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仮訳
Provisional Translation

Guideline for the Use of Generative AI in Elementary and Secondary Education Ver.2.0

Elementary and Secondary Education Bureau
Ministry of Education, Culture, Sports, Science and Technology

December 26, 2024

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PREFACE

Development of Guidelines

(The spread of generative AI and key issues)

Generative AI (Artificial Intelligence) is constantly evolving, and the accelerating pace of its adoption across all sectors of society is having diverse impacts in terms of the convenience and inherent risks posed by such technologies. As generative AI learns vast amounts of existing information and creates highly useful output based on computational principles, there are various ways it can be utilized in the education sector. Meanwhile, a range of issues have been raised for using AI in schools spanning from fundamental questions about the very meaning of learning itself, ethical and societal concerns such as discrimination, bias and environmental impact, technical issues such as ensuring security during use, and practical considerations on how to use AI taking all these issues into account.

(Using generative AI to foster essential qualities and abilities)

Japan's current Curriculum Guidelines, drafted with AI in mind, aim to steadily cultivate the qualities and abilities needed for an era of accelerating and increasingly complex societal change. They include the "Basic and fundamental knowledge and skills" needed to live and work, the "ability to think, make judgments, and express oneself" to handle unforeseeable situations, and the "Cultivate the motivation to learn and humanity" capable of applying what one has learned to society and daily life. This concept remains vital even as generative AI rapidly evolves. As we now live in a digital age where information including disinformation is readily accessible, children must learn to deepen their understanding of the significance of learning, acquire the ability to grasp the meaning of each piece of information, question the essence of problems, and foster a deep comprehension that goes beyond mere accumulation of isolated facts.

Given this premise, it is essential that children living in an AI-driven world master using AI technologies so that each child can unleash their full potential, and using generative AI in schools can be instrumental towards this end. It is, therefore, essential to outline the fundamental policies and practical points from the standpoint of schools for educators and students to appropriately engage with and use generative AI to help foster the qualities and abilities outlined in the curriculum guidelines without causing disruption or anxiety within the school environment.

(Government initiatives)

Based on comments received from various parties on the advantages and disadvantages of generative AI, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) released in July 2023, "Generative AI Utilization Guidelines for Elementary and Secondary Education, Ver.1.0" (Provisional). The guidelines aim to serve as a reference for educators to determine the propriety of using interactive text-generating AI and were drafted based on insights of experts and intellectuals from diverse fields including educational technology, pedagogy, AI researchers, school personnel and education board officials. Furthermore, as called forth in the "Social Principles of Human-Centric AI"[1] and other initiatives, the government is advancing various measures to realize the fundamental philosophy of aiming to create a society

[1] Social Principles of Human-Centric AI (Mar. 29, 2019, decided by the Cabinet Office, Council for Promotion of Innovation Strategy)

that respects human dignity, where people from diverse backgrounds can pursue diverse forms of happiness and a sustainable society. These efforts include international rulemaking through the Hiroshima AI Process[2] and publication of the "AI Guidelines for Business"[3].

Positioning and Structure of Guidelines

(Reviewing guideline revisions)

Against this background, in July 2024, MEXT launched a "Study Group on the Utilization of Generative AI in Elementary and Secondary Education" within its Elementary and Secondary Education Bureau. The study group is comprised of experts in educational technology, natural language processing, teacher training and other relevant fields, along with practicing teachers and education administrators. The group has been reviewing approaches on using generative AI, while conducting hearings with generative AI-related businesses. Based on the provisional guidelines, the guidelines were revised following discussions by the study group and consideration of technological advancements. The revisions outlined below, were drafted with the intention of making the guidelines easy for the reader to understand.

(Positioning and structure of the guidelines)

The guidelines are mainly intended for school education professionals including teachers, staff, and education board members, to serve as a reference on the appropriate use of generative AI in school settings. They summarize fundamental principles and key points to consider when using such technology, and do not uniformly ban or obligate using generative AI in schools.

Given this premise, the guidelines outline the basics and fundamental principles of generative AI. Based on the current knowledge to date, they also present key points to consider according to specific scenarios and parties. The guidelines will be updated when necessary, considering future technological advances and the situation of AI implementation in schools.

As additional reference material for these guidelines, we have compiled checklists outlining key points to consider when using generative AI in school settings according to specific scenarios and parties, along with case studies of pioneering initiatives from generative AI pilot schools and information on training materials applicable to school settings. We encourage schools to refer to these resources when using generative AI.

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[2] The Hiroshima AI Process was established to create international rules for advanced AI systems. For details, refer to the Ministry of Internal Affairs and Communications website.

[3] "AI Guidelines for Business (Ver. 1.01)" (Nov. 22, 2024, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade, and Industry)

1. OVERVIEW OF GENERATIVE AI

(Rapid evolution and widespread use of generative AI)

Generative AI [4] has rapidly spread throughout society following OpenAI's announcement and release of ChatGPT in November 2022. In recent years, AI has evolved to handle not only sentences, but can collectively manage diverse types of information such as images together with audio, responding at a speed comparable to humans. Furthermore, various technological innovations are advancing including the emergence of services where generative AI autonomously achieves objectives and models that can operate in offline environments. Combined with the release of generative AI models, this has expanded the possibilities for various businesses to develop and provide new services using AI.

Generative AI can produce a response that nearly resembles having a natural conversation with another person, and can generate output by collecting, organizing, and analyzing information. By integrating generative AI functionality into existing services, its diverse applications have expanded to include drafting texts, generating images, serving as a partner for language learning or brainstorming and programming code.

(Using generative AI in school settings)

Not only are standard generative AI services available for general use in school settings- AI technology is already incorporated into mainstream search engines, learning support software, and browsers included in the devices provided by the "one laptop per child" policy promoted by MEXT. Furthermore, by connecting with general-purpose models, various generative AI-based services are being incorporated and expanding their scope of use in the education sector. In such an environment, generative AI use has increased in school administrative tasks such as helping to create draft test questions and various documents. In terms of student learning, AI use is expected to increase to enable learning tailored to each student's needs and characteristics, and to help children deepen their learning by generating output that provides new or more profound perspectives.[5]

(Risks of generative AI and technical countermeasures)

Amid advances in research and development of generative AI's inference capabilities and the release of relevant services, it is extremely difficult to completely prevent erroneous outputs (hallucinations) due to the nature of the models. Furthermore, various risks[6] have been raised including concerns about the reliability and transparency of generative AI's learning and output processes- issues also noted with traditional AI- and the reproduction of biases such as prejudice and discrimination inherent in large amounts of data. To address these risks, technologies are advancing such as search-augmented generation techniques designed to reduce incorrect outputs, along with techniques to restrict outputs based on input prompts to prevent rights infringements. Mitigation of such risks is becoming more probable by choosing services that incorporate such technologies.

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[4] Generative AI refers to "a generic term for AI based on AI models capable of generating text, images, programs, etc." ("AI Guidelines for Business (Ver. 1.01)" (Nov. 22, 2024, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade, and Industry)

[5] For pioneering initiatives in school settings, refer to Reference Material pg. 36-38.

[6] For examples of typical risks and concerns in school settings, refer to Reference Material pg. 39-40.

Diagram 1　What is Generative AI?

