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Social Studies and Science Education as Specific Subject Pedagogies in Comparison: State of the Art, Research Approaches and Challenges

Hiroaki Sakaue & Daiki Nakamura***

Abstract

This study discusses the commonalities and differences between Social Studies and Science education in Japan, focusing on the curriculum structure, research themes, and educational roles. Both subjects are central to fostering students' understanding of society and nature, with Social Studies rooted in the social sciences and Science in the natural sciences. The analysis highlights shared elements, such as problem-solving and inquiry-based learning, and the presence of both integrated courses (e.g., "Science and Our Daily Life" and "Modern and Comprehensive History") and specialized subjects (e.g., "Basic Biology" and "Advanced Japanese History"). Despite certain similarities, these subjects differ in their research focus. Science education often addresses students' misconceptions and cognitive development, whereas Social Studies research rarely extends beyond lesson-based studies to explore students' prior knowledge. Examining these subjects in parallel clarifies their distinct methodological approaches and foundational principles, thereby providing insights into the broader positioning of Social Studies and Science education research in Japan.

Keywords

Subject Pedagogy, Nature of Subject, Course of Study, Curriculum, Nature of Scientific Research, Research Methodology

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1 Background and Objectives of the Study

The Japanese education system was established in the late 19th century and modeled after Western education systems. The “*Gakusei*” ordinance, enacted in 1872, defined the education system, marking the beginning of modern school education in Japan. This system introduced compulsory education for the public and structured primary, secondary, and higher education. In early primary schools, six subjects were established –moral education, arithmetic, reading, composition, calligraphy, and physical education– which marked the beginning of subject-based education. The number of participants subsequently fluctuated, and today ten subjects are assigned to primary and junior high schools.

The initial purpose of subject-based education was to teach specific knowledge and skills systematically. However, this purpose has evolved, and today, it aims to foster various competencies, such as knowledge, skills, thinking abilities, and autonomy. Each subject’s curriculum was optimized, influenced by its parent’s academic disciplines, and adapted according to educational goals. These goals and curricula are systematically organized in the Course of Study, a publication of the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) which serves a regulatory function (Mizuhara, 2011). Based on the Course of Study, textbooks were created, and only those that passed the government’s approval process were used in schools. The Course of Study is revised approximately every ten years, and textbooks are revised every four years.

To train teachers responsible for subject-based education, specialized teacher training schools known as “normal schools” were established across the country in 1872. After World War II, university faculty assumed responsibility for teacher training. Currently, 44 state universities in Japan offer teacher-training programs, with approximately 50,000 students enrolled across four grade levels as of 2019 (leaving out the private ones). In the post-World War II era, the academic field of subject-specific pedagogy emerged, with university faculty members training teachers in various subjects to form communities. Efforts were made to develop researchers in subject-specific pedagogy responsible for teacher training.

Academic societies, such as the Society of Japan Science Teaching and the Geographic Education Society of Japan, were established to support each subject’s pedagogy, corresponding to a specific subject or area. Organizations such as the Japan Curriculum Research and Development Association and the Japan Consortium of Subject Pedagogy Associations were founded to support general subject pedagogy. A notable feature of Japan’s subject pedagogy-related academic societies is their strong collaboration with schools and teachers, resulting in a substantial accumulation of practical research. Researchers and primary and junior high school teachers are present in these academic societies, aiming to advance subject pedagogy by mutually referencing researchers’ theories and teachers’ practices.

However, differences in subject pedagogy exist due to varying goals and content across subjects, leading to different research focuses. Comparing subject-specific pedagogies to clarify the academic positioning and methodological differences in each field can be effective in elucidating their underlying principles. This study compares the two subjects, Social Studies and Science, to identify the foundational principles of each field of subject pedagogy. Social Studies and Science rely on different academic disciplines – social and natural sciences – and

their comparison clarifies the nature of each subject. Furthermore, comparing these two subjects provides valuable insights into the academic positioning of other subject pedagogies.

2 Research Methods

This study employed a comparative approach to analyze Social Studies and Science education in Japan. Historical and curricular analyses were conducted using various iterations of the Course of Study issued by MEXT from 1947 to 2017, examining shifts in educational objectives, content, and societal influences. Textbook content analysis further revealed how inquiry-based and problem-solving methods are presented, focusing on primary and secondary levels.

