

Advantages and Considerations of e-Portfolios Using General-Purpose Cloud Tools in Elementary School English Education

Aki Ohta, Beppu University Junior College, Japan
Shin Kurata, Nagasaki University, Japan
Emiko Izumi, Kwansei Gakuin University, Japan

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Abstract

This study investigates the advantages and challenges of integrating e-portfolios, built on general-purpose cloud tools, into elementary school English education. E-portfolios are recognized for fostering student-centered and reflective learning, promoting metacognition, peer interaction, and formative assessment. However, their practical implementation in primary education faces constraints such as limited time and varying technical proficiency. To explore real-world applications, we conducted semi-structured interviews with three experienced elementary school teachers who had utilized Google for Education-based e-portfolios for over a year. Qualitative data were analyzed to identify recurring themes regarding both benefits and challenges. The analysis involved the extraction and categorization of advantages and considerations from interview transcripts by the first and second authors, with all authors finalizing the themes and their descriptions. Our analysis revealed five key advantages: (1) enhanced comparative activities (with peers and past work); (2) improved teacher assessment efficiency; (3) increased opportunities for learner autonomy; (4) enriched learning outcomes (e.g., deeper reflections, higher-quality student performance); and (5) greater efficiency in managing learning processes. Conversely, four main considerations emerged: (1) varying digital literacy levels among students and teachers; (2) limited class time for e-portfolio use; (3) the need to clearly communicate e-portfolio benefits to students; and (4) constraints in providing individualized feedback. These findings suggest that while e-portfolios offer significant educational value, successful integration necessitates institutional support, technical training, and thoughtful instructional design. This study contributes to the understanding of effective digital portfolio use in elementary foreign language education and provides practical insights for future implementation.

Keywords: e-portfolio, elementary school English education, general-purpose cloud tools, ICT in education, self-regulated learning

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Introduction

Elementary School Foreign Language Education and “Attitude Toward Learning”

In school education, importance is placed on three pillars: “Knowledge and Skills,” “Thinking, Judgment, and Expression,” and “Attitude Toward Learning/Humanity.” In particular, “Attitude Toward Learning/Humanity” is positioned as an element that nurtures the attitude of children to learn proactively while interacting with society and the world, requiring respect for diversity and collaborative skills.

In Elementary School Foreign Language Education, the goal is to cultivate active communication skills accompanied by cross-cultural understanding and consideration for others. Furthermore, language acquisition requires continuous effort, and fostering autonomy as a learner is emphasized (MEXT, 2017a). In foreign language learning, experiences of thinking, judging, and expressing while utilizing knowledge and skills are important. Learning is consolidated by choosing appropriate words and repeating expressions through actual communication. In this process, the three pillars interact, and “Attitude Toward Learning/Humanity” is cultivated. The Course of Study emphasizes this element to indicate the importance of fostering an attitude where children learn proactively.

Furthermore, elementary foreign language education serves as the foundation for junior high, high school, and lifelong learning. It requires children to set their own learning goals and cultivate an attitude of continuing to learn autonomously, with teacher support playing a crucial role. Nurturing the ability to reflect on and sustain one's own learning leads to the formation of qualities and abilities required in various social situations in the future (MEXT, 2017b).

As an environment supporting such learning, the “one device per student” initiative and high-speed communication environments have been established in Japanese schools, and learning utilizing various digital tools is spreading rapidly. Sharing examples of digital tool utilization is expected to contribute to the customization of education, reduction of educational disparities, improvement of learning effects, and the promotion of sustainable educational reform. Therefore, the accumulation and analysis of practical cases are indispensable for effective operation.

Learning Utilizing e-Portfolios

One digital tool that supports learning is the portfolio. While there are similar terms such as digital portfolio, electronic portfolio, or web portfolio, this paper refers to portfolios handling digital data collectively as “e-Portfolios.” According to Morimoto and Inagaki (2017), the role of a portfolio can be broadly divided into two: “the role as evidence substantiating learning outcomes” and “the role as a tool to promote proactive, interactive, and deep learning.”

e-Portfolios allow for recording and managing learning processes, outcomes, and reflections in digital format, in addition to showing learning outcomes based on evidence. They are important educational tools for fostering self-regulation skills, enabling learners to systematically collect, organize, and reflect on their learning activities. With the GIGA School Program providing devices and networks, the possibility of introducing portfolios that promote proactive, interactive, and deep learning has increased (MEXT, 2022).

