

Training System for SNE Teachers at Elementary, Middle, and High Schools: A Qualitative Analysis of the Case Studies Content

Jieping Ou^{1*}, Masayoshi Tsuge², Keiko Kumagai², Ami Sambai², Shoko Miyamoto², Shinji Okazaki², Fumiya Noro², Michio Kojima², Hiroki Yoneda²

¹Kansai Gaidai University, Osaka, Japan

²University of Tsukuba, Tsukuba, Japan

Email: jou1510@kansai-gaidai.ac.jp

Abstract: Conventional lecture-style training ends up being biased toward teaching basic theoretical knowledge, and some issues have been identified. Therefore, it is necessary to construct an effective training system that could be used by in-service teachers in actual teaching practice. This case study relates to the issues encountered in creating individualized teaching plans (ITP) and teaching practices for students with special education needs enrolled in regular schools. This study analyzed 10 cases by using the qualitative data analysis software MAXQDA. Consequently, a more positive and accurate study of the students' conditions was conducted, and diverse opinions were elicited, including exchanges of relevant information and teaching materials and tools, which enabled the trainees to feel the training effects. In this study, practical and ongoing training was conducted mainly in coordination with university teaching staff specializing in special needs education (SNE). This enabled the trainees and participants to deepen their understanding of students with special education needs and formed the basis of the case studies. The importance of practical learning should be stressed in in-service teacher training and in the pre-service education of teachers in Japan, and school-based experiences should be considered as an addition to the theoretical base of the university training stage.

Keywords: Case study; Qualitative data analysis; Special needs education; Teacher training.

INTRODUCTION

Regarding education for children with disabilities, Japan has decided to aim at forming an inclusive education system to build a symbiotic society (MEXT, 2012). Under the Convention on the Rights of Persons with Disabilities, establishing an inclusive education system is a major challenge for education in Japan. Conventionally, education for children with disabilities in Japan has focused on providing substantial and detailed education by instructing at special institutes and settings, such as Special Schools for the Blind, Special Schools for the Deaf, Disabled Schools, and Special Classes, according to the types and degrees of their disabilities. In 1993, enforcement regulations of the School Education Law were revised, and instruction in Resource Rooms was regulated and institutionalized. Instruction in Resource Rooms refers to a system where, while enrolling in regular classes, students with disabilities such as speech/language disorders, hard of hearing, emotional disturbances, low vision, physical/motor disabilities, and health impairments are instructed in a special setting under a special education program. In other words, Instruction in Resource Room is a form of special needs education (SNE) for students with disabilities in elementary and secondary schools who can generally participate in learning and living in regular classes but who require special instruction in some areas at a certain special classroom. With the partial revisions to the enforcement regulations of the School Education Law in 2006, Instruction in Resource Rooms was extended to include students with developmental disabilities, such as ASD, LD, and ADHD (MEXT, 2012).

Based on the principle of the SNE to respond to the unique educational needs of each student regardless of their type of disabilities, the School Education Law was revised in 2007 to consolidate the Special Schools for the Blind, Special Schools for the Deaf, and Disabled Schools all into Special Needs Schools. In Japan, Special Needs School is defined as a school with the aim “to provide education aligned with the education provided at kindergarten, elementary, middle and high schools” for children with disabilities and “to develop their capabilities for overcoming difficulties experienced in learning and everyday life and for becoming independent” (MEXT, 2012). In general, children with relatively severe disabilities are enrolled in Special Needs Schools. In contrast, children with milder disabilities are enrolled in regular schools and are taught in Special Needs Classes or Resource Rooms. With further revisions to the School Education Law Enforcement Ordinance in 2007, it was made mandatory that the parents should be consulted when deciding on which school a child with disabilities should attend. As a result, parents' opinions are now respected more than before when deciding where their children will be enrolled in school.

With the revision in 2011 to the Basic Act for Persons with Disabilities, a regulation required measures to educate children with and without disabilities as much as possible. Currently, the Japanese government promotes SNE by seeking to ensure continuity among “regular classes, resource-room instruction, special needs classes in regular schools and special needs schools” as it attempts to establish an inclusive education system to ensure all children reach their full potential and become capable of building their lives (Yoneda, 2020). Therefore, the instruction in Resource Rooms, which enables children with disabilities to learn in regular classes as much as possible while appropriately meeting their special educational needs, is expected to be utilized in mainstream schools as a more flexible method of providing SNE.

Recently, the enrollment of children with disabilities in regular classes increased from 45240 in 2007 to 183879 in 2021 (MEXT, 2024). Particularly, substantial growth is evident among children with developmental disabilities. However, Japanese schools and teachers are underprepared for the educational needs of children with SNE in mainstream classrooms (Ito, Chang-Leung & Poudyal, 2023). The National Association of Principals of Public Schools with Special Needs Classrooms and Resource Rooms (2022) conducted a nationwide survey and found that the percentages of lead teachers in charge of instruction in Resource Room holding special needs school teaching certificates (i.e., special needs education teaching certificates) were 44.1% in elementary schools and 34.8% in middle schools.

UNESCO (2020) pointed out that an important element of inclusive education involves ensuring that all teachers are prepared to teach all students. Pre-service and in-service training systems should especially be reviewed and revised to ensure inclusive education principles are fully mainstreamed throughout the teacher education curriculum. According to the MEXT report (2012), to establish an inclusive education system, all teachers must have a certain level of knowledge and skills related to SNE. In particular, a certain level of knowledge and skills related to developmental disabilities is essential, as many students with developmental disabilities are enrolled in regular classes. In Japan, teacher qualification improvement is carried out at the university training stage (pre-service education) and through teacher education, which integrates the recruitment and training stages (in-service education). Due to the revision of the Educational Personnel License Law in 2016, the core curriculum for teaching courses from April 2019 onward requires an understanding of children with special needs, especially children with disabilities, and the characteristics of their difficulties. Teachers in charge of Special Needs Classes and Resource Rooms in

mainstream schools play important roles in SNE. Therefore, they must ensure their expertise by attending specialized training programs. In order to guarantee their expertise as teachers in charge of SNE, training for new teachers could be conducted by prefectural boards of education at the beginning of each school year. Furthermore, with the revision of the National Curriculum Standards in 2017 and 2018, the need for in-service training for teachers in charge of SNE has become an urgent issue. The revision requires the preparation of “individualized teaching plans (ITP)” and “individualized educational support plans” for all students who are the target of the instruction in Resource Rooms or in Special Needs Classes. However, not all teachers in charge of SNE have the experience to develop ITP and individualized educational support plans, in which teachers need to grasp the actual conditions of the students, set instructional goals, and select appropriate learning activity content and support methods. Moreover, the teachers in charge are required to have the ability to properly assess and revise the plans after implementation of the instruction.

