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The Global Significance of Integrated Studies Based on SDGs in Japan

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Abstract

Education for Sustainable Development (ESD) plays a crucial role in equipping learners with the competencies needed to address global sustainability challenges and achieve the Sustainable Development Goals (SDGs). Japan has demonstrated strong performance in both SDG implementation and the Programme for International Student Assessment (PISA), raising interest in the educational factors underlying these achievements. This study examines the contribution of Integrated Learning Time, an inquiry-based and interdisciplinary learning framework in the Japanese curriculum, to the development of sustainability competencies and academic performance. Using a qualitative document analysis approach, data were collected from MEXT policy documents, OECD reports, PISA 2022 results, the Sustainable Development Report 2025, and relevant scholarly literature. The findings indicate that Integrated Learning Time promotes critical thinking, problem-solving, collaboration, and global citizenship through authentic, real-world learning experiences. These competencies align closely with the principles of ESD and contribute to both educational quality and sustainable development outcomes. The study concludes that Integrated Learning Time offers a valuable model for integrating sustainability education with academic excellence and may provide insights for educational reform in other countries.

[Education for Sustainable Development (ESD) memiliki peran penting dalam membekali peserta didik dengan kompetensi yang diperlukan untuk menghadapi tantangan keberlanjutan global serta mendukung pencapaian Sustainable Development Goals (SDGs). Jepang menunjukkan kinerja yang kuat dalam implementasi SDGs dan hasil Programme for International Student Assessment (PISA), sehingga menarik untuk mengkaji faktor pendidikan yang mendukung pencapaian tersebut. Penelitian ini bertujuan menganalisis kontribusi Integrated Learning Time, sebuah model pembelajaran berbasis inkuiri dan interdisipliner dalam kurikulum Jepang, terhadap pengembangan kompetensi keberlanjutan dan prestasi akademik siswa. Penelitian menggunakan pendekatan analisis dokumen kualitatif dengan sumber data berupa dokumen kebijakan Kementerian Pendidikan Jepang (MEXT), laporan OECD, hasil PISA 2022, Sustainable Development Report 2025, serta berbagai artikel ilmiah terkait. Hasil kajian menunjukkan bahwa Integrated Learning Time mampu mengembangkan kemampuan berpikir kritis, pemecahan masalah, kolaborasi, dan kewargaan global melalui pembelajaran kontekstual berbasis permasalahan nyata. Kompetensi tersebut sejalan dengan prinsip-prinsip ESD dan berkontribusi terhadap peningkatan kualitas pendidikan serta pencapaian tujuan pembangunan berkelanjutan. Penelitian ini menyimpulkan bahwa Integrated Learning Time merupakan model pendidikan yang efektif dalam mengintegrasikan pendidikan keberlanjutan dengan keunggulan akademik dan dapat menjadi referensi bagi reformasi pendidikan di berbagai negara.] © The Authors.

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1. Introduction

The global commitment to achieving the Sustainable Development Goals (SDGs) has positioned education as a critical driver of sustainable development and societal transformation [1]. Since the adoption of the 2030 Agenda by the United Nations, countries have increasingly recognized that educational systems play a central role in developing the knowledge, skills, values, and attitudes required to address complex global challenges, including climate change, social inequality, technological disruption, and democratic participation. Within this context, Education for Sustainable Development (ESD) has emerged as a transformative educational paradigm that promotes critical thinking, collaborative problem-solving, global citizenship, and responsible decision-making for sustainable futures [2], [3].

Among developed countries, Japan is frequently regarded as one of the leading examples of successful integration between educational innovation and sustainable development [4]. According to the Sustainable Development Report 2025 published by the United Nations Sustainable Development Solutions Network (SDSN), Japan ranked nineteenth among 167 countries and achieved the highest position among Asian nations [5], [6]. The report indicates that Japan has achieved Goal 3 (Good Health and Well-being) while demonstrating relatively high performance in Goal 4 (Quality Education) and Goal 16 (Peace, Justice, and Strong Institutions) [7]. Although several SDGs remain categorized as significant or serious challenges, Japan continues to exhibit a comparatively strong capacity to address sustainable development issues through institutional, social, and educational mechanisms.