We also analyzed the role of academic societies, such as the Society of Japan Science Teaching and the Japanese Association for Social Studies, in shaping pedagogical research and practice. The study categorized and compared research themes and methodologies in journal articles and conference proceedings, emphasizing trends in teaching methods, student understanding, and curriculum design.

A cross-case analysis highlighted commonalities and differences between the subjects' pedagogical approaches, contextualized by societal, regulatory, and academic influences. This analysis provided a comprehensive view of their unique contributions and challenges within Japan's educational landscape.

3 Social Studies Education

3.1 *Transition of Objectives and Contents in Social Studies*

In Japan, "Social Studies" was introduced as a school subject as part of the post-World War II education reforms following the abolition or suspension of nationalistic subjects such as Moral Training, Civics, History, and Geography before World War II (see, Taniguchi, 2011). According to the *1947 Course of Study: General (Draft)*, "Social Studies is not simply amalgamating the traditional subjects of Moral Training, Civics, Geography, and History under the name Social Studies." In addition, Social Studies was positioned within the school curriculum by the *Course of Study: General (Draft) in 1947* and was expected to play a central role in postwar democracy. The 1989 curriculum revision narrowed the scope of Social Studies. In this study, however, Social Studies includes "Geography and History" and "Civics."

There are several different opinions on the nature of Social Studies. For example, the relationship between Social Studies and the Humanities/social sciences is the most prominent. Relationships such as "acquiring academic results," "acquiring academic inquiry methods," and "handling appropriate academic content to achieve the objectives of the subject" (Yoshimura, 2021) and the nature of Social Studies differ depending on the position taken. Discussion regarding the nature of Social Studies in relation to citizenship education are prevalent. Currently, the mainstream idea is that "Social Studies fosters citizenship through social cognition" (Utsumi, 1971), and its learning content areas are broadly divided into geography, history, and civics.

The positioning, objectives, and contents of Social Studies, as stipulated in the Course of Study, have changed significantly in response to the influence of the times and demands of society.

From the 1947 Course of Study to the 1989 Course of Study, Social Studies was taught for 12 years, from the first grade of primary school to the third grade of high school. However, the 1989 curriculum revision changed the Social Studies curriculum structure. Specifically, Social Studies in primary school first and second grades were abolished, and a new subject, “Living Environment Studies,” was established. Simultaneously, “Geography and History” and “Civics” were introduced into the high school curriculum instead of Social Studies. Therefore, Social Studies, in the narrow sense, became a subject taught for only seven years, from the third grade of primary school to the third grade of junior high school.