As the SNE system has become established in mainstream schools, improving the expertise of teachers in charge of SNE and identifying methods to increase educational quality has become an urgent task in regular schools. Teacher training systems must deliver a more effective balance of theory-based learning and hands-on practice, focusing on helping teachers understand and instruct children in an inclusive education environment. Therefore, peer training and professional exchanges must be prioritized, such as the connection between mainstream and special schools, mentoring, and team teaching (UNESCO, 2020). So far, many practical examples related to SNE have been reported in Japan. One important method proposed is the training of in-service teaching staff (Ito, 2018). Previous research on teacher training for special needs has included many reports on the needs and status of training (Hashimoto et al., 2021; Okano, 2020; Sato et al., 2016; Uekida et al., 2009). According to a survey of teachers in special needs schools, there were many requests for training in teaching self-reliance activities, teaching methods for subjects, specializing in various types of disabilities, and understanding of children’s development (Sato et al., 2016). A proposal has been made to revamp practical training about “collaboration know-how” for in-service teachers with teaching experience (Mitani et al., 2016). Furthermore, there seems to be a need to improve the specialist knowledge of teaching staff working in Resource Rooms and Special Needs Classrooms in which students with developmental disabilities are enrolled, such as their understanding of developmental disabilities. There appears to be a high demand for specific teaching and support methods for these students (Ou et al., 2022). While lectures and training by experts are important to acquire academic knowledge, such as understanding disabilities and students, case studies and practice are necessary to acquire practical knowledge and skills, such as interpretation of practical cases and teaching methods (Hashimoto et al., 2021). Effective training is considered to include not only lectures on knowledge but also a good balance of discussions and exercises in which the participants are encouraged to participate proactively (Okano, 2020). However, the conventional SNE-related training for in-service teachers has been “lecture-style” training, primarily focusing on lectures about basic theoretical knowledge. It is necessary to examine training that incorporates activities and exercises in which in-service teachers, who are trainees, can participate proactively, as well as training methods that can be used in actual teaching.

On the other hand, case studies are likely effective in addressing these issues in SNE. Case studies refer to eliciting resolution strategies for issues that teachers have faced directly in their teaching through discussion between the teachers involved and providing advice on understanding students with special education needs and specific instruction and support strategies for them (Chosokabe et al., 2007). A survey of the needs of young teachers

specializing in SNE shows their evident demand to be able to implement what they have learned through school training. Training based on case studies or practice is more effective than lecture-style training (Hatakeyama, 2014). Promoting participative training in addition to lecture-style training would enhance the awareness of teaching staff regarding SNE and their teaching methods, leading to better support for students with special education needs, increased scholastic ability, and enhancement of the teaching front (Chosokabe et al., 2007).

Therefore, we conducted a trial run of an online case study related to on-demand lectures and the creation of ITP for teachers in charge of SNE in regular schools. First, we aimed to clarify the common points of students with special education needs in regular schools and the concerns and difficulties that teachers face when teaching them. We analyzed the content of ITP created by trainees, as well as the opinion exchange and information sharing among these trainees and other participants, to discuss how the trainees benefited from the case study. Moreover, we examined how university teaching staff advice deepened students' understanding and promoted their actual teaching. For students needing special support, such as those with developmental disabilities, we consider how trainees can achieve a shared understanding and construct a schoolwide support system while asking for advice regarding teaching and support based on the student's actual status and challenges. Through the case study, trainees were expected to provide more detailed instructions and support based on a multifaceted understanding of students going forward.

METHOD

Participants

Participants of this study included trainees, mentor teachers, and advisers. (1) Trainees: The Special Needs Education Division of the Ibaraki Prefectural Education Agency made a written request to each education office and high school education division, and the Special Needs Education Division made the decision based on the recommendations from each education office and high school education division. The board of education of a special needs education department of the local government requested the recruitment by self-nomination or other nomination of "teachers in charge of a resource room or special education class and can be expected to lead SNE in each area going forward" (aiming to recruit around 25 teachers). Based on these nominations, 23 teachers became trainees for 2020, which included 16 from elementary schools, five from middle schools, and two from high schools. (2) Mentor teachers: Eighteen teachers who were trainees in the 2020 course (previous-year assignments: 13 from elementary schools, three from middle schools, and two from high schools) participated as mentor teachers, providing advice and comments through on-the-job training (OJT). It was established that trainees would serve as mentor teachers after completing the course, and the consent of mentor teachers was obtained upon the application for the course and submission of a research participation agreement. At the start of the case study in 2021, mentor teachers were registered as members of Google Classroom, and the start of the case study was announced via e-mail. (3) Advisers: Municipal teaching supervisors, education office personnel, high school education division personnel, and special needs education division personnel participated as advisers. The advisers were briefed on the case study at the kick-off meeting and asked to self-register as members of Google Classroom; their registration and comments on the case study were considered their consent. University teaching staff who were co-researchers gave lectures on the philosophy, system, assessment, and instructional methods related to "classroom instruction" for children with developmental disabilities according to their expertise, and they provided information and advice in case study.

Training timeframe and content

We conducted training using Google Workspace for Education Classroom for educational institutions provided via a portal website on the educational information network of the local government. The training comprised on-demand online lectures and a case study centered on creating and revising ITP.

(1) **Training period:** Late November 2021 to February 2022.

(2) **Training content:** Each trainee selected one of their students and examined the “individualized teaching plan” they created. The individualized teaching plan describes the progress of instruction at school to date, as well as the prospects for future instruction and means of support. At the end of the semester or school year, the results of the instruction and directions for improving the instruction for the next semester are described. Moreover, each trainee was required to submit an “individualized education support plan” and share the following: the student’s developmental and education record, whether the student had a diagnosed disability, the reflection of the assigned teacher themselves on their teaching up to that point and their teaching policy going forward, abilities that they wanted the student to acquire, their target vision for the student’s future development, and any concerns and desired information.

(3) **Analysis content:** ITP with anonymized students were shared on Google Drive, and topics were established for each trainee on the Google Classroom class stream; comments and replies were made on the topic threads to enable the university teaching staff, advisers, mentors, and trainees to exchange questions, advice, and information with one another.

(4) **Sampling method:** This study analyzed 10 cases in which trainees received advice and information from other participants regarding their case introduction and ITP and in which trainees and other participants also conducted questions and answers and provided information actively. The target cases were handled by six special needs classroom teachers, three teachers in charge of instruction in Resource Rooms, and one SNE coordinator.