The strong performance of Japan in SDG-related indicators raises important questions regarding the role of its educational system in fostering sustainable development competencies. Education has long been considered a strategic instrument in Japanese national development, emphasizing not only academic achievement but also social responsibility, community participation, and character formation. The Japanese approach reflects the broader objectives of ESD, which seek to empower learners to become active agents of change capable of addressing sustainability challenges at local, national, and global levels [8].

Evidence of Japan's educational success is also reflected in international assessments of student achievement. Results from the Programme for International Student Assessment (PISA) 2022 show that Japan ranked second in scientific literacy, third in reading literacy, and fifth in mathematical literacy among participating countries [7]. These results demonstrate not only consistently high academic performance but also remarkable resilience compared with many countries that experienced significant learning declines following the COVID-19 pandemic. Furthermore, Japan maintains one of the highest proportions of high-performing students while simultaneously recording relatively low percentages of low-performing students. Such achievements suggest that Japanese education has successfully developed competencies associated with critical thinking, problem-solving, analytical reasoning, and lifelong learning—competencies that are increasingly recognized as essential for sustainable development.

The relationship between educational quality and sustainable development outcomes has attracted growing scholarly attention. Previous studies have highlighted the importance of inquiry-based learning, student-centered pedagogy, and experiential education in developing sustainability competencies [9]. However, relatively limited research has examined how specific educational structures contribute simultaneously to both SDG advancement and international academic excellence. This gap is particularly important because many educational systems continue to treat sustainability education and academic achievement as separate objectives rather than mutually reinforcing dimensions of educational quality.

One educational innovation frequently identified as a contributing factor to Japan's success is Integrated Learning Time (*Sōgōteki na Gakushū no Jikan*). Introduced through the revision of the national curriculum guidelines in 1998 and subsequently strengthened in later curriculum reforms, Integrated Learning Time was designed to promote inquiry-based, interdisciplinary, and problem-oriented learning experiences. Unlike conventional subject-based instruction, this educational framework encourages students to identify real-world problems, gather and analyze information, develop solutions, and communicate findings through collaborative and reflective learning processes. Schools are provided with substantial flexibility to design learning activities that address local community issues, global challenges, and students' interests, thereby creating meaningful connections between academic knowledge and practical social engagement.

Research conducted Japanese educational studies suggests that Integrated Learning Time contributes significantly to the development of competencies measured by PISA, including problem-solving, critical thinking, communication, and collaborative learning [10]. Moreover, the inquiry cycle

embedded within Integrated Learning Time aligns closely with the core principles of ESD by encouraging learners to engage actively with sustainability-related issues and participate in social transformation processes. Consequently, this educational model provides a potentially valuable framework for understanding how education can simultaneously strengthen academic achievement and support sustainable development.

Despite growing international interest in Japanese education, limited studies have explored Integrated Learning Time from the perspective of ESD implementation and its contribution to sustainability-oriented competencies. Existing research often focuses either on curriculum reform or on academic achievement outcomes, while the broader relationship between inquiry-based learning, sustainability education, and global competence development remains underexplored. Addressing this gap is particularly relevant as many countries seek effective educational strategies to achieve SDG 4 and prepare learners for increasingly complex social, environmental, and technological challenges.

Therefore, this study aims to examine the global significance of Integrated Learning Time as an educational approach that supports both Education for Sustainable Development and the development of competencies associated with high academic performance. By analyzing the conceptual foundations, implementation processes, and educational outcomes of Integrated Learning Time, this study seeks to contribute to the growing literature on sustainable education and provide insights for policymakers, educators, and researchers interested in advancing transformative learning for sustainable futures.

2. Method

This study employed a qualitative document analysis approach to examine the contribution of Integrated Learning Time to Education for Sustainable Development (ESD) and student competencies in Japan. Data were collected from official documents published by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), OECD reports, PISA 2022 results, the Sustainable Development Report 2025, and relevant scholarly articles. The documents were analyzed using thematic content analysis to identify key themes related to inquiry-based learning, sustainability competencies, critical thinking, problem-solving, and SDG achievement. The findings were interpreted through the lens of UNESCO's ESD framework to understand how Integrated Learning Time supports sustainable development and high educational performance in Japan.

