[Paper]

Report on a Survey of Educational Support Needs of Students with Borderline Intelligence

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Abstract

In recent years, the number of students with borderline intelligence (BIF students) has been increasing in Japanese schools. BIF have an IQ test score that is one to two standard deviations below average, in the range of 70 to 85, which are on the borderline between Mild Intellectual Disabilities (MID) and average intelligence. Since borderline intelligence is not a disability, there is no educational support system in place.

In order to investigate their actual condition, we conducted a survey of regular classes, special classes and special needs schools (for intellectual disabilities).

The results showed that the number of BIF students is increasing, especially in regular and special classes. In addition, it seems that teachers in regular classes tend to find it difficult to teach BIF students.

It was found that the support needs of BIF students in regular and special classes are mainly in terms of learning. The degree of learning delays tended to increase as students moved up through the grades. In the special needs schools, interpersonal support needs were more prevalent. It was suggested that children in the supportive schools may have chosen a smaller, more intensive support environment due to their adjustment to group life, communication, and social skills challenges.

In the future, we would like to consider support measures by more accurately understanding the IQs of the children in the study or by investigating the relationship between developmental disabilities.
Keywords: Borderline Intelligence, Intellectual Disabilities, Educational Support

1. Introduction

Recent reports indicate an increase in the prevalence of students with Borderline Intellectual Functioning (BIF) in Japanese schools (Honda et al., 2018). BIF is characterized by IQ test scores ranging from one to two standard deviations below the average, specifically between 70 and 85. This

range borders the threshold between Mild Intellectual Disabilities (MID) and average intelligence (Aizawa, 2023). The Full Scale Intelligence Quotient (FSIQ) in BIF can be affected by various factors, such as language ability and working memory. In some cases, the variation in abilities is minimal, yet the overall FSIQ remains within the borderline range. The challenges in adapting to social and practical domains for BIF students are often comparable to those faced by individuals with MID. Notably, school-aged children with BIF are at a heightened risk for academic and social maladjustment, primarily due to learning and daily living difficulties (Shaw, 2008). Despite these challenges, there remains a lack of statistical research identifying the specific conditions and standardized trends among BIF students.

In Japan, educational provisions for students with disabilities include "Special Classes (SC)" within regular schools for those with milder disabilities and "Special Needs Schools (SNS)" for more severe cases. According to MEXT, SCs and SNS offer a modified curriculum tailored to the child's specific disability, allowing for adjustments in subject matter and teaching methods. For instance, in cases of intellectual disabilities, curricular goals and content may be adapted to lower grade levels or combined into interdisciplinary subjects. A key feature of both SCs and SNSs is the focus on independent activities designed to help students overcome learning and living challenges associated with their disabilities. These educational settings typically offer more individualized attention and support, with more teachers and support staff than regular classes (RC).

However, the suitability of SCs and SNSs for students with borderline intellectual functioning remains unclear. The disparity between the needs of students with mild or moderate intellectual disabilities and those with borderline functioning can lead to feelings of inadequacy and misfit in these educational settings. This study was designed to explore the specific needs of BIF students and the challenges their parents and teachers face. By investigating the current situation, this study seeks to inform strategies for effectively supporting the education of BIF students.

2. Research Methods

2.1 Survey Methodology

This study employed a questionnaire survey targeting schoolteachers. We sent 1,932 questionnaires (collection rate of 27.2%).

2.2 Survey Period

The survey was conducted from July to August 2022.

2.3 Survey Targets

- Elementary Schools (in Kanto Region) : Homeroom teachers in Regular Classes and Special Classes.
- Special Needs Schools for Intellectual Disabilities (nationwide) : Homeroom teachers and department heads.

2.4 Questionnaire Contents

2.4.1 Enrollment of BIF Students in Schools

(1) Trends in the increase or decrease of BIF students.

(2) The proportion of BIF students in the respondent's class or school.

2.4.2 Information About One Selected BIF Student

Note: Respondents were asked to select one BIF student from their class for the following questions.

(1) Student Profile: a. Grade. b. Disorders (excluding Intellectual Disabilities). c. Medication use.
(2) Support needs for school life (multiple responses allowed).
(3) Delays in learning Japanese and math.
(4) Family issues.
(5) Perception of difficulty by parents.
(6) Perception of difficulty by teachers.

2.5 Analysis Method

The χ^2 (Chi-square) test examined differences based on the BIF students' school affiliation. We used a software called HAD (Shimizu, 2016) for the analysis.