Method of analysis

We analyzed content, including information about the cases participants’ comments, and other such content from the topics of the cases. Analysis was conducted using the qualitative data analysis software MAXQDA Analytics Pro 2020 (Lightstone Corp., 2020). MAXQDA software enables collaboration among multiple researchers and improves the efficiency of the analysis process (Saito, 2015). In addition, it has been noted that MAXQDA allows for a more objective view of data (Nennstiel, Nakata & Nakata, 2016; Shinzato, 2021; Sumi, 2022). After assigning the codes, their relevance and qualitative characteristics were empirically analyzed. The analytical procedure was based on Takahashi et al. (2022) and included the following four steps:

(1) Text data handled by MAXQDA were segmented and assigned a concept name (code) to each. We also integrated similar codes to create new codes for the grouped categories. This paper displays categories using [] and codes using “ ”.

(2) In a previous study, having multiple researchers conduct coding was considered effective in ensuring appropriate coding results (Matsui, 2020). In this study, a re-coding step was conducted by a team of four research assistants (Group 2) based on the coding system created by the authors (Group 1). Moreover, the matching rate between the people performing the coding was calculated for the coding results of the two groups by setting the match type to “code overlap on 80% or more of segments” (Lightstone Corp., 2020).

According to Landis and Koch (1997), if the K coefficient (Kappa Statistic) is 0.61-0.80, the strength of agreement is considered substantial. In this study, the agreement between the two groups was calculated, and the K-coefficient was 0.67, indicating that the coding results were in good agreement.

(3) An analysis was conducted to interpret and understand the positioning of the codes using a tool showing the relationships between the codes (code relationship browser) and a tool that performs the overall mapping of the codes (code map) in MAXQDA. On the code map, each circle represents a code with larger circles or numbers indicating more frequent code allocation using that code. Codes with similar patterns of occurrence in their coding locations are displayed close to the map, enabling users to examine the strength of each code's relevance (Sato, 2008). Furthermore, connecting lines between codes highlight the codes that overlap or co-occur, with a thicker line indicating a greater degree of matching between the two codes (Sumi, 2022.)

(4) In addition to a tool showing the relationship between codes as a straight line, we used the function of clusters, which allowed us to observe the codes' similarity.

Definition of categories and code list

Figure 1. Overall code matrix browser

Code System	case10	case9	case8	case7	case6	case5	case4	case3	case2	case1
▼ A. Subject student's characteristics	2	2	2	4	4	1	1	1	5	10
A1. Understanding and confirmation of condition	1	10	6	8	8	4	8	5	1	3
A2. Personal independence issues	1	2		1						
A3. Vocabulary problems				1			1			
▼ A4. Diagnosis names	1			1		1		1		
Multiple disorders	1			1		1		1		
ADHD					1	1		1		
Intellectual disabilities	1			1			1			
ASD	1			1		1		1		1
Language disorders		3	1	1	3				2	
A5. Focus issues	2				1			1	2	
A6. Physical movement difficulties				1				1		
A7. Learning difficulties	2	2			1		1	3	1	1
A8. Cognitive function						1		1		1
A9. Inappropriate behavior	1	1	2		2	1		1	1	3
A10. Interpersonal relationships issues	1								2	1
A11. Emotional problems						4				
▼ B. Concerns of the assigned teacher	4	3	3	3	2	1	2	1	3	3
B1. Dealing with the family	1			2						2
B2. Motivation of the subject student					1					
B3. Using individual teaching plans						1			1	
B4. Cause of disability							1			
B5. Effective teaching methods	3	2	3	3				2	1	
▼ C. Questions and answers						2	4			
C1. Assigned teachers	3	2	5	4	2	5	8	6	3	2
C2. Trainees	1			1	1	1		2		
C3. Mentors	1	2	3	2			2		3	
C4. Advisers	1	2	1	1	1	2	1	3	3	2
C5. University teaching staff	1	6	2	2		1	1	3	2	
▼ D. Information provision	6	5	1	5	3	3	4		1	3
D1. Assigned teachers					1		1	2	2	6
D2. Trainees	3		1		1		2	2	6	2
D3. Mentors	2	1	3	2	3	3	4	9	5	5
D4. Advisers					1	1	1	1	8	3
D5. University teaching staff		8	4	10	7		2	7		1
D6. Sharing information of relevant cases	6	1	3	3	4	4	2	2	7	7
D7. Relevant teaching materials and tools	2	4	8	2	1	2	3	2	4	2
▼ E. Support and teaching method			2	5	2		1		1	3
E1. Support tailored to condition	2	9	6	12	6	6	5	10	5	8
E2. Advice of university teaching staff	2	8	2	7	7		2	6	2	2
E3. Support based on assessment result		3	1				2		2	
E4. Reward for subject student	3	1	1	1	3	1			1	4
▼ E5. Support for the family	1			2		1				
Support for mother										9
E6. Emotional support			1		1	3			1	5
E7. Assigned teacher's initiative idea			3		1				2	4
▼ E8. Interpersonal relationships		1			1	1				1
Relationship with mother										4
E9. Trusted relationship with student		1								5
E10. Reasonable accommodation		4			3		1	1		
E11. Language support		1	2						1	
E12. Self-reliance activities	1		1	1	1				2	1
▼ F. Training benefits				1	1		3		1	
F1. Feedback	3	2	1	8	5	8	11		3	5

Note: Figures represent the number of times the code was applied.

[A. Subject student's characteristics]: Items that show the characteristics of the subject student, such as their inappropriate behavior, issues or difficulties they face, name of the diagnosis, and so on, to better understand them.

[B. Concerns about the assigned teacher]: This category picks up difficulties, queries, and ideas for improving the teaching that the assigned teacher experienced while teaching or providing support.

[C. Questions and answers]: Comprises questions and answers regarding information and comments on each case presented in the topics. The contents of the questions and answers were classified by subject to analyze the trainees' and participants' respective roles.

[D. Information provision]: Comprises knowledge and information shared by subjects regarding information and comments on each case presented on the topics. To analyze the trainees' and participants' respective roles, the content of the information provision was classified by subject.

[E. Support and teaching method]: A category that groups support and teaching methods proposed by subjects to enable the provision of appropriate teaching and support tailored to the condition of the subject student when trainees teach them.

[F. Training benefits]: Group items showing that trainees and participants received feedback, empathy, and encouragement regarding their respective comments through the case examination, leading to increased motivation and a sense that the training was worthwhile.

