

1999 Survey of the Education of Children who are Deafblind in Japan

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Abstract : The aim of the 199 survey was to investigate educational provision for children and students who are deafblind in Japan. While there is no generally accepted definition of deafblindness, this survey, as with previous NISE surveys, used the criteria of "corrected visual acuity less than, or below 0.3' and 'not measurable' for blindness," and a "hearing threshold level more than, or above 30dB, or 'not measurable' for deafness." The term, "deafblindness" was, thus, considered to be a condition where both existed. The total number of students who are deafblind enrolled in special schools is 334, the highest proportion (28.7% or 96) at schools for the blind, 19.2% (64) at schools for the intellectually disabled, 17.7% (59) at schools for the physically disabled, and 16.1% (54) at schools for the deaf. Deafblind children and students were enrolled at 10% of all special schools for the intellectually disabled (51), particularly at the elementary level, 59.1% (42) of all schools for the blind, and 35.5% (38) schools for the deaf. Deafblindness was found to have a multifaceted and diverse aetiology. Other than "unknown" causes, 45 cases were attributed to premature birth related to complications of pregnancy such as Asphyxia delivery, pre-eclamptic toxemia and premature labour, 42 cases were attributed to congenital rubella syndrome, 31 cases to a various CNS/brain damage, and eight cases to Usher syndrome. 85% of deafblind children and students identified had multiple disabilities, in particular, a high proportion had both intellectual and physical disabilities, or either intellectual or a physical disability. Some of these students were considered to be severely disabled. The survey also found that a variety of modes of communication, mainly at the elementary level were used. It also found that the majority of deafblind students were supported by a team of teachers, although a few were taught by only one teacher. Although most schools described the physical activity programmes they undertook, and the way in which they attempted to establish good relationships between teachers and students, schools for the physically disabled and for the health impaired placed the greatest emphasis on functional rehabilitation. Overall, the survey found that educational provision for these students is inconsistent, varying from school to school. It reveals the need to provide inservice training in the education of the multi-sensory impaired, including students who are deafblind, to enhance their professional skills. NISE has a role to play in this, in terms of providing consultation and gathering information from similar educational systems overseas.

Key Words : Deafblind. Deafblind education, National survey

The 1999 national survey of children and students who are deafblind is one of a series of nationwide surveys undertaken by the Department of Education for Children with Multiple Disabilities at the National Institute of Special Education (NISE). The objectives of the survey were to investigate educational provision and teaching methodology for children and students who are deafblind, and to gather information to improve support services.

The education of children and students who are deafblind has a long history in Europe and North America and, as a result, a solid foundation for special education of the multiply disabled has been established. Education for the multiply disabled in Japan has its origins in the education of students who are deafblind. A programme for these students was established as early as the 1950s at the Yamanashi Prefectural School for the Blind (Umezu, 1974), and provided a framework for the education of

children and students with multiple disabilities. Following this, children and students with multiple disabilities were educated in the compulsory school system. However, since special education in Japan has developed on the just five main categorization of disability model, each category of disability may have been counted separately in previous surveys. Whereas relatively few children and students who are deafblind are considered to have gone to special schools, no survey to report accurate numbers in all special schools has been undertaken until the present. The Department has mainly targeted schools for the blind and for the deaf in previous surveys (Tsuchiya, Nakazawa & Takasugi, 1992; Nakazawa & Takasugi, 1995). In former survey, the data of other special schools were collected. But those were considered to be unreliable due to misunderstanding among respondents about the term "deafblind." This is because the concept of deafblind was not commonly used in

special schools and indicates that the needs of these students were not being adequately met. There has been little information on how children and students who are deafblind have been treated in the Japanese educational system. Considering these issues, the 1999 nationwide survey aimed to report on the quality and degree of educational provision made for these children and students in special schools.

Some difficulties were anticipated in conducting the survey. First, as mentioned above, children and students who are deafblind are not only enrolled in different types of special schools, but also the nature of their disability as defined by the term "deafblindness" was assumed to be not widely understood. It was possible that this could have invalidated many responses due to unreliable screening in special schools. Second, there was, and still is, no internationally standardized assessment available for deafblindness, so the survey had to rely on assessment at the operational level. Third, provided that deafblindness was to be assessed on the basis of visual acuity and hearing level, it was most likely that other disabilities contributed to the overall assessment.

The survey addressed these problematic issues as follows. A brief description of deafblindness was provided in the questionnaire, further explaining possible misinterpretations and failures in judgement with paramedical screening methods. A contact address and telephone numbers were clearly indicated in the questionnaire in case respondents required further clarification. Respondents were also requested to provide personal details such as name, position held at the school and a contact telephone number in case they needed to be contacted for any clarification of their responses.

This paper reports on the educational provision of children and students who are deafblind at schools for the blind and for the deaf, and three other types of special schools. Information gathered included numbers enrolled (until now this has been unknown), degree of disability, and facilities available. The 1999 survey attempts to provide an overview of educational provision for children and students who are deafblind in Japan.

Method

The survey was conducted in 1998-99 school year and consisted of a preliminary survey (Stage 1) and a secondary survey (January 1999). Stage 1 aimed at identifying the numbers of students enrolled in special schools and Stage 2 collected information on the students identified in the previous stage.

Questionnaire

Information was collected on the following:

- i. Student profile.
- ii. Visual acuity and visual activity.
- iii. Hearing level and hearing activity.
- iv. Behavioural observation of visual activity.
- v. Behavioural observation of hearing activity.
- vi. Additional disabilities (other than deafblindness).
- vii. Student curriculum.
- viii. Student modes of communication.
- ix. Teacher profile and educational experience.
- x. Inservice training.
- xi. Class management.
- xii. Presence/availability of teachers who have experience in teaching children and students who are deafblind.
- xiii. Cooperation with other institutions.
- xiv. Activities most favoured by the student (detailed description).
- xv. Difficulties judged by his/her teacher that need most work (detailed description).
- xvi. Support available (detailed description).

The questionnaire as described above contains questions that are mainly concerned with the condition of the students vision and hearing, the curriculum, educational setting and class management, the system of communication, teacher profiles, cooperation with other institutions, and educational difficulties.

Definition of Deafblindness

There is no generally accepted definition of the term deafblindness. However, this survey, as with previous surveys conducted by NISE, used the following criteria; measurement of "corrected visual acuity less than (below) 0.3," and not measurable for blindness, and a "hearing threshold level more than (above) 30 dB." or not measurable for deafness. The aim was to conduct a comparative study with other NISE surveys. The term deafblindness was taken to mean the condition where both disabilities coexist. As the term deafblindness was unfamiliar in the special school context, and there was a possibility of it being misunderstood as a condition that included both deafness and blindness, the 1999 survey employed the phrase "children with both visual and hearing impairment."

Results

Questionnaire Return Ratio

In Stage 1 of the survey, all schools for the deaf

and for the blind returned a completed questionnaire, and 84.1% of special schools (e.g., intellectually disabled, physically disabled, health impaired, and combined). In Stage 2, the return rate was 97.4% of schools for the blind, 92.7% of schools for the deaf, and 84.5% of special schools. Respondents beyond the scope of the survey were eliminated.

Numbers of Deafblind Children and Students

The numbers of deafblind children and students enrolled in special schools and kindergartens for the blind and hard of hearing is shown in Table 1a.

Table 1-a The number of schools in which the students with DB are enrolled

School Category	Institutions surveyed	Institutions with DB (%)	Number of student with DB
Blind	71	42 (59.1%)	96 (28.7%)
Deaf	107	38 (35.5%)	54 (16.1%)
Mentally Retarded	508	51 (10.0%)	64 (19.2%)
Physically Disabled	182	35 (19.2%)	59 (17.7%)
Health Impaired	96	14 (14.6%)	39 (11.7%)
Combined**	14	9 (64.3%)	22 (6.6%)
Total	978	189 (19.3%)	334 (100%)

* Institution with DB / Institution surveyed

** special school for more than 2 categorized disabilities

Of 334 students identified in the total, 96 (28.7%) were enrolled at schools for the blind, 64 (19.2%) at schools for the intellectually disabled, 59 (17.7%) at schools for the physically disabled, and 54 (16.1%) at schools for the deaf. In special schools, deafblind students were enrolled at 51 schools for the intellectually disabled (10% of the total number of this type), 42 schools for the blind (59.1% of schools of this type), and at 38 schools for the deaf (35.5% of this

type of school).