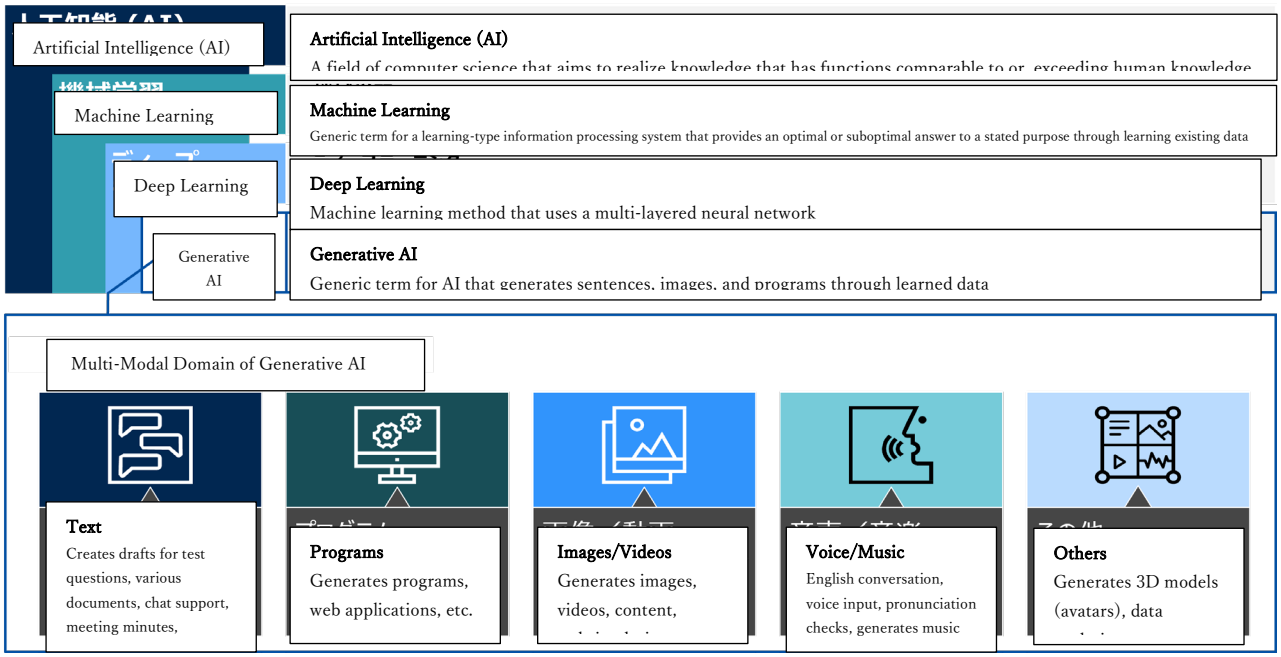
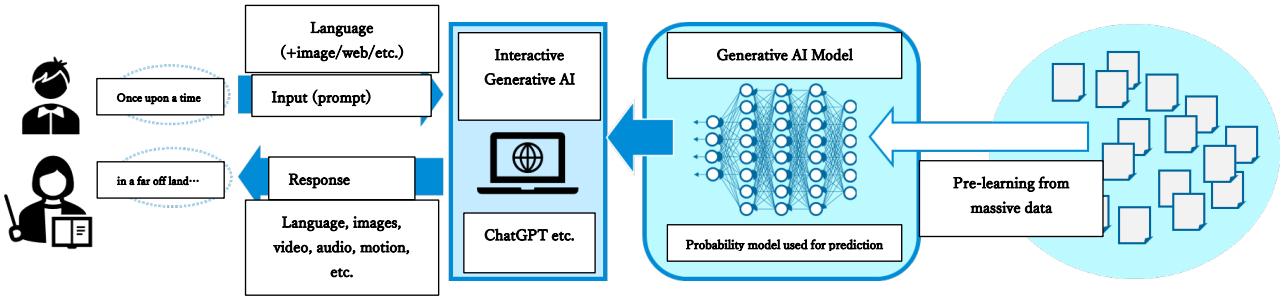


Diagram 2 Interactive Generative AI[7]



[7] Drafted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) based on the Japan Science and Technology (JST) Research and Development Strategy Center (CRDS) report, "New Trends in Artificial Intelligence Research 2~ The Impact of Foundation Models and Generative AI~" (July 2023).

2. BASIC CONCEPT

Based on the characteristics of generative AI outlined in "1. Overview of Generative AI," the fundamental principles for using generative AI in school settings are outlined below.

(1) Human-Centric Utilization of Generative AI in School Settings

(Human-centric principle)

A fundamental principle for AI use is the "Human-Centric Principle"[8] defined as follows: "Using AI must not violate fundamental human rights guaranteed by the Constitution of Japan or granted internationally. AI should be developed, deployed, and utilized to expand human abilities and enable diverse people to seek diverse well-being."

This principle equally applies to the education sector. Rather than viewing the relationship between generative AI and humans as adversarial or feeling anxiety towards using this technology, generative AI should be understood as a potentially useful tool that can help expand our capabilities and broaden our possibilities depending on how it is used. Moreover, it is crucial to maintain a fundamental stance that recognizes AI outputs are merely, "a reference" and "not necessarily the optimal solution". Upon consideration of AI's risks and concerns, we must ultimately make the final judgment and take personal responsibility for the final deliverable.

(Student learning and generative AI)

For student learning, generative AI should only be used after carefully evaluating whether it contributes to the development of qualities and abilities defined in the curriculum guidelines and if it is effective in achieving the objectives of educational activities. Using generative AI should not be the goal itself.

This requires setting appropriate tasks and providing clear prompts to elicit outputs that lead to a desired outcome, along with the ability to accurately judge their validity and appropriateness. As such, along with fostering children's motivation to learn and human nature, cultivating the following abilities is now more crucial than ever- the ability to comprehend knowledge and texts learned in various subjects, the capacity for critical examination, maintaining an awareness of issues, and to continuously pose questions. When developing such curriculum, greater attention is needed to enhance hands on experiences in education by balancing and harmonizing experiential learning with Information and Communication Technology (ICT).

(The role of teachers and generative AI)

Education is delivered through the personal interaction between teachers and students. The role of teachers as learning professionals which involves appropriate instructional planning, setting up learning environments, and providing careful observation and support, will become ever more crucial in an era where generative AI is a part of our social infrastructure.

To effectively use generative AI in schools, it is important for teachers and staff to acquire a certain level of AI literacy, including understanding the mechanisms and characteristics of generative AI. For example, while incorporating Information Technology (IT) into daily school tasks, teachers should become familiar with new technologies, be aware of their convenience and concerns, and learn how to use them

[8] "Social Principles of Human-Centric AI" (March 29, 2019, Cabinet Office, Council for Promotion of Innovation Strategy)

wisely. This familiarity lays the groundwork for appropriate use in educational activities. Concurrently, it is also necessary to support teachers' learning by providing training opportunities and establishing supportive environments. Furthermore, teacher training programs should use these guidelines as reference, keeping in mind societal changes due to the incorporation of generative AI, and advances in implementing new learning approaches driven by learning environments which continue to evolve.

(Expected roles for generative AI providers)

Generative AI providers involved in schools are also expected to engage responsibly by collaborating to improve generative AI services and providing training opportunities. Furthermore, they are also expected to incorporate feedback from schools into the generative AI service improvement cycle by understanding the school's actual situation and needs through consultations.

(2) Strengthening the Development of Information Literacy with Generative AI in Mind

(Information literacy as a fundamental quality and ability for learning)

The curriculum guidelines places "information literacy (including information ethics)" as a fundamental quality and ability for learning, alongside language skills and the ability to identify and solve problems. The guidelines emphasize the importance of taking initiative to utilize information, and applying IT to learning and daily life which is crucial in a future society that is difficult to predict, due to the rapid evolution and widespread incorporation of new information technologies.

Information literacy is the essential quality and ability needed to perceive various phenomena in society as information and its connections, and to appropriately and effectively use information and IT to identify and solve problems or formulate one's own ideas. Schools are expected to foster information literacy through instruction within the learning process of each subject area, by reorganizing the curriculum from a cross-curricular perspective.

Box-1. Summary of information literacy based on the three pillars of qualities and abilities

The General Provisions section of the curriculum guidelines outlines information literacy based on the following three pillars. In detail, information literacy refers to the ability to appropriately use computers and other information tools during educational activities when necessary. They include knowing how to organize and compare acquired information; clearly communicate or transmit this information; save or share the information when necessary. Information literacy also includes having basic operational skills of such information tools to carry out these learning activities, along with the qualities and abilities related to programming-oriented thinking, information ethics, information security, and statistics.

