2025 HAWAII UNIVERSITY INTERNATIONAL CONFERENCES
SCIENCE, TECHNOLOGY & ENGINEERING, ARTS, MATHEMATICS & EDUCATION JUNE 11 - 13, 2025
PRINCE WAIKIKI RESORT, HONOLULU, HAWAII

CHANGES IN LEARNING SCENE INTEREST THROUGH DOCUMENTATION BY NON-TEACHING CAREER ASPIRANTS: INSIGHTS FROM PRACTICES IN A PRIVATE PROGRAMMING SCHOOL

FUKUDA, SATOSHI
DEPARTMENT OF EDUCATION, MASTER'S COURSE
GAKUSHUIN UNIVERSITY
MEJIRO, TOYOSHIMA
JAPAN

Mr. Satoshi Fukuda
Department of Education, Master's Course
Gakushuin University
Mejiro, Toyoshima
Japan

Changes in Learning Scene Interest Through Documentation by Non-Teaching Career Aspirants: Insights from Practices in a Private Programming School

Synopsis:

This study explores how instructors in a private programming school, who do not aspire to become teachers, changed their perspectives on learning scenes through documentation. Analysis of documentation, surveys, and interviews revealed three findings: (1) instructors' focus shifted from completed products to the trial-and-error process, (2) they perceived learning scenes based on preconceived notions, and (3) their reflections remained personal, lacking shared discussion.

Changes in Learning Scene Interest Through Documentation by Non-Teaching Career Aspirants: Insights from Practices in a Private Programming School

Abstract

This study focuses on the documentation created by non-teaching career aspirants in a private programming school to explore how even individuals with limited knowledge of education engage with children's learning through the process of documentation, and how their interests in learning scenes change as a result of documentation practices.

Through coding analysis of the written documentation, along with a questionnaire survey conducted with non-teaching career aspirants and interviews with three participants, the study suggests that even when non-teaching professionals use documentation, they can develop their own understanding of "children's learning" and deepen their insights through the process of creating it.

The findings indicate that instructors began to focus more on the processes behind children's thinking and verbal expressions, rather than solely on the final products of their work.

However, the interpretation of learning was largely dependent on the subjective perspectives of each non-teaching career aspirant. Their reflections were not integrated into an organizational framework or shared among peers, leading to significant differences in the quality and utilization of documentation.

Therefore, when introducing documentation in educational settings, it should not be regarded merely as a tool for individual reflection. Instead, it should be recognized as a means for all stakeholders involved in children's learning to engage in dialogue and deepen their collective understanding. Only when intentional opportunities for discussion are created can non-teaching career aspirants develop a deeper perspective on learning.

1. Introduction

Documentation is a record of educational practices that has played a significant philosophical role in the early childhood education approach of Reggio Emilia, a city located in northern Italy. In recent years, this form of documentation has been adopted by many nursery schools and kindergartens, spreading as a method to enhance the quality of early childhood education in Japan, along with the educational philosophy of Reggio Emilia.

In Japanese early childhood education, Iwata (2021) conducted a study on documentation records and photo ICT records, highlighting that through photos taken in documentation, educators can more easily listen to the voices of children expressing their wishes through objects and the desires voiced by the children themselves, making the children more visible. Additionally, in the study by Takahashi et al. (2018: 36-39) on the philosophy and practice of curriculum management in early childhood education, it was reported that by using documentation, not only can visibility and objectivity be obtained, but also the process of creating documentation itself leads to the review and improvement

of daily childcare practices. For example, documentation that includes photos of children playing with building blocks or in the playground, along with the educators' comments on those scenes, demonstrates that documentation is not merely a record of childcare practices but rather an instrument to capture the learning processes of children, fostering dialogues among various stakeholders and linking the observed learning to further educational opportunities.

Since most of these practices using documentation are conducted in nursery schools and kindergartens, numerous studies have focused on the practical use of documentation by educational experts in these settings. Examples include studies by Maeda and Asai (2020/2022) on the use of documentation in childcare and the study by Sato (2023) on the visualization of childcare practices and the utilization of documentation, as well as its challenges. Moreover, there are studies focusing on practical approaches to creating documentation by novice childcare workers and kindergarten trainees. Okada (2023) examined the awareness of beginner childcare workers through the creation of documentation, while Uketagawa et al. (2023) conducted similar explorations.