Table 1b shows the number of students who are deafblind by level of schooling. 145 students (43.4%) were enrolled at the elementary level (aged between six and 12), 58 (17.4%) at the lower secondary level (aged between 13 and 15), and 74 (22.2%) at the upper secondary level (aged between 16 and 18).

In summary, the survey revealed that schools for the blind had the highest numbers of students who were deafblind enrolled, followed by the elementary division of schools for the intellectually disabled.

Visual Acuity and Hearing Levels

To observe the distribution of visual acuity and hearing levels among students with deafblindness, analyses were conducted using the following definitions (These levels are based on a previous survey conducted by NISE):

Blind level	visual acuity <0.01
Low vision level	visual acuity 0.01 & above
Deaf level	hearing level 100dB & above
Hard of hearing level	hearing level 30dB & above, <100dB

Table 2 Distribution among different combinations
(Unit : Number of Student)

	Blind	Low vision	Others	Total
Deaf	15	20	23	58
Hard of Hearing	62	18	33	113
Others	16	1	146	163
Total	93	39	202	334

Table 2 shows the results of the analysis using the levels described above. Deafblindness with unknown medical aetiology, but identified as deafblind by behavioural observation, were classified as "Others (unknown or unmeasurable)." The highest distribution (62) was found at the blind plus hard of hearing level. 15 students were totally deafblind.

The number of students medically assessed with difficulties in visual acuity was 95, and 158 were assessed as having difficulties in hearing.

Table 1-b The number of students with DB by different departments

	School Category					Combined*	Total
	Blind	Deaf	Intellectually Disabled	Physically Disabled	Health Impaired		
Counsel, Kindergarten	13	22	1	0	0	3	39
Elementary	25	19	38	33	18	12	145
Lower Secondary	14	4	12	12	13	3	58
Upper Secondary	39	9	9	12	3	2	74
Unknown	5	0	4	2	5	2	18
Total	96	54	64	59	39	22	334

* special school for more than 2 categorized disabilities

Table 3 Distribution of Visual Acuity and Hearing Level

a. Visual Acuity	Number	Percentage
Visual Acuity 1 (less than 0.01)	22	23.2
Visual Acuity 2 (0.01 or more, less than 0.04)	14	14.7
Visual Acuity 3 (0.04 or more, less than 0.3)	59	62.1
Total	95	100

b. Hearing Level	Number	Percentage
Hearing Level 1 (100dB or more)	28	17.7
Hearing Level 2 (70dB or more, less than 100dB)	56	35.4
Hearing Level 3 (50dB or more, less than 70dB)	72	45.6
Hearing Level 4 (30dB or more, less than 50dB)	2	1.3
Total	158	100

Table 3 shows the distribution of visual acuity and hearing level. As shown in the table, three levels were then applied to visual acuity in the case of Braille and printed type (Harada, 1989), and four levels to hearing in the use of hearing aids (Washio, 1996). The highest of the visual acuity levels was 59 cases in visual acuity 3 (0.04 or >0.04; <0.3). The highest of the hearing levels was 72 cases in hearing level 2 (50dB or >50dB; <70dB). In terms of type, there were 167 hard of hearing and sensori-neuronal hearing loss cases who replied "unknown" (94% of the total).

Visual field loss and night blindness was also investigated. 13 students were reported to have visual field loss, 67 no visual field loss, and 273 "unknown". 14 students had night blindness, 53 no night blindness and 286 "unknown." Many students (70-80%) were reported as "unknown" in both conditions. It is suggested that this is a very high ratio and clearly indicates that standard assessment methods for visual field loss and night blindness are not yet widely recognized in Japan.

Those students who had visual field loss and night blindness were also likely to have retinitis pigmentosa, and some of those with hereditary deafblindness were likely to have Usher syndrome. It is, therefore, of critical importance that these assessments are used more widely in the field of special education in Japan.

Aetiology of Impairment

Among the responses concerning the aetiology of visual and hearing impairment, 162 cases (45.9%) answered "unknown." One of the causes specified was

premature birth (45 cases), related to complications of pregnancy (viz., Asphyxia delivery, pre-eclamptic toxæmia and premature labour). 42 cases related to rubella were reported, 31 cases of a range of CNS injury, and eight cases of Usher syndrome. In addition, there were a number of unspecified causes indicating that the aetiology of deafblindness is multifaceted.

The aetiology of cases with both deafness and blindness and where there was more than one case is as follows:

CHARGE syndrome	10
Cokayne's syndrome	5
Down syndrome	3
Cytomegalovirus	2
4P monosomy	2
Mirror Decker syndrome	2
Cornelia de Langue syndrome	2
Other aetiologies	Unspecified

Impairments other than Deafblindness

Impairments other than deafblindness are shown in Table 4. Additional impairments were reported in 85% of students who were deafblind in the survey. A high proportion of students had both intellectual and physical disability, with fewer students with either intellectual disability only, or physical disability only.

Educational Provision

Table 5 shows the educational service provision for students who are deafblind in all types of special schools in Japan.

220 respondents answered "interaction with another person," 196 answered "enjoying movement activity," 137 answered "self help," 105 answered "functional re-

Table 4 Additional Disabilities of Studenta with DB
(unit : student)

Additional Disabilities	School		Category			Combined*
	Blind	Deaf	Intellectually Disabled	Physically Disabled	Health Impaired	
No	36	17	0	0	0	0
Mental Retardation	29	22	20	2	0	5
Rhysical Disability	6	3	0	1	3	0
Multiple Disability**	22	18	44	52	36	17

* special school for more than 2 categorized disabilities
** Mental Retardation + Rhysical Disability (+ Other Disabilities)

Table 5 Curriculum for Deafblind Students Enrolled in Special Schools

(unit : student)

Content	School			Category			Total
	Blind	Deaf	Intellectually Disabled	Physically Disabled	Health Impaired	Combined*	
Self-Help	38	27	42	14	9	7	137
Interaction with another Person	45	29	44	45	35	22	220
Understanding environment	29	16	14	16	4	7	86
Enjoying movement activities	39	15	48	47	30	17	196
Enjoying handcrafting	17	16	26	14	12	3	88
Concept for motion learning	22	22	13	11	2	1	71
Braille / Spelling : basic	17	5	1	0	0	0	23
Braille / Spelling : advance	11	2	0	0	0	0	13
Finger Spelling	6	7	0	1	0	0	14
Academic subjects	29	21	4	0	0	0	54
Vocational training	25	9	4	1	0	0	39
Functional Rehabilitation	12	11	24	33	15	10	105

* special school for more than 2 categorized disabilities

habilitation," 86 answered "exploration," and 54 answered "academic subjects." Most schools responded to "interaction with another person" and "enjoying movement activity."

However, "vocational training" had a higher response rate in schools for the blind. It is suggested that schools for the blind in Japan have traditionally provided vocational training courses for traditional Japanese massage, acupuncture and moxibustion, and have been functioning as vocational training centres for the blind.

Communication System

Communication is considered to be a most important feature for students who are deafblind. Modes

Table 6-a Communication Modes of Students with DB and their Teachers

Modes	Student	Teacher
Gross signs like a touch, cry, objects	210	223
Gestures	68	90
Sign language	25	41
Finger spelling	19	30
Braille	4	12
Finger braille	1	0
Print or Large print	33	40
Voice	62	153
Cued-speech	9	11
Picture and photo	13	44
Others	39	41

used by the students to communicate with teachers-in-charge and those by teachers-in-charge to communicate with their students were determined using a multiple-choice questionnaire (see Table 6a).

210 (43.5%) deafblind students used the communication system of gross signs (e.g., touch, cry, and objects), 68 used gesture, and 62 voice. 223 (32.6%) teachers-in-charge used gross signs (e.g., touch, cry, and objects). 153 (22.3%) used voice, and 90 (13.1%) used gesture. With the exception of finger Braille, teachers-in-charge initiated more communication and used a wider variety of receptive than expressive methods. This indicates that, with the exception of communicating modes of an initial level of such as physical contact and pointing to objects, a diverse range of communicating modes were used both by students who are deafblind and by teachers-in-charge. A considerable number of respondents said they used more than one mode of communication.