Ethical considerations

Schools were asked to provide the students whose parents gave their consent as case study participants. The submission of the research subject's consent form and the consent form of the research subject's school principal (research collaborator) were considered as consent and approval for participation in the study, including the case study. The Research Ethics Committee of the Institute of Human Sciences at the University of Tsukuba granted ethical approval for the study (Reference #Tsukuba2020-103A).

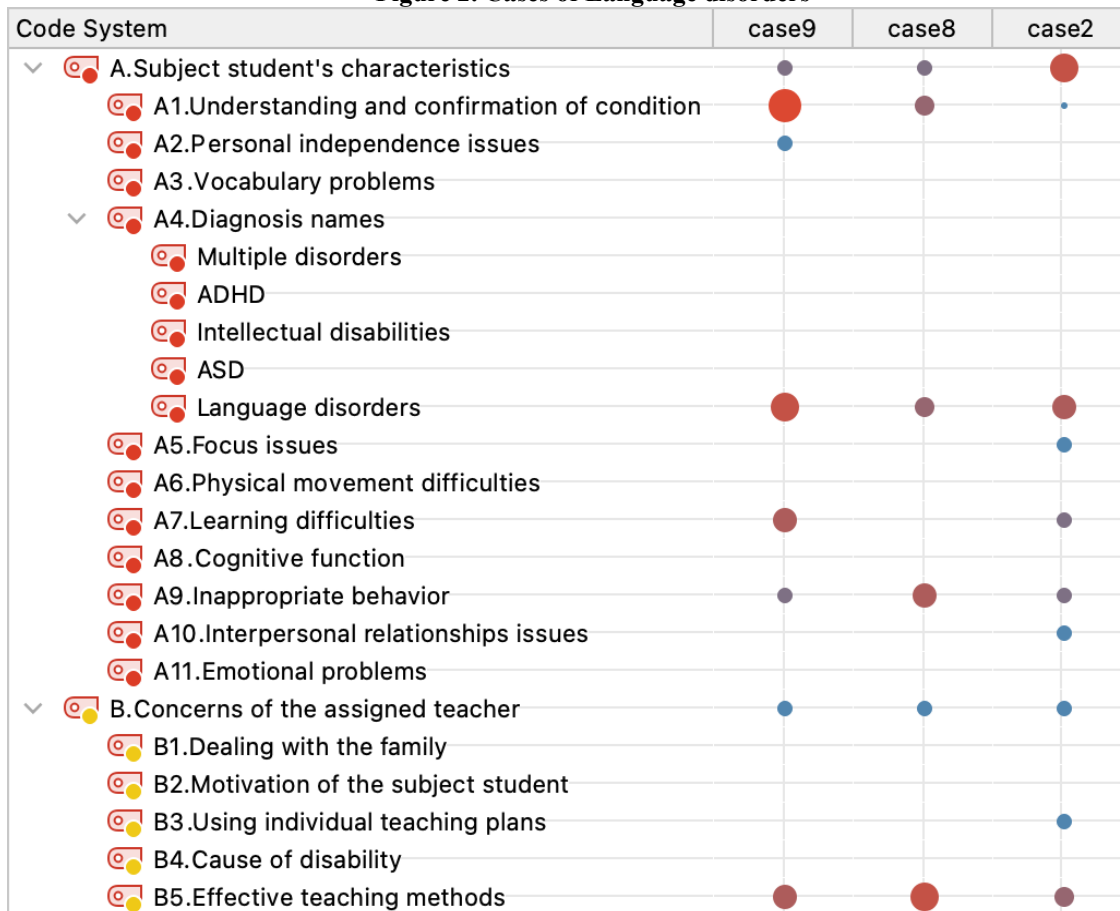
FINDING AND DISCUSSION

Finding(s)

In the [A. Subject student's characteristics] category, Case 1 was "Autism spectrum disorder" (ASD); Cases 2, 8, and 9 were "Language disorders"; and Case 4 was "Intellectual disabilities." Among the cases with "Multiple disabilities," Cases 3 and 5 were "ASD" and "Attention-deficit/hyperactivity disorder" (ADHD), Cases 7 and 10 were "Intellectual disabilities" and "ASD," and Case 6 was "Language disorders" and "ADHD" (see Figure 1).

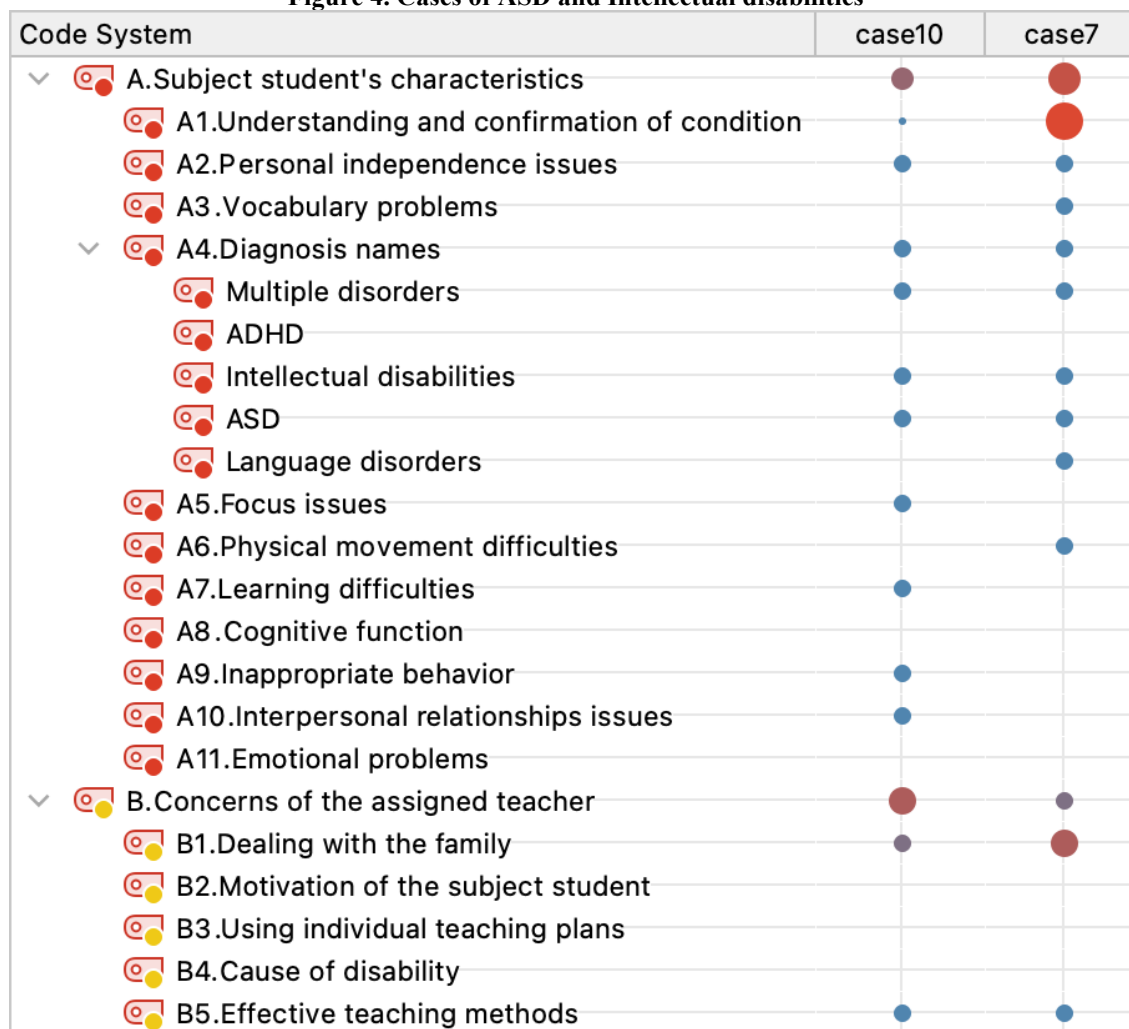
Characteristics and commonalities of subject students