○ Basic and fundamental knowledge and skills (Level of skills and knowledge)

Acquiring the following skills and knowledge necessary to appropriately utilize information and IT: knowing how to find and solve problems using information and IT; understanding the role and impact of digitalization in society; understanding the laws, systems, and etiquette related to technology; recognizing the role and responsibility of an individual's scientifically grounded understanding of information.

○ Ability to think, make judgements, and express oneself (Knowing how to use skills and knowledge)

Acquiring the ability to: evaluate various phenomena from the perspective of information and its connections; synthesizing multiple pieces of information to discover new meaning; appropriately and effectively using IT to find and solve problems.

○ Cultivate the motivation to learn and humanity (Knowing how to engage with society and the world to lead a better life)
Developing an attitude that enables active participation in information society by appropriately and effectively using information and IT and contributing to its development.

(Strengthening development of information literacy)

Generative AI is being incorporated into our social lives in every possible setting. The rapid evolution and integration of generative AI combined with the widespread use of smartphones and other devices has created a situation in which many students have already encountered generative AI in some form outside of school. Furthermore, as the daily use of devices has become commonplace through MEXT's "one device per child" policy, generative AI is being incorporated into students' learning environments. It is also likely that students may unintentionally use output from generative AI integrated in search engines and other tools they use regularly.

Given such context, fostering information literacy requires students to develop a scientifically grounded understanding of the role and impact of generative AI in society, along with an understanding of the relevant laws, regulations, and etiquette. Students must also learn to appropriately and effectively use generative AI to find and solve problems, and to develop a mindset to actively participate in our information society. Educators must work to further enhance student's information literacy skills in information ethics while considering the students' developmental stage, school grade level, their surrounding environment, and local circumstances. It's particularly important for educators to proactively work within the classroom across all subjects to teach students to understand the mechanism of generative AI- which many working adults are already using to enhance productivity- and how they should use AI for learning.

Box-2. Further enhancement of information ethics education

The General Provisions explanation section of the curriculum guidelines specifically states that information ethics is included within information literacy. Information ethics refers to "the fundamental mindset and attitude necessary to take appropriate action in an information society". Specifically, this includes considering the impact on others, respecting the rights of oneself and others (such as human rights and intellectual property rights), taking responsibility for one's actions in an information society, avoiding dangers including criminal victimization, using information correctly and safely, and understanding the relationship between health and the use of information devices such as computers.

Amid concerns such as, "the proliferation of misinformation due to the spread of generative AI," and "children being exposed to filter bubbles," it is increasingly important to cultivate information ethics in students according to their developmental stage. Furthermore, considering the characteristics of generative AI, it is advised to consciously learn methods to verify the authenticity of information (so-called fact-checking[9]) as a part of these activities. While keeping the spread of generative AI in mind, it is necessary to enhance learning activities according to the student's developmental stage as seen below.[10]

[9] While it may be difficult in some cases for students to verify the strict veracity of information, fact-checking requires combining multiple methods (such as examining the source, timing, content, and comparing with other information sources) to assess the credibility of information. It is important to be mindful that search engine results may include outputs from generative AI, and to foster students' ability to identify areas that require fact-checking.

[10] Learning activities outlined in the general provisions section of the curriculum guidelines. Furthermore, when implementing these activities in subjects where information ethics instruction is explicitly stated in the current curriculum guidelines such as: moral education [elementary/junior

- Learning activities that encourage students to consider the impact of information dissemination on others and society.
- Activities that encourage students to consider the meaning of complying with online network rules and etiquette.
- Activities that encourage students to consider how information involves the rights of both oneself and others.
- Activities that encourage students to consider how information can be false or dangerous.
- Activities that encourage students to consider the importance of information security and its specific countermeasures (limited to High School Grade Level).
- Activities that encourage reflection on behaviors harmful to health.
- Activities that promote understanding of the characteristics of information and IT, such as the possibility that widely disseminated information posted online may remain somewhere and cannot be deleted completely.

high], social studies [junior high], technology/home economics [junior high/program focused on technology], geography/history [high school], civics [high school], and information studies [high school]), it is also important to coordinate with other subjects and student guidance teachers according to the learning stage and content at each school.

3. KEY POINTS TO ADDRESS IN SCHOOL SETTINGS

As outlined in "1. Overview of Generative AI," using generative AI in school settings is expected not only to support administrative tasks such as creating draft test questions and various documents but will also help students in their learning. Generative AI is anticipated to enable learning tailored to each student's needs and characteristics, and to deepen learning by posing new and profound perspectives. Based on the principles outlined in "2. Basic Concept," the following five points should be jointly considered to facilitate the appropriate use of generative AI in school settings. Furthermore, sections "3-1. Scenarios of Teacher/Staff Use for School Administration," "3-2. Scenarios of Student Use for School Learning Activities," and "3-3. Key Points to be Considered by the Board of Education and Other Entities," have been also organized based on the following five points according to specific scenarios and stakeholders. Please refer to the relevant sections when necessary.

① Proper use considering safety

In order to correspond to the risks associated with using generative AI based on the human-centric principle, it is essential to ensure proper use within the scope intended by the developers and providers, while complying with relevant laws and regulations.[11] Specifically, users must review and comply with the latest terms of service established by generative AI provider including age restrictions, if parental consent is needed, and the licensing status of generated content.

② Ensuring information security

It is important to ensure information security to safely use generative AI in school settings. While referencing the latest "Guidelines for Educational Information Security Policy"[12] formulated by MEXT, the Board of Education must establish an Educational Information Security Policy[13] that fully considers the circumstances of each school and revise them when necessary. The Board and schools must comply with this policy.

③ Protection of personal information, privacy, and copyright

For information to be handled appropriately in school settings, schools must comply with relevant laws and regulations such as the Personal Information Protection Act to respect privacy and protect individual rights and interests. Furthermore, when using generative AI services, it is important to correctly understand generative AI and the copyright system to avoid unintentionally infringing others' copyrights.

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[11] This guideline focuses on issues users should consider, primarily with the practical application of generative AI in school settings. To ensure AI safety and security by developers and providers, refer to the "AI Guidelines for Business" and the "Guide to Evaluation Criteria for AI Safety" (September 18, 2024, Japan AI Safety Institute).

[12] "Guidelines for Educational Information Security Policy" (January 2024, MEXT)

[13] Educational Information Security Policy (A comprehensive document defining policies, frameworks, and measures to ensure information security within an organization. It collectively refers to the "Basic Policy," which establishes fundamental principles for information security measures in each local government, and "Countermeasure Standards," which define common information security standards for all information systems based on the Basic Policy.) defines how to protect information assets considering the unique circumstances of educational settings.

④ Ensuring fairness

To ensure fairness, human judgement must be incorporated to avoid unfair or harmful prejudice or discrimination against a specific individual or group based on race, gender, nationality, age, political belief, or religion. This requires careful consideration of potential biases that may be present in the learning data for generative AI, input prompts, or external services it interfaces with.

⑤ Ensuring transparency and accountability to stakeholders

It is important to organize and provide stakeholders with necessary information regarding the purpose and manner of using generative AI services, and the associated risks. Considering the specific circumstances of each region or school, a consultation desk may be established when necessary[14] for any inquiries by teachers, students, parents, or others.

Box-3. Key considerations regarding copyright when using generative AI in school settings

(Basic approach to copyright)

The Copyright Act aims to promote new creative activities and "contribute to the development of culture" by "protecting the rights of authors and others" while "taking into account the fair use of works". It is considered important to strike a balance between "protecting the rights and interests of authors and others" and "ensuring the smooth use of works".

