 Frequency of Key Terms "Inquiry", "Criticism" and "Understanding" in the National Courses of Study

Table 2 summarizes the number of times that "inquiry", "criticism" and "understanding" appear in the Japanese National Courses of Study by subject area, especially in elementary and junior high schools. "Understanding" appears frequently in all subject areas, regardless of the type of school. Particularly, "understanding" appears more frequently in science, mathematics, social studies, and Japanese language. However, "inquiry" does not often appear in elementary school except in moral education, and in junior high school it only appears in science and social studies in addition to moral education. In high school, "inquiry" is used more frequently in science, geography, history, and civics, it can also be found in home economics, but not in Japanese language, music, and art education. In elementary school, "criticism" is only rarely used, and then in math, whereas in junior high school, it is used in science, mathematics, and Japanese language. This trend also continues in high schools (see Table 2).

	Subject area	inquiry	criticism	understanding
Elementary School	Japanese			30
	social studies			63
	mathematics		2	76
	science			41
	music			13
	arts and crafts			3
	home economics			23
	P.E.			13
	English			8
	moral education	2		16

	Subject area	inquiry	criticism	understanding
Junior High School	Japanese		3	42
	social studies	2		76
	mathematics		6	34
	science	22		98
	music		1	16
	arts and crafts		1	11
	Technology & home economics			36
	P.E.			25
	English			12
	moral education	2		14

Tab.2: Frequency of “Inquiry”, “Criticism” and “Understanding” in Courses of Study for Elementary and Junior High Schools in 2017

3 The Treatment of "Inquiry" in the Glossary of Subject Pedagogies

In the following, the treatment of the term "inquiry" will be focused upon in more detail by looking at several subject pedagogies and their specific appropriation and use the concept.

3.1 Social Studies Education

In the glossaries edited by subject pedagogy, some differences exist in the utilization of these three terms. First, the term "inquiry" is used in many glossaries on subject pedagogy, irrespective of the number of times it appears in the National Courses of Study. The only exception is moral education. The word "inquiry" appears relatively frequently in the moral education section of the National Courses of Study, although it does not appear in glossaries edited by academic moral education associations.

However, the explanations and definitions vary slightly from subject to subject. For example, in *Basic Knowledge of 300 Important Social Studies Terms,* edited by Japan Educational Research Association for Social Studies (JERASS), "Inquiry-based learning is an educational principle that emphasizes the process and procedure of having children discover and master basic concepts and general principles of science, rather than having teachers teach them to children as conclusions, as advocated by Schwab during the 'Modernization Movement of Educational Content' that developed in the United States around 1960" (Umezu, 2000). In addition, in *New Encyclopedia of Social Studies* edited by the Japan Association for Social Studies (JASS), "inquiry-based learning is learning in which learners acquire the basic concepts, laws, and methods of science and develop scientific attitudes through their proactive participation in that produced the results of scientific research" (Ikeno, 2012). In the *Encyclopedia of Important Terms in Social Studies,* edited by JERASS members, the notion "inquiry" is defined, broadly speaking, as problem-solving and reflective thinking and refers to hypothetical-deductive processing that begins with the learner's cognitive dissonance → attempting to clearly define the problem → formulating a hypothesis that could solve the problem → collecting evidence or data through experimentation and observation → testing the hypothesis → reaching a conclusion, or judging truth or falsity and modifying the hypothesis. In a narrower sense, inquiry refers specifically to the scientific, hypothetico-deductive reflection of learners in a class that emphasizes structured questions and teacher-guided discussions (Socratic style), similar to the process of analysis and thinking by scientists or experts." (Watanabe, 2022). Generally speaking, in social studies pedagogy, "inquiry" or "inquiry-based learning" is understood as the learning of scientific concepts, general principles, and methods of reflection, as children

participate in the thought processes of scientists or experts. On the other hand, "problem-solving" is used in connection with *child-centered* learning, which has its roots in the work of John Dewey.