Table 6b shows the total number of each mode of

Table 6-b The number of Communication Modes of Students with DB and their Teachers

Number of Mode	Student	Teacher
one	195	133
two	90	113
three	29	44
four	14	30
five	8	15
six	3	3

Table 7 Student-Teacher Ratio

	School			Category			Total (%)
	Blind	Deaf	Intellectually Disabled	Physically Disabled	Health Impaired	Combined*	
A teacher	14	10	15	18	17	7	81 (24.8)
Several assigned teachers	5	7	13	9	6	4	42 (12.8)
An assigned teacher and others	68	36	35	29	16	11	195 (59.6)
Others	6	0	1	2	0	0	9 (2.8)

* special school for more than 2 categorized disabilities

communication chosen in the questionnaire. More than half of the total number of cases used combined communication modes. More than one mode was used by teachers-in-charge of the deafblind.

Student-Teacher Ratio

Table 7 shows the numbers of teachers assigned to take charge of children and students who are deafblind for different school types.

195 respondents answered "a teacher is assigned and other teachers are also involved." 81 answered that "a teacher is assigned in principle," and 42 replied that "several teachers are assigned, and other teachers have no involvement." Nine respondents answered "other" describing, for example, that "all teachers are involved," or "no teacher is assigned."

These results suggest that in the majority of cases one teacher is assigned to take charge of a student, and only 15% answered that "no teacher is assigned." In addition, more than 50% of each type of special school, with the exception of schools for the health impaired, answered that "a teacher is assigned, and other teachers are also involved." On the other hand, 43.6% of teachers at schools for the health impaired answered that "a teacher is assigned in principle," which was the highest proportion of all items among different types of special schools. The proportion of "a teacher is assigned, and other teachers are also involved," was more than twice that of "a teacher is assigned in principle," at schools for the blind, for the deaf and for the intellectually disabled.

Teachers-in-charge and Inservice Training

The period in which a teacher is "in charge" ranged from 0 to 15 years. The highest proportion was 139 (47.7%) who answered "being in charge for the first time - 0 years." This was followed by "for one year," and then "for two years."

The ratio of respondents less than two years was 89.1%. This indicates that a teacher is generally in

charge from one to two years and it is unusual for teachers to be in charge longer than three years.

58 of 289 cases answered "no experience - 0 years," to the question whether or not they had had any prior experience in the special education of children or students with multiple disabilities. It was found that years of experience in this category ranged from 0.1 to 29.0 years. The highest number of years of experience (50) taught at schools for the physically disabled, 46 at schools for the blind, 45 at schools for the intellectually disabled, 36 at schools for the deaf, and 24 at schools for the health impaired. 18 respondents taught at other types of special schools with a combined curriculum for more than two categories of disabilities.

The question also asked whether or not teachers had any specific training for communicating with the deafblind. 61(18%) of 339 respondents answered "yes," 256 answered "no," and 22 replied "other." Comparison by type of school found that 16 schools for the deaf, 14 schools for the physically disabled and 10 schools for the blind provided inservice training. Concerning the ideal model of teacher inservice training, 97 respondents answered "visits to schools and other institutions for the deafblind," and 95 answered "inservice training dealing with the communication system." Other answers focussed more on individual students such as "training in the use of educational materials and learning aids," and "seminars and discussions with specialists at work." This outnumbered items such as "lectures by specialists," "training at specialized institutions," and "talking with other deafblind people."

Discussion

The 1999 national survey identified the number of deafblind students enrolled at special schools in Japan and collected information on the educational provision and educational setting of these students. It also identified 334 students who were deafblind at

special schools and found that, although schools for the blind had the highest number of these students, schools for the intellectually disabled and for the physically disabled also had high numbers.

The visual acuity and hearing levels of deafblind students were in a wide range and many students (85%) were multiply disabled. It was also found that both the degree of and level of disability were diverse. It was found that there were a variety of communication modes, and most students were on basic level of communication. Concerning the degree and level of disability, some students were categorized a "(very) severely and profoundly disabled."

In many cases, a deafblind student was placed under the care of a teacher-in-charge with support from other teachers. However, there were also a few cases in which a student was cared for by only one teacher. Although most schools reported on the kind of physical activities they engaged in and how they attempted to build a good relationship with their students, schools for the physically impaired and for the health impaired were found to have placed greater emphasis on functional rehabilitation. Further, it was found that educational provision varies from school-to-school.

From these findings, it has become clearer that the deafblind are likely to have disabilities, other than deafblindness, and to be cared for by a single teacher-in-charge with the support of other teachers with the aim of establishing communication. On the other hand, it is also the case that many students experience differing levels of educational provision and are placed in various educational settings. This leads to differences in actual service provision.

It was found that teachers rarely take charge of a particular student for more than three years, and in most cases, ceased to care for the child after periods ranging from one to two years. This arrangement is considered to be problematic, especially for those students with only basic communication skills since one of the primary objectives of this form of special education is to establish communication. In the survey, it was also found that only 18% of respondents had any inservice training dealing with modes of communication. There is no system of pre-service or

inservice training available for teachers of students who are deafblind, but it was found that there was a demand for such training, especially in the form of visits to other institutions and for learning modes of communication.

It is believed that it is important to provide teachers with inservice training in the education of the multi-sensory impaired, including deafblindness to enhance knowledge in the field, to develop links with related fields, to increase knowledge and experience, and to improve teaching skills. In this, the Department of Education for Children with Multiple Disabilities (NISE) is available to provide specialized support and consultation. It is considered vital that a solid foundation should be laid for a teacher-training scheme, and also it is considered essential that we learn from models operating in other countries and broaden the base of cooperation between schools.

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Initial Aspects of Children with Congenital Deafblindness: Development of Mutual Interaction

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Abstract : This research examined the process of two congenital deafblind children (CDB) with additional profound disabilities in developing mutual interaction with others and eventually reaching the stage of "communication" within the educational sessions of a consultation programme. In the initial sessions, the subject (Subject 1) engaged himself in handling and mouthing toys, and did not respond to others. However, in response to "a vocal call" from a partner (A), he exhibited "searching action" and eventually developed a relationship manifested by "turn-taking" and "mutual interaction." Subject 2 had a tendency to engage in "finger flicking" in front of her eyes. When her partner initiated reverberating vocalization "Ah ---," vocal turn taking between them commenced. Investigation of these interactions suggests: (1) clues for interaction are based on action initiated by CDB children; (2) the use of vocal calls and acceptance directed towards children creates opportunities for interaction; (3) the basic motive for the development of interaction is searching action; and (4) mutuality in the interaction eventually expands to turn taking and appealing to the partner. The relationship with interaction partners can be categorized into; (a) "contacting" and "sharing"; (b) "attachment" and "approach"; (c) "exploration"; and (d) "dialogue" and "mutual interaction."

Key Words : Deafblindness, CDB, mutual interaction, communication

In the case of children with congenital or early onset of deafblindness (CDB), the more profound the disability, the more difficult is communication and interaction with caregivers. Not only do CDB children rarely display their feelings, but also the frequency of their response to the action of others is low. Therefore, a central issue in communicating with a CDB child is the creation of an active response (appealing action) in the child to the interaction partner. This study investigates how an interaction partner should respond to actions initiated by the child. Through the partner's response to the child's actions, the child understands that she/he is accepted and experiences joy at being able to initiate subsequent actions. This sense of joy, it is suggested, motivates the child to approach others.

The partner response to the actions of the CDB child start in resonance. No matter whether the child's actions are simply reflective or intentional, motor movement, a simple verbal utterance, or expression of emotion, the child and his partner should make contact and develop a relationship. Through the child's physical movements (both subtle and overt), such as shaking of the body, clapping, putting fingers together, as well as activities such as rolling a ball, or trampolining, the partner should pursue the child's actions, participate in the activity, and motivate interaction between them.

In the educational guidance of The National Institute of Special Education (NISE), we have

contact with not only CDB children, but also children with other disabilities. How to initiate a response in these children and develop that response into a mutual interaction was a primary aim of this study, together with how to expand the child's relationship with inanimate objects. The data for this investigation was collected from interactions with two CDB children (Subject 1 and Subject 2). Interaction data were recorded on video, and based on this information each child's interaction history is described in episodes. Also included are photographic data (see Note 1). Data collection occurred during educational guidance sessions conducted in the playroom at NISE with the child's guardian present. Sessions were held weekly, or every two weeks, and were from 60 to 90 minutes in duration.