Copyright protects works that are "creative expressions of ideas or emotions". Simple words, data (facts), or ideas (such as writing styles or artistic styles) are not considered works protected by copyright.

When using another person's work (such as copying or uploading) as defined by the Copyright Act (e.g., reproduction rights or public transmission rights), permission from the copyright holder is generally required.

Using another person's work without permission may constitute copyright infringement. An infringement is determined by whether it can be said, "another person's work was used," specifically by assessing the presence of "similarity (shared creative expression)" and "dependence (creation based on the existing work)" with the existing work.

However, certain uses of copyrighted works do not constitute copyright infringement. For example, reproducing a copyrighted work for private use or for school instruction is permitted under the Copyright Act without the copyright holder's permission (when limitations on rights apply).

(Basic approach to copyright when using generative AI in schools)

When using an AI-generated text or similar output in schools, care must be taken to avoid infringing rights pertaining to existing copyrighted works. Specifically, educators must pay attention to whether the generated output exhibits a similarity or dependence on the existing copyrighted work.

Meanwhile, schools are permitted to reproduce or publicly transmit copyrighted works for school instruction, without permission under the limitation provisions for reproduction (Article 35 of the Copyright Act). Therefore, within the scope of this provision, even if material generated by teachers or students using generative AI exhibits a similarity or dependence on an existing work, it does not constitute copyright infringement and can be used in school instruction without the copyright holder's permission.

However, if the use exceeds the scope of the purpose of school instruction, the requirements for applying Article 35 of the Copyright Act are not met. In such case, using outputs that are similar to or based on existing works generally requires the copyright holder's permission, and using them without permission may constitute copyright infringement.

Furthermore, even if Article 35 of the Copyright Act does not apply, other limitations on rights may apply, potentially making the copyright holder's permission unnecessary.

[14] When using generative AI services, it may be necessary to obtain parental consent based on the "terms of use" established by the service provider.

(Points to keep in mind regarding copyright when using generative AI)

While there are several issues regarding the relationship between AI and copyright[15], when using generative AI in schools, educators must first confirm whether Article 35 of the Copyright Act applies to the use of a copyrighted work in school instruction. If Article 35 does not apply, there is a risk of copyright infringement. Therefore, it is advised to confirm the following points to avoid copyright infringement. [16]

- Avoid intentionally generating content similar to existing works, such as by inputting specific proper nouns such as character names. Also, ensure the generation process including the prompts used is verifiable.
- For AI-generated content, be sure to verify through internet searches, etc. that it is not similar to existing copyrighted works.

Note that while limitations on rights may apply to the generation stage (reproduction) of AI-generated content, they may not apply to the utilization stage (public transmission, etc.). The applicable limitations vary depending on the usage context, so careful consideration is required in each case to ensure there is no copyright infringement. For example, generating outputs identical or similar to existing copyrighted works (such as images) on a personal computer for private use may fall within the scope of private use and thus be covered by copyright exceptions. However, uploading such output to social media platforms may exceed the scope of private use and not be covered by these exceptions. While a final judgement for specific cases ultimately rests with the courts, using the consultation services provided by the Agency for Cultural Affairs may be considered when necessary.[17]

[15] Regarding AI and copyright, key issues include using copyrighted works during the "AI development and training phase," "generation and utilization phase," as well as the interpretation of copyright law on the copyrightability of AI-generated content. For details, refer to document, "Considerations on AI and Copyright" (March 15, 2024, Legal System Subcommittee under the Copyright Subdivision of the Culture Council).

[16] For details, refer to sections starting from p. 23 of the "Checklist & Guidance on AI and Copyright" (July 31, 2024, Copyright Division, Agency for Cultural Affairs).

[17] Refer to the Agency for Cultural Affairs consultation desk for countermeasures against copyright infringement by online pirating, and the legal consultation desk related to cultural and artistic activities.

3-1. Scenarios of Teacher/Staff Use for School Administration

(1) Basic concept

Private companies are actively using generative AI which can organize and output diverse types of information to help improve work efficiency and sophistication. While education is fundamentally delivered through the personal interaction between teachers and students, in an era where generative AI has become a part of our social infrastructure, the role of teachers as learning professionals which involves appropriate instructional planning, organizing learning environments and providing careful observation and support will become even more important. The use of generative AI in school settings is expected to lead to improved efficiency (including lesson preparation and drafting documents), enhanced quality, and workstyle reform for educators. Furthermore, it is essential for teachers and staff to become familiar with new technologies and be aware of their convenience, concerns, and how to interact with it wisely to advance students' learning.

Based on the above, it is considered beneficial for educators to actively utilize generative AI in school administrative tasks, provided they understand the mechanisms and characteristics of generative AI and actively use it to the extent that they can judge the appropriateness of the generated content.

(2) Specific cases of use

Some examples of how teachers and staff can utilize this technology include, to support tasks related to student guidance such as lesson preparation, club activities, and student counseling; tasks related to school administration such as academic affairs management, school communications and in-school training; and support for external communications.

When using generative AI, it is important not to expect the desired output in a single use, but to use the output as a reference. Educators must test the AI multiple times to refine the output toward their desired result. They must personally review, edit, and finalize the AI output and ultimately make their own judgment and take responsibility for the final deliverable. This fundamental approach is crucial.

Box-4. Examples of teacher/staff use for school administration

Support for student guidance-related tasks

【Lesson preparation】

- Create drafts for teaching materials and review tests
- Compile student feedback on lessons
- Serve as a practice partner for simulating responses to classroom questions
- Create draft test questions based on worksheets and reflections used in class
- Create draft itineraries for field trips

【Club activities】

- Create AI-generated daily practice menu by using past club activity practice menus

【Student counseling】

- Create draft questionnaire to survey students' daily life circumstances

Support for school administration

【Academic affairs management】

- Create draft timetables and class hour plan

【School communications】

- Create drafts for various newsletters (grade/class newsletter, monthly lunch menu, health news, etc.), notices, and announcements
- Create drafts for website posts and reports about school events

【In-school training】

- Create draft materials for internal training sessions
- Transcribe recordings of training sessions and lectures, draft summaries and meeting minutes

Support for external engagements

- Schedule parent-teacher meetings, school visit days, parent conferences
- Create drafts for opening remarks at external lectures

(3) Key points for utilization

The following points should be considered when actively using generative AI in school administration, while keeping the basic concepts of AI in mind.

① Appropriate use considering safety

AI use should be based on the Board of Education's policy. Many generative AI providers offer external services based on their terms of service and are easy to use. However, they must not be used with personal accounts or personal devices without permission from the educational information security administrator.[18] Furthermore, users must confirm and comply with the latest terms of service established by the generative AI provider, including the licensing and ownership of output results.[19]

② Ensuring information security

It is necessary to comply with educational information security policies and implementation procedures outlined by the Board of Education, as well as instructions by the educational information security administrator based on these policies. Except in cases where generative AI is operated in an environment with appropriate security measures implemented based on individual contracts, etc., users must not input highly sensitive information such as academic records into prompts.[20]

③ Personal information, privacy, and copyright protection

When school staff use generative AI in school environments, they must comply with relevant laws and regulations, such as the Personal Information Protection Act, while also referring to the latest "Cautionary Notes Regarding Utilization of Educational Data."[21] Necessary and appropriate measures must be taken in handling personal information.[22] For example, when inputting prompts containing personal information into a generative AI service, it is essential to thoroughly confirm whether the AI provider uses such personal information for machine learning purposes. If this personal information is used for a purpose other than generating an output for prompts, it may constitute a violation of the Personal Information Protection Act.[23]

Regarding copyright, when considering the application of Article 35 of the Copyright Act, if a teacher uses an existing work or a work that is identical or similar to it beyond the scope of instructional purposes such as: posting it on the school website; using it in class newsletters for parents; using it in staff meetings or PTA activities, these do not

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[18] The individual in charge of system usage, who holds authority and responsibility for school information security, as defined in the "Guidelines for Educational Information Security Policy". It is assumed the school principal serves as the educational information security administrator.