2.6 Ethical Considerations

In the survey request form, participants were informed in writing about handling personal information and disclosing research results. Responses were collected only after obtaining their informed consent. The Tokyo Gakugei University Ethics Committee approved this study.

3. Results

3.1 Enrollment of BIF Students in Schools

3.1.1 Increase or decrease in students

Responses to increasing or decreasing trends in BIF students varied across the three settings: RC (N=535), SC (N=131), and SNS (N=274). In the RC setting, 151 participants (28.2%) reported a significant increase in BIF students, whereas 278 (52.0%) observed a moderate increase. None reported a significant decrease. However, 2 (0.4%) noted a slight decrease. A notable 95 (17.8%) found the numbers unchanged, and 9 participants (1.7%) were unsure. In contrast, 26 individuals (19.8%) indicated a substantial increase in the SC setting, and 72 (55.0%) saw a moderate increase. A higher proportion, 16 respondents (12.2%), observed a significant decrease, and 2 (1.5%) slightly decreased. Unlike RC, no one in SC reported unchanged numbers, but 15 (11.7%) were uncertain.

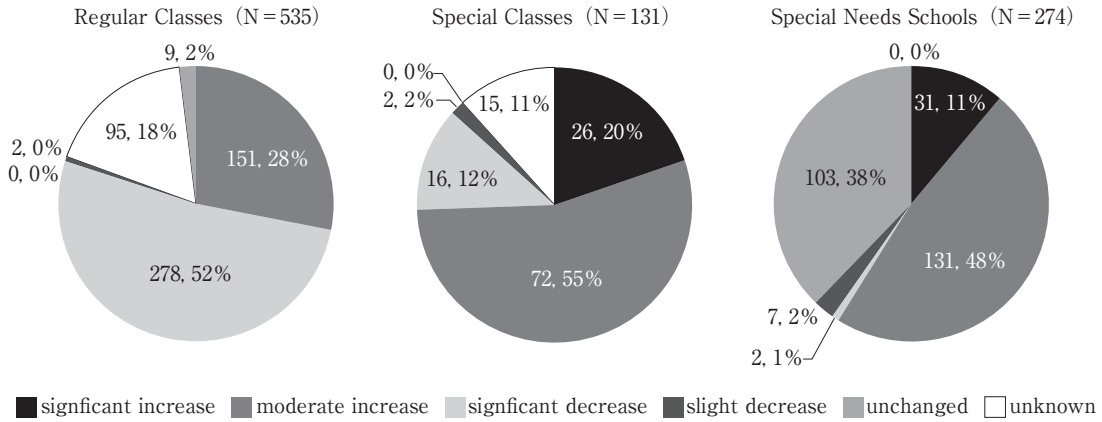

Figure 1 Increase or decrease in students

The SNS setting presented another variation, with 31 respondents (11.3%) noting a considerable increase and 131 (47.8%) a moderate increase. Only 2 (0.7%) reported a significant decrease, while 7 (2.6%) saw a slight decrease. A larger group, 103 (37.6%), observed no change, and none were unsure about the trend.

3.1.2 Percentage of BIF Students in the respondent's class or school

The study focused on the percentage of BIF students enrolled in classes or schools and categorized the respondents into three groups: RC (N=291), SC (N=125), and SNS (N=109). The number of children in the classes under the respondents' responsibility varied across these settings. In the RC setting, there were 7,996 children, averaging 27.5 children per class. The SC setting had 555 children, averaging 5.1 children per class. In the SNS setting, the total was 452 children, averaging 3.6 children per class. Among these populations, the number of BIF students differed significantly. There were 893 BIF students in the RC setting, whereas the SC setting had 40 and the SNS setting had 96. When these figures were translated into percentages relative to the total number of classes in each setting, it was found that BIF students constituted 11.2% of the RC setting, 21.2% of the SC setting, and 7.2% of the SNS setting.

3.2. Information About One Selected BIF Student

3.2.1 Demographic Information

(1) Grade Distribution

The survey received 424 responses, with a distribution across grades: 11.6% from 1st grade, 15.3% from 2nd grade, 18.4% from 3rd grade, 17.5% from 4th grade, 17.9% from 5th grade, and 19.3% from 6th grade.

(2) Disorders (Medical Diagnosis)

Information was gathered on students' disabilities, excluding Intellectual Developmental Disabilities (IDD). The details, including the prevalence of each disability type, are presented in Table 1. Specific students had multiple disabilities.