3. Results and discussion

3.1 Progress Toward Achieving the SDGs in Japan

In the “Sustainable Development Report,” released on June 24, 2025, by the United Nations Sustainable Development Solutions Network (SDSN), which evaluates countries' progress in terms of Sustainable Development Goals (SDGs), Japan ranked 19th out of 167 countries—the highest ranking among Asian nations [6].

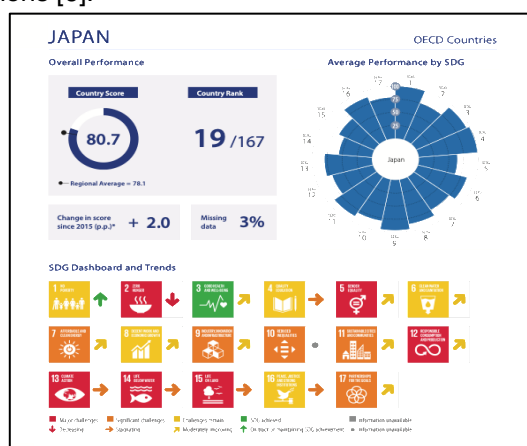


Figure 1. Sustainable Development Report 2025; Japan, p.232

The report evaluates each country's progress across the 17 SDGs using a four-tier scale: “Achieved,” “Challenges remain,” “Significant challenges,” and “Serious challenges.” In the 2025 edition, Japan had one goal rated as “Achieved,” five as “Challenges remain,” five as “Significant challenges,” and six as “Serious challenges.” The breakdown is as follows: [Achieved] = 1 (Goal 3: Good Health and Well-being); [Challenges remain] = 5 (Goal 1: No Poverty; Goal 4: Quality

Education; Goal 6: Clean Water and Sanitation; Goal 8: Decent Work and Economic Growth; Goal 16: Peace and Justice for All); [Significant Challenges] = 5 (Goal 7: Affordable and Clean Energy, Goal 9: Industry, Innovation and Infrastructure, Goal 10: Reduced Inequalities, Goal 11: Sustainable Cities and Communities, and Goal 17: Partnerships for the Goals); [Serious challenges] = 6 (Goal 2: Zero Hunger, Goal 5: Gender Equality, Goal 12: Responsible Consumption and Production, Goal 13: Climate Action, Goal 14: Ocean Conservation, and Goal 15: Terrestrial Ecosystem Restoration).

The designation of Goal 3 as “Achieved” is largely attributable to improvements in indicators such as subjective well-being. Furthermore, although Goals 1, 4, 6, 8, and 16 are categorized as “Challenges remain,” their overall levels of achievement remain high. The comparatively strong performance in Goals 3, 4, and 16 is attributed to the Curriculum Guidelines established by Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT). This raises an important question: what kind of education is being implemented in Japan?

3.2 State of PISA Academic Performance in Japan

To further explore this question, it is useful to examine Japan’s performance in the Programme for International Student Assessment (PISA), an international academic achievement survey conducted by the Organisation for Economic Co-operation and Development (OECD). According to the results of the most recent survey in 2022, Japan ranked 2nd in scientific literacy, 3rd in reading literacy, and 5th in mathematical literacy [11]. In the previous 2018 assessment, Japan ranked 5th in scientific literacy, 15th in reading literacy, and 6th in mathematical literacy. Along with earlier results, these findings suggest that the academic performance of 15-year-old students in Japan consistently remains among the highest globally.