[19] Caution is needed regarding the use of AI-generated output, as conditions may be imposed according to the service provider's terms of use.

[20] The "Guidelines for Educational Information Security Policy" recommend classifying and sorting information assets based on the severity of impact (damage) from security breaches.

[21] "Cautionary Notes Regarding the Utilization of Educational Data" (March 2024, MEXT) outlines issues that public school teachers and staff at the elementary and secondary education levels, and education board employees, should consider when handling educational data (digital data) containing students' personal information.

[22] Personal information refers to information about a living individual identifiable through name, date of birth, or other description contained in the information. It also includes information that can identify a specific person through easy cross-referencing with other information. Note that information publicly available via the internet, etc., may also qualify (regardless of whether it is publicly disclosed or not).

[23] Refer to "Cautionary Notes on Using Generative AI Services" (June 2, 2023, Personal Information Protection Commission).

qualify as use for school instruction. Since Article 35 would not apply in this case, it could constitute a copyright infringement if no other copyright limitations apply. Furthermore, purchasing a single copy of a work, such as a workbook, to copy and distribute to all students would generally be considered unjustly harming the copyright holder's interests, and thus falls outside the scope of Article 35. These principles similarly apply when using generative AI, necessitating confirmation regarding the applicability of Article 35.

④ Ensuring fairness

When considering AI use for school administration, generative AI may be used for data analysis and extraction. While being mindful of the characteristics of generative AI such as hallucinations and bias, teachers and staff must determine whether to incorporate the generated content.

⑤ Ensuring transparency and accountability to stakeholders

Schools should work together with education boards to promote the appropriate use of generative AI, including sharing necessary information with the board for implementation in schools. School administrators must understand how generative AI is being operated and periodically verify whether its use is appropriate. In doing so, it is crucial to foster a shared understanding of the intent and purpose behind advancing generative AI use, such as work style reform, and sharing the outcomes achieved through its utilization with all teachers and staff.

3-2. Scenarios of Student Use for School Learning Activities

(1) Basic concept

When using generative AI for student learning, it is essential to understand that AI can serve as a useful tool to support and enhance human capabilities and broaden possibilities depending on how it is used. Rather than viewing the relationship between generative AI and humans as adversarial or creating feelings of anxiety, teachers should carefully consider its use while paying close attention to the student's developmental stage, information utilization skills, and measures taken to address risks and concerns.

When determining the appropriateness of AI use, educators must carefully assess whether it contributes to the development of qualities and abilities outlined in the curriculum guidelines and whether it is effective in achieving the objectives for learning. Specifically, teachers must evaluate whether students can be made to fully understand the fundamental mechanisms and characteristics of generative AI, such as hallucinations and biases, and recognize the importance of their own judgment and thinking rather than relying entirely on AI. It must also be assessed whether using generative AI can lead to obstructing proper evaluation or academic dishonesty. It is important to assess whether such educational activities are feasible, considering the student's actual circumstances including their developmental stage and state of progress in learning within each subject. This includes determining whether using AI can encourage deep comprehension based on its output and enhance critical thinking skills.

Furthermore, given that certain learning tasks or test content may be easily accomplished by students using generative AI, it is also expected that lesson planning should prioritize careful consideration of the content of assignments, questioning the essence of problems, and fostering deep comprehension.

(2) Specific cases of use

Scenarios for students' use of generative AI include: "Learning about generative AI itself (its mechanisms, benefits and risks, points to consider)," "learning how to use it (skills for interacting with generative AI to generate better responses, fact-checking methods, etc.)", and "actively using it in each subject area (using it to identify problems and set tasks, form one's own ideas, organize, compare, or deepen different perspectives, etc.)". By combining and switching back and forth between "learning about AI itself," "learning how to use it," and "actively using it in each subject area," will help enhance students' understanding of the AI system and their ability to apply it to their learning. Teachers should also keep in mind students' incorporation of AI use into their daily routine (using generative AI routinely as a search engine).

However, in the case of elementary school children directly using such tools, a more careful assessment is necessary by taking their developmental stage into consideration. For example, children must learn the fundamental concepts of generative AI as a part of information ethics education or programming education, by teachers presenting numerous examples of interactions with generative AI. Additionally, accumulating experiences with generative AI will help cultivate a level-headed attitude toward it.

Based on this approach, the following examples illustrate situations where generative AI could be considered either appropriate or inappropriate for educational use. These are merely examples, and their suitability should be determined based on the actual circumstances at each school.

Box-5. Examples of appropriate/inappropriate use of generative AI in schools

(Examples of appropriate use of generative AI)

- Using AI-generated content as teaching material for ethics education, including output that contains errors to help students recognize the nature and limitations of AI.
- Using AI-generated content as material for students to actively examine and discuss societal issues related to generative AI.
- Using AI to summarize group ideas, or to help deepen a discussion during the intermediate stages of a discussion when brainstorming-having AI summarize the discussion at a certain stage and identify missing perspectives.
- Using AI as a conversation partner for English practice to improve expressions towards more natural English, or to help create personalized word lists and example sentence lists based on individual interests.
- Using AI to assist foreign students and others for Japanese language learning and supporting learning situations.
- To learn how to use generative AI, have students submit the process and results of revising their own text multiple times to improve their writing by using AI to correct their initial writing, then refining the AI-generated rough draft through their own repeated revisions using the word processor's proofreading function.
- Using AI in programming class to create programs that realize students' ideas.
- Using AI to conduct performance tests from the perspective of actively evaluating problem-finding and problem-solving skills.
- Using AI to help students understand textbook content at their own pace, generate explanations and visual aids to foster deeper comprehension of the material.

(Examples of inappropriate use of generative AI)

- Using generative AI freely at a stage in which information literacy, including information ethics, has not been sufficiently developed (such as learning about the nature, advantages, and disadvantages of generative AI).
- Submitting or presenting an AI-generated work, such as entries for various competitions, reports, or essays as one's original work with minimal modification (thorough guidance based on contest rules is essential when encouraging students to submit their work).
- Using AI casually in contexts where creativity and originality should be fostered, such as poetry or haiku composition, musical or artistic expression/appreciation, or situations seeking initial impressions.
- Using AI casually before consulting quality-assured materials like textbooks in research-based contexts.
- Relying solely on AI-generated output instead of teachers providing comments and evaluations based on accurate knowledge in situations where such guidance is required.
- Using AI for regular exams or quizzes (this does not align with the purpose of assessing learning progress or outcomes. Even when using computer-based testing (CBT), careful measures like filtering must be taken to prevent AI from being accessible.
- Using AI-generated output to evaluate students' learning without the teacher's judgment.
- Relying solely on generative AI for educational guidance that should be provided by teachers exercising their human interaction and expertise.

(3) Key points for utilization

To effectively use AI to achieve the objectives of the said educational activities, it is necessary to consider the following points while keeping the basic concepts in mind.

① Proper use with safety in mind

Students should be permitted to use generative AI based on the Board of Education's policy. When students use AI with their "one device per student," the principal and responsible teachers must check that the student acknowledges the risks associated with AI use and complies with the terms of service and other conditions designated by the generative AI provider, including age restrictions. Furthermore, students should use AI under appropriate guidance and supervision of teachers, after obtaining sufficient understanding beforehand from parents/guardians.

Furthermore, the same principles apply to generative AI providers integrated into browsers, learning support software, or commonly used search engines. Teachers must instruct students to prevent use of AI unintended by teachers.

② Ensuring information security

It is necessary to comply with the educational information security policies and implementation procedures outlined by the Board of Education, as well as the instructions of the educational information security administrator based on these policies.

For generative AI providers that allow settings to prevent input information from being learned (opt-out), it is recommended to use AI with settings that do not permit machine learning, or to select AI providers that do not learn from prompts.