Data handled in portfolios can be divided into “Learning History” and “Learning Records” (Morimoto, 2015). Learning history refers to educational data automatically recorded by systems, such as learning logs and operation logs. Learning records are educational data created by the learners themselves, such as tests, artifacts, and reflections. e-Portfolios can visualize learning progress based on this data and provide concrete evidence for self-regulation. In this way, e-Portfolios promote learner self-regulation and support continuous learning and growth. Furthermore, portfolios function as a platform to strengthen communication between teachers and learners and provide individual feedback. This allows learners to gain a deeper understanding of their learning process and effectively adjust their individual learning paths. Thus, portfolios play an important role in fostering self-regulation skills and providing a foundation for learners to acquire 21st-century skills and grow as lifelong learners.

On the other hand, merely introducing e-Portfolios does not ensure that learners will learn proactively (Morimoto, 2015). The role of the teacher is crucial when using accumulated learning outcomes for learning (Matsuo, 2021). To develop proactive, interactive, and deep learning using e-Portfolios, continuous lesson improvement and learning support by teachers are necessary. This is particularly true in elementary schools, where many learners have not yet established their learning methods.

Portfolios Using General-Purpose Cloud Tools in Elementary English Education

The use of cloud tools has attracted attention in educational settings as a method for learning reflection and evaluation. While traditional paper-based reflection sheets had some effectiveness, issues such as complicated management and increased teacher burden were pointed out (Imanishi, 2023). There were also limits to sharing learning processes and promoting mutual evaluation with paper media. To resolve these issues, attempts have been made to introduce general-purpose cloud tools to rethink methods of recording, sharing, and reflecting on learning.

Ota et al. (2024) reported on the practice of Elementary School Foreign Language utilizing portfolios based on general-purpose cloud tools (specifically Google Forms and Google Sheets). The use of cloud tools streamlined the management of individual learning records, enabled rapid teacher feedback, and created opportunities for mutual evaluation through the sharing of outcomes among learners. Furthermore, the centralization of learning history built an environment where children could reflect on their learning and connect it to continuous learning. Attempts were also made to visualize learning processes and thought flows to support learner agency. Such practices aimed not just at a transition from paper to digital, but at the qualitative improvement of the learning process.

This study explores the nature of learning support in educational settings through the practice of reflection using cloud tools. While Ota et al. (2024) identified some results and issues, the advantages and considerations of e-portfolios using general-purpose cloud tools in elementary English education have not been organized. Organizing these points would be beneficial for teachers intending to use such tools and significant for fostering children's attitude toward learning.

Aim of This Paper

The aim of this paper is to present the advantages and considerations of portfolios using general-purpose cloud tools in elementary school English education. To this end, we interviewed teachers who have used such e-portfolios, investigating and organizing the points regarding advantages and considerations. Specifically, to organize the characteristics of lessons that realize self-regulated learning, we conducted semi-structured interviews with teachers who have used portfolios developed using Google for Education services for more than one year. The interviews focused on continuous lesson improvement and learning support, asking about successes and difficulties in teacher support.

Survey and Analysis

To achieve the aim of this study, semi-structured interviews were conducted with teachers possessing the relevant practical experience. The interviews took place in January 2025, lasting about 30 minutes each, including explanations. The interviews were conducted individually online via video conferencing tools. Focusing on continuous lesson improvement and learning support, the main question asked was, “In practicing portfolios using general-purpose cloud tools in elementary foreign language activities, how did you improve lessons or support children?” This served as a prompt to elicit successes and difficulties.

The subjects were three teachers (Teacher A, Teacher B, Teacher C):

- Teacher A: 21 years of elementary school experience, 11 years of foreign language teaching experience.
- Teacher B: 26 years of elementary school experience, 17 years of foreign language teaching experience (including periods as a research designate).
- Teacher C: 14 years of elementary school experience, 11 years of foreign language teaching experience.