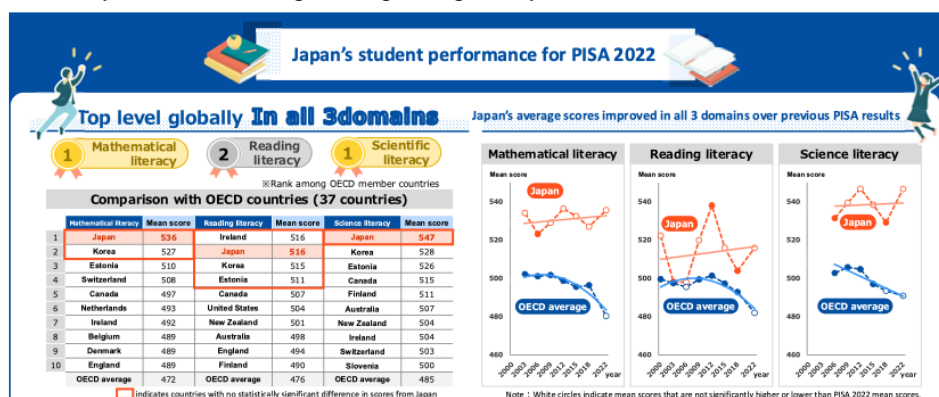


Figure 2. Japan’s student performance for PISA 2022

Furthermore, while average scores across participating countries have exhibited a long-term decline, Japan has maintained a high level of performance. Notably, in the two most recent survey cycles, the proportion of low-performing students in scientific and mathematical literacy has remained small, while the proportion of high-performing students has increased. The proportion of high-performing students in Japan ranks among the highest internationally. Given that Japan has the world’s 11th-largest population, Director Schleicher of the OECD’s Directorate for Education and Skills suggested that Japan is a country with one of the largest pools of potential scientists, comparable to those of the United States and China. This raises a question: *what factors underpin Japan’s strong performance in PISA?* In the following section, we will examine one such factor: “Integrated Learning Time,” as defined in Japan’s Curriculum Guidelines.

3.3 Background to Advancing SDGs and Fostering PISA-Related Competencies in Japan

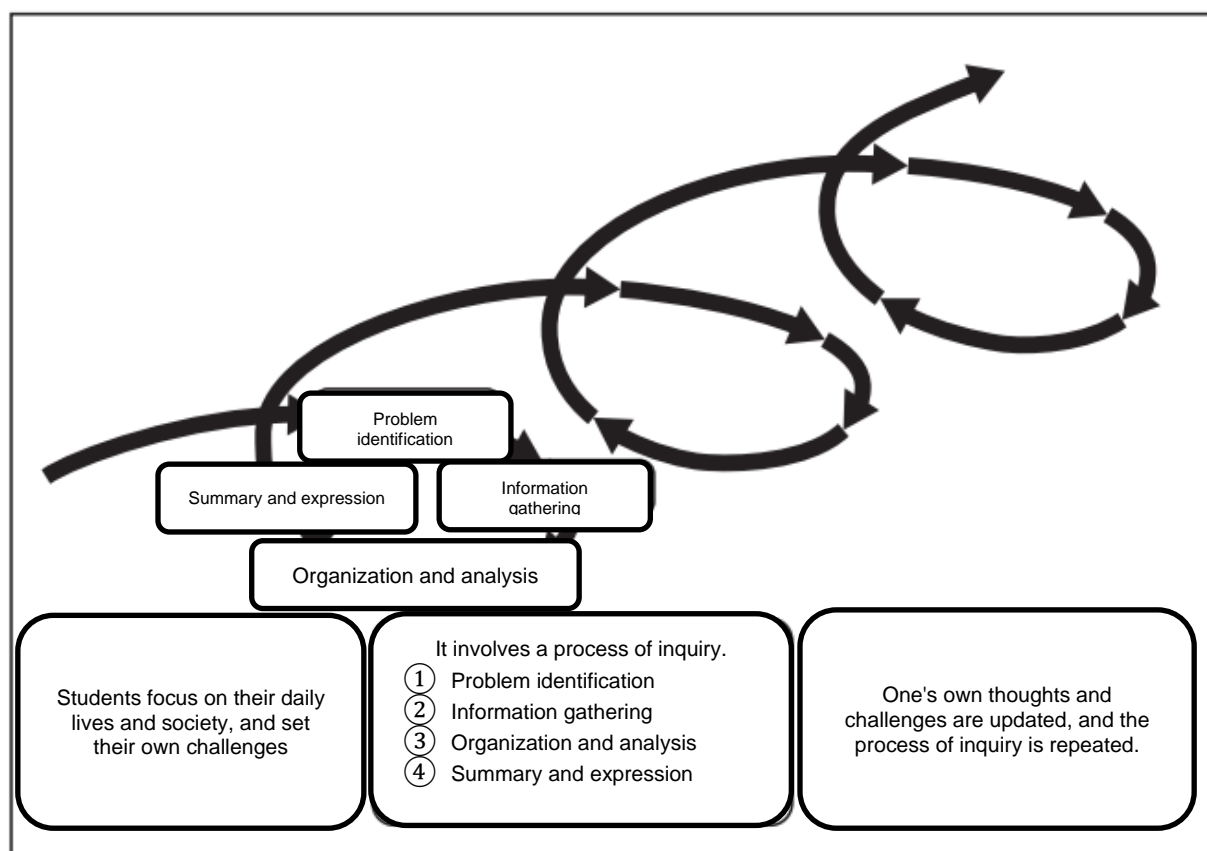
“Integrated Learning Time” was institutionalized through revisions to the 1998 Curriculum Guidelines for Elementary and Junior High Schools and the 1999 Curriculum Guidelines for High Schools. Its stated objective is: “to foster the qualities and abilities necessary for effective problem-solving and self-reflection on one’s way of life through inquiry-based perspectives and cross-curricular, integrated learning.” Within this framework, schools were permitted to set their own goals and content.