③ Protection of personal information, privacy, and copyright

When students use generative AI in school, care must be taken to ensure they do not input personal information such as names or photos into prompts.

Regarding copyright, when considering the application of Article 35 of the Copyright Act, even if materials used or created by teachers or students in class are identical or similar to an existing copyrighted work, their use in school instruction is permitted without receiving the copyright holder's permission. However, if the use exceeds the scope of educational purposes such as uploading it onto the school website or submitting it as a work to an external contest, this provision does not apply. If no other copyright limitations apply, it may constitute a copyright infringement. These principles also apply when using generative AI, so it is necessary to confirm applicability of this provision.

④ Ensuring Fairness

When using generative AI as educational material, teachers must continuously assess whether its output is appropriate for educational purposes, including evaluating potential biases.

As such, it is important for teachers to instruct students to understand the existence of biased information, and to help them recognize that generative AI may produce output containing such biases. Students must be guided to always be mindful to carefully evaluate AI outputs and verify their accuracy and factual content.

⑤ Ensuring transparency and accountability to stakeholders

Teachers must ensure they fully understand the characteristics of generative AI, such as hallucinations and biases, and verify that students are using AI with an understanding of these traits.

Furthermore, when citing generative AI output as part of learning tasks, it is necessary to clearly indicate the use of generative AI as a source or citation. For example, to establish citation rules similar to those for literature or internet sources may be considered, such as explicitly stating the name of the AI provider used, input prompts, and the date of use.

It is also important to provide parents with information about the purpose of AI utilization. Furthermore, considering the possibility of students using AI outside of school, educators must raise students' awareness and understanding to prevent the inappropriate use of AI.

Box-6. Key points to consider when dealing with outstanding issues

The following points should be considered when assigning tasks based on conventional practices, such as book reports, diaries, or essays, or when recommending or assigning participation in external contests.

- When assigning tasks such as reports, it may be beneficial to establish evaluation criteria in advance including, whether the writing incorporates the student's own experiences, reflects the educational activities that form the basis of the report, and the factual content is accurate.
- If the submitted assignment is reflected in subsequent learning assessments, measures such as providing opportunities for oral presentations to the entire class or in groups, or designing activities to confirm whether the summarized content is sufficiently understood and internalized may be considered.
- For contest entries, reports, or similar work which do not intend AI use, clearly instruct students that submitting AI-generated output as their own work may constitute inappropriate or fraudulent behavior depending on evaluation criteria and submission rules. Emphasize that such actions prevent meaningful learning and personal growth (it is also necessary to inform and gain understanding from parents to prevent inappropriate AI use).
- During research projects, students may utilize generative AI to supplement their own draft reports with perspectives or insights they may have missed. In such cases, require verification of information accuracy (fact-checking). For the final submission, consider requiring students to attach their interactions with the AI as reference material, or to explicitly cite references and sources.
- Students can use AI-generated revisions based on their own draft, then refine the text themselves to create a better, more authentic version. This process and the result could be submitted using the proofreading function of word processing software.
- When using AI tools, students should clearly indicate the name of the AI tool used, prompts entered, output generated, and the date.

3-3. Key Points to be Considered by the Board of Education and Other Entities

(1) Basic concept

When utilizing generative AI in schools, it is important for the Board of Education to take leadership to design systems and show the direction of how AI should be used. Since the level of experience with generative AI varies significantly among schools and teachers, flexible approaches that fully consider the circumstances of each school within the district are necessary. Rigid policies that uniformly prohibit or mandate AI use are considered undesirable.

School boards are expected to utilize external resources such as teacher training universities and service providers, to disseminate and share best practices, teaching materials and know-how. Furthermore, they must develop an environment to advance the appropriate use of AI that deepens educators' understanding. This includes implementing training that promotes effective utilization such as identifying scenarios for intentional AI application, ensuring time to critically evaluate AI output, and posing questions that lead to deeper learning.

(2) Key points to consider for appropriate utilization

The Board of Education must ensure the appropriate use of generative AI in schools, keeping in mind the basic concepts while also considering the following points.

① Appropriate use with safety

Ensure appropriate use of generative AI by having schools within the district thoroughly understand these guidelines and implement flexible measures that fully consider the circumstances of each school.

Furthermore, education boards must be mindful that generative AI providers exist in diverse forms such as those integrated into browsers, learning support software, or commonly used search engines, and to implement appropriate countermeasures tailored to their specific circumstances, including filtering settings and log collection.

Education boards must thoroughly check the content of the AI provider's terms of service when schools use generative AI as an external service. They must also confirm the propriety of contract terms when schools enter an individual contract.

② Ensuring information security

It is important for the Board of Education to formulate an information security policy tailored to the realities of the school, considering the latest "Guidelines for Educational Information Security Policies," and to review them when necessary.

From the perspective of promoting administrative efficiency, the board may establish and operate an environment that can appropriately handle personal information and highly sensitive data, including database development. Regarding the handling of highly sensitive information such as personal data, the school board must ensure appropriate measures for security and information handling such as implementing security measures equivalent to existing school administrative systems in line with each school board's network environment, referencing the latest "Guidelines for Educational Information Security Policies" and other relevant documents.

③ Personal information, privacy, and copyright protection

When introducing generative AI services into schools, it must be verified that the appropriate and necessary measures are in place for handling personal information, while complying with relevant laws and regulations such as the Personal Information Protection Act and referring to the latest "Points to Consider Regarding the Utilization of Educational Data". Additionally, to reduce the risk of copyright infringement in schools, choosing models or services that implement appropriate preventive measures against copyright infringement[24] may be considered.[25]

④ Ensuring fairness

Even when school boards establish individual usage environments, risks and concerns inherent to generative AI such as hallucinations and bias, remain unresolved. Therefore, it is crucial to establish systems and gather expertise to provide schools with appropriate information, training, and other support. This includes ensuring that the final judgment by educators remains indispensable.

⑤ Ensuring transparency and accountability to stakeholders

When introducing generative AI services into schools, careful information sharing is necessary such as conducting training to ensure appropriate use regarding the purpose, service content, terms of use and other details.

The terms of service for generative AI use are determined by the providers themselves, and there is no guarantee they will remain free or affordable indefinitely. It is crucial to choose services carefully, considering the risks associated with using external services, giving due consideration to potential financial burdens on parents, and fully evaluating risks such as changes in the provider's business model.

[24] From the perspective of a generative AI service user, it is recommended to confirm appropriate information about the generative AI intended for use such as, details on the trained models employed and the terms of use; establish internal rules regarding the utilization of generative AI; to prepare for potential copyright infringement by considering response measures in advance. (See "Checklist & Guidance on AI and Copyright" (July 31, 2024, Copyright Division, Agency for Cultural Affairs))

[25] Since Article 35 of the Copyright Act stipulates the reproduction of works in schools or other educational institutions, application of Article 35 is unlikely when education boards use generative AI (in such case, permission from the copyright holder must be obtained, or other applicable limitations on rights should be considered).

REFERENCE MATERIAL

As supplementary information to these guidelines, we have compiled checklists outlining key points to consider when utilizing generative AI in schools according to specific scenarios and stakeholders, a list of case studies on pioneering initiatives at generative AI pilot schools, and information on training materials applicable to school environments. We encourage educators to refer to these checklists, case studies, and training materials when utilizing generative AI.