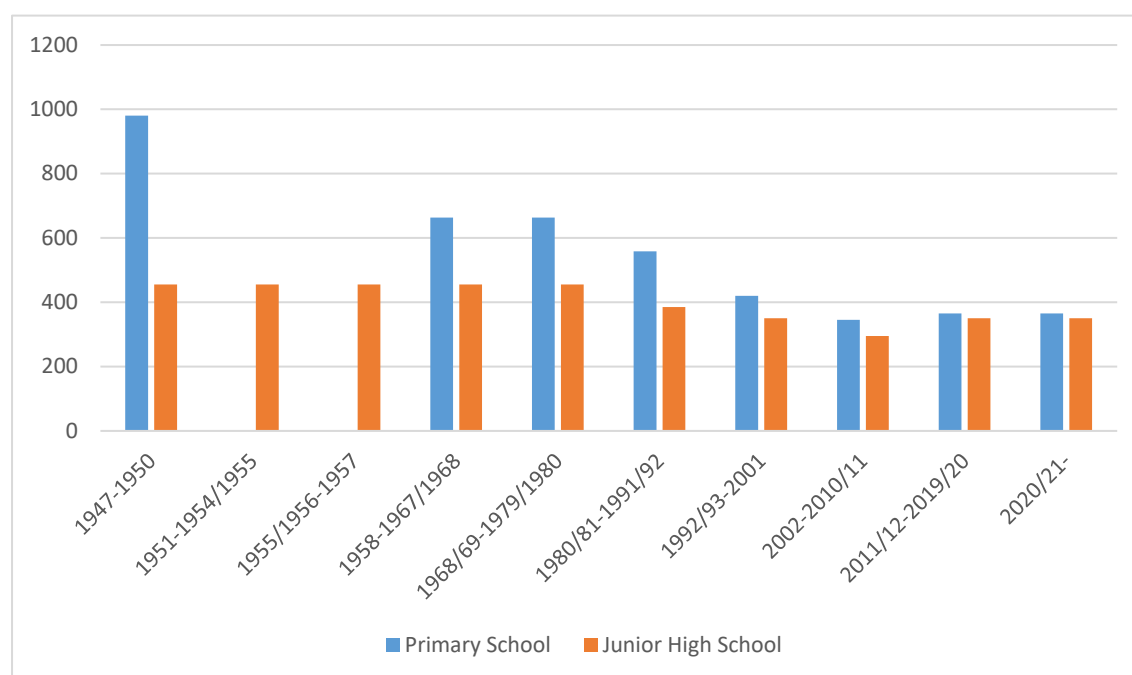


Fig. 1: Number of annual Social Studies class hours in primary and junior high schools

Note: In the first and second curriculum revisions, the percentage of class hours for “Science” and “Social Studies” in the total curriculum for primary schools was indicated as a guideline, so specific numbers of class hours were not given (Tanahashi & Kimura, 2022, pp.244, 246).

Since the first edition of *Course of Study: Social Studies*, published in 1947, it has been revised nine times. Figure 1 shows changes in the total number of class hours in primary and junior high schools. Since the first edition, the number of class hours has decreased in both primary and junior high schools. In particular, the number of class hours in primary schools decreased with the introduction of Living Environment Studies in the sixth curriculum revision (1989 Course of Study). Currently (2017 Course of Study), the number of class hours is 70 for third graders, 90 for fourth graders, 100 for fifth graders, 105 for sixth graders in primary school, 105 for first and second graders and 140 for third graders in junior high school.

Table 1 shows that there are two ways of thinking about the organization of the Social Studies curriculum: integrated Social Studies and differentiated Social Studies. In primary Social Studies, learning content is structured under the concept of integrated Social Studies. However, in the 2017 Course of Study, a loose framework of geography, history, and civics was presented to connect it with junior high school Social Studies in which the 1951 Course of Study loosely systematized learning content based on geography, history, and civics, and the 1955 Course of Study established a system based on the three fields. In high schools, except for the early period, subjects were based on academic systems such as Geography, Japanese

History, World History, Politics and Economics, and Ethics. However, the 1977/78 Course of Study introduced “Modern Society” under integrated Social Studies. In addition, the 2018 Course of Study led to the reorganization of Geography and History, and Civic subjects (Figure 2). Comprehensive Geography, Modern and Contemporary History, and “Public” were introduced as compulsory subjects. Modern and Contemporary History is the first subject to combine Japanese and World History and focus on modern history. However, the subject “Public” was created in place of “Modern Society” to reflect the lowering of the voting age to 18.

Integrated Social Studies		Differentiated Social Studies
Integration Social Studies means making comprehensive use of the results of various sciences in order to utilize the life and experiential issues of learners.	Definition and way of thinking	Differentiated Social Studies is arranged and organized into various fields and subjects such as geography, History and so on.
This type of learning is based on independent learning activities by teachers and students and focuses on problem-solving for various issues in each region.	Characteristics of learning	Each field and subject are organized and structured primarily according to academic disciplines, and the aim of learning is for students to acquire clear academic knowledge and understanding.

Table 1: Integrated and differentiated Social Studies

Schools/ Subject Area	Grade	The Fields and Subjects in Social Studies				
Senior high school: Geography and History, Civics	12	Advanced Geography (after studying Comprehen- sive Geography; Selective)	Advanced Japanese History (after studying Modern and Contemporary History; Selective)	Advanced World History (after studying Modern and Contemporary History; Selective)	Ethics (after studying Public; Selective)	Politics and Economy (after studying Public; Selective)
	11					
	10	Comprehensive Geography (10, 11 or 12 grade; Compulsory)	Modern and Contemporary History (10, 11 or 12 grade; Compulsory)		Public (10 or 11 grade; Compulsory)	
Junior high school: Social Studies	9	Civics Field			History Field	
	8	Geography Field				
	7					
Primary school: Social Studies	6	Learning of constitution and politics in Japan, Japanese historical matter, and international understanding and cooperation				
	5	Learning of land in Japan and Japanese industry				
	4	Community learning focused on pupils' prefecture.				
	3	Community learning focused on pupils' locality and city/town/village.				