All three have experience as research heads promoting foreign language education within their schools, have served as committee members or managers promoting foreign language education for their municipalities, and have used portfolios developed with Google for Education services for more than one year. A rapport had been established between the primary author and the teachers.

The analysis method involved summarizing the responses from the verbatim records regarding the two main questions, extracting parts related to advantages and considerations, and then organizing and listing them. Extraction and listing were performed jointly by the first and second authors, with disagreements resolved through consultation. The final decision on checklist items and wording was made after consultation among all authors.

Advantages of Learning Using e-Portfolios

The advantages of learning using e-Portfolios are shown in Table 1. As a result of the interview survey, advantages were organized into five major categories: [Advancement of Comparative Activities], [Efficiency of Evaluation], [Increased Self-Determination Opportunities], [Learning Effects], and [Efficiency of Learning]. These were further divided into sub-categories.

Table 1
Advantages of Learning Using e-Portfolios

Major Category	Sub-Category	Summary of Advantage
Advancement of Comparative Activities	Effectiveness regarding reference to others	Information on all students' learning can be shared and referenced in real-time.
	Effectiveness regarding media	Enables comparison not only of text but also of video and audio information.
Efficiency of Evaluation	Time Reduction	Teacher's evaluation time is streamlined by automatically centralizing student learning outcomes.
	Evaluation Support	Enables grasping overall trends of student outcomes and evaluating while confirming the learning process during class.
Increased Self-Determination Opportunities		Increases learning situations where learners can choose their learning methods by their own will.
Learning Effects	Improvement in quality of reflection	Leads to learning effects such as improvement and transformation in the quality of learning.
	Improvement in quality of performance	Children reflect directly on their own performance, and expressiveness in reflection increases. Children try to perform their best due to the situation of being seen by many others.
Efficiency of Learning		Enables efficient execution of learning that was previously difficult to realize.

Advancement of Comparative Activities

This refers to the ability to compare with the past or with others, which was previously impossible.

- Effectiveness regarding reference to others: Teacher A noted that because files are shared instantly, teachers can easily ask specific students to share, and children can see others' thoughts and type while referencing them. Teacher B mentioned that folder sharing made it easier to view friends' reflections and observe each other. Teacher C noted that real-time sharing of spreadsheets stimulates children. This suggests that e-portfolios promote comparative activities through immediacy and ease of referencing others. In elementary English, where performance evaluation is frequent, this is particularly effective for video-based formative evaluation.
- Effectiveness regarding media: Teacher B stated that while paper has the advantage of accumulation, comparing past and present units is difficult. Digital formats allow for side-by-side comparison of images or videos, enabling immediate self-comparison. Teacher B also noted that for middle-grade students, direct comparison of performance videos fits better than text. This visual comparison is a significant advantage in English education, where gestures and eye contact are important.

Efficiency of Evaluation

This refers to increased efficiency in teachers' evaluation activities.

1. Time Reduction: Teacher A reported that digitizing self-evaluation sheets significantly reduced the time required for organizing data and reflecting on the lesson/student understanding compared to paper methods.
2. Evaluation Support: Teacher A mentioned that as familiarity grew, they could focus more on the content. Teacher B noted that digital aggregation makes it easier to see trends in student thoughts compared to paper. Teacher C emphasized the ability to view reflection sheets in real-time during class and provide immediate feedback or share them on a TV screen. This indicates that efficiency leads to higher quality analysis and real-time feedback.

Increased Self-Determination Opportunities

This refers to increasing situations where learners choose their learning methods. Teacher A described a shift from teacher-led progression to setting broad goals with students and allowing them to choose their approach/method to reach that goal (like choosing a path up a mountain). Teacher C noted a change from passively watching a representative student to allowing children to freely choose which friend's performance they wanted to watch. This suggests that increasing self-determination enhances flexibility and fosters the ability to think and act independently.

Learning Effects

This refers to improvements in the quality of learning.