3.2 Science Education

In science terminology as, for example, in *Basic Knowledge of 300 Important Science Education Terms*, "inquiry/ inquiry-based learning" is explained in relation to Schwab and the Modernization Movement of Educational Content and is also described as "understanding a problem → setting a hypothesis → deriving a consequence from the hypothesis → testing the hypothesis → finding a law" (Fujikawa, 2000). These explanations are the same as those in the glossary on Social Studies. However, science pedagogy-related glossaries nowadays make a distinction between "stable inquiry," conducted according to scientific principles, and "fluid inquiry," in which the principles themselves are questioned (Ohnuki, 2018). Particularly, in recent science pedagogy terminology, a movement has emerged which recognizes flexible forms of inquiry as well rather than being concerned only with structured questions and the scientist's formal thinking process. This movement is not found in glossaries related to social studies pedagogy.

3.3 Music Education, Home Economics Education, etc.

The *Encyclopedia of Music Education Practice,* edited by Japan Association for the Study of School Music Educational Practice, describes an "inquiry-based lesson" as "a class based on Dewey's problem solving, characterized by setting problems based on students' interests in cross-curricular themes, working with people who have different perspectives to solve those problems, and communicating the results to all over the world and implementing them" (Kanehira, 2017). In this book, "inquiry" is not explained in relation to Schwab, the Modernization Movement, nor scientific thinking, but rather as child-centered performance similar to "problem-solving" in a social studies glossary (ibid.). In addition, the *New Edition of Nurturing the Subjectivity of Life: Home Economics for Developing the Ability to Inquire*, edited by the member of the Japan Association of Home Economics Education, explains "inquiry-based deep learning" as "the totality of high-level learning that one wants to achieve by understanding the meaning of deeply engaging in the study of subject with intellectual interest and cultivating thinking and judgment skills, as well as a 'proactive' and 'interactive' attitude" (Arai, 2021). Here, "problem-solving" and "inquiry" are described as a inseparable and organic relationship, as "when students incorporate problem-solving learning, where they tackle their everyday problems, they will deepen their inquiry" (ibid.). These explanations differ significantly from the explanations of inquiry in social studies glossaries because they tend to view "problem-solving" and "inquiry" as opposites.

4 Treatment of “Criticism” in the Glossary of subject pedagogies

4.1 Mathematics and Social Studies Education

“Criticism” is also treated in the glossaries of subject pedagogy in many subject areas, regardless of the number of appearances in Japanese National Courses of Study. In the *Dictionary of Terms in Mathematics Education and Instruction (Fifth Edition),* edited by Japan Society of Mathematics Education (JSME, 2018), “critical thinking” is defined as “the ability to think from a bird's-eye view of whether knowledge and information are truly effective in solving problems and whether one’s problem-solving process is valid. This thinking is critical and needs to be cultivated in school education. The word “critical” often indicates a negative tendency, but critical thinking does not. However, it is characterized as logical, goal-oriented, reflective, and rational. Nevertheless, its definition varies from one researcher to another. In addition, the *Dictionary of Terms in Mathematics Education and Instruction* explains two approaches to incorporating critical thinking into the subject practice: “critical thinking as a goal,” a strategy that aims to cultivate critical thinking per se, and “critical thinking as a method,” an approach in which the main goal is to promote scientific, social understanding or cultivate mathematical judgment. Critical thinking is used as a means or procedure to achieve these goals (JSME, 2018). All these explanations are based on Ennis’s critical thinking study (Ennis 1987) or on the work of learning scientists Kusumi and Michida (2015), who were influenced by Ennis’s study.

The explanations of “critical thinking” (Fukui, 2022) in *Encyclopedia of Important Terms in Social Studies,* “Critical Thinking and Deep Learning” (Arai, 2022) in *SDGs and Home Economics Curriculum Design*, and “Critical Thinking” (Yasaku, 2021) in *New Moral Education in Kindergarten and Elementary School* by the Japanese Society for Moral Education, are all influenced by critical thinking study by Ennis or Kusumi and Michida, too. However, in the explanation of “critical thinking” in *Encyclopedia of Important Terms in Social Studies,* Fukui describes, “some educators emphasize criticism as a political practice, which contrasts with Ennis’s idea of critical thinking. For example, they try to focus on something that has hidden controversy but is not routinely questioned, and regard criticism or critical thinking encouraged in social studies education as questioning the various assumptions that are hidden” (Fukui, 2018). This definition of critical thinking is explained based on critical pedagogy. Incidentally, critical pedagogy is part of the explanation of “uncritical literacy” in *Encyclopedia of Important Terms in Japanese Language Studies* (Okuizumi, 2015).