The result has indicated that Japan’s Integrated Learning Time contributes positively to the development of students’ academic competencies [12]. In particular, the report on the PISA 2012 problem-solving skills survey also suggests that it may be a factor in the recovery of academic performance in Japan’s PISA results.

Further supporting this view, “Survey on Academic Abilities Developed through Integrated Studies,” conducted by a project team from the Japan Society for Life Environment Studies and Integrated Studies Education, compared schools that had pioneered the implementation of Integrated Learning Time with more typical schools. The findings revealed that the pioneer schools had cultivated the key competencies tested in the PISA survey more successfully [13].

The 2017 revision of the Curriculum Guidelines [14] further clarified the nature of inquiry within “Integrated Learning Time,” identifying a sequence of processes, shown in Figure 3, namely: “problem identification,” “information gathering,” “organization and analysis of information,” and “summary and expression.” The iterative and cumulative practice of these processes fosters the development of essential competencies, including the ability to identify questions grounded in real-world contexts, set their own goals, collect, organize and analyze information, and effectively communicate them. In other words, the process of inquiry is regarded as the core of Integrated Learning Time.

Figure 3. Students' behavior in inquiry-based learning



Source: Ministry of Education, Culture, Sports, Science and Technology (MEXT). (2017). "Commentary on the Junior High School Curriculum Guidelines (Announced in 2017): The Period of Integrated Studies," p. 9

Such inquiry-based learning is also significant in an international context. It can be understood as a model of education that contributes to improving PISA-style academic performance, alongside progress toward achieving the SDGs. The following section presents concrete examples of practices incorporating inquiry-based learning, focusing primarily on Japan's Integrated Learning Time.

3.4 Case Studies of SDG-Based Integrated Learning Activities in Japan

As an illustrative case, this study examines an Integrated Learning Time program implemented at Kinjo Gakuin Junior High School in Nagoya City, Aichi Prefecture [15]. Mrs. Romi Nakata, a teacher at the high school, has been implementing the “15-Year-Olds Passing Down the War” program during Integrated Learning Time for third-year junior high school students, linking it to pre- and post-trip learning activities for a school trip to Hiroshima. An overview of the structure and implementation of this program is provided in Table 1.