Figure 2. Cases of Language disorders



The situations of the target children with the same diagnoses were compared to analyze the characteristics of the subject students in the case studies. First, Cases 2, 8, and 9 are diagnosed with only “Language disorders.” The three cases had one thing in common: They all exhibit “A9. Inappropriate behavior.” Other problems seen in Case 2 included “A5. Focus issues” and “A10. Interpersonal relationships issues.” On the other hand, “A7. Learning difficulties” were found in Cases 2 and 9 but not in Case 8 (see Figure 2).

Figure 4. Cases of ASD and Intellectual disabilities



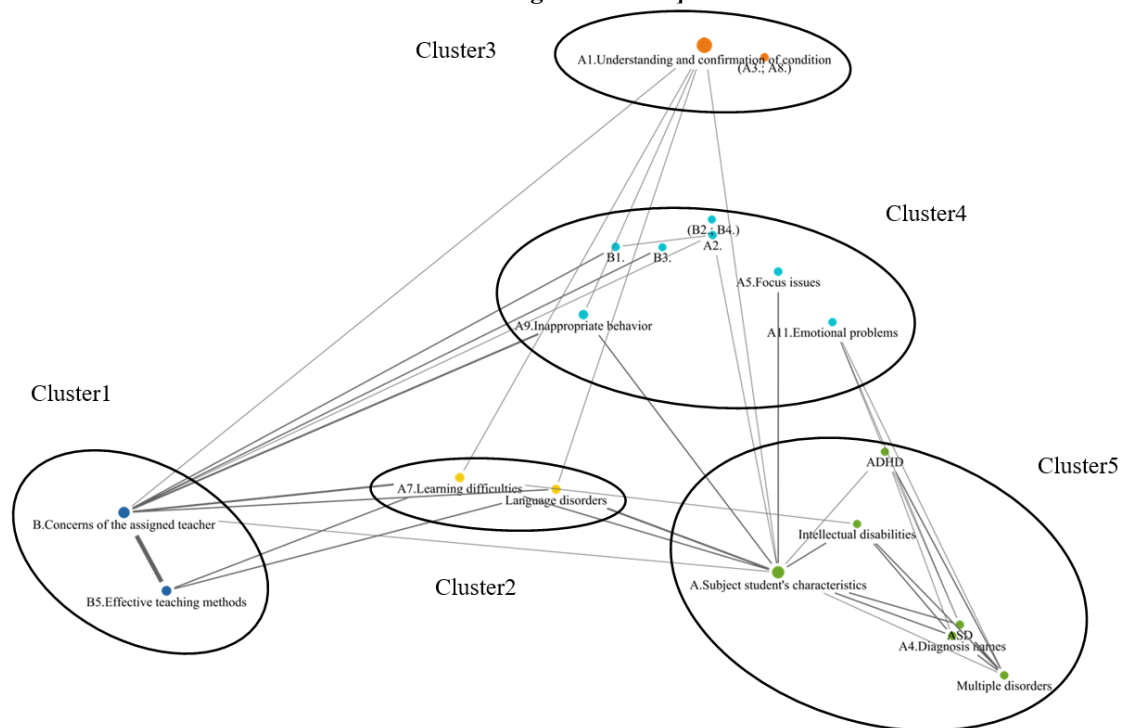
Concerns of assigned teacher when teaching

The [B. Concerns of assigned teacher] were strongly connected to “B5. Effective teaching methods” and were seen to be strongly correlated with teaching target children with “A7. Learning difficulties” and “Language disorders” in particular—specifically, concerns regarding “B1. Dealing with the family of the subject student,” “B3. Using individual teaching plans,” and “B4. Cause of disability” was largely correlated with the subject student’s “A2. Personal independence issues” and “A9. Inappropriate behavior.” In addition, responses to problems such as “A5. Focus issues” and “A11. Emotional problems” seen in target children with “ADHD,” “ASD,” and “Intellectual disabilities” were related to the concerns of the teachers in charge of teaching them (see Table 1 and Figure 5).

Table 1. Relationship of Subject Student Characteristics and Concerns of the Assigned Teacher (Five Clusters)

Cluster	Code
1	B. Concerns of the assigned teacher; B5. Effective teaching methods
2	A7. Learning difficulties; Language disorders
3	B1. Dealing with the family of the subject student; B2. Motivation of the subject student; B3. Using individual teaching plans; B4. Cause of disability; A2. Personal independence issues; A5. Focus issues; A9. Inappropriate behavior; A11. Emotional problems
4	A1. Understanding and confirmation of condition; A3. Vocabulary problems; A8. Cognitive function
5	A Subject student’s characteristics; A4. Diagnosis names; Intellectual disabilities; ASD; ADHD; Multiple disorders

Figure 5. Relationship between categories [A. Subject student characteristics] and [B. Concerns of the assigned teacher]



Note: Crossing of codes in segments.