Record of Episodes

Interaction with Subject 1

This boy was born in January 1990, and is currently in the third grade of an elementary department of a school for the blind. He has enough vision to reach for snacks and toys within his grasp, but has profound hearing loss. At exactly age two, his vision was tested on a visit to Attached Child Educational Guidance Clinic. Since age two years and eight months, he has received regular weekly sessions each one lasting for approximately 90 minutes.

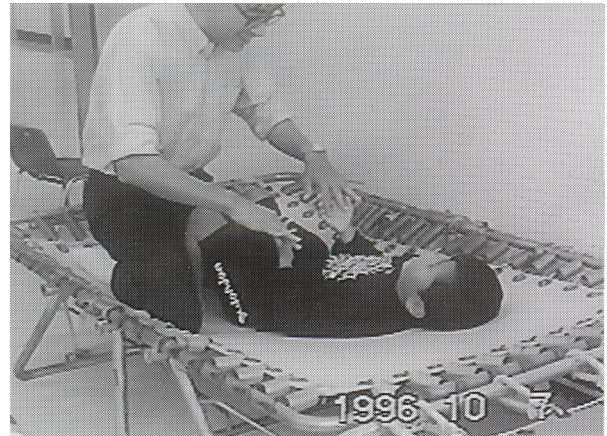
Interaction between Subject 1 and Others

Subject 1 actively reached for toys and eating utensils although he tended to spend time simply handling them, or putting them into his mouth. Despite the fact that his interaction partners (the researchers in this study, and referred to here as A1 and A2), continued physical interaction, Subject 1 did not respond by touching and searching for A's hands or body. When A increased direct guidance using a variety of actions, including motion signals, the subject often withdrew his hands. In sessions held during the final 12-month phase of the study, the subject began to touch A's hand, mouth, and face.

i. Episode 1 (6 years 8 months)/ Part 1: Subject 1 touches A2's face and places hand in A2's mouth

Subject 1 lies flat on a chair in the entrance lobby, facing upward. A2 approaches, stooping somewhat, and addresses the subject while looking at him. The subject is sucking his right finger and occasionally shakes his head from left to right. A2 place his hands at the subject's sides and slowly raises his upper torso. With the subject's posterior on the chair, A2 supports the upper torso to make him sit on the chair. A2 kneels in front of him, face-to-face, and supports him. Subject 1 still has his fingers in his mouth. Positioning his face directly in front of the child's face, A2 breathes on him drawing his voice out in a long breath, "Oh---i." Subject 1's non-engaged left hand slowly reaches for A2's face and touches his cheek. A2 continues talking using a drawn-out breath. Subject 1's right hand now leaves his mouth and moves directly in front of A's face. As his hand touches A2's nose, he searches around the nose with his fingers. His hand gradually lowers until it touches A2's mouth. At the moment his fingers enter A2's mouth, the child smiles and his right hand moves from A2's mouth back to his own. At the same time, his left hand comes forward and searches around A2's mouth as done previously with his right hand. Initially his left hand searches around A2's lips and is put into A2's mouth (see Figure 1). His outstretched fingers move inside A2's mouth. While holding the subject's fingers between his teeth, A2 utters a word a little more strongly than before. The subject's hand withdraws, and the right hand reaches out to slightly touch A2's nose and mouth, and is withdrawn again. The right hand returns to his mouth and his left hand is placed on A2's right hand that is helping to support him. The child's movements stop momentarily and he shakes his head from left to right. A2 realizes that the subject has finished his exploratory action of his face,

and asks him to stand up. A2 gently raises the child's upper torso with his hands supporting him at his side. As the subject places his weight on A2, A2 pulls the child to his side to match the child's movement and supports the child so his legs can extend. The child then touches the floor on his tiptoes and extends his legs, standing firmly with the help of A2. The session now goes to the next scene of moving into the playroom.



INSERT FIGURE 1

Analysis: The interaction began with A2 supporting the subject while at the same time looking directly into his face and calling out his name in a long drawn-out breath. Subjective assessment of the subject's hearing ability makes it likely that he could not hear A2. Yet at the same time, he could sense A2's facial expressions, vibrations, breath, movement and muscular tension of supporting hands and arms and knew that it was A2 who was looking into his face, supporting his body and was talking to him. Subject 1's hand was raised and slowly approached A2's cheek and touched it. The hand may have been lowered to check whether A2 was there or not. A2 did not remove the child's hand from his face, nor guide it, but waited for the child's actions to develop. At the same time, he continued to slowly call out the child's name. The child's hand that was in his mouth was extended to touch A2's face. His hand touched A2's nose and mouth, and was then placed in A2's mouth. This was the commencement of a "search move."

ii. Episode 2 (6 years 9 months)/ Part 2: Subject 1 touches A2's face and places hand in A2's mouth

Subject 1 lies on a trampoline looking at the ceiling, his right hand in his mouth while his left hand is on his face as if to cover his eyes. Until now,

when presented with toys or having his name called, he displayed no sign of wanting to respond. The covering of his eyes could be that he does not seem to be paying attention to the outside world. A2 now assumes the role of an interaction partner and faces the child. He calls the child's name several times and moves the trampoline surface, but the child's hand remains on his face. Subject 1 does not seem to know that his interaction partner has changed. A2 now lightly taps the child's knees and continues to tap his abdomen as if he is calling to the child. Finally, the expression on the child's face softens and his right hand leaves his mouth. Both hands are extended to receive A2's hands. A2 now lightly taps the child's palms as if he is receiving the child's hands (see Figure 2). Then A2 holds the child's hands and exhales into the child's hands. When A2 releases the child's hands, the child moves his hands in front of A2's face, touches it with both hands and explores around A2's lips. When A2 utters a vibrating, "Wha---, Wha--," the child's hands come to A2's mouth. A2 takes the child's hands and breathes onto his palms as he continues to talk. The child's right hand returns to his own mouth once again. A2 takes the child's left hand and moves it to A2's throat. A2 continues talking while making vibrations in his throat. A2 moves his face closer to the child's and makes his chin approach the child's right hand that is well inside his mouth. A2, while continuing to talk, pushes his chin several times against the child's right hand. While the index and middle fingers of the child's right hand remain inside his own mouth, the child's ring and little fingers jiggle and search A2's cheek. When A2 stands up and moves his face away from the child's face, the child's right hand leaves his own mouth and stretches out to pursue A2's face that is moving away. The child has a serious countenance and it is obvious that his attention is now on A2. When A2 positions his face near that of the child, the child starts touching A2's nose, mouth, and chin with his right hand. When A2 utters, "Oh--i," "Oh--i," the child puts his hand into A2's mouth. His fingers reach to back of A2's mouth and touch A2's tongue and teeth. He starts scratching the inside of A2's cheek with his fingernails. A2 makes a decision to observe the subject's action and allow the child to freely explore the inside of his mouth. When the child's hand reaches A2's throat, however, A2 "gags" and he moves his face away just a little. At that moment, the child withdraws his hand and it goes back to cover his face, and presses his eyes. The window to the child's outside world, which opened briefly, now appears to have been



INSERT FIGURE 2

firmly shut once again.

Analysis: The interaction started with the placing of A2's hand on the abdomen of the subject who was, at that time, lying on his back. The "dialogue" between them started when the child put his hand on top of A2's hand, and A2 tapped it as if he were holding it. A2 then lightly blew onto the child's hand. The child moved both hands to A2's lips and explored the area around them. A2 made vibrations with his voice and breathed onto the child's palms as if he were talking to them. A2 again made vibrations with his voice inducing the child's hand to make contact with A2's throat. The child's hand then, spontaneously, moved inside A2's mouth. The child's action of inserting his hand into A2's mouth was, we believe, of his own volition as was his decision to ardently and actively explore A2's mouth. The dialogue between them progressed as A2 responded to the child's actions as if he were prompting the child's searching action. A2 patiently waited for the child's responses so as not to inhibit his action in any way, even when any action was not forthcoming. Then A2 had to move his face away from the child. At that moment, the child's hand left A2's mouth and the child covered his own face. It is suggested that this was an actual response to A2's action. A2 was just not an inanimate object for the child. In the mutual relationship that had been established in which the two were pulling against each other (approaching each other), the child sensed the will of A2 to terminate the interaction by moving away and, thus, the child terminated his approach to A2 and his hand returned to cover his face. This indicates, it is suggested, that the child's action was part of a "bi-directional approach relationship" between the child and A2.

iii. Episode 3 (7 years 3 months): Subject 1 holds A1's fingers between his teeth

Subject 1 sits cross-legged on the floor and plays with toys. He then lies on his back and repeatedly puts his right hand into and out of his mouth. After wiping the child's wet hand with a towel, A1 rubs or massages the child's right hand. The child does not appear to dislike this and allows A1 to continue rubbing. The child then withdraws his right hand and puts it into his mouth. When A1 signals by lightly tapping his left hand and saying "Do you want the same for your other hand?" the child stretches out his left hand. A1 continues massaging the back of the child's left hand, palm, and fingers.