4.2 Japanese Language and Music Education

The glossary edited by Japanese language pedagogy or music education pedagogy explains "criticism" as "work critique" rather than in terms of Ennis's definition of critical thinking. In the *Encyclopedia of Important Terms in Japanese Language Studies,* "critique" is explained as "an attempt by a reader who comes into contact with a literary work to clarify the qualities of the work by trying to explain their understanding of the work" and that "interpretation and appreciation are individual activities, whereas criticism is a social activity" (Machida, 2015). In the *Encyclopedia of Music Education Practice*, Yamashita explains that "critique is to judge the value of a music work for oneself, considering its goodness, enjoyment, and fun, with evidence, and is an effective means of achieving the educational goal of appreciation learning." He argues that "as an outcome of learning, students are required to communicate their value judgment to others in the form of a critical essay." The critique is described as a social activity (Yamashita, 2017). Incidentally, *Fundamentals of Art Education* provides a similar explanation for the word "critique" (Mogi & Sato, 2010).

Thus, the more subject pedagogy focuses on creating and examining artworks, the more it tends to position "criticism" as "critique." Also, the more sensitive the subject pedagogy is to political issues, the more it views critical thinking not as a neutral entity but as a nuance of "posing (≒condemning) problems."

5 Treatment of "Understanding" in the Glossary of subject pedagogies

Finally, we will turn to the study of the term "understanding", of which we already know that it is very frequently used in the documents under investigation.

5.1 Science Education and Other Subjects

Although "understanding" appears far more frequently within the Japanese National Courses of Study than "inquiry" and "criticism," this term is not often discussed in the glossary of subject pedagogy. It is only limited to science, social studies, Japanese language, math and mathematics. Of these, "understanding" is defined in the *Basic Knowledge of 300 Important Terms in Science Education* as "[m]an judges that he has understood when he has obtained conviction in his mind. When we can explain an unknown fact or matter through the process of testing a hypothesis in our minds consistently and harmoniously, we can say that we have understood it."; "When we retain only verbal memories and information, we try to understand through abstract thinking"; "understanding has a hierarchy: As we learn more, it becomes complex and multidimensional and connected" (Yoshida, 2000). These explanations are consistent with Marzano & Kendall's concept

of "symbolization" (one of some understanding patterns), and that is influenced by Bloom's taxonomy theory (Marzano & Kendall, 2007). Incidentally, in the *Handbook of Research in Mathematics Education* (2010) and *300 Fundamentals of Important Terms in Mathematics and Mathematics Education* (2000), the explanation of "understanding" is also influenced by Bloom or Marzano & Kendall theory (or learning science).

5.2 Social Studies and Other Subjects

However, social studies educators have adopted a definition of "understanding" different from that of Bloom or Marzano & Kendall. For example, in *the Encyclopedia of Important Terms in Social Studies*, "understanding" has been focused on German *Geisteswissenschaften* as follows (Fukuda, 2022).

> "Understanding" as a teaching principle in social studies has its origin in the theory of 'verstehen' of the German Geisteswissenschaften. This "understanding (verstehen)" theory was established by Dilthey, Spranger, and others as a research method in the humanities and social sciences, as opposed to the "explanation" research method in the natural sciences. In the "understanding (verstehen)" style social studies class, actions constructed by human intentions and their intention/purposes are the objects of "understanding." Therefore, the key point of the "understanding (verstehen)" style social studies class is to decipher the organic relationships through human actions.

As seen from the above explanation, in social studies pedagogy, "understanding" derived from the German *Geisteswissenschaften* (especially Dilthey's theory). "Verstehen" is to regard intentions and purposes as sources of human action and thinking, explore the purpose and intention of people and sympathize with those intentions and purposes. This is different from the view of "understanding" that emphasizes a logical and natural/social scientific approach to the connections and relationships between events or facts, as seen in Bloom or Marzano & Kendall. In the glossary of social studies pedagogy, "understanding", as used by Bloom or Marzano & Kendall, is given a different term, "recognition" or "explanation" (Yamada, 2022; Kakuda, 2022).

Why, then, does social studies pedagogy adopt the German-based definition of "understanding (verstehen)"? A clue can be found in the explanation of "understanding", given in *300 Basic Knowledge of Important Terms in Social Studies* (Ikeno, 2000).