Allocation of roles of each subject and benefits of training

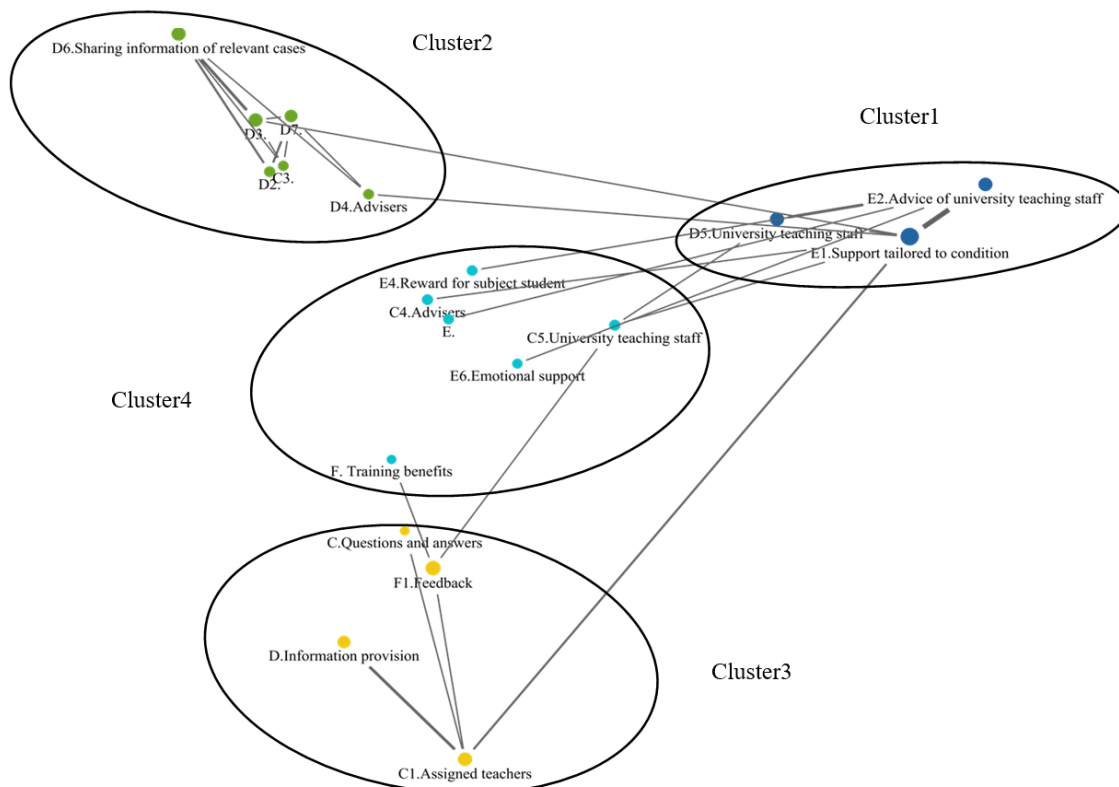
Regarding [E. Support and teaching methods], “E1. Support tailored to condition” was often cited as “E2. Advice of university teaching staff.” They were also strongly correlated with the provision of information of “D5. University teaching staff.” The advice and information provided by the university faculty were mainly correlated with the support and teaching methods according to the actual conditions of the target children. In contrast, the participants, such as “D2. Trainees,” “C3. Mentors,” and “D4. Advisers” were correlated with “D6. Sharing information of relevant cases” and “D7. Relevant teaching materials and tools.” Furthermore, participants' responses to questions from “C1. Assigned teachers” were correlated with “F1. Feedback” in addition to “D. Information provision,” which was also

connected to “F. Training benefits.” Other [E. Support and teaching method], such as “E4. Reward for subject student” and “E6. Emotional support” to the target children, were found to be correlated with the questions and answers of “C5. University teaching staff” and “C4. Advisers.” (see Table 2 and Figure 6).

Table 2. Role allocation of the participants (Four clusters)

Cluster	Code
1	E2. Advice of university teaching staff; E1. Support tailored to condition; D5. University teaching staff
2	D6. Sharing information of relevant cases; D7. Relevant teaching materials and tools; C3 Mentors; D2. Trainees; D3. Mentors; D4. Advisers
3	C1. Assigned teachers; C. Questions and answers; D. Information provision; F1. Feedback
4	E. Support and teaching method; E4. Reward for subject student; E6. Emotional support C4. Advisers; C5. University teaching staff; F. Training benefits

Figure 6. Role allocation of the participants



Note: Crossing of codes in segments. Only codes with a number of crossings of 3 or more in a segment were represented.

Discussion(s)

Current Status and Issues of Special Needs Education in Regular Schools

The study results indicate that the concerns of those in charge of beginning a case study were largely correlated with the disability characteristics of the subject students. While working with the target children, the assigned teachers felt it was difficult to understand the characteristics of the student's disabilities. They wondered how to relate to the subject students and their families. In addition, the teachers' main concerns were learning and behavioral problems caused by the target student's attention and emotional control problems and interpersonal relationship problems with other students due to inappropriate behavior. ITP is expected to be one of the tools for solving those issues. However, many questions were raised, including how to create specific plans, devise goal setting, and provide specific instruction and support to the target student.

Through training via online on-demand lectures, trainees were able to acquire an understanding of students with developmental disorders and knowledge about teaching and support methods. However, some issues must be addressed in teaching situations (Ou et al., 2022). Because it is difficult to determine the actual situation and needs of the subject student based on the diagnosis name alone, many comments were aimed at confirming detailed information about the case to understand the actual situation of the target child more accurately and clearly. One of the causes seems to be the lack of practical capabilities in applying theoretical knowledge about disabilities to individual students. After examining the results of the content analysis of comments between trainees and mentors, it appeared that trainees used commercially available teaching materials and tools and engaged in teaching the subject student through trial and error based on their individual teaching experience. However, they also appeared uncertain about whether their teaching and support methods were appropriate. Furthermore, the assigned teacher experiences difficulties when determining the degree to which the various issues faced by the subject student are related to the characteristics of the disability and its background and causes. For this reason, case studies are expected to play a major role in demonstrating how much knowledge acquired through lecture-based training can be used in actual teaching situations.

Here, case studies were conducted to explore the background and causes of difficulties based on students' actual conditions at school and home and to find appropriate instruction and support according to their needs. Evidently, students' understanding changed from an intuitive and ephemeral understanding of behavior based on experience to a more professional, objective, and comprehensive understanding based on theory. Moreover, it seems likely that the content discussed in Google Classroom can also lead to improvements in individualized educational support plans and ITP and trainees could provide continuous teaching and support while periodically reviewing it (Iwasaki & Takezawa, 2019). Through case examinations, trainees received advice from mentors, advisers, university teaching staff, and others, which appeared to have enhanced their teaching and support methods while enabling them to proceed confidently. In addition, it is important that, rather than relying on experts' opinions, trainees consider how to incorporate the advice into their practice (Hamabuchi et al., 2010). By fading out of expert involvement, the trainees aimed to solve problems for themselves and were able to work on their teaching while cooperating and exchanging opinions with other trainees (Ou et al., 2022). Furthermore, training for elementary, middle, and high school special education teachers has become an activity for sharing information about students with special educational needs. The results of this study suggest that through case studies, individual trainees became aware of the importance of

continuous assessment and understood the actual situation, which may have provided a basis for systematically understanding students and considering measures for instruction and support through case studies. Thus, a case study is expected to serve as a starting point for creating systems through which trainees can solve practical issues while learning from one another.