A1 blows onto the back of the child's left hand, then onto the child's palm. The child releases a low laughing utterance, "Goo, goo, goo---." He lightly touches his slightly flexed knees together and this action expands throughout his body. The child moves his hand from A1 and shakes it in the air. A1 then moves his mouth close to the child's hand and breathes onto it. The child's left hand becomes further active and moves as if searching for A1's face. A1 moves his face close to the child's hand and the child touches A1's mouth and then moves his hand around his nose as if exploring. A1 continues exhaling. The child then searches around A1's mouth with his right hand and moves his hand to A1's nose and cheek. His hand then returns to A1's mouth and is stationary. Meanwhile, the left hand has remained motionless.

The child puts his left hand inside his own mouth. Then A1 takes the child's left hand and breathes onto it. The child touches A1's forehead and gently taps A1's head twice with his left hand. The hand then leaves A1's head and hangs in the air motionless as if it were lost. Then he moves his hand to his own forehead, removes his right hand from his mouth and moves it to A1's lips. The child's hand is soaked in drool, so A1 wipes it. The child's hand touches A1's mouth, rubs his cheeks, and repeatedly taps his forehead and head, and the returns to his own lips. Then the child releases a loud utterance, "Ah---," and his body shakes. The child takes his hand out of his mouth, shakes it near A1's mouth, and waits for A1 to breath onto his hand. This time, the child does not put his hand into A1's mouth.

The child puts his hand back into his mouth and then taps the floor with his left hand. In response, A1 taps the floor, the child taps and A1 taps in return. Turn taking of floor tapping commences. The child stops tapping with his left hand and his other hand comes up to explore A1's left hand, wrist, and

arm. The child touches near to A1's wristwatch and rubs the area. A1 adds variety to his wrist movements by circling, weakening or strengthening his touch. A1 then lightly massages the child's chest as he lies on his back and then moves his hand smoothly to the child's lips. The child grabs A1's hand, moves it to his lips, and licks A1's fingers. He then holds A1's fingers between his teeth and bites them with increasing strength. A1's response is "Ouch!" When A1 withdraws his bitten fingers, the child licks A1's hand and touches his chin and mouth with his right hand. The child laughs loudly, and his body shakes as he lies on his back. He then quickly leaves, crawling on his back and biting his fingers.



INSERT FIGURE 3

Analysis: When A1 rubbed the child's hands or lightly tapped them, Subject 1 presented his hand to A1. The child did not dislike the rubbing or massaging of his hands. Nor did he dislike finger play, but it can also be said that the child's hands passively received A1's actions. Meanwhile, the child sensed A1's breath on his hand, his hand suddenly became active and its movement expanded to include A1's lips, nose, cheek, forehead, and head. The child, for the first time, tapped A1's head, but in this scene the child's hand did not enter A1's mouth. It is possible to interpret this as the child expanding his search from A1's face to his head, but it is also possible to say that the wiping of drool from his fingers prevented the child from putting his fingers inside A1's mouth.

The child tapped the floor with his left hand and A1 repeated the action, and the child responded in turn. The interaction developed into turn taking. In this flow of events, the child came to explore A1's wrist. A1 added variety to his wrist movements and muscle tension, and the child continued to grab A1's wrist. A1 placed his hand on the child's chest and

moved his fingers to the child's lips. The child showed his tongue and licked A1's fingers, then held them with his teeth, and bit strongly. A1 allowed the child to bite, but then expressed his pain and withdrew his fingers from the child's mouth. The child continued to lick A1's fingers and searched around A1's lips with his right hand at the same time laughing loudly. Although the child exhibited a variety of actions, including floor tapping, exploration of A1's hands and fingers and the holding of A1's fingers between his teeth, both A1 and the child shared action. We refer to this flow of actions as a "dialogue." In the flow, the child licked A1's fingers for the first time, held them between his teeth, and bit. He then laughed. We interpret this as an expression of A1's acceptance by the child.

iv. Episode 4 (7 years 4 months): Subject 1 explores his and A1's mouth with his fingers

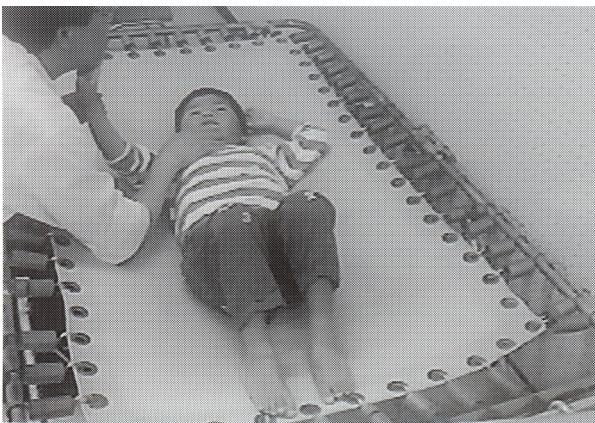
Subject 1 is lying on a trampoline, facing upwards. A1 signals "play" to the child's hand. He begins moving the trampoline mat. The child's hand reaches out to A1's hand and A1 moves his mouth close to the child's hand, and begins breathing onto it at the same time as saying his name. The child gently touches A1's lips and nose and moves his hand forward to touch his forehead. When the hand reaches A1's lips, A1 moves his chin while making a rattling sound. The child then caresses A1's lips and, in turn, A1 touches the child's lips and teeth. The child shows no sign of movement in his lips. Now the child touches A1's lips with his right hand while A1 touches the child's lips with his right hand (see Figure 4). The child's right hand leaves A1's mouth and moves to his own, but leaves immediately to touch the fingers of A1's right hand, then A1's lips, and then they return to their original position. A1

utters the cry "Awawa-" and transmits vibrations onto the child's right hand while gently moving the child's lips. The child removes his hand from A1's mouth and touches A1's fingers that are touching his lips. The child grabs A1's fingers and starts rubbing them repeatedly.

Analysis: Subject 1 grabbed A1's hand. A1 moved his mouth towards the child's hand and blew onto them as he talked. The child touched A1's mouth and nose, and expanded these movements to the whole area of A1's face. When the child's hands reached A1's lips, A1 shook his chin in a wide arc. The child caressed A1's lips. Each of A1's "acceptances" of the child's action (and their changes) made this sequence of communications a dialogue. Experience enabled A1 at this time to decide to touch the child's lips with his hand and send him a signal by lightly touching them as the child's hand was touching his lips. This means that A1 established a "reflective" relationship involving the child in response to the child's actions to A1. Such a reflective relationship has potential to develop into a circulatory dialogue between the child and A1.

v. Episode 5 (7 years 6 months): Subject 1 clasps A2's hands.

Subject 1 is lying on the floor facing upwards. After playing with several toys, the child reaches to grab A2's fingers when A2 holds his hand in front of the child's eyes. From that point onward the child exhibits a series of communicative actions such as grabbing A2's fingers, touching A2's lips, searching for lip vibrations accompanying A2's utterances, and moving his feet to A2's throat and chest to sense the vibrations from A2. This form of communication continues for a while, and then A2 stretches his hands before the child's eyes as well as accepting the



INSERT FIGURE 4



INSERT FIGURE 5

child's feet on his chest. The child then touches both of A2's hands (see Figure 5). He grabs A2's hands, entwines his fingers with those of A2, and occasionally pinches A2's toes. As this happens, the child continues the communicative action of clapping his hands against A2's hands.