【Reference materials】

Checklist: When Teachers/Staff Use Generative AI for School Administration

- ☐ Is AI being used in accordance with the Board of Education's policies (including rules and instructions on information security)? (p.20)
- ☐ Is your work device or other device approved by the Educational Information Security Administrator? (p.20)
- ☐ Have you checked on compliance with the latest terms of service established by the generative AI service provider? (p.14, 20)
- ☐ Are you using the AI service upon judging the appropriateness of the output results based on an understanding of generative AI's characteristics like hallucinations and bias, and independently deciding whether to adopt the output content? (p.15, 18, 21)
- ☐ Have you avoided input of highly sensitive information such as academic records into prompts? (p.20)

  ※ Excludes cases where security measures are in place specifically for handling highly important information (however, if the highly important information falls under personal information, the user must note if they have "entered personal information into prompts")
- ☐ Have you checked if personal information has been entered into prompts? (p.20, 21)

  ※Excludes cases where it has been confirmed that the AI service provider will not handle personal information entered by teacher/staff in prompts for any purpose other than generating the response.
- ☐ Does your method of use infringe on copyrights? (p.15, 16, 21, 22)

Checklist: When Students Use Generative AI for School Learning

- ☐ Is using AI effective for the student to achieve the objectives of learning activities? (p.9, 23)
- ☐ Have you considered the student's developmental stage and the status of their information literacy skills? (p.9, 23)
- ☐ Have you instructed students on how to use generative AI in ways that ensure they fully recognize its nature, advantages/ disadvantages, the importance of verifying information accuracy, and the significance of their own judgment and critical thinking? (p.9, 10, 23)
- ☐ Have you provided sufficient guidance to prevent the student from inputting personal information such as names or photos into prompts? (p.26)
- ☐ Have you provided guidance to prevent usage that could infringe on copyrights? (p.16, 17, 26)
- ☐ Have you checked on compliance with the latest terms of service established by the generative AI service provider? (e.g., age restrictions, necessity of parental consent, licensing status of generated content) (p.14, 15, 26)
- ☐ Have you thoroughly instructed students that using AI-generated content directly as their own work is not in their best interest, and that depending on how AI is used, it may constitute inappropriate or fraudulent behavior? (p.26, 27)
- ☐ Have you confirmed students' understanding that when quoting AI-generated answers in schoolwork assignments, they must cite the source and provide attribution? (p.27)
- ☐ Have you chosen an AI tool upon sufficient consideration of parents' financial burden? (p.31)
- ☐ Have you considered students' potential use of AI tools outside of school, and have parents been informed and an understanding of preventing inappropriate AI use? (p.27)

Examples of Pioneering Initiatives at Generative AI Pilot Schools

This section highlights practical examples of pioneering initiatives implemented at generative AI pilot schools that align with the "Examples of teacher/staff use for school administration" on p.19, and the "Examples of appropriate use of generative AI" on p.24. For details on the pioneering initiatives implemented at generative AI pilot schools, please refer to the Leading DX School Project website[26] and other relevant sources.

Additionally, on the "Designated School Case Studies and Videos" page within the same website[27], users can filter and search for educational practices utilizing generative AI by application type (learning scenarios or administrative tasks), grade level, and subject.

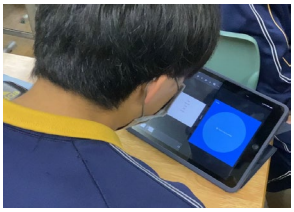
【Pioneering initiatives: Using generative AI for school administration】

To create drafts for teaching materials and review tests used in the classroom, to create drafts for various newsletters (grade/class newsletters, monthly school lunch news, health news, etc.), notices, and announcements (Osaka Prefectural Tennoji Junior High School)
I used generative AI to create drafts for English quizzes. It's very convenient, as it instantly generates sentences set in scenarios that junior high school students can relate to. I also used AI to create drafts for parent notices about school events and message cards to send to our sister school in Switzerland-tasks that have been previously handled by teachers. This has significantly reduced the time spent creating English handouts and other materials.
Use as simulation partner to respond to questions posed during class (Sagamihara Municipal Nakano Junior High School)
AI was useful in creating classroom content. To create lessons to help "students expand and deepen their own thinking," each teacher in their respective teaching subject and course unit, input a problem into a pre-prepared interactive mock lesson prompt, then asked the generative AI what kind of dialogue students would engage in. Depending on how the problem was framed, the dialogue either flowed smoothly or approached the goal. Meanwhile, if the problem was unclear, the dialogue was stalled and became more like a Q&A session. In the latter case, it is likely that students will not be able to engage in dialogue that enhances their thinking skills to solve the problem.
Create draft test questions based on worksheets used in class and reflection content (Iwanuma City Iwanuma North Junior High School)
To create test questions that reflect students' questions and what they understood in class, we compiled worksheets used in class and students' reflection statements into a PDF file, then fed this into the AI to generate test questions. We also used AI to draft test questions for each evaluation criterion, such as creating problems that test students' knowledge and skills, or their skills in thinking, judgment, and expression.
Create drafts for various newsletters (grade/class newsletters, monthly school lunch news, health news, etc.), notices, and announcements (Takeo City Kawato Junior High School)
AI was used to draft greeting letters, letters for parents, greetings for educational conferences, and proofreading grade-level newsletters. The AI-generated content served only as an example, and the creator of the document ultimately verified, revised, supplemented, or added to the content as needed. For various communications (grade-level newsletters, class newsletters), the creator used AI to check for typos and omissions which reduced the time for review by the head of academic affairs, vice principal and principal.
Create drafts for website content and reports regarding school events (Kyoto Municipal School of Fine Arts and Crafts)
AI was used to generate text by referencing past articles published on the school website. (① enter prompts, ② adjust the direction, ③ generate text based on the revised instructions, ④ publish document) Although final revisions were necessary, this approach allowed teachers to prepare text more easily, leading to a reduced workload.

[26] https://leadingdxschool.mext.go.jp/ai_school/

[27] https://leadingdxschool.mext.go.jp/achieve/ai/

【Pioneering Initiatives for AI Use in Learning】

AI-generated responses containing errors are used as teaching material for information ethics education to help students recognize AI's characteristics and limitations	
 Osaka Municipal Takadono Elementary School	【Elementary School Level】 Acquiring accurate knowledge about AI (Grade 6, Japanese Language Arts) After reviewing basic knowledge about AI, students compared actual articles with AI-generated articles created by teachers. Students then summarized their thoughts on how they want to use AI in the future. One student said, "I realized it's important not to immediately believe online information, but to cross-reference it with various other sources and to think based on my own experiences."
Use as a conversation partner for English practice, help improve natural expression in English, create customized word lists and example sentence lists tailored to the individual's interests	
 Iwanuma Kita Junior High School, Iwanuma City, Miyagi Prefecture	【Junior High School Level】 Introducing a role model in English (Grade 9, English) During a lesson where students introduced their role model in English, students checked if their self-written English sentences were coherent by directly inputting them into ChatGPT or using voice input. For sentences requiring correction, ChatGPT suggested how to revise them. Voice input allowed students to check their pronunciation to some extent and enabled them to receive suggestions for more natural English expressions.
Use AI during the mid-stages of a discussion, after a brainstorming session has been summarized, to help identify missing perspectives and deepen the discussion	
 Tsukuba City, Ibaraki Prefecture Gakuennomori Compulsory Education School	【Junior High School Level】 Discussing issues through dialogue (Grade 8, Japanese Language Arts) During group discussions on an assigned topic, students deepened their analysis by incorporating AI-generated new perspectives and advice on their own opinions. One student said, "we added advice from generative AI to our group discussion, reconsidered our ideas, and reached a final conclusion."
Use AI in programming class to create programs that bring students' ideas to life	
 Ibaraki Prefectural Ryugasaki First High School	【【Senior High School Level】 Desktop application development (Grade 10, Information Technology) When creating an App using Python, students used generative AI to generate code. By carefully selecting prompts, students were able to incorporate code according to their objectives and complete the App assignment.

Examples of typical risks and concerns to consider in school settings

Drawing from various domestic and international discussions[28], we illustrate representative risks and concerns that should be noted in school settings. Note that the risks and concerns addressed here are typical examples and do not cover all risks associated with generative AI.