Role allocation and effects in the case study

The mentors who had received training in the previous year appeared to share information about related cases and provided information on teaching materials and tools to conduct teaching. Advisors confirmed the students' condition and focused on their environment, such as the class, school, or local government organization where the subject student was enrolled. Having considered the external environment, they cooperated by proposing feasible methods. They introduced the necessary application and approach to the students' guardians and the administration of their enrolled schools to support them. The university teaching staff proposed specific support and teaching methods tailored to the subject students after understanding their condition and considering them from a theoretical perspective. Furthermore, in addition to considering the immediate difficulties faced by the students, the university teaching staff also looked ahead to the issues faced when advancing to middle school or senior high school levels and in life after leaving school to advise on support methods to enable students to enjoy better homes and school lives. They also discussed the importance of devising instruction methods that can be implemented at the current level to build the knowledge and skills needed to live independently in society in the future.

Teachers should be supported by teaching assistants, head teachers, and district education coordinators to help fulfill their mission of inclusive teaching. These key support group members must be equally well prepared to fulfill their roles (UNESCO, 2020). Through case studies, the trainees received positive and accurate feedback on their initiatives and practices from other participants, which increased motivation. In addition, based on information about subject cases, participants could produce various ideas, including information about other relevant cases and creative innovation in teaching materials and tools; thus, the training was productive for them. Through case study training, trainees aimed to deepen their understanding of SNE and use what they learned about understanding students, teaching, and supporting measures to improve their teaching. The training emphasized ITP for supporting and teaching students with special education needs as a starting point for creating a continuous and graduated organizational structure and training system. This is aligned with the opinions of UNESCO, which mentioned that a culture of monitoring and evaluation must be embedded in teacher education programs, focusing on classroom practices and impact on student achievement and well-being, to inform and continue improving their design and implementation (Kasirah et al., 2023; UNESCO, 2020). Until now, the training of in-service teachers in SNE has often been conducted as a single, one-time program in Japan. However, it has been pointed out that using case studies to conduct continuous graduate training to develop an understanding of cases through the teaching and advice of specialist university teaching staff may deepen their understanding of students and improve their teaching (Iwasaki & Takezawa, 2019). In addition, training conducted through consultations with other fields and disciplines is considered the preferred form of training teachers require. Consultation is when people with different specializations and roles examine students' issues and discuss their preferred forms of support together. By creating a structure for multidisciplinary cooperation, teachers can spread what they have

learned effectively and efficiently, enabling individual teachers to enhance their qualities and capabilities and leading to students' learning and growth (Iwasaki & Takezawa, 2019).

CONCLUSION

Participants in the case study included university teaching staff specializing in SNE and mentors and advisers who conferred together about understanding the students and specific support methods to offer advice and comments. In this way, members with different roles, specializations, and positions participated in the case study and formed relationships in which they provided information on specific support methods and teaching content. Mentors and advisers must provide support, advice, and so forth and communicate with trainees while collaborating to solve problems. By enhancing teachers' qualities and capabilities in the future, trainees may be able to serve as mentors and advisers and develop mutual support. By providing support systems through in-service training centered on the teachers in charge of SNE in regular schools, we can expect to create a system that enhances teachers' qualities and capabilities through practical learning (Iwasaki & Takezawa, 2019). On the other hand, teachers prepared through the pre-service training program must also have the necessary skills requested to teach effectively in inclusive classrooms. A collaborative and systematic effort between universities and education systems is also warranted to ensure a cohesive transition from undergraduate teacher preparation to becoming a competent and effectively trained inclusive teacher (Forlin & Chambers, 2011; Widodo et al., 2023). Thus, the importance of practicals should be stressed in the pre-service education of teachers in Japan, and school-based experiences should be considered as an addition to the theoretical base of the university training stage.

The implementation of inclusive education and teacher training still faces lots of challenges. However, such problems do not only exist in Japan. The views of the Malaysian government on inclusion appear to be that Malaysian teachers do not have sufficient training and skills to support children with special educational needs (Ozel et al., 2018). In the meantime, a clear shortfall in the initial training of teachers in Spain was reported, which included a limitation in the acquisition of competencies regarding attention to diversity and the presence of theoretical learning, which has limited relevance to practical intervention (Arnaiz-Sánchez et al., 2023). The problems in implementing inclusive education are related to teacher understanding or teacher skills in teaching students with special education needs (Ediyanto et al., 2023). However, empirical evidence on the impact of teacher training on inclusion is still lacking in some contexts (UNESCO, 2020). Future challenges included limited research on inclusion in education, weak monitoring mechanisms, and the incomparability of data on children's individual characteristics (Price, 2018).

ACKNOWLEDGMENT

This research was supported by a Grant-in-Aid for Scientific Research 20K20805; 22H01031; 23K22302. We also thank all school teachers who participated in the project.

REFERENCES

- Arnaiz-Sánchez, P., Haro-Rodríguez, R., Caballero, C. M., & Martínez-Abellán, R. (2023). Barriers to educational inclusion in initial teacher training. *Societies*, 13(2), 31. Retrieved from <https://doi.org/10.3390/soc13020031>
- Chosokabe, H., Osono, C., Inomata, C., & Ando, S. (2007). A preferred form of training for elementary and junior high school special needs education teachers. *Memoirs of the Faculty of Education and Culture, Miyazaki University. Humanities*, 16, 73–89. (in Japanese)