Analysis: Subject 1 grabbed A2's fingers shadowing his eyes. The child felt the vibrations of A2's voice with his hand and the vibrations of A2's throat and chest with his feet. In this sequence of actions, the child started to clap his hands against the outstretched palms of A2. Then, while touching A2's hands, entwining his fingers with his, and pinching his toes, the child continued clapping against A2's palms. It is suggested that this action is an expression of the child's desire "to adjust" to A2's actions as opposed to exploratory actions such as searching or ascertaining. In brief, this action is a voluntary adjustment by the child to his partner's actions.

Interaction with Subject 2

Subject 2, a female, is currently a third grade student in the junior department of a school for the blind. She has fetal rubella syndrome and her left eye has a slight light perception. Since childhood, she has engaged in hand flapping over her eyes. Hearing has been assessed at approximately 80dB for both ears. She has rung a bell close to her ears since childhood. Since those early childhood days, she has consistently taken off her hearing aid after wearing it for only a short time. At present, she usually does not wear it. In addition to her visual and hearing disabilities, she has a small head and disabilities in her toes and heart have been detected. Since entering the third grade of the elementary department she has regularly attended sessions on a monthly basis at the clinic. After entering the junior department the frequency of these visits has increased from one to two times a month.

Interaction between Subject 2 and Others.

It is not easy for an interaction partner to develop "communication" with Subject 2. She and her partner eat snacks together, jump on the trampoline together, and sometimes listen to music together, and the partner massages her hips and shoulders. When coming on to the trampoline, Subject 2 gestures with a signal such as "Start," "More," or "Play," and responds to the signal "Stop." She also grabs hold of her partner's hand so that they can jump on the trampoline together. Such communication is possible, yet her actions are simply repetition of Subject 2

initiating her requests (i.e., they are limited to trampolining and shoulder massage), but stop short of mutual interactions and "dialogue."

- i. Episode 1-1 (12 years 3 months): Subject 2 enjoys vocal turn taking.

In the playroom, Subject 2 jumps on a trampoline, eats snacks, and listens to music from a cassette deck player. One hour and 10 minutes pass. She is handed an iron bar, approximately 30 cm in length (an object cue for a cradle-type swing with two benches facing each other which is located outside in the corridor). Subject 2 heads towards the playroom exit and changes her shoes with assistance. She takes the iron bar from A1's hand, goes out into the corridor, and makes for the seesaw swing while holding A1's hand in her other hand. She goes along the corridor, locates the swing, and gets on unaided. A1 sits opposite her and guides her to grab hold of the railing. While lightly tapping her knee as a signal, A1 pushes the swing as he counts.

When the swing begins to move, the child utters a low "Ah---," as if she is growling. A1 continues to push while counting to 20. He then takes her hand and signals to her that the swing is over. When A1 stops pushing the swing, the child stops growling. Her hands, which up to now have been holding the rail, now start to search for A1's hands. She draws the signal "More" on his hand. Swinging restarts and the Subject begins her growl once again. A1 takes the child's hand and it moves to A1's throat. A1 utters the sound "Ah-" himself. Subject 2 stops her vocal display and listens to A1's voice. She then starts the sound once again. They then sit facing each other while her hand remains on A1's throat and his hand is on her throat. Subject 2 utters a low "Ah-" again, and A1 utters a high pitch "Ah---" in re-



INSERT FIGURE 6

sponse. The child listens and utters a low "Ah-" again. A1, once again, utters a high pitched "Ah--." In repeating these actions, the two engage in taking turns in voice utterance. Subject 2 laughs.

- ii. Episode 1-2 (14 years 10 months): Subject 2 enjoys vocal turn taking.

Subject 2 eats snacks during the session. When offering Subject 2 snacks, A2 shows her a snack bag (an object cue) and vocally invites "Do you want to sit on a chair and eat at the desk?" Subject 2 usually accepts the invitation. A2 places a snack box on a tray in front of the child. She opens the box and eats some of the food inside. A1 withdraws the tray and observes her reaction. She swallows the food in her mouth at present, sits upright, and stretches out her arm. She starts eating again. Such "communication: over the food in her snack box is repeated several times. Then Subject 2 begins to enjoy different shades of light by moving her fingers before her eyes. Her arms do not move towards the food, yet she does not stand up from her chair. A1 decides to wait being prepared to respond if the child does stretch out her hand. She shades her eye with her hand, sometimes flipping it. Then she starts uttering "Ah--." Immediately, A1 responds with "Ah--," and after a brief interval she says "Ah-" once again. A1 responds with "Ah-i" in imitation of her intonation and emphasizing her vocal tone as much as possible. Immediately following A1's voice, she utters "Ah--," and A1 responds with "Ah-i." She then responds with "Ah--," but this time much louder than on previous occasions. A1 increases the volume of his utterances as well. She then responds with a louder "Ah--," and A1 responds in turn. This vocal turn taking continues for a while and the Subject falls silent. In this period of silence she flips her hand before her eyes and then stops. While looking slightly upwards, she appears to be thinking. Her foot is touching A1's foot and is moving slightly as if exploring A1's foot, or rather A1 as a person. A1 adds a vocal response "Yes. It's a foot," and moves his foot a little, returning the signal. Subject 2 withdraws her foot, changes her posture, and starts to say "Ah-" again. This time her voice is unique. It is a long utterance and gradually fades out, and is reminiscent of vocalization she has made in the past. A1 responds in a similar voice and she replies with "Ah--," but this time with stronger intonation. A1 attempts to follow her utterance. Her expression relaxes and she looks calm. She utters the sound once again, and then turn taking from here on continues for approximately twice as long as the earlier exchange. Gradually the sounds

become louder. How long will this exchange continue? Subject 2 seems to be not using the same voice twice, and adds subtle alternation to her voice, seemingly as if she is exploring her partner's reactions. When the turn taking appears to have peaked, her voice gradually quietens, and A1 responds likewise. Soon the turn taking returns to a steady calm state.

Analysis: When Subject 2 started uttering the quite cry "Ah--," A1 began uttering similar sounds. In Episode 1-1, A1 took the subject's hand, moved it to his throat and uttered "Ah--." In Episode 2-1, as soon as the subject uttered a sound, A1 responded with "Ah-i," and after a brief interval, she uttered "Ah--." In Episode 1-1, A1 commenced his vocal response simultaneously with the subject's vocalization while imitating (or mirroring) her. Subsequently, the subject stopped her vocalization and listened to A1's voice. She then vocalized once again. In both episodes, A1 uttered imitations of the subject's cries, and as a result, the subject stopped making sounds, listened, and then began uttering her cry again. This "communication" transformed into turn taking, and in addition, Subject 2 created variations and A1 tried to adjust his vocalizations to these variations. The two created a flow of actions in unison.

Integrating Analysis

As reported here, in sessions held with both subjects (Subject 1 and Subject 2), a variety of interactions with partners (A1 and A2) were generated. Since individual episodes have already been reviewed, the following is a systematic analysis of these observations from several perspectives.

The First Step Towards Interaction: "Acceptance"

The first step toward interaction with children was found in actions initiated by themselves; that is, physical movements exhibited by them. Many researchers involved in the education of CDB children have pointed this out.

By "accepting" actions initiated by children (e.g., utterances and movements), interactions advanced. Therefore, how "to accept" these actions is an important issue for consideration. The classification of "acceptance" can be based on the following categories:

- a) Accept as a response - "Yes. I understood." (Subject 1. Episode 1).
- b) Accept while imitating - "You are doing this." (Subject 2. Episode 1-1 and 1-2)
- c) Accept while offering variations - "How about doing this?" (Subject 1. Episode 4).

The First Step towards Interaction: "Calling"

As a first step towards interaction with Subjects 1 and 2, it was found important to invite their response while "calling," as well as through vibrations and exhaling (see Subject 1. Episode 1). Neonates have been found to express interest in "the face of a person" as an object to see, and in "the voice of person" as something to listen to. They have also been found to make first contact with the skin of their caregivers. In the sessions reported here, there is room for improvement in "calling" through the use of skin contact or touch.

Child's "Exploratory" Actions as a Driving Force for Interactions

The driving force for interactions is thought to be "exploratory: actions initiated by the child. Since these exploratory actions, along with "ascertaining" actions are exhibited in balance between approach to and avoidance of the partner, they should not be controlled by actions leading to the child's avoidance. The responses in the present investigation to "exploration" were:

- i. To share the child's exploration by accepting it in its offered form and cooperating if possible (see Subject 1. Episode 2).
- ii. To "accept" the child's exploration while at the same time, inviting the child to expand it (see Subject 1. Episode 2).