- Improvement in quality of reflection: Teacher B noted that recording videos for each unit allows children to reflect on their speech and gestures, leading to improvements. Teacher C observed that giving ample time to watch friends' work led to more concrete reflections and the acquisition of new expressions. This confirms that reviewing past videos is effective for checking the growth of speaking skills.
- Improvement in quality of performance: Teacher C pointed out that the situation where their performance is viewed by others motivates students to "do it properly," raising their consciousness. This environment contributes to higher quality performance.

Efficiency of Learning

Teacher A noted that the "one device per student" environment coincided with the ease of digital reflection and objective self-viewing through video. Teacher C stated that cloud tools made reflection much easier for children compared to analog methods. This suggests e-portfolios facilitate reflection and metacognition.

Considerations for Learning Using e-Portfolios

The considerations (points to note) are shown in Table 2, organized into four categories: [Difficulty], [Class Time], [Clarification of Benefits], and [Limited Feedback].

Table 2*Considerations for Learning Using e-Portfolios*

Major Category	Sub-Category	Summary of Consideration
Difficulty	Student technical skills	Consider students' lack of operation skills during the introduction period.
	Developmental stage	Adjust the content and amount of information for middle vs. high grades.
	Teacher technical skills	Consider the lack of operation skills of teachers developing/operating the e-portfolio.
Class Time		Need to secure sufficient class time.
Clarification of Benefits		First, share the significance of using e-portfolios with learners.
Limited Feedback		Methods for feedback comments on artifacts are limited.

Difficulty

- **Student Technical Skills:** Teacher A noted a dilemma initially as students took time to get used to the system, though efficiency improved over a year. Teacher B highlighted that not all children are technically skilled, requiring time for operation and learning logs. Teacher C mentioned taking ample time for operation initially, prioritizing it over content until students adjusted. This implies the need to simultaneously cultivate information utilization skills.
- **Developmental Stage:** Teacher B pointed out that for middle-grade students, spreadsheets can be visually overwhelming compared to high-grade students. Consequently, they adjusted the method to simple video reflections. This indicates the necessity of adapting tools to the developmental stage.
- **Teacher Technical Skills:** Teacher A noted that colleagues found the initial setup and viewing methods difficult, which hindered adoption. This suggests the importance of support for teachers regarding initial setup and basic operations.

Class Time

Teacher A mentioned that while digital reflection was easy, finding time for student-to-student sharing was a challenge. Teacher B noted that with short units (approx. 4 hours) in middle grades, prioritizing language activities meant utilizing portfolios for comparison in subsequent units rather than immediate interaction. Securing time within a 45-minute lesson is a major struggle. This highlights that while valuable, time management for sharing and advanced use is a critical issue.

Clarification of Benefits

Teacher B emphasized technical support to prevent loss of motivation due to tasks feeling “troublesome” or “difficult.” It is crucial to make students realize the significance (e.g., visualizing growth) and convenience of the tool. Explicitly conveying the benefits is essential for engagement.

Limited Feedback

Teacher A expressed difficulty in providing feedback to everyone. Unlike handwritten notes where teachers can easily write “Good job” or underline specifics, digital feedback feels restrictive regarding where and how to write comments and responding to everyone is burdensome. This indicates a need for efficient and effective digital feedback methods.

Conclusion

This study aimed to present the advantages and considerations of e-portfolios using general-purpose cloud tools in elementary English education. Through interviews with experienced teachers, advantages were categorized into [Advancement of Comparative Activities], [Efficiency of Evaluation], [Increased Self-Determination Opportunities], [Learning Effects], and [Efficiency of Learning]. Considerations were categorized into [Difficulty], [Class Time], [Clarification of Benefits], and [Limited Feedback]. Notably, regarding advantages, recording student performance as video was suggested to be particularly effective for elementary English portfolios. Future research will investigate how teachers utilize these points to advance lesson improvement.

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Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that Gemini was used to proofread and improve the language of this manuscript (e.g., grammar, spelling, and clarity). The author further declares that Gemini was not used to generate any substantive content for this manuscript. The ideas, research design, procedures, results, analyses, and discussion are the author’s own and are based on the careful and systematic conduct of the research.

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Contact email: ohtaaki@nm.beppu-u.ac.jp