- Ediyanto, E., Ramadhani, R. S., Fitrasari, B. D., Kenila, E., Sunandar, A., Hastuti, W. D., & Suhendri, S. (2023). The problem in the implementation of inclusive education in primary schools. *Journal of ICSAR*, 7(1), 1-9. <https://doi.org/10.17977/um005v7i12023p1>
- Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education*, 39(1), 17-32. <https://doi.org/10.1080/1359866x.2010.540850>
- Ito, H., Chang-Leung, C., & Poudyal, H. (2023). Inclusion of students with developmental disabilities in Japan: Barriers and promising practices in primary and secondary education. *Asia Pacific Education Review*, 24(3), 415–431. <https://doi.org/10.1007/s12564-022-09763-8>
- Ito, N. (2018). Examination of the status and issues of training and lectures related to special needs education. *Annual of the Teacher-Training Course at Meiji University*, 40, 81–90. (in Japanese)
- Iwasaki, A., & Takezawa, T. (2019). Consideration for on-premises training through multidisciplinary consultation for children with special education needs in elementary schools. *Graduate School of Teacher Education Wakayama University Bulletin of Course Specializing in Professional Development in Education*, 4, 85–95. (in Japanese)
- Hamabuchi, M., Ninomiya, S., Kayano, A. (2010). Significance teacher's on-the-job training for special needs education. *Journal of Hokkaido University of Education at Kushiro (Kushiro Ronshu)*, 42, 199-207. (in Japanese)
- Hashimoto, S., Yamaguchi, R., Otomo, K., Hamada, T., Masuda, K., Nakamura, D...& Tanno., T. (2021). Research on training needs and specialization of teachers in special needs education: Basic study for development of license (certificate of completion) provision system. *Journal of Japan Association of Universities of Education*, 39, 99–110. (in Japanese)
- Kasirah, I., Maulidina, C. A., Jaya, I., & Yusro, M. N. (2023). Special education teacher education learning packages to increase knowledge for sustainable development. *Journal of ICSAR*, 7(2), 295-301. DOI: <http://dx.doi.org/10.17977/um005v7i22023p295>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *International Biometric Society*, 33(1), 159–174. <https://doi.org/10.2307/2529310>
- Nennstiel, K. U., Nakata, M. & Nakata, T. (2016). Evaluation and standardization in the Japanese education system: Analyzing a long interview with a Japanese teacher by means of MAXQDA. *Hokusei Review*, 53, 63–76. (in Japanese)
- Matsui, R. (2020). A qualitative data analysis of testimony on assumptions and safety measures prior to the Fukushima nuclear accident: Groupthink model in complex organizations. *Journal of Business Management*, 27, 169-185. (in Japanese)
- MAXQDA 2020 Analytics Pro, Lightstone Corp. (2020). Retrieved April 25, 2024, from https://www.lightstone.co.jp/maxqda/learning_mergeproject.html
- MEXT. (2012). A Report on the Promotion of Special Needs Education for the Establishment of an Inclusive Education System for the Formation of a Symbiotic Society. Retrieved April 25, 2024, from https://www.mext.go.jp/b_menu/shingi/chukyo/chukyo3/siryo/attach/1325892.htm
- MEXT (2024). Special needs education materials (fourth year of Reiwa)] Retrieved April 25, 2024, from https://www.mext.go.jp/content/20221206-mxt_tokubetu02-000026303_2.pdf
- Mitani, S., Matsubara, M., Itakura, N., & Mitani, R. (2016). Issues and outlook for curriculum development related to special needs education in ordinary classes: From a questionnaire survey of in-service teachers. *Bulletin of Aichi University of Education [Humanities and Social Sciences]*, 6, 1–7. (in Japanese)
- Okano, Y. (2020). A consideration on training system for teachers in charge of special support services in resource rooms: Based on practice of training course at special needs education center. *Bulletin of Naragaku University*, 12, 13–22. (in Japanese)
- Ou, J., Tsuge, M., Kumagai, K., Sambai, A., Miyamoto, S., Okazaki, S., Noro, F., Kojima, M., & Yoneda, H. (2022). Trial of professional development training for teachers in charge of resource room instruction: Online and on-demand lectures on developmental disabilities and

- on-the-job training in designing “individualized teaching plans”. *Japanese Journal of Disability Sciences*, 46, 235–247. (in Japanese)
- Ozel, E., Ganesan, M.Z., Daund, A. K. M., Darusalam, G. B. & Ali, N. A. B. N. (2018). Critical Issue Teacher Training into Inclusive Education. *Advanced Science Letters*, 24(7), 5139-5142(4). <https://doi.org/10.1166/asl.2018.11288>
- Price, R. (2018). Inclusive and special education approaches in developing countries. Brighton, UK, Institute of Development Studies.
- Sato, A., Ikeda, A., Yamanaka, K., & Yokkaichi, A. (2016). Needs of on-the-job training in special needs education teachers in Japan: Current situation and vision of special needs school after seven years of the enforcement of special needs education system. *Japanese Journal of Special Needs Education Research*, 10, 53–63. (in Japanese)
- Sato, I. (2008). *Introduction to Practical Qualitative Data Analysis: Using QDA Software*, Shinyosha. (in Japanese)
- Saito, I. (2015). The art and science of qualitative data analysis: What we can and cannot do with QDA software. *The Japan Institute of Labour*, 57(12), 81–96. (in Japanese)
- Shinzato, K. (2021). A qualitative study on a process of parent’s acceptance of children’s severe motor and intellectual disabilities (SMID). *Okinawa Christian University Review*, 19, 41–50. (in Japanese)
- Sumi, A. (2022). Enhancement of the research lessons of the arts and handicrafts lessons in teacher training education. *Memoirs of the Faculty of Human Development University of Toyama*, 16 (2), 35–43. (in Japanese)
- Takahashi, Y., Ichikawa T., & Oba T. (2022). Study on role of drug addiction rehabilitation center (darc) on the social policy for drug addicts in Japan: Focus on group interview survey). *Graduate School of Humanities and Social Sciences, Nagoya City University*, 37, 89–99. (in Japanese)
- Uekida, J., Kobayashi, M., & Sasamori, H. (2009). Creation of an in-school awareness and behavior assessment (proposal) related to school consultation. *National Institute of Special Needs Education Annual Education Consultation Report, National Institute of Special Needs Education*, 30, 13–22. (in Japanese)
- UNESCO. (2020). Inclusive teaching: Preparing all teachers to teach all students. Retrieved April 25, 2024, from <https://www.unesco.org/gem-report/en/teachers-2020>
- Widodo, A. P. A., Hafad, A., Sunardi, Hardi, E., & Safitri, A. (2023). Inclusive Practices: Level of teacher collaboration in regular schools. *Journal of ICSAR*, 7(2), 346-353. DOI: <http://dx.doi.org/10.17977/um005v7i22023p346>
- Yoneda, H. (2020). Development of the Japanese Inclusive Education System: From Special Schools to Curriculum Modification for Special-Needs Education in Regular Schools. *Advances in Social Science, Education and Humanities Research*, 464, 1031–40.
- The National Association of Principals of Public Schools with Special Needs Classrooms and Resource Rooms (2022). *Reiwa 3nendo Chousa Houkokusho (Research Report in FY2022)*. (in Japanese)