Expansion of exploratory actions were primarily seen in expansion of the targets (i.e. the body parts of the partner as in Subject 1/ Episode 3), as well as in expansions by means such as exploration using not only hands and fingers, but also feet and tongue (see Subject 1. Episode 3). On many occasions, there was a deepening of the quality of exploration.

Situation Inducing Mutual Interactions: Turn Taking

Turn taking in this context refers to situations marking the beginning of mutual interaction. There are four types of turn taking considered here:

- i. Turn taking by imitation or mirroring (see Subject 2. Episode 1-1 and Subject 1 Episode 4).
- ii. Turn taking by overlapping interaction (see Subject 1. Episode 3).
- iii. Turn Taking by repeated follow-up (see Subject 1. Episode 3 & Subject 2. Episode 1-2)
- iv. Turn Taking by the creation of variation.

Relationship from the Child's Perspective

It is possible to categorize the relationships the subjects had with their partners as follows:

- i. Contacting and sharing (see Subject 1. Episode 1).
- ii. Attachment and approach. For example, clapping against the partner's hands (see Subject 1. Episode 5).
- iii. Exploration (see Subject 1, Episodes 2,3 &4).
- iv. Dialogue or mutual interaction (see Subject 1. Episode 4).

One of the four phases emerged as the main theme in some scenes while a few phases were intertwined in a complex manner on other occasions. To understand which phase a relationship in a certain scene should be categorized is important in improving the accuracy of the "reading."

What is Transmitted to the Child through "Dialogue-like" Interactions?

Mothers actively talk with their newborn, but even if they intend to send their child messages in the form of the spoken word, children are unable to understand their literal meaning. What is transmitted in prosody, however, is the mothers emotions and intentions, and Fernald (1992) has categorized these as: (1) to direct the child's attention; (2) to praise; (3) to stop an activity; and (4) to provide peace of mind. Many of the dialogue-like interactions reported here depended not only on hearing and sound, but also on touch and other actions. Even in touch, or related actions, similar prosody to what is actually transmitted to children should be considered. The deepening of the quality of the communication requires the sharing of emotions and intentions. What kind of dialogue-like interaction can transmit emotion and intention through touch and related action? To answer this question from a quality perspective is an issue that needs to be addressed in understanding our relationships with CDB children.

Note: The use of all photographs used in this study has been done with the approval of relevant parents or guardians. We would like to express our appreciation for their support.

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Mutual Understanding and Cooperation Between Teachers and Parents of Pupils with Profound and Multiple Disabilities Who Utilize Homebound / Hospital Education Services: With a Focus on Homebound Education Services

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Abstract : The purpose of this study was to investigate the mutual understanding and cooperation between teachers-in-charge and parents of pupils with profound and multiple disabilities who utilize homebound / hospital education services. Two analyses were conducted. First, a national survey of homebound / hospital education services conducted by Takei, Kawasumi, Hayasaka, and Takisaka in 1996 was re-analyzed from the following six perspectives: (1) the need to discuss the curriculum with parents, (2) the need to encourage greater use of medical or welfare services at home, (3) the need to publish class newsletters, (4) the need to increase schooling opportunities, (5) the need to cooperate with parents in the health care of their children, and (6) the need to promote more interaction among parents. Second, nine highly experienced special education teachers involved in the provision of homebound / hospital education in Kanagawa Prefecture completed a questionnaire based on the re-analyzed data gathered in the first phase of the study and their answers were analyzed. Results of this multi-phase study suggest that teachers involved in the programme have been effective in promoting mutual understanding and cooperation with parents. Detailed examples of such activity are presented and relevant perspectives are discussed.

Key Words : Special education, homebound / hospital education service (programme), mutual understanding and cooperation with parents, profound and multiple disabilities

I Introduction

Since 1979, in Japan, homebound / hospital education programme, a form of educational provision of special schools, has been offered to students who are unable to commute to school due to profound developmental disabilities, multiple disabilities and / or continued health problems. In this programme, teachers visit the residences of students such as personal homes, child welfare institutions, or medical institutions typically three times a week and provide teaching two hours per day.

To understand the current situation and issues involved in the homebound / hospital education programme, Takei, Kawasumi, Hayasaka, and Takisaka (1997) conducted a nationwide survey of schools offering homebound / hospital education in 1996 (hereafter referred to as the "1996 National Survey") and reported their findings. Based on findings of the survey, Kawasumi and Hayasaka proposed the following topics: the current situation and issues of homebound / hospital education (Kawasumi, 1997), solving issues in

teaching and systems (Hayasaka, 1998), the significance of homebound / hospital upper secondary education initiated from 1997 (Kawasumi, 1998a), details of teacher assistance (Kawasumi, 1998b), and teaching content and methodology for the homebound / hospital education (Hayasaka & Kawasumi, 1998).

One of the outstanding issues needing to be examined in light of the findings of the 1996 National Survey is what has been done to promote mutual understanding and cooperation between teachers and parents of pupils in the homebound / hospital education programme as well as to clarify perspectives in promoting such a relationship. One of the most significant issues is how to ensure that homebound / hospital education, particularly homebound education, is truly effective in promoting the understanding of parents of homebound / hospital education as well as enabling mutual understanding and cooperation between teachers and parents. To date, there have been few reports examining actual practice and related issues comprehensively, and the topic has not been carefully analyzed.

II Purpose

This research focuses on homebound education. First, we reanalyzed the findings of the 1996 National Survey to examine what kind of measures were taken to promote mutual understanding and cooperation between teachers and parents as well as to extract particularly important perspectives. Second, we asked teachers involved in the homebound / hospital education programme about their experiences based on these perspectives to obtain their suggestions and thoughts.

III Method

This research re-analyzed the 1996 National Survey results in further detail. In addition, as a part of the study, a questionnaire for homebound / hospital education teachers in Kanagawa Prefecture was developed, and results from this survey were analyzed.

1. Re-analysis of the 1996 National Survey

In a national survey conducted in 1996, questionnaires were sent to 431 special schools (schools for the intellectually disabled, the physically disabled and the health impaired) and one school for the blind offering homebound / hospital education services in homes, institutions, and hospitals. A 88.1% response rate was obtained.

The 1996 National Survey had one question directly related to mutual understanding and cooperation with parents, but the survey also had data relating to "mutual understanding and cooperation" given in response to other questions (in particular, "issues when conducting homebound / hospital education," "special preparation you take for teaching," "topics of discussion with parents," "issues and measures taken in preparing a site for teaching," "issues and measures taken in conducting schooling," "measures to deepen relationships among parents," and "welfare and medical services students are receiving." We re-analyzed these related questions and responses and examined the data from a perspective of mutual understanding and cooperation with parents.

2. Survey of Homebound Education Teachers in Kanagawa Prefecture

We conducted a survey of nine experienced special education teachers involved in homebound / hospital education in Kanagawa Prefecture near Tokyo (the survey will be referred to here as the "1998 Kanagawa Survey"). The questionnaire was mailed in June, 1998.

For the 1998 Kanagawa Survey, six perspectives considered necessary to deepen mutual understanding and to promote mutual cooperation with parents (seven perspectives if the category "other" is included) were extracted from the 1996 National Survey referred to in Section III-1. Each of the nine respondents were asked to describe their responses based on these perspectives.

The questionnaire first asked the respondent's name, number of years of teaching experience, the number of years involved in education for the disabled, and the number of years involved in homebound / hospital education. Then, the following questions were asked:

"Regarding mutual understanding and cooperation with parents, if you have experienced episodes related to the following seven perspectives, please briefly state: (1) when the episode happened (e.g., 2nd semester of 1996), and (2) what kind of student was involved, and then (3) describe the details of the episode in relation to the following:

- (1) Regarding mutual understanding and cooperation with parents on teaching objectives and content.
- (2) Regarding use of welfare and medical services.
- (3) Regarding publication of class newsletters.
- (4) Regarding schooling.
- (5) Regarding health maintenance.
- (6) Regarding promotion of stronger relationships among parents.
- (7) Other (assistance for parents in bringing up their children, regarding parents' need to release stress, your role as a listener to parents' worries, etc.)."

Responses to the above requests were organized according to episode as well as measures taken by teachers. At the same time, particularly noteworthy episodes have been included here as examples.

