How Do We Provide Optimally Individualized Learning Using ICT in Elementary Schools?

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Abstract

The purpose of this study is to reveal how teachers understand the reality of student learning in order to optimize individualized learning through the use of ICT. It is also based on providing personalized learning support. The study was conducted in a 6th-grade Japanese class at the National Elementary School. The teacher was observed and interviewed. The interviews with the teacher were transcribed sequentially and used as analysis data. The KJ method was used for the analysis. As a result of the analysis, six points were identified as inventions for understanding the students' actual learning conditions and were identified as support for individualized learning. A future direction is to investigate whether the teacher's innovations and learning support methods identified in this study can be adapted to other schools.

Keywords: Optimally Individualized Learning, Elementary School, KJ method, Lesson Observation

Research Background

In Japan, all students in regular classes have provided individualized and optimal learning support. For example, classes are organized by proficiency level to improve learning effectiveness (Kamata et al. 1985). Teachers carefully listen to students with ADHD tendencies and provide individualized support, such as checking the situation and aiming for student-centered problem solving (Sunami 2018). Furthermore, it has been shown that using ICT, such as one-to-one terminals, is effective in developing learning more suited to individual interests and concerns (Yamaguchi 2021). However, while Mizuuchi (2015) indicates that the use of ICT has the potential to address any difficulties that students may have, he reports that in order to do so, it is essential for teachers to understand the challenges and abilities that students have fully. And Nakamura et al. (2021) identified that the difficulties might not be matched between teachers and students as a challenge. These findings suggest that one of the keys to supporting individualized and optimal learning among teachers in understanding the reality of students' learning using ICT.

How can we grasp the actual conditions of students' learning, and how can we support them to learn individually and optimally, especially for students in regular classes?

Research Objectives

The purpose of this study is to clarify how teachers understand the actual conditions of children's learning and how they provide personalized learning support in order to optimize individualized learning through the use of ICT.

Research Methodology

Participant observation of a 6th-grade Japanese class at National A Elementary School and an interview with the teacher (teacher K) were conducted for about one hour. The observation and interview were transcribed sequentially and used as data for analysis. The KJ method was used for analysis.

Results and Discussion

Participant observation of a 6th-grade Japanese class at National A Elementary School and an interview with the teacher (teacher K) were conducted for about one hour. The observation and interview were transcribed sequentially and used as data for analysis. The KJ method was used for analysis.

As a result of the analysis, six points were clarified:

- Two in-class inventions.
- Two after-class inventions.
- Two daily inventions based on a learning subject in order to grasp the actual state of children's learning and to provide personalized learning support.

1. In-class invention

The first point is the teacher's efforts to allow students to choose their learning style. This ingenuity was particularly evident in using ICT in the classes we observed. In the classes we attended, both a projector and a blackboard were used in front of the classroom, and each student had a tablet device and notebook. This was done to guarantee the ease of learning as perceived by the students. The board was always used in class to indicate the teacher's willingness to allow students to choose between digital and analog learning. In addition, an atmosphere was created in which friends mutually acknowledged each other's learning choices and how to proceed with knowledge. In addition, as a prerequisite for such a class, the teacher's ingenuity was to teach information and morals daily.

The second point is the teacher's emphasis on the children's will and intention, the children's finding meaning in their activities, and the teacher's understanding of this. From the interview with teacher K, we learned that she allows the children to do what they want. For example, in class, we observed one student thinking about the continuation of the story and writing an essay during class. Also, we learned from the interview that the teacher does not strictly instruct students who touch their tablets while the teacher is talking but rather tells them that it is okay if they can explain what they want to do or what is important to them rather than listening to what the teacher has to say.

2. After-class invention

The first point is that children give feedback to each other. The children themselves feel pleased with the responses from their classmates. The children found that this method of evaluation allowed them to feel good about what they tried and what they did by commenting on each other's work. The teacher was constantly checking the status of this feedback.

The second point is to have students reflect on their learning. We found that the teacher was trying to make the students reflect on their own learning by looking at the comments of their classmates and connecting the content of the previous lesson to the present lesson.

3. Daily inventions based on a learning subject

The first point is to have students reflect on their learning. We found that the teacher was trying to make the students reflect on their own learning by looking at the comments of their classmates and connecting the content of the previous lesson to the present lesson. Through the interview, we learned that teacher K asks the students to submit homework assignments that are based on their own themes, such as free research, drill-based homework, and homework that is left up to the students.

The second point is to keep a diary in chat rooms and self-study notebooks. Instead of returning the results for each lesson in the subject class, the students do not miss the diary as feedback for their comments.

Future Directions

A future task is to investigate whether the teacher instructions and learning support methods identified in this study can be adapted in other schools.

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