Table 1: Implementation of the “War Passed Down by 15-Year-Olds” Program in Integrated Studies

Grade Level	9th Grade	Textbooks (Publisher)	New Social Studies Atlas (Tokyo Shoseki), “Listen to the Voices of Hiroshima” (published by the Atomic Bomb Memorial and Historic Sites Guide Publication Committee); original teaching materials developed through field research; supplementary resources.
Learning Objectives	<p>[Learning Objectives]</p> <p>① To understand that human beings are involved in both creating and destroying peace.</p> <p>② To reflect on what each student can do to become a person who helps bring peace.</p> <p>[Core Learning Activities]</p> <p>① Reflect on the concept of peace through participation in the school trip.</p> <p>② Produce a “peace newspaper.”</p> <p>③ Conduct fieldwork and interviews during summer vacation or other breaks.</p> <p>④ Investigate individuals actively engaged in peacebuilding and learn from their way of life; compile findings into a graduation report.</p> <p>⑤ Present findings at the Keiai Festival (school festival) and the academic presentation event.</p>		
Content and Flow of the Lesson	Semester/Month, etc.	April–May: Learning from War	
	First Semester	School Trip Creating the Peace Newspaper “The War I Heard About, the Hiroshima I Saw”	Learn about the realities of war and encounter individuals affected by it. Through interviews with family members and community residents about their wartime experiences, students come to understand war as a personally relevant issue.
		July–September: Reflecting on Peace	
	Second Semester		
		Keiai Festival (School Festival)	Select a theme related to peace and construct arguments based on research. Findings from school trips and summer fieldwork are incorporated into presentations.
		November–March: Becoming a Person Who Builds Peace	
	Third Semester	Learning How to Live Graduation Report: “People Living in Peace: Living and Thriving”	Explore different ways of life and reflect on their own future paths as they prepare to enter high school.
Points to Note • Assessment, etc.	<p>[Key Considerations for Learning]</p> <p>Careful selection of teaching materials ensures that students engage with the subject matter with interest and enthusiasm. To avoid purely theoretical learning, fieldwork is introduced, and students are given opportunities to conduct interviews. A writing assessment is conducted at the end of the school year.</p> <p>[Assessment Criteria]</p> <p>① Motivation, interest, and attitude toward the subject matter: Did the student show interest in the material covered and engage enthusiastically in class?</p> <p>② Critical thinking and analytical skills regarding learning content: Were students able to think deeply, identify problems on their own, and conduct appropriate analyses?</p> <p>③ Reports, presentations, and expressive skills: Were students able to develop well-researched content based on research and interviews, and think independently? Were they able to complete assignments carefully and meet deadlines? Were they able to deliver presentations after sufficient preparation and a solid understanding of the content? Were they able to demonstrate creativity in their presentation delivery?</p>		

Source: https://www.hs.kinjo-u.ac.jp/doc/2018_dignity.pdf,p.208



Photo 1: “Museum of War and Peace” (Peace Aichi)



Photo 2: A tour of Peace Aichi

As mentioned previously, students created a “Peace Newspaper” and “Peace Karuta” based on their school trips to Hiroshima and interviews with their great-grandparents. In collaboration with Peace Aichi (Photos 1 and 2), located in Meito Ward, Nagoya, they organized a special exhibition titled “The War Passed Down by 15-Year-Olds.” Peace Aichi is a privately run “Museum of War and Peace” operated by local citizens. To commemorate the opening of the “War Passed Down by 15-Year-Olds” exhibition, the museum hosted a piano recital and storytelling session performed by junior high and high school students from Kinjo Gakuin (Photo 3).

In addition, students interviewed their great-grandparents about their wartime experiences and, through a school trip to Hiroshima, had the opportunity to reflect concretely on issues of war and peace. Through these activities, they developed an awareness of the history of war and peace and engaged in inquiry-based learning [16]. Within the inquiry process, students undertook field trips, interviews, and research; through collaboration, each student deepened their perspectives on war and peace.

Furthermore, the editor’s note in the “Peace Newspaper” (Photo 4), created by the students, expressed the following thoughts on war and peace.



Photo 3: “War Passed Down by 15-Year-Olds” Exhibition



Photo 4: “Peace Newspaper” created by the students

“We are said to be the last generation that can hear firsthand accounts from those who lived through the war. Now, around the world—and perhaps even in Japan—war seems to, once again, to be a real possibility. Through this peace education, we have come to believe that war must never be allowed to happen, and we are convinced that we must pass this message on to future generations.”

“There were many visitors from Europe, America, and Asia at the museum. I wanted to ask them how they felt. At present, however, I don’t yet have the language skills or cultural literacy to ask those questions and share their answers. I strongly felt that I needed to study the history and culture of various countries, including Japan, in greater depth.”