Thus, research on the use of documentation primarily focuses on practices within nursery schools and kindergartens. There is a lack of studies that investigate the use of documentation in contexts other than kindergartens and nursery schools. Additionally, there have been no practices conducted with individuals who have not received any formal education training. Therefore, this study focuses on the practices of a private programming school that engages in documentation as an educational practice record. It aims to examine how non-teaching career aspirants with limited educational knowledge perceive children's learning through the process of creating documentation and how documentation has influenced their interest in learning.

2. The Target Programming School

The private programming school (hereafter referred to as M School) is located in Meguro, Tokyo. It is a private programming school with approximately 80 students enrolled. The students are children from first to sixth grade, attending various elementary schools in the nearby area. The use of documentation at M School began in early October 2024 and continues to be practiced to this day.

At M School, mentors (referring to non-teaching career aspirants) were so focused on effectively managing lessons that they often failed to observe the learning processes of the children. This was recognized as an operational issue. To address this, documentation, which has been widely utilized and appreciated in nursery schools and kindergartens, was introduced to help mentors better focus on observing the children's learning experiences.

The completed documentation is displayed, as shown in Figure 2.1, on the walls inside the classroom and at the entrance of M School, making it accessible for children and parents to view.

Figure 2.1: Displayed Documentation

The documentation created at M School consists of one to three photos along with written descriptions, as shown in Figure 2.2. The photos include images of children working on their projects, as well as screenshots of the computer screens they are using.

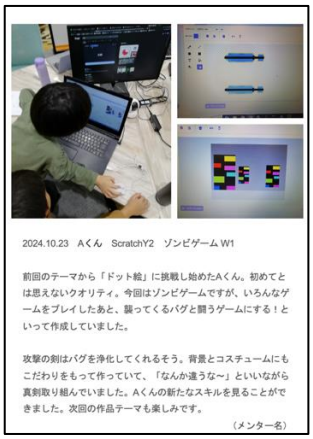

Figure 2.2: Examples of Documentation Created at M School

3. Analysis and Discussion

3.1 Research Method

In this study, a questionnaire survey using Google Forms was conducted in December 2024, alongside an analysis of the created documentation. The documentation was analyzed through content coding analysis, as well as coding analysis of the photographs included in it.

For the questionnaire survey, quantitative analysis was performed on questions related to reflection through documentation and the relationship with children and parents. Additionally, qualitative analysis was conducted based on open-ended questions.

Based on the results of these two analyses, three mentors who had written particularly distinctive documentation were selected for a 30-minute interview.

3.2.1 Research Method

This section describes the survey results obtained from 12 mentors. The questionnaire consisted of 12 questions related to documentation. The list of questions and their response formats are shown in Table 3.1.

Questions Q1 to Q6 were designed in a single-choice format. For each question, respondents were

asked to select the option that best matched their opinion from the following five choices:①Strongly agree, ②Somewhat agree, ③Neither agree nor disagree, ④Somewhat disagree, ⑤Strongly disagree

Questions Q7 to Q12 were conducted in an open-ended format, allowing for free-form responses.The results of the single-choice questions (Q1 to Q6) are presented in Figure 3.1.

Table 3.1: List of Questionnaire Survey Questions

Question Number	Response Format	Question Content
Q1	Single-choice	Do you think you were able to observe children's learning through documentation?
Q2	Single-choice	Do you think children became more inclined to learn through documentation?
Q3	Single-choice	Do you think you were able to build relationships with children and parents through documentation?
Q4	Single-choice	Do you think you were able to apply your reflections from documentation to the next lesson?
Q5	Single-choice	Do you think you were able to reflect on the documentation together with children and parents?
Q6	Single-choice	Do you think you were able to improve the quality of your lessons through reflection on documentation?
Q7	Open-ended	For what purpose do you write documentation?
Q8	Open-ended	What kinds of scenes do you try to capture in documentation?
Q9	Open-ended	During lessons, what kind of moments make you want to write documentation?
Q10	Open-ended	What kinds of scenes did you actually document?
Q11	Open-ended	Did you face any challenges or difficulties while creating documentation?
Q12	Open-ended	How did the process of creating documentation change your awareness when conducting lessons?