Furthermore, such risks and concerns should not immediately lead educators to prevent the use of generative AI. Given that smartphones and similar devices are widely used, and many students are already exposed to generative AI outside of school, it is important to properly recognize these risks and address them appropriately within school settings.

Examples of typical risks and concerns to consider in school settings

(Risk of misunderstanding that AI has a personality)

Generative AI can produce fluent text and content and has reached a level of response comparable to humans. There are risks, however, that a student who interacts with AI that behaves like a human, may mistakenly perceive that AI has a personality.

(Risk of adverse effects on the development of qualities and abilities)

Introducing generative AI into students' learning activities without sufficient awareness of the purpose of those activities or the qualities and abilities intended for development carries a risk that essential learning processes aligned with the objectives may be skipped. This can lead to dependence on AI or blind acceptance of AI-generated answers, thereby failing to foster the desired qualities and abilities.

(Existence of bias resulting in a lack of fairness)

Generative AI constructs responses based on existing information. If the generated answers are consistently accepted uncritically, it risks amplifying biases inherent in that information, potentially perpetuating and expanding unfair and discriminatory output. Users of generative AI also have various biases, such as the fluency bias in which smooth outputs are mistakenly perceived as correct, and automation bias which involves over-reliance on automated systems and technologies for human judgment and decision-making.

(Risks related to confidential and personal information)

Generative AI services may utilize confidential or personal information for machine learning purposes. There is a risk that this information could be statistically linked with other data and subsequently output from the generative AI provider, potentially containing accurate or inaccurate content.

(Risks related to copyright)

Generative AI may produce outputs similar to existing copyrighted works and pose a risk to copyright infringement depending on how such outputs are used.

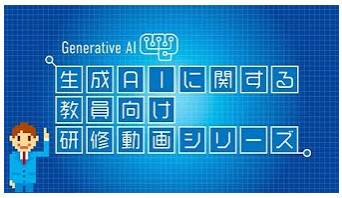
(Risks associated with using external services)

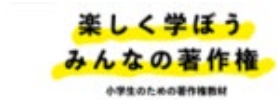
Generative AI come in diverse forms, and their use must comply with the terms of service established by the provider. Even if a service is free now, there are risks including the possibility of future price changes leading to paid service, changes in service conditions such as discontinuation, risk that Japanese laws may not apply, or that jurisdiction in disputes may lie outside of Japan. Furthermore, given rapid advances in technology and services, there is also a risk that the terms of service may be frequently revised.

[28] For risks associated with generative AI, please also refer to p.12 and after of the “Guidelines for AI Operators (Appendix)”.

Training Materials and Resources for Using Generative AI in School Settings

Examples of training programs (including archived content) conducted by the MEXT and other entities, as well as available content, are listed below.

<table>
<tr><th colspan="3">Training Video Series on Generative AI for Teachers (MEXT, September 2023)</th></tr>
<tr><td> 
</td><td>Training video series on generative AI for teachers
① Understanding Generative AI Guidelines based on Information Literacy Development and Information Ethics Education (Horita Tatsuya, Professor, Graduate School of Teacher Education, Tokyo Gakugei University)
② Fundamental Approach to Utilizing Generative AI (Sato Kazunori, Associate Professor, Institute of Education, Shinshu University)
③ Nature and Limitations of Generative AI (Yoshida Rui, Associate Professor, Graduate School of Engineering, University of Tokyo)</td><td></td></tr>
<tr><th colspan="3">Online Training on the Use of Generative AI (MEXT, September 2023)</th></tr>
<tr><td> 
</td><td>Training session on generative AI and archived video and materials
① Fundamentals of Generative AI and Its Potential Applications in Education (Yoshida Rui, Associate Professor, Graduate School of Engineering, University of Tokyo)
② Introducing Prompts Useful for Educational Activities and Academic Affairs (Tanaka Yoshimasa, President and CEO, School Agent Co., Ltd.)
③ Fundamental Approach for Utilizing Generative AI to Cultivate Information Literacy Skills (Sato Kazunori, Associate Professor, Institute of Education, Shinshu University)
④ What Does Technological Evolution Bring to Education? (Sato Masahiro, Professor and Vice President, Digital Hollywood University)
⑤ The Potential of Generative AI in Education (Ikeda Osamu, Professor, Faculty of Developmental Education, Kyoto Tachibana University)</td><td></td></tr>
<tr><th colspan="3">Information Ethics Learning and Education Site (MEXT)</th></tr>
<tr><td>情報モラル教育ポータルサイト</td><td>This website compiles information ethics content for students, teachers, and parents, featuring video content, educational materials, and lesson plans/case studies. An “Information Ethics Learning Site” featuring quiz-style questions based on the video content is also available.</td><td></td></tr>
<tr><th colspan="3">Plant National Teacher Training Platform (National Institute for Educational Policy Research)</th></tr>
<tr><td>Plant
全国教員研修プラットフォーム</td><td>A platform for recording teacher training participation and history. Various training information such as “Generative AI Classroom Application Training Content” (Oita University) are available. (Login requires an account issued by the Board of Education or a guest user account issued to everyone)</td><td></td></tr>
</table>

Educational Activities in Schools and Copyright (Copyright Division, Agency for Cultural Affairs, Revised April 2023)		
	This guideline explains the use of copyrighted works encountered in school environments including reproduction or internet transmission for classroom instruction (Article 35 of the Copyright Act), reproduction for test questions (Article 36), “citation” for report writing (Article 32), and performances at cultural festivals or club activities (Article 38, Paragraph 1). It also includes operational guidelines for the “Compensation System for Public Transmission for Educational Purposes” introduced by the 2018 Copyright Act amendment.	
Let's Learn Copyright Together: Copyright Resource for Elementary School Students (Copyright Division, Agency for Cultural Affairs)		
	Educational materials on copyright for elementary school students. The video teaches basic knowledge of copyright law, such as how to handle copyrighted works on the internet.	
Getting Started with Generative AI: An Introduction to Basic Use and Key Considerations (Ministry of Internal Affairs and Communications)		
	Educational materials for citizens (beginners) who may encounter generative AI in their daily lives in the future covering: ①Basic knowledge of generative AI, ②Scenarios for using generative AI and introductory usage methods, ③Precautions when using generative AI.	

Other References

Study Group on the Utilization of Generative AI in Elementary and Secondary Education

【Committee Members】

(Expert Members)

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Morita Mitsuru	Director, Tsukuba City Board of Education
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(Observers)

Cabinet Office, Science and Technology Innovation Bureau; Ministry of Economy, Trade, and Industry; Ministry of Internal Affairs and Communications

【Past Conferences】

	Date	Details
1st mtg.	Jul. 25, 2024 10:00~12:00	Key Issues Regarding the Utilization of Generative AI in Elementary and Secondary Education
2nd mtg.	Aug. 8, 2024 10:00~12:00	Presentations by Experts and Industry Representatives (Imai Shota, GenesisAI Inc., Adobe Japan Inc., Google LLC, Microsoft Japan Co., Ltd.) Presentations and Discussion by Committee Members (Committee Member, Tonegawa)
3rd mtg.	Sept. 3, 2024 09:00~11:00	Presentations and exchange of opinions from committee members (Committee Members Imai, Suzuki, Sato, and Yoshida)
4th mtg.	Sept. 24, 2024 10:00~12:00	Presentation by expert (Arai Noriko, Professor, National Institute of Informatics) Presentation and discussion by committee member (Committee Member, Morita) Discussion based on the main opinions presented thus far

5th mtg.	Oct. 18, 2024 10:00~12:00	Key Considerations for Revision of Guidelines
6th mtg.	Nov. 26, 2024 10:00~12:00	Revision of Guidelines on the Use of Generative AI in Elementary and Secondary Education
7th mtg.	Dec. 20, 2024 日 10:00~11:30	Revision of Guidelines on the Use of Generative AI in Elementary and Secondary Education

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