(3) Medication Usage

Responses regarding medication usage were collected from different settings: 345 from RC, 47 from SC, and 77 from SNS. In RC, 12.8% of the respondents indicated medication usage, 79.1% did not, and 8.1% were unsure. In SC, 21.3% reported medication usage, 74.5% did not, and 4.3% were unsure. Similarly, 29.9% indicated medication usage in SNS, 62.3% did not, and 7.8% were unsure.

3.2.2 Support Needs for School Life

The survey sought multiple responses regarding the support needs for school life, with the detailed results presented in Table 2. It was observed that students in RC and SC predominantly required academic support, whereas those in supportive schools (SNS) had more interpersonal needs.

Table 1 Number of responses by disability type

	ASD	ADHD	LD	DS	Others	Nothing/ Unknown	Total
RC	36	44	21	0	0	70	171
SC	5	10	4	1	6	29	55
SNS	35	13	0	1	4	3	56

※ ASD: Autism Spectrum Disorder/ADHD: Attention-Deficit Hyperactivity Disorder/LD: Learning Disability/DS: Down syndrome

Table 2 Support needs for school life

Needs	Learning	Daily Life	Interpersonal Relationships	Behavior/ Emotions	Exercise	Self-esteem	Problem Behavior	School Refusal	Isolation	Total
RC	267 (31.1 %)	135 (15.7 %)	157 (18.3 %)	138 (16.1%)	26 (3.0%)	63 (7.3 %)	19 (2.2%)	29 (3.4%)	24 (2.8%)	858
SC	46 (28.2 %)	32 (19.6 %)	30 (18.4 %)	28 (17.2 %)	11 (6.7 %)	6 (3.7 %)	5 (3.1 %)	4 (2.5 %)	1 (0.6 %)	163
SNS	51 (18.0 %)	46 (16.3 %)	65 (23.0 %)	60 (21.2 %)	14 (4.9 %)	22 (7.8 %)	11 (3.9 %)	10 (3.5 %)	4 (1.4 %)	283

3.2.3 Delays in Learning Japanese and Math

The study gathered responses on Japanese and mathematics learning delays. The results indicated that 348 from RC, 48 from SC, and 74 from SNS had such delays. The most common responses were "the grade concerned" in RC (34.5%), both "the grade concerned" and "2 grades behind" in SC (29.2% each), and "3 grades behind" in SNS (43.2%). Additional insights in the "others" category from RC included varying learning delays and difficulty making specific assessments, indicating possible learning disabilities. SC and SNS respondents mentioned using various educational tools like general books, textbooks for IDD, and tablet devices.

3.2.4 Family Environment Issues

When asked about problems in the students' family environment, the responses were 348 from RC, 47 from SC, and 77 from SNS. In RC, 44.0% reported problems, 38.2% did not, and 17.8% were unsure. In SC, 46.8% reported problems, 48.9% did not, and 4.3% were unsure. In SNS, 36.4% indicated problems, 50.6% did not, and 13.0% were unsure. Examples of problems included "mental problems/ disabilities of parents," "abuse/neglect," "complicated family relationships," and "poor parenting skills."

3.2.5 Parental Challenges

The survey assessed the level of difficulty parents experienced in raising their children. From RC, 17.8% reported being "Very troubled," 48.1% "Somewhat troubled," 27.8% "Not much troubled," 2.3% "Not troubled at all," and 4.0% were unsure. In SC, 12.5% were "Very troubled," 35.4% were "Somewhat troubled," and 52.0% were "Not much troubled," with no responses for "Not troubled at all" and "Unknown." In SNS, 15.6% were "Very troubled," 37.7% were "Somewhat troubled," 35.0% were "Not much troubled," 2.6% were "Not troubled at all," and 9.1% were unsure.