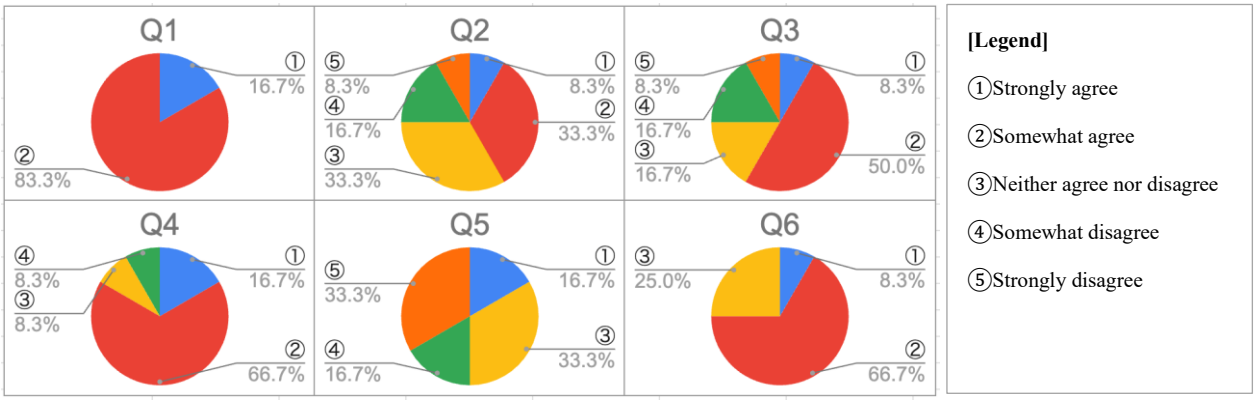

Figure 3.1: Response Distribution for Q1 to Q6

3-2-2. Results and Discussion

(1) Awareness of Children's Learning and Relationships with Children and Parents

The responses to Q1 indicated that mentors had a very positive perception of observing children's learning through documentation. However, the responses to Q2 and Q3 suggested that mentors did not feel that documentation effectively promoted further learning for children or helped to build relationships with parents.

From this, it can be inferred that while creating documentation increased mentors' confidence in observing learning, it did not extend to building relationships with children and parents or encouraging further learning beyond their own reflections.

(2) Improvement of Lesson Quality and Interaction with Parents Through Reflection

For Q4, mentors expressed a positive view that reflecting on their own documentation helped them find hints for the next lesson, ultimately leading to improved lesson quality. However, in Q5, half of the respondents selected "somewhat disagree" or "strongly disagree," indicating that reflection on documentation was not carried out with children or parents.

This suggests that documentation is currently being used solely as a tool for mentors to reflect on their own lessons. While it is perceived positively as a way to improve lesson quality and connect to the next lesson, it is not being utilized as a tool for discussing and deepening children's learning with parents and children. This lack of interaction with other stakeholders may be a barrier to expanding its educational impact.

(3) Purpose and Situations for Writing Documentation

In Q7, many mentors viewed documentation primarily as a means for personal reflection. In Q8, they described writing about children's developmental records, which was the most common purpose mentioned in Q7. There were also responses indicating that documentation included not only the children's developmental processes but also the scenes of their movements and work during lessons. In Q9, the responses were more diverse, with many mentors noting that they were inspired to write documentation when children challenged themselves with new tasks. In Q10, when asked about the actual scenes they documented, mentors mentioned a variety of moments they found meaningful.

These results indicate that mentors primarily see documentation as a way to record children's development and for personal reflection. However, they seem to focus on capturing moments that match their own expectations of learning, rather than discovering the rich learning experiences unfolding before them. This suggests that mentors are looking for learning that fits their preconceived notions, rather than observing and recognizing the broader spectrum of children's learning during lessons.

(4) Challenges in Writing Documentation and Changes in Awareness Through the Process

In Q11, when asked about challenges in writing documentation, some mentors mentioned difficulties related to students' lack of motivation and time constraints. Additionally, some expressed confusion about what to write if they did not observe the scenes they were expecting.

In Q12, mentors described changes in awareness during lessons, stating that they began to observe children more deeply. Through the process of creating documentation, mentors shifted their focus from merely managing lessons to observing children, reflecting more deeply on their developmental progress and learning.