Fig. 2: Structure of Social Studies in the 2017/2018 Course of Study

3.2 Social Studies Textbooks

Social Studies textbooks are issued for each grade in primary schools, for each field in junior high schools, and each subject in high schools, and are required to be used as the main teaching materials in class. Atlases are textbooks and are subject to screening. Social Studies for third- and fourth-grade primary schools focuses on community learning that covers the area, city, and prefecture in which students live. Therefore, supplementary readers published by the local board of education, containing information about the regional situation and social phenomena, are used with textbooks in class.

In recent Social Studies textbooks, although the degree varies across textbooks, a central question permeates each unit, designed for students to learn by solving problems or inquiry-based learning. Furthermore, from the perspective of connecting primary and junior high school learning, there are also junior high school textbooks that note related primary school learning units on the double-page spread of books and primary and junior high school textbooks that indicate the relationship with other learning units within Social Studies.

However, debates have frequently arisen regarding descriptions and interpretations in history textbooks, which have at times escalated into political and diplomatic controversies.

3.3 *Social Studies Education as an Academic Discipline*

3.3.1 Academic Societies and Researchers

There are two nationwide academic societies for Social Studies education: the Japanese Association for Social Studies, based at the University of Tsukuba, and the Japanese Education Research Association for Social Studies, based at Hiroshima University. Both societies have members from various backgrounds, including researchers in Social Studies education at universities, primary, junior high, and high school teachers, people involved in administration and the education industry, and graduate students. Some societies study education from the perspective of various fields and sciences related to social studies, such as the Geographic Education Society of Japan and the Japanese Society for Civic Education. Committees also deal with education in specialized social science societies, such as the Association for Japanese Geographers and the Commission on Geographical Education. In addition, there are local academic societies for Social Studies with offices in each region and university. Furthermore, private educational organizations have had an impact on Social Studies education, especially in terms of practical research.

Social Studies Education researchers are generally affiliated with Social Studies departments in the Faculty of Education at national universities (not to mention the private ones) alongside social scientists in fields such as geography, history and philosophy. They are engaged in research related to Social Studies education as well as teacher education and training. They are primarily responsible for teaching methods of Social Studies in primary and secondary schools and teaching practice.

3.3.2 Research Methodology and Themes

Research methodology in Social Studies Education has long been debated. A systematic study was undertaken which spanned over three years beginning in 2010 under the Grant-in-Aid for Scientific Research project entitled “A Joint Development of “Research Handbook” for the Social Studies Researcher and Practitioner by the Japanese and US educators.” One of the results was the *Handbook of Research Methodology in Social Studies* by Kusahara, Mizoguchi, and Kuwabara (2014). According to Kusahara (2022, p.213), Social Studies education has developed along two lines: one that understands subjects simply as interdisciplinary research fields in which various academic disciplines can investigate and study according to their interests and perspectives and the other that sees them as independent academic fields that elucidate the promotion and *raison d'être* of subjects through an analysis of the purpose, content, and methods of subject instruction. From the latter perspective, Kusahara (2022) outlined the development of the Social Studies education research system (Table 2).

Period	Research Framework	Research type
First phase: 1960-	Elucidates the theory of forming social cognition and contributes to improving classes	Normative-principled Practical-developmental
Second phase: 1990-	Investigate the subjects that mediate the formation of social cognition	Empirical-experiential
Third phase: 2010-	Elucidates the circumstances under which social cognition is formed and leads to social change	Sociocultural approach

Table 2: Development of research framework in Social Studies education

Based on an analysis of discussion surrounding research methodology, Kusahara et al. (2014) proposed a typology of research methods, as presented in Table 3.