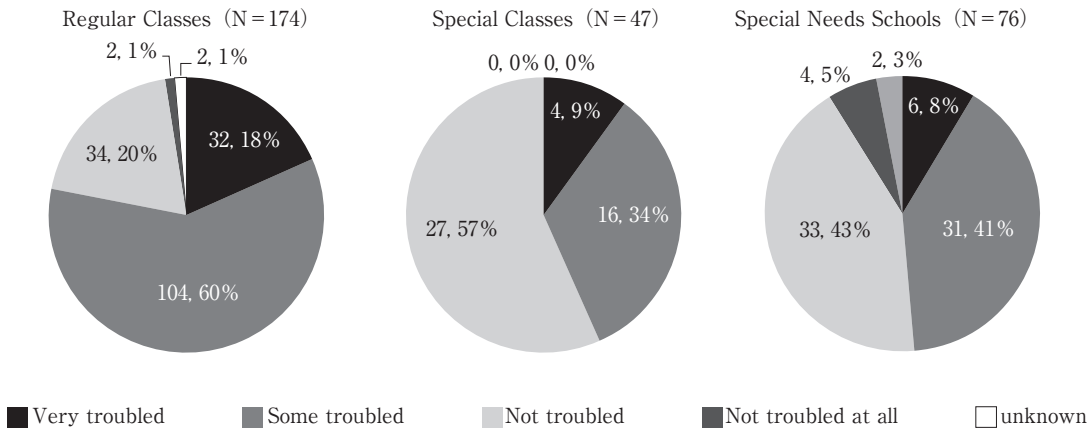

Figure 2 Teacher's Perception of Educational Challenges

3.2.6 Teacher's Perception of Educational Challenges

The number of responses on educational challenges faced by teachers was 174 from RC, 47 from SC, and 76 from SNS. In RC, 18.4% felt "Very troubled," 59.8% "Somewhat troubled," 19.5% "Not much troubled," 1.1% "Not troubled at all", and 1.1% were unsure. In SC, 8.5% were "Very troubled," 34.0% were "Somewhat troubled," and 57.4% were "Not much troubled," with no responses for "Not troubled at all" and "Unknown." In SNS, 7.9% were "Very troubled," 40.8% "Somewhat troubled," 43.4% "Not much troubled," 5.3% "Not troubled at all", and 2.6% were unsure.

4. Discussion

This study reveals a notable increase in Borderline Intellectual Functioning (BIF) students, particularly in regular elementary schools, constituting approximately 10–20% of a class. An important finding is that many BIF students in Regular Classes (RC) are not diagnosed with developmental or other disabilities and are not receiving medication. It was suggested that they often have difficulties in school, but that their emotional and behavioral problems are not as pronounced. The lack of overt problems may contribute to their enrollment in RC, where their difficulties can be easily overlooked, underscoring the need for heightened awareness and attention in these settings.

The enrollment of BIF in Special Needs Schools (SNS) should also be noted. Originally, SNS were supposed to enroll students with intellectual disabilities (=IQs below 70). However, we found that the enrollment of BIF students is increasing. This background is related to the diagnostic criteria for intellectual disability. The determination of intellectual disability is not only IQ, but also difficulties with adaptive behavior. Thus, even if a student has an IQ of 70 or higher, a diagnosis of intellectual disability may be made if the student is found to need special support and attention in adaptive functions.

4.1 Support Needs and Learning Delays

The study highlights that support needs in "Learning" are more prevalent in RC and Special Classes (SC). At the same time, "Interpersonal relationships" are a primary support needs in Special Needs Schools (SNS). This suggests that students in SNS, potentially with higher intellectual levels, may opt for environments offering extensive support due to communication and social adaptation challenges. Regarding learning delays, no significant differences were observed across educational settings, indicating that high support needs beyond academic assistance might influence enrollment in SC. A concerning trend is the widening gap in academic performance between BIF students and their peers as they progress to higher grades. According to Honda et al. (2018), there are a certain number of children in whom problems become apparent in late school age, and in particular, it was shown that there was an increasing trend in the incidence of problems related to borderline intelligence noted after the fourth year of school. Similar results were obtained in this study. We must do longitudinal studies for a deeper understanding of their evolving educational needs.

4.2 Challenges in Regular Classes

In RC, BIF students face the challenge of adhering to grade-level curriculum, often leading to secondary issues like school maladjustment. This is attributed to the difficulty in assessing their learning delays and the variance in subject comprehension. Further research is needed to explore how RC teachers perceive and address these learning challenges and the impact of transitioning to SC.

4.3 Teachers' Difficulties

Teachers in RC reported more significant difficulties, likely stemming from challenges in providing individualized support and a lack of expertise in managing borderline intellectual and developmental disabilities. This highlights a crucial area for teacher training and resource allocation.

4.4 Study Limitations and Future Directions

A limitation of this study is the indeterminate relationship between the target children's IQs and developmental disabilities. Future research should strive to understand better their IQ profiles and medical diagnoses to better identify factors contributing to their distress. Additionally, by focusing on less apparent needs in learning and daily living, further insights might be gained to expand the scope of support for BIF students.

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