For example, in the third grade of the "Social Studies" curriculum guide of the National Course of Study, students are planned to study the public policies of the local community, such as community cleanups and traffic safety. Through direct interviews with community residents who cooperate

with these public policies and student's hands-on experience of these local public activities, the students are expected to understand the value of residents' activities, their wishes for their community's future, and the meanings of these public policies, based on questions such as "What kind of people participate in the activities?"; "How do they cooperate?"; "What kind of wishes do people have?" By putting themselves in the shoes of the activity actors and sympathizing with their wishes or hearts, the students are planned to understand the following social meanings, which were written in the National Course of Study: "People in the community are working together to improve their lives and create a good environment to live in." Here, students have no chance to examine the residents' activities or public policies critically but are made to accept them as social missions or virtuous acts. The Japanese government selected the social meanings or resident activities that students are planning to study in order to teach these conservative values. Social studies educators have criticized the structures of the Social Studies section of the National Course of Study because they are a type of indoctrination" (Ikeno, 2000).

Particularly, the National Courses of Study require children to infer the meaning of activities such as faithful efforts and innovations to improve people's lives and create a good environment by learning about the activities of local people involved in institutions and projects, their cooperation, and their wishes for society. This is intended to "make children accept the public activities as social missions without critical examination" and lead them to recognize facts conveniently to induce a certain value judgment.

The reason why social studies pedagogy chose to use "understanding (verstehen)" from the German *Geisteswissenschaften* may stem from the critical awareness of "understanding" usage in the social studies section of the Japan National Courses of Study, where several propositions, called "perspectives about our society" for each grade. Students need to understand these propositions, but the content of these propositions does not reflect a scientific and universal principle about our society but rather a conservative interpretation, asserting that policies and projects the government has implemented "contribute" and "are useful" to our society.

For example, in the fourth-grade social studies section of the National Courses of Study, the "Learning Contents" section requires students to understand that local institutions/ government and community people have cooperated to cope with natural disasters and that they have been making various preparations for possible future disasters, and that waste disposal projects in our community are carried out in a manner that enables hygienic treatment and effective use of resources and that they contribute to the improvement of our living environment (Table 3). These propositions are positive interpretations of the status quo and favorable perspectives for the

national government or conservative groups. However, the social studies section of the National Course of Study presents these propositions as if they were universal and scientific principles about our society. To enable students to understand these propositions unquestionably, the Course of Study focuses specifically on people engaged in social activities ideally in the eyes of the government. Students are to examine these people's wishes, faithful efforts, and accomplishments. In addition, students were encouraged to sympathize with these people's positive intention and activities to our society, and understand their social meaning by listening to their voices and interacting with them. It is difficult to explain this reality and the problems of the social studies section of the National Course of Study by using Bloom or Marzano & Kendall's view of "understanding" because it only emphasizes logical and natural/social scientific understanding.

2 Learning Contents

(1) (omitted)

(2) Guidance should be given so that students can acquire the following perspectives concerning projects or policies that support people's health and living environment, through activities like exploring and problem-solving.

・Acquiring the following knowledge and skills is necessary.

(a) To understand that local institutions that supply water, electricity, and gas are operated to ensure a safe and stable supply and that they help maintain and improve the healthy lives of people in our community.
(b) To understand that waste disposal projects in our community are carried out in a manner that enables hygienic treatment and effective use of resources, and they contribute to the improvement of our living environment.
(c) To collect information and summarize it by visiting, interviewing, and investigating with maps and other materials.

(3) Guidance should be given so that students can acquire the following perspectives about policy to protect people from natural disasters, through activities like exploring and problem-solving.

・Acquiring the following knowledge and skills is necessary.

(a) To understand that local governments, institutions, and community members have cooperated to cope with natural disasters and that they are making various preparations for possible future disasters.
(b) To collect information and summarize it by interviewing people and thinking with materials such as maps and timelines.

(4) Guidance should be given so that students can acquire the following perspectives about the traditions and culture of the local community and the work of our predecessors, through activities like exploring and problem-solving.

・Acquiring the following knowledge and skills is necessary.

(a) To understand that local community members have handed down cultural assets and annual events; These annual events and cultural asset reflect people's wish and aspiration for the development of the community.
(b) To understand that our predecessors who devoted themselves to the development of the local community have contributed to the improvement of social life in those days.
(c) To visit, investigate, and use maps and other materials and compile information into a chronological table, etc.

(5) (omitted)

Tab. 3: Learning Contents in 4th Grade Social Studies Section of Japanese National Course of Study (2017)

The *Encyclopedia of Important Terms in Japanese Language Studies* also describes "understanding" as "to approach the object with internalizing it existentially," and this definition is clearly influenced by the idea of "understanding (verstehen)" from German *Geisteswissenschaften* (Sumida, 2015). Given the fact that Japanese language education, along with social studies, has been viewed by some as subject area that is favorable for indoctrinating students with the views and values that the government wants to teach, subject pedagogies in subject areas where it is necessary to have strong caution against ideological education by state power (like social studies and Japanese language study) tends to use the German Geisteswissenschaften "verstehen (understanding)" theory.

6 Conclusion

Research focusing on terminology have received attention in Japan since the beginning of the 21st century, mainly in informatics, influenced by movements in Europe and the United States. In Japanese educational research, however, only a few English articles in the pedagogy of physical education were introduced (Bernett, 1964; Columna, 2014), and there were probably no studies by Japanese pedagogues focusing on terminology. Therefore, the contribution by the Research Promotion Committee of the Japan Consortium, inquiring about terminologies across subject pedagogies, will be very significant in the history of Japanese educational research.

Based on this recent terminology study of "inquiry", "criticism" and "understanding" in each subject pedagogy, the following three inner or outer factors can influence the differences in definitions and usage of terms in different subject pedagogies.

(i) Characteristics of the subject area

In natural-science-oriented subject pedagogy such as science and mathematics, or semi-natural-science-oriented subject pedagogy such as home economics, "inquiry," "criticism," and "understanding" were defined as they are in the learning sciences by Schwab, Ennis, Marzano, and others. This may be because "inquiry," "criticism," and "understanding" were associated with scientific thinking in the learning sciences, convenient for natural-science-oriented subject areas.

However, in subject pedagogy in the humanities domain, such as in Japanese language, definitions from critical pedagogy and German *Geisteswissenschaften* are actively used. In subject pedagogies that straddled the social science and humanities domains, such as social studies, definitions from not only learning science but also critical pedagogy or German Geisteswissenschaften were used. These are due to the learning science approach, which links "inquiry", "criticism" and

"understanding" with scientific thinking, objectivity and rationality, cannot realize the philosophy of subject pedagogy, such as Japanese language and social studies, or explain the reality of these subject area.

(ii) Counter-Acting the National Courses of Study

We confirmed that all subject pedagogies were, to a greater or lesser extent, opposed to the National Courses of Study. This is evidenced by the fact that many subject pedagogies emphasize these three terms in their glossaries even though "inquiry" and "criticism" are not emphasized in the National Courses of Study. However, there were differences in the sense of rivalry between the subjects. In social studies, we confirm a particularly strong hostility toward National Courses of Study, which makes the definitions of terms in social studies pedagogy unique and different from those in other subject pedagogies.

(iii) Attitudes toward Children's Independence of Learning

The definition of some terms, for example, "inquiry", is changed depending on whether the children's independence of learning was an absolute condition for learning or a contentious one. In social studies pedagogy, behind the connection of "inquiry" with scientific thinking processes and behind its contrast with "problem-solving" which emphasizes child-centered thinking, is the historical controversy over which approach should be more dominant, the discipline-centered approach or the child-centered approach. However, in other subject pedagogies, where child-centeredness is presumed as an absolute condition, "inquiry" and "problem-solving" are not viewed in contrast.

Subject pedagogy has developed in Japan and Germany for more than 40 years. The terminology study will reveal that subject pedagogy has social significance. The fact that the same term is defined and used in different ways in different subject pedagogies is largely due to the distinct nature of the subjects and the philosophy on which each subject's education places importance. Ignoring these realities and preferring general pedagogy to subject pedagogy may even be detrimental to educational research. I hope this report will play a big role in spreading subject pedagogy worldwide in the future.

The last question in this study is whether such subject areas should be based on narrow academic disciplines such as history, economics, geography, physics, and biology, as in Germany, or whether they should be based on broader areas such as humanities-oriented, social-science-oriented, natural-science-oriented, sport-and-art-oriented, and multidisciplinary subjects. Based on this terminology

study, it is not reasonable to set up subject pedagogy in narrow academic field as in Germany. This may also change depending on the research theme; therefore, it should not be assumed.

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