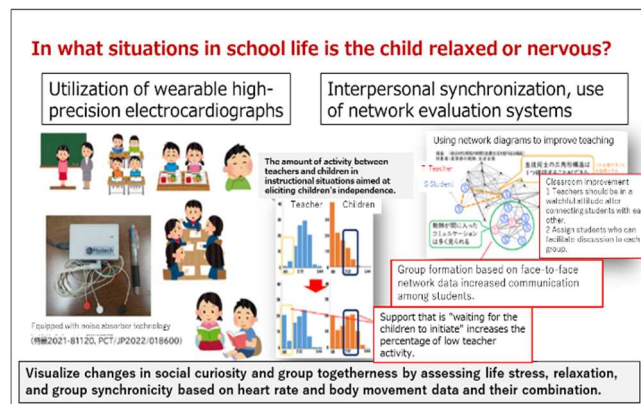


3. Realization of schools that protect individuality

Progress until FY2023

1. Outline of the project

This project focuses on "schools," where diverse children live together, to promote learning based on inherent curiosity and to achieve a high level of mental well-being for children. Kanazawa University and Kaga City are collaborating on this research project with three main themes: "visualization of children's mental well-being and intellectual curiosity in schools," "examination of educational systems," and "ELSI for developmental disabilities.



OTarget

Students enrolled in regular elementary school classes and special-needs classes

OMethod

Students will be asked to wear a wearable high-precision electrocardiograph and face-to-face detection application while at school to acquire heart rate data and activity volume data.

2. Outcome so far

Device 1: Wearable high-precision ECG



A prototype device was created to improve the accuracy of heart rate and autonomic nerve measurement in daily life and to enable long-term measurement.

Device 2: Face-to-Face Inspection Synchronicity Detection Application

A system was introduced to evaluate the body movements during individual body activities and group synchronization by means of an acceleration sensor built into a small smartphone.

Analysis of Children's Activity Levels During "Curiosity Exploration Time" Using a Face-to-Face Synchrony Detection App

The activities of children with developmental disabilities, especially those in which they had a particular interest or enthusiasm, were conducted and their physical activity during these activities was measured.

As a result of the analysis, it was shown that the synchrony between the teacher and the student increased significantly during activities where they worked together, such as crafting.

Curiosity Exploration Time at School



Through the analysis of physical activity levels and autonomic nervous system responses in situations where children learn at their own pace and in their own way, we provide an optimal learning environment and effective education for children with diverse characteristics.

Device



During cardboard crafting, students worked together with their homeroom teacher and staff, competing in target shooting with the completed gun.

Result



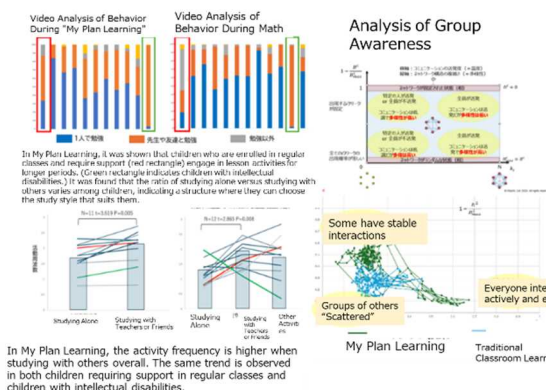
The time of high synchrony with the teacher is longer in scenes where they "work together."

"Learning Proactively"

Visualization of Differences in Children's Behavior Due to Differences in Class Structure

An analysis was conducted using video analysis and accelerometer data to compare "My Plan Learning" (individual-paced and form learning within a unit) adopted in Kaga City, Ishikawa Prefecture, and the usual class style. The network index of accelerometer data, "Group Awareness," indicated a state of interaction and individual concentration in the individual-paced learning compared to regular classes, showing a broad distribution of network characteristics.

Visualizing Differences in Children's Behavior Due to Structural Differences in Lessons Focused on Active Learning



3. Future plans

We are working on building a platform to create an educational system that fosters children's growth at school, nurturing their curiosity, self-esteem, and promoting the healthy development of their minds and brains. We will hold regular information-sharing meetings involving Kaga City and university representatives to discuss the state of support for education and developmental disabilities in the region and to share findings obtained from measurement data. We will engage in discussions with citizens about research and technology related to children's mental health, providing opportunities to promote understanding of inclusive education.