IV Results

1. Re-analysis of the 1996 National Survey

Table 1 lists the 12 most often chosen responses to the question which directly asked about, "mutual understanding and cooperation" with parents ("measures taken by teachers for mutual understanding and cooperation with parents") in the 1996 National Survey. As shown in the table, the most frequent response was, "to offer a discussion time during regular visits" lending importance to regular visits rather than special measures. Also, in addition to direct discussions, "utilization of communication notebooks" was the sixth most common reply. In a separate question

("topic of discussion with parents") which was related to ordinary discussions with parents, respondent schools were asked to choose up to five discussion topics from 15 choices. Responses to this question are presented in Table 2. The most often discussed topic was that of children's health maintenance and medical institutions.

Concerning measures to promote mutual understanding and cooperation with parents as shown in Table 1, the second most often chosen answer was,

"confirmation of teaching objectives and content." This demonstrates the motivation of teachers to listen to parental opinion and their requests relating to teaching objectives and content. One of the objectives in promoting parental participation in teaching, fifth in response frequency, was to obtain parental understanding on the content. Another question related to the second and fifth responses was "preparation of the teaching environment." This question asked about issues and measures taken for site preparation re-

Table 1 Measures Taken to Strengthen a Relationship with Parents

Items	(numbers of response)
① Setting up discussion time during regular visits	(252)
② Confirmation of teaching objectives and content	(71)
③ Offering a variety of information	(60)
④ Publication of newsletters	(58)
⑤ Promotion of parental participation in class, events, and schooling	(47)
⑥ Utilization of communication notebooks	(37)
⑦ Two-way communication on other than visiting days	(23)
⑧ Setting up parent-teacher meetings	(22)
⑨ Exchanging health related information of a child	(21)
⑩ Accompanying a child to therapeutic activities and medical checkups	(17)
⑪ Promoting co-visitation of administrative teaching staffs	(15)
⑫ Promoting relationships among parents	(13)
⑬ Adjusting visiting days to accommodate the schedule of parents	(13)

* The question asked, "Please describe how you are making efforts to strengthen the relationship with parents. Please list up to three examples."

Table 2 Topics of Discussion with Parents

Items	(numbers of response)
① Special care for the maintenance of child's health	(320)
② Information of medical institutions	(162)
③ Ways of nurturing at home	(162)
④ Child's growth or development	(137)
⑤ Guidance for post-graduation life	(123)
⑥ Impairments and disabilities of the child	(122)
⑦ teaching content	(122)
⑧ Siblings, other family members, and relatives	(115)
⑨ Utilization of welfare services	(106)
⑩ Schooling	(93)
⑪ Therapeutic activities outside schools	(70)
⑫ Changing from homebound education to in-school education	(59)
⑬ Relationship with communities	(27)
⑭ School trip	(17)
⑮ Other	(10)

* The question asked, "What kind of topics do you discuss with parents? Please circle the five most discussed items." The number in parentheses is the number of the selection.

garding students' homes and their surroundings, and almost all responses concerned issues that teachers needed to discuss and solve in cooperation with parents. The understanding and cooperation of parents and family are indispensable in order to solve problems such as limited space for teaching in a home, the educational environment inside the home (e.g., lighting, fan noise, temperature, etc.), the strong resistance of parents against going out, and the presence of family members other than parents (viz., siblings and grandparents) at the teaching site, such as a living room.

The third most often chosen response in Table 1 was, "offering a variety of information," particularly in the utilization of welfare and medical services. Relating to this, we also asked about, "the content of welfare and medical services students are receiving." In regards to content, the following replies were frequently cited: bathing service, home check-up and advice by doctors and trainers, visiting nursing service, and home helper service.

The fourth most often chosen response was, "publication of newsletters." Teachers believed that this was an effective means to obtain understanding and cooperation from parents and colleagues.

The fifth most often chosen response was, "promotion of parental participation in class, events, and schooling." This is related to the above mentioned, "preparation of teaching environment," but also to, "issues to be examined in the implementation of schooling," and "measures for implementing schooling." Responses to issues and measures in the implementation of schooling included issues for homebound / hospital education teachers to examine, issues for which the understanding and cooperation of teaching staff other than homebound / hospital education teachers needed to be obtained, obtaining parental understanding and cooperation, and issues and measures related to reducing parental burdens.

The seventh most often chosen response was, "two-way communication on other than visiting days," and the eighth was, "setting up parent-teacher meetings," and the ninth and tenth most often chosen responses were, "exchanging health related information on a child," and "accompanying a child to therapeutic activities and medical checkups," respectively. Responses regarding health maintenance were the most often offered reply to, "topics of discussion with parents" (Table 2), but also were the second most frequent reply to another question ("points of care regarding teaching which teachers give priority").

Beyond the tenth most often chosen response, "promoting the co-visitation of administrative teaching

staffs," "promoting relationships among parents," and "adjusting visiting days to accommodate the schedule of parents" followed. We also separately investigated, "promoting relationships among parents" (as "measures to deepen relationships among parents"). Responses to the question included the use of schooling and events, utilizing newsletters, organizing parent-teacher meetings and events, and utilizing opportunities for joint activities held with a group of children and parents living in close distance.

Based on the above analysis, we consider the following particularly important measures in the promotion of mutual understanding and cooperation between homebound / hospital education teachers and parents: (1) confirmation of teaching objectives and content, (2) examination of utilizing welfare and medical services, (3) publication of newsletters, (4) conducting schooling, (5) taking measures for health maintenance, and (6) promoting stronger relationships among parents.

2. 1998 Kanagawa Survey

All nine teachers of homebound / hospital education who received our questionnaire responded by the end of June, 1998. The years of teaching experience among the nine numbered between 18~32 and the number of years teaching children with disabilities ranged between 11~26. The number of years in homebound / hospital education was 13 for one teacher, 3~5 for six teachers, and 2 for one and 3 months for another. Below, response content is organized by question item and a few episodes per item are included.

1) On mutual understanding and cooperation between teachers and parents on teaching objectives and content

Responses to this question can be categorized into the following areas according to their main theme: (1) to accept (not deny) parents' desires and their ways of handling their child, (2) to understand parental worries and requests to teachers, (3) to confirm a child's current status with parents, (4) to explain to parents about teaching plans and policies in an easy to understand manner and ask for their opinions, (5) to check teaching content with parents to take into account how the child responds to stimulus, (6) to ask the views of the physician and the trainer-in-charge of the child, in the company of parents in an attempt to reduce differences in understanding between parents and teachers, (7) not to push too quickly to obtain parental understanding, and (8) to obtain cooperation from fathers in areas in which

they can offer positive assistance.

An episode described in response to this item is presented as an example below.

Episode (1-1) "The case of parents who seem to have been having difficulty in accepting their child's disability. I initially accepted what parents were doing. While doing so, I brought the "Health Records" and "Interaction Scene Video," and watched them together, and at the same time encouraging the parents to accept the way their child was. When the parents seemed to settle down, I communicated what I felt as well as what I intended to do in teaching their child. In the discussion, I intentionally talked about actual examples and used words easy for parents to accept. Even now I try to discuss changes in the child every time I find them and direct parents' attention not only to problems, but also to favourable factors. The parents are now quite cooperative and it is easy to discuss their child's progress with them."

2) On utilizing welfare and medical services

Responses to this question are categorized as follows according to their main theme: (1) depending on the parents, there are cases in which teachers are better-off arranging and accompanying children on hospital visits, as well as acting as a bridge between parents and caseworkers at child guidance centres or welfare offices, (2) teachers should support parents in cooperation with caseworkers and trainers, (3) in order for parents to accept respite care without worry, it is necessary to cooperate with parents as well as to work together with institutional workers, (4) when a child is eligible receive welfare service, it is necessary to advise parents in such a way as to consider their feelings to enhance their acceptance of the service, and (5) teachers should recommend parents to utilize itinerant guidance services at child guidance centres, the visiting nurse programme from a visiting nurse station, guidance services by a public health nurses, etc.

An episode described in response to the above item is presented as an example below.

Episode (2-1) "The child has long been observed as showing no movement of any part of the body. With the appearance of weak blinking, limited communication has become possible. The fatigue of the parents in caring for the child was reaching a limit and I recommended they place their child in a short stay programme at an institution for severely handicapped