Methodology	Research questions in each research
Normative-principled research	What is a better Social Studies? Why is it better?
Practical-developmental research	What should we do to realize better Social Studies? Why should we do so?
Empirical-experiential research	In what kind of environment is Social Studies currently being taught, and how? Why is this the case?

Table 3: Research methodology in Social Studies education

In recent years, review articles in academic journals on Social Studies Education have increasingly organized and analyzed research using the frameworks mentioned above of normative-principled, practical-developmental, and empirical-experiential study and described the results. There has been a significant increase in empirical-experiential research, along with the growing trend in publications about teacher education.

Each field- and discipline-specific research topic is found in Social Studies education. For example, in Geography Education, research promotes understanding of the actual state of children's environmental and regional cognition outside of class. However, such research on grasping the actual state of children outside class is almost rarely seen in other fields, such as history and civics education.

3.4 Achievements and Challenges in Social Studies Education

After World War II, Social Studies in Japan was imported from the United States, where it originated. However, some unique aspects have developed in Japan. Practical developmental research related to the development and improvement of lessons is the main research topic in Japanese Subject pedagogy (Nakahara, 2017), and Social Studies is no exception. Except for a few studies (Ikeno, 2011; Ida et al., 2015), the systematic results of Japanese Social Studies research have not been disseminated overseas. The reason for this is the linguistic barrier. Additionally, there are differences in research methodology and terminology between Japan and other countries, even within the same Social Studies education, and there is a lack of understanding of the significance of disseminating Japanese research to the world.

4 Science Education

4.1 Transition of Objectives and Contents in Science

Science (*Rika*) was established in 1886. Before that, individual fields such as Physics, Chemistry, and Natural History were taught based on Western education models, but these areas were integrated into a new subject called *Rika*. The term “*Rika*” implies the pursuit of various sciences to understand their principles. Classes were conducted by presenting a list of topics to teach natural phenomena, with knowledge directly taught through oral explanations or reading.

In 1891, the subjects were refined to include observing natural phenomena, understanding their relationship with daily life, appreciating nature, and reflecting the influence of Eastern views on nature (Isozaki, 2014). In contrast to the Western perspective, which views nature as something to be controlled by humans, the Eastern perspective regards nature as harmoniously coexisting with humanity. This difference in perceptions of nature has contributed to the establishment of unique goals in Japan’s Science education.

After World War II, problem-solving learning in primary schools and inquiry-based learning in junior high and high schools were introduced in Western countries, becoming central methods in Science Education. These objectives indicate that Science education aims to develop scientific knowledge, skills, scientific thinking, and attitudes through inquiry. The current junior high school Course of Study outlines the objectives of Science as follows (MEXT, 2017):

I. GENERAL OBJECTIVES

Aim to develop students' competencies necessary to conduct scientific inquiry into natural objects and phenomena by experiencing them, using discipline-based epistemological approaches of Science, and conducting observations and experiments with a comprehensive vision. Specifically, ensure that students:

- (1) Deepen knowledge and understanding of natural objects and phenomena and acquire fundamental skills for conducting observations, experiments, and other scientific activities necessary to conduct scientific inquiry.
- (2) Develop the abilities to conduct scientific inquiry through conducting observations, experiments, and other scientific activities.
- (3) Develop attitudes toward conducting scientific inquiry through actively experiencing natural objects and phenomena.

Figure 3 shows the changes in the total number of science class hours in primary and junior high schools. Primary school Science saw a significant decrease in class hours after Science Education for lower grades (1st and 2nd grade) was abolished in 1992. In the early 2000s, the reduced number of class hours was criticized as part of the “*yutori*” (relaxed education) approach. However, the number of hours has increased. Currently, class hours are as follows: 90 hours for 3rd grade, 105 hours for 4th to 6th grade, 105 hours for 1st year of junior high school, and 140 hours each for the 2nd and 3rd years of junior high school.