On the other hand, the mentioned challenges suggest that mentors are not necessarily seeking learning moments from children's activities during the lesson. Instead, they are looking for scenes that fit their preconceived ideas of learning. This highlights a gap between capturing authentic learning experiences and documenting moments that match the mentors' expectations.

3-3. Analysis of Documentation

3-3-1. Analysis and Discussion of the Written Content in Documentation

Next, an analysis was conducted on the written content in the documentation. The classification of the documentation was based on the study by Yoshida and Abe (2024), which examined the perspectives on learning in Japanese childcare documentation. In their study, the situations where documentation is recorded (daily vs. non-daily) were placed on the vertical axis, and the way children's learning is visualized (the process of children's experiences vs. the process of communication between children and their environment) was placed on the horizontal axis. They categorized documentation into four quadrants: the first quadrant as "Episode Records," the second as "Learning Narratives," the third as "Portfolios," and the fourth as "Exhibited Records of Play Development."

However, at M School, some documentation did not contain perspectives on learning, and since the lessons were conducted one-on-one between children and mentors, there were limited opportunities for dialogue.

Therefore, using the above typology as a reference, the documentation was categorized from two perspectives:

1. What kind of events or episodes were written?
2. What was the main focus of the documentation?

These two perspectives were each divided into three types, resulting in a total of nine categories.

1. What kind of events or episodes were written?

The quality of the documentation differs significantly depending on whether it merely lists the events that occurred during the lesson, describes the children's dialogues and interactions, or includes the mentor's interest or amazement (interpretation) derived from those episodes. The documentation can be categorized as follows:

1. **Event Documentation**
   This type only lists the activities that took place during the lesson or what the children created. It does not include children's statements or specific episodes.
2. **Children's Episode Documentation**
   This type records specific statements, actions, or interactions among children as episodes, but it does not include the mentor's amazement or reflections.
3. **Children's Episode and Interpretation Documentation**
   This type includes specific statements, actions, or interactions among children as episodes, along with the mentor's amazement and reflections.

2. What was the main focus of the documentation?

In addition to the types of events and episodes recorded, the primary focus of the documentation is also important. This reflects what aspects mentors prioritize when documenting children's

learning. Following the same structure as the previous section, the documentation was categorized into three types:

A. **The Process of Idea Generation and Trial-and-Error**

This type describes the individual processes of children generating ideas and experimenting during programming.

B. **Children's Creations and Ideas**

This type focuses on the actual products or ideas created by the children.

C. **Dialogue and Cooperation Among Children**

This type captures scenes where children are communicating with each other, generating ideas, or helping one another.

As a result of classifying the documentation into these nine types, Table 3.2 was created. According to the table, the most frequent type was 3A (Children's Episode and Interpretation Documentation focusing on the process of idea generation and trial-and-error). The next most common was 1A (Event Documentation focusing on the process of idea generation and trial-and-error). On the other hand, Type 2 (Children's Episode Documentation) was notably scarce.

This indicates that many mentors tend to document children's ideas and trial-and-error processes, but there is a clear distinction between those who simply list events and those who also include their reflections and amazement. This suggests that when mentors pay close attention to children's specific statements and actions during lessons, their amazement is naturally reflected in the documentation. Additionally, there were no noticeable differences in these types based on the time period of the documentation.

Table 3.2: Number of Entries for Each Documentation Type

	A	B	C
1	14	4	3
2	4	2	0
3	31	4	8

3-3-2. Analysis and Discussion of Photos Included in Documentation

Finally, an analysis was conducted on the photos included in the documentation. The photographs in the documentation provide insights into what moments mentors choose to capture as part of children's learning experiences.

In this study, the photos were categorized into the following four types based on their content. Examples of each type are illustrated in Figure 3.2. For privacy protection, some images in Figure 3.2 have been edited by the author.The four categories are as follows:

A. Only the finished product or computer screen

B. Showing only the child

C. Contained images in which both (A) and (B) were captured together

D. The instructor, and (C) together.

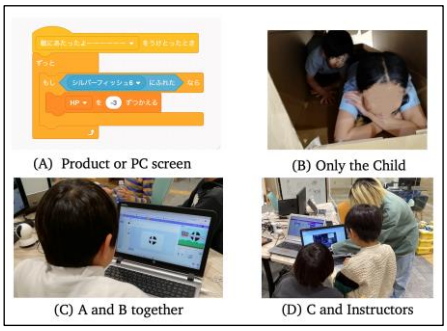

Figure 3.2. Types of Photos

The breakdown of these categories, aggregated every two weeks, is presented in Table 3.3, and the distribution of the types during each period is visualized in Figure 3.3.

From Table 3.3 and Figure 3.3, it is evident that the most common types of photos included in the documentation are "(A)Only the child's creation or computer screen" and "(C)The child and their creation or computer screen."

Unlike the analysis of the written content, the analysis of the photos revealed a shift over time. As time progressed, the proportion of "(A)Only the child's creation or computer screen" gradually decreased, while the proportion of "(C)The child and their creation or computer screen" increased.

This suggests that as the documentation practice continued, mentors began to capture not only the products or computer screens but also the children's expressions and actions during the creation process. It indicates a shift in perspective—from merely documenting children's completed work to recording the children themselves as they engage in the process of making. This reflects a growing awareness among mentors of the importance of capturing the learning process rather than just the final outcome.

Table 3.3: Breakdown of Photo Types by Period

	P1	P2	P3	P4	P5	SUM
Type A	18	22	15	20	9	85
Type B	0	0	0	1	1	3
Type C	5	9	11	18	9	53
Type D	0	0	1	0	0	1

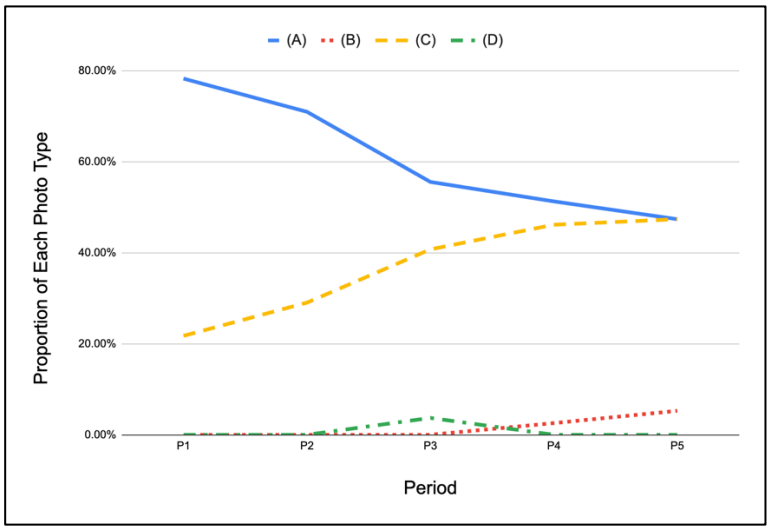

Figure 3.3: Proportion of Each Photo Type in Documentation

Furthermore, when the number of photo types for each mentor was graphed by period, three distinctive mentors were identified, as shown in Figure 3.4. In Figure 3.4 (left), Mentor AS was characterized by a balanced inclusion of "(A) Only the child's creation or computer screen" and "(C)The child and their creation or computer screen" across all periods.

In contrast, Mentor YS (center) and Mentor KK (right) exhibited distinct patterns: throughout all periods, YS only included "(A) Only the child's creation or computer screen", while KK exclusively focused on "(C) The child and their creation or computer screen".

Based on these findings, the decision was made to select these three mentors (AS, YS, and KK) for interviews, focusing on their documentation practices and perspectives.

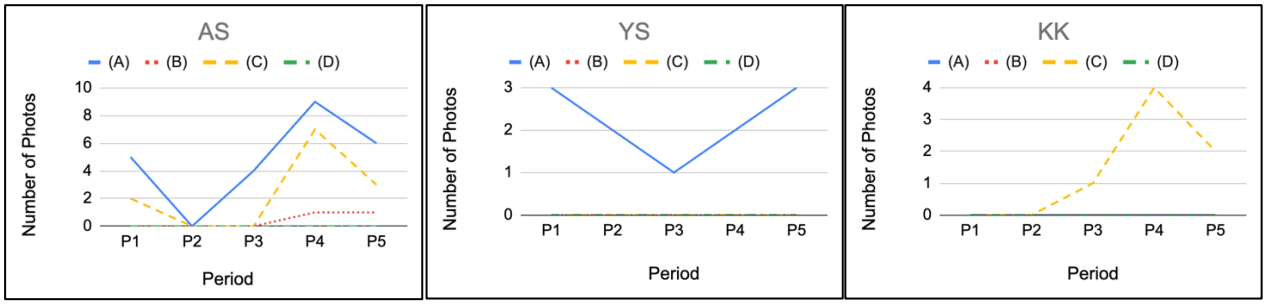

Figure 3.4: Number of Photo Types by Period for the Three Distinctive Mentors

3-4. Interview Analysis

3-4-1. Overview of the Interview

After completing the documentation analysis, individual contacts were made with the three selected mentors (AS, YS, and KK), and approximately 30-minute online interviews were conducted using the Zoom meeting function.

During the interviews, the mentors shared their screen to display the documentation they had created. This allowed them to recall specific moments and reflect on their documentation as they answered the questions.

The interviews were conducted in a semi-structured format, allowing for both structured responses and open-ended discussion. The main questions asked during the interview were as follows:

1. What do you focus on when writing documentation?
2. What do you pay attention to when taking photos?
3. What do you consider as children's learning?

These questions aimed to explore the mentors' thought processes, intentions, and perspectives regarding their documentation practices and their views on children's learning.

3-4-2. Awareness When Writing Documentation

Regarding their awareness when writing documentation, it became clear that each mentor focused on different aspects. AS focused on recording good ideas, particularly scenes where children were helping and interacting with each other. YS paid attention to moments where children were engaged independently and proactively, while KK focused on scenes where children were listening to each other. This indicates that each mentor tried to document the learning scenes they wanted to nurture in children.

Furthermore, AS mentioned, *"When I started observing from a child-centered perspective, I began to notice the parts where children were interacting with each other quite a lot."* This statement suggests that AS became more aware of the various activities of children and began to recognize and assign meaning to their interactions. In contrast, KK and YS seemed to focus more on documenting scenes that aligned with the specific aspects of children's activities they valued, rather than discovering new moments through observation. This difference indicates that AS found meaning through observing children's various activities, while KK and YS tried to document scenes that matched their preconceived ideas of children's learning moments.

3-4-3. Awareness When Taking Photos

Regarding awareness when taking photos, it was clear that the perspectives held by AS and KK were distinctly reflected in the photos they included in the documentation. This suggests that the photos posted in the documentation were projections of the consciousness each mentor carried.

However, during the interview, YS stated, *"I did try to take pictures, but sometimes the kids would say, 'Don’t take my picture,' so I couldn’t do it."* This comment highlights that YS sometimes faced situations where children were not comfortable with being photographed, making it impossible to capture those moments. This indicates that, unlike AS and KK, YS sometimes could not reflect their intentions through photography due to the children's reluctance. This suggests that the mentor's awareness does not always get projected onto the photos, depending on the children's reactions.

3-4-4. What is Considered as Children's Learning

Regarding what is considered as children's learning, each mentor expressed different perspectives during the interview. AS emphasized the importance of nurturing relationships where children teach and help each other. YS focused on children pursuing what they like and working towards what they want to achieve during the creation process. KK saw learning as the internal growth of children, particularly the development of listening skills and mutual understanding. These three different perspectives were clearly reflected in their awareness when writing documentation and taking photos.

It became evident that the kind of learning the mentors wanted to foster strongly influenced how they viewed learning scenes. Furthermore, since the learning each mentor wanted to nurture—such as dialogue among children, self-driven activities, and internal growth—differed significantly, there were no discussions among the mentors to deepen their understanding of learning through documentation. As a result, each mentor primarily reflected on their own documentation alone, suggesting that reflections on children's learning and lesson reviews were conducted individually rather than collaboratively.

4. General Discussion

This study focused on the documentation created by non-teaching career aspirants in a private programming school to examine how individuals with limited knowledge of education engage with children's learning through the process of creating documentation, and how documentation influences their interests in learning. The main findings are summarized as follows:

(1) How do non-teaching career aspirants engage with children's learning?

In the questionnaire survey, responses to Q7 to Q10 showed a variety of perspectives on the purpose of writing documentation and the scenes being captured. In the interview survey, the three mentors each identified different learning scenes: dialogue among children, self-initiated activities, and internal growth. This indicates that non-teaching career aspirants approached children's learning through their own interpretation of "learning," which was reflected in their documentation.

The analysis of the written documentation showed that the most frequent type was 3A (Children's Episode and Interpretation Documentation focusing on the process of idea generation and trial-and-error), followed by 1A (Event Documentation focusing on the process of idea generation and trial-and-error). This suggests that through the process of documentation, the mentors attempted to interpret children's learning not just by recording events or products, but by understanding children's approaches and behaviors during the learning process.

However, as the mentors each had distinct perspectives on learning and, according to Q3 and Q5 of the questionnaire survey, there were many responses indicating that reflections were not shared with children or parents. This highlights that the documentation process was primarily used for self-reflection, rather than as a tool for dialogue with stakeholders, such as children and parents, to deepen learning collaboratively.

(2) How did documentation change their interest in learning?

Responses to Q12 in the questionnaire survey revealed that, through the process of creating documentation, the non-teaching career aspirants shifted their focus from lesson management to observing children, leading to deeper reflection on children's developmental progress and learning.

Furthermore, the analysis of the photo types in the documentation showed that, over time, the proportion of Only the child's creation or computer screen decreased, while The child and their creation or computer screen increased. This suggests that the non-teaching career aspirants shifted their focus from merely documenting children's finished products to capturing the children's actions and expressions during the creation process.

The interview survey also revealed that mentors' perspectives expanded from focusing solely on children's creations to emphasizing children's dialogue and internal changes. This implies that documentation encouraged a shift in perspective from focusing solely on completed products to appreciating children's thought processes and verbal expressions during learning activities.

These findings suggest that even when non-teaching career aspirants in private programming schools engage in documentation, they can develop their own understanding of children's learning and deepen their awareness through the process. Documentation led them to place more value on the processes of children's thinking and expression.

However, the way learning was perceived largely depended on the subjective perspectives of each individual. Since these reflections were not connected to an organizational framework or shared among peers, significant variations emerged in both the quality and utilization of documentation.

Therefore, when introducing documentation, it should not be regarded merely as a tool for individual reflection. Instead, it should be recognized as a means for all stakeholders involved with children to engage in dialogue and deepen their collective understanding of learning. Only when intentional opportunities for discussion are created can non-teaching career aspirants develop a deeper perspective on learning.

5. Postscript

This paper is an expanded version of a research note scheduled to be published in *Gakushuin University Journal of Educational Studies and Practices*.

6. References

Iwata, K. (2021). *Documentation Records and the Benefits of Using Photos and ICT*. *Development*, 42(167), pp. 44-50.

Takahashi, H., Asai, H., & Kojima, M. (2018). *Philosophy and Practice of Curriculum Management in Early Childhood Education: Understanding Children's Play and Daily Life through Documentation*. *Matsuyama Shinonome College Research Bulletin*, pp. 32-40.

Maeda, K., & Asai, T. (2020). *A Study on the Utilization of Documentation in Early Childhood Education: Focusing on Issues Related to its Use*. *Tokyo Kasei University Research Bulletin*, 60(1), pp. 21-28.

Maeda, K., & Asai, T. (2022). *A Study on the Utilization of Documentation in Early Childhood Education (2): Analysis of Evaluations by Educators and Parents Regarding Documentation*. *Tokyo Kasei University Research Bulletin*, 62(1), pp. 41-48.

Sato, M. (2023). *Visualization of Early Childhood Education and the Current Utilization and Challenges of Documentation*. *Mejiro University Journal of Integrated Science*, 19, pp. 13-23.

Okada, M. (2023). *Considerations on the Awareness of New Childcare Workers in Early Childhood Education*. *Matsuyama Shinonome College Bulletin*, Vol. 54, pp. 9-16.

Ukegawa, S., Kumehara, J., Yoshioka, S., Kato, H., Kusakabe, H., & Nezu, C. (2023). *An Attempt to Introduce Documentation-style Diaries in Kindergarten Practicum: Through Collaboration between the University and Its Affiliated Kindergarten*. *Japan Women's University Bulletin, Faculty of Home Economics*, 70, pp. 47-55.

Yoshida, N., & Abe, T. (2024). *Perspectives on Learning Assumed by Japanese Childcare Documentation Theory*. *Keishin Research Journal*, 8(1), pp. 67-75.