As these reflections indicate, students approach the issue of war and peace as a contemporary problem and think about it proactively as a matter of personal concern. Furthermore,

through the special exhibition “The War Passed Down by 15-Year-Olds,” students move beyond the role of passive recipients of information and assume the role of information disseminators—that is, acting as newspaper reporters. The ability to engage critically with familiar issues, carefully scrutinize information, and articulate one’s own perspective is closely linked to the development of media literacy [17], an essential competency in an era shaped by misinformation and “fake news.”

As outlined above, the implementation of the Integrated Learning Time program places central emphasis on the inquiry process carried out by students [18], [19], including problem identification, information gathering, organization and analysis, and summary and expression. Furthermore, through the inquiry process, students participate in active, interactive, and deep learning, while simultaneously cultivating media literacy [20].

3.5 Integrated Learning Time as a Means of Advancing the SDGs and Enhancing PISA-Style Academic Skills

The significance of inquiry in Japan’s Integrated Learning Time may be summarized as follows. First, inquiry-based learning fosters student motivation and enables learners to experience a sense of achievement through collaborative engagement [21], [22]. By participating in problem-solving activities, students develop essential competencies while also deepening their engagement with learning. The Curriculum Guidelines state that schools should enhance educational activities that utilize creativity and ingenuity in accordance with the actual circumstances of students, schools, and communities [23], [24]. This promotes the realization of active, interactive, and deep learning (also known as “active learning”) and supports innovative practices that showcase the creativity of schools and teachers, such as the “War Stories Told by 15-Year-Olds” initiative.

Second, the inquiry component of Integrated Learning Time reflects a constructivist approach to learning [25], in which students—as learners—construct their own knowledge frameworks, much like the integration of knowledge. Specifically, the Curriculum Guidelines state: “Each school shall define the goals (content) of its Integrated Studies period based on the first objective (Author’s note: inquiry).” The guidelines emphasize that: “Schools shall strive to improve the quality of their educational activities in an organized and planned manner based on the curriculum (Curriculum Management).” This indicates that the uniqueness of school curricula tailored to local communities and the actual circumstances of the children are expected to promote curriculum development and classroom improvement at each school, as seen in the “War Stories Told by 15-Year-Olds” initiative.

Third, inquiry-based learning is grounded in a competency-based perspective of academic ability [26]. It serves as a valuable model for fostering not only PISA-related competencies (scientific, reading, and mathematical literacy) but also 21st-century skills. The 2017 revision of the Course of Study clearly articulated inquiry as a structured process comprising problem identification, information gathering, organization and analysis, and summary and expression. The repeated, progressive application of problem-solving learning within this framework is expected to foster the development of students’ qualities and abilities. Furthermore, through the process of inquiry, students are expected to identify questions grounded in real-world contexts, formulate their own problems, gather information, and cultivate the skills to organize and analyze them, ultimately leading to the ability to synthesize and express their findings. The concept of inquiry in Japan’s Integrated Learning Time can thus be viewed as a means to promote the achievement of the SDGs and the improvement of PISA-style academic performance within a global context.

4. Conclusion

Japan’s strong performance in both Sustainable Development Goals (SDGs) achievement and PISA assessments demonstrates the significant role of education in fostering sustainable development and high-level student competencies. The findings indicate that Integrated Learning Time serves as an important educational innovation that promotes inquiry-based, interdisciplinary, and student-centered learning. Through processes of problem identification, information gathering, analysis, reflection, and communication, students develop critical thinking, problem-solving, collaboration, and global citizenship competencies that are closely aligned with the principles of Education for Sustainable Development (ESD).

Furthermore, the integration of sustainability issues into authentic learning experiences enables students to connect academic knowledge with real-world challenges, thereby supporting both SDG implementation and academic excellence. The Japanese experience suggests that inquiry-based learning can function as a strategic mechanism for simultaneously strengthening

educational quality and sustainability outcomes. Therefore, Integrated Learning Time provides a valuable model for policymakers and educators seeking to advance ESD and prepare future generations to address complex social, environmental, and global challenges.

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