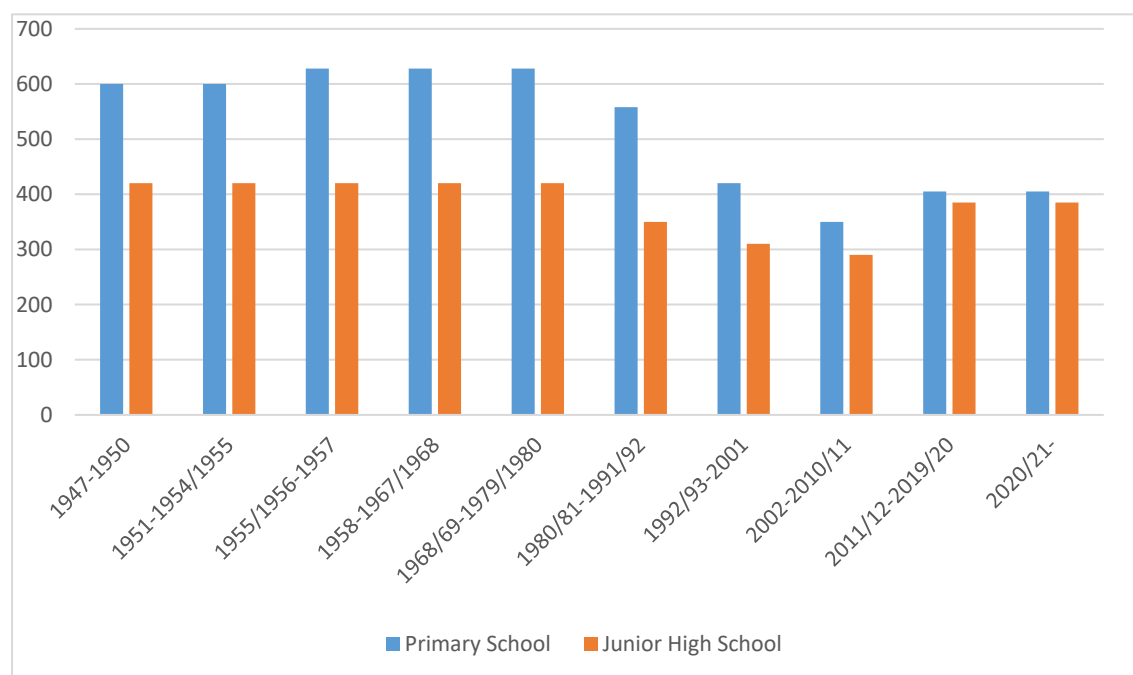


Fig. 3: Number of annual Science class hours in primary and junior high schools

The Science curriculum for primary and junior high schools is consistently structured to include content from four domains: physics, chemistry, biology, and earth sciences. This structure

follows a spiral curriculum in which the same topics reappear in an expanded and deepened manner as students progress through the grades.

In high school, the Science curriculum consists of differentiated and integrated sciences (Table 4). In differentiated Science, subjects such as Physics and Chemistry are taught separately, whereas integrated Science aims to teach fundamental scientific concepts and principles across different domains. The key difference is that differentiated Science focuses on in-depth specialized learning within each field. However, integrated Science emphasizes a broad understanding of scientific fundamentals and their connection to real-life applications.

Integrated Science	Differentiated Science
● Takes a holistic view of nature ● Respects the perspective of the learner ● Difficult to utilize the teacher's specialized expertise ● The content structure is challenging but easily accommodates interdisciplinary content <i>Example: Science and Our Daily Life</i>	● Takes an analytical approach to nature ● Easy to leverage the expertise of natural sciences, making it easier to teach ● Has limited connection with other subjects <i>Examples: Basic Physics, Chemistry, Biology</i>

Table 4: Comparison of characteristics between differentiated Science and integrated Science

External stakeholders play a role in influencing the Science curriculum. For example, in Biology, the amount of genetics-related content in the Course of Study has increased with the growing number of researchers in the field. Additionally, the curriculum may have been modified in response to societal demands. Recently, disaster prevention education has been incorporated into Science education because of the frequent occurrence of large-scale natural disasters. Furthermore, programming has been introduced as a part of primary school science.

4.2 Science Textbooks

Science textbooks are structured to follow the problem-solving and inquiry processes. Each unit begins with a question, followed by a section on the hypotheses, experimental methods, results, and reflections. In primary school textbooks, many students' thoughts, including naïve concepts, are presented through dialogues with characters. The progression of learning aligns with the textbook's structure, allowing students to experience problem-solving and inquiry. However, since seeing the answers in textbooks can hinder discovery-based learning, such as problem-solving and inquiry, many teachers often conduct lessons without relying heavily on textbooks. In recent years, an increasing number of QR codes have been included in textbooks to enhance connectivity with ICT devices.

4.3 *Science Education as an Academic Discipline*

4.3.1 Academic Societies and Researchers

Science education is an academic field that studies the phenomenon of Science lessons in schools. The science education community emerged in the 1950s, initiated by researchers involved in teacher training. Notable academic societies include the Society of Japan Science Teaching and the Japan Society for Science Education, as well as individual societies for Physics, Chemistry, Biology, and Earth Sciences education. These societies are composed of researchers in Science education, school science teachers, and the natural scientists. A distinctive feature of Science education-related societies in Japan is the high number of presentations by schoolteachers. For instance, at the 2023 National Conference of the Society of Japan Science Teaching, 118 out of 389 presentations (about 30%) were made by schoolteachers. Private educational organizations have also influenced practical research.

4.3.2 Research Methodology and Themes

Although Science education covers various research topics, the number of papers published on each topic is unbalanced. According to Otaka (2015), who classified the central research questions of 191 papers published in the *Journal of Science Education in Japan* from 2001–2010, most studies focused on “teaching methods” (49%), “children’s perceptions and understanding” (17%), and “teaching materials and equipment” (13%), with few studies on “History and Philosophy” (6%). Similarly, Aratani et al. (2023) analyzed the *Journal of Science Education Research*. They found that while there is a significant amount of research on teaching methods, studies on History and Teacher Education remain limited. Unique research themes in Science Education include the analysis of children’s naïveté and misconceptions, as well as methods for transforming these into scientific concepts. Most research relies on empirical data, such as quantitative and qualitative studies, whereas theoretical and philosophical analyses are relatively scarce (Araya et al., 2023).

4.4 *Achievements and Challenges in Science Education*

Japanese students consistently rank very highly in international academic assessments such as the PISA and TIMSS, indicating that Science education is successful in terms of academic achievement. However, students’ motivation to learn Science falls below the international average, and the number of students aspiring to pursue STEM-related careers remains low. Additionally, gender disparities with unconscious biases suggest that Science is unsuitable for women and that the low number of female science teachers affects science education. Although Science education research addresses these issues, a fundamental problem in Japan is the strong regulation of the Course of Study, which limits the immediate application of research findings in schools. It is necessary to engage researchers and practitioners in science education, policymakers and society as a whole. Moreover, insufficient international dissemination of Japanese Science education research remains a significant challenge.

4.5 Discussion: Comparison Between Social Studies and Science Education

In school education, various subjects are established to contribute to human development, and the role of each subject varies depending on its characteristics. Social Studies and Science are sometimes classified into common categories. According to Drechsler, both subjects focus on cognitive activities. Kawasaki (2020) points out that both subjects focus on phenomena and have similar subject structures. The central goal of Social Studies is to develop social cognition, while Science develops natural cognition. However, Kawasaki (2020) also pointed out that there are differences between Social Studies with a background in social sciences and sciences based on natural sciences in some respects, such as the reproducibility of phenomena.

Some commonalities exist between the educational curricula of Social Studies and Science. For example, the number of class hours in each curriculum has changed. With the introduction of Living Environmental Studies in 1989, Social Studies and Science, which abolished Social Studies and Science in the first and second grades of primary school. Both subjects are also similar in their way of thinking. They have “integrative” and “differentiated” approaches to the subject matter. In secondary education, fields (junior high school) and subjects (high school) are organized within the subject area (Table 1, 4), and the positions of “integration” and “differentiation” are reflected in the names of these fields and subjects (see, table 5). For example, “Integration” includes “Science and Our Daily Life” (Science), “Modern and Contemporary History” (Geography and History), and “Public” (Civics), while “differentiation” includes “Basic Biology” (Science) and “Advanced Japanese History” (Geography and History). With a few exceptions, fields and subjects that bear the name of an academic discipline organize the learning content of the field or subject according to the parent discipline’s academic lineage. In Science education, the distinction between differentiated and integrated Science reflects its purpose: Differentiated Science supports specialized training aligned with professional scientific fields, whereas Integrated Science is oriented towards scientific literacy for all citizens, emphasizing broad, real-world applications of scientific knowledge (Isozaki, 2021). Integration and differentiation are also considered as differences in achieving purpose in Social Studies (see Table 1), and according to Moriwaki (2000, p.168), integration and differentiation are discussed at the levels of theory of learning aims, constitutive theory of learning contents, and theory of academic ability. In addition, there are common aspects in the learning methods of the subjects, such as problem-solving and inquiry-based learning.

