

## Research on Teachers' Perceptions on the Usability of Classroom Space: Analysis of a Nation-Wide Questionnaire Survey in Japan

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**Abstract :** This study investigates the relationship between teachers' perceptions of the usability of classroom space and various elements, including both physical and non-physical, of classroom environments. With the introduction of the GIGA School funding program in Japan in 2019, understanding its impact on learning in classroom space is crucial. The program enabled local educational authorities (LEA) to make it possible to provide one PC/tablet for each student of both elementary and junior high schools. Moreover, at the same time, the program also supported LEA to purchase other electronic devices for educational purposes such as electronic whiteboards, large displays, and real image projectors. A nationwide survey was conducted using random sampling methodology among 100 junior high schools to collect data on classroom space. Of those, 60 schools responded to the survey. The survey covered approximately fifty items, including classroom space size, class size, and educational electronic devices owned. After the data compilation, statistical analysis was used to identify correlations between the variables and to explore the extent to which classroom environment elements influenced teachers' perceptions. Furthermore, decision tree analysis was applied to visualize the causal relationships between the variables. The findings indicate a significant negative correlation between class size and teachers' evaluation of usability. In addition to the class size, the way students stored their belongings also influenced teachers' perceptions. As for the placement of educational electronic devices, the installation of a projector produced a small negative correlation with teachers' perceptions. The study suggests that while the GIGA School funding program is not significantly influential, traditional educational conditions such as class size have a greater impact on teachers' perceptions of the usability of classroom space. These results highlight the need for awareness and strategies to integrate various elements in designing the learning environment of the classroom for teachers and students to improve their learning experience.

**Keywords :** classroom space, GIGA School, questionnaire survey, teachers' perceptions

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