Since the founding of the school education system, school subjects have been established within school education. Still, the name of the subject, “Science,” has not undergone any major changes since its establishment. However, the name of the subject, “Social Studies,” changed significantly around World War II and disappeared from high school in the 1989 curriculum revision.

Subject Area: Social Studies (Geography and History, Civics)		Subject Area: Science
Geography Field, History Field, Civics Field	Fields	Field One (Physics, Chemistry), Field Two (Biology, Earth Science)
Comprehensive Geography, Advanced Geography, Modern and Contemporary History, Advanced Japanese History, Advanced World History Public, Ethics, Politics and Economy	Subjects	Science and Our Daily Life, Basic Physics, Advanced Physics, Basic Chemistry, Advanced Chemistry, Basic Biology, Advanced Biology, Basic Earth Science, Advanced Earth Science

Table5: Fields and subjects in secondary Social Studies and Science

Furthermore, when examining the research surrounding of Social Studies and Science, many commonalities and differences can be observed.

Both subjects have nationwide academic societies named after Social Studies and Science and educational societies named after the academic disciplines that make up each subject (Japan Society of Physics Education, Geographic Education Society of Japan), comprising university researchers and teachers from primary, junior, and high schools and graduate students. Regarding the dissemination of research and educational practices, these academic societies are influential. However, private educational organizations also have a large influence, and there are numerous organizations in both subjects.

Regarding research methodology and themes, both Social Studies and Science have focused on lesson planning and its practice (including teaching and learning methods), reflecting the characteristics of Japanese subject pedagogy (Nakahara, 2017). However, differences can be observed when looking closely at the research themes of both subjects. It has been pointed out that in Science Education Research, after lesson planning and practice, the next most researched topic is “children’s perceptions and understanding.” Although similar research has been conducted in geography education, it has not been conducted in Social Studies. One reason for this is the difference in whether “classes” are included as a research subject. In Social Studies, the transformation and understanding of children involved in the implementation of “classes” is research, but understanding the actual situation of children without the involvement of “classes” (for example, current existing knowledge and misunderstandings) is not within the scope of research. Regarding research methods, Kishi and Yamamoto (in press) reported that although Social Studies and Science are subject pedagogies, different methodologies have been developed and used. Regarding such differences, the history of research on methodology mentioned the reason to some extent. In the context of Social Studies education, little quantitative research and empirical qualitative research were conducted as of 2014 (Kusahara, 2014). As Kusahara et al. (2015) described, the reason for this may be that, in the development of research methodology in Social Studies Education, there was a period when teachers’ interpretations and thoughts in educational programs and children’s cognition were not included in the scope of research.

5 Conclusion

The paper has clarified the commonalities and differences, outcomes, and challenges of Social Studies and Science in Japan, mainly by comparing them. In addition, the characteristics of Japanese school education and pedagogical research on both subjects have been described.

Currently, there is an active movement in countries and regions to construct, strengthen, and systematize theories related to subject pedagogy, and international research exchanges have begun. Teaching, learning, and educational research on school subjects are conducted in every country and region. However, the positioning of subjects in school education and the ideology and social context behind subject pedagogy research differ across countries and regions. For example, the core of Japanese pedagogy is the development and improvement of lessons. According to Fujita (2012) and Nakahara (2017), in Europe and the United States, such development and improvement of lessons is not “research” that creates new knowledge, but “development” that makes that knowledge practical. And “development” is not considered “research,” and is carried out by practitioners such as teachers, not researchers. However, in Japan, practitioners and many researchers tackle with “development.” As international research exchanges have begun, it is important to disseminate the unique characteristics and efforts of Japanese subject pedagogy and make it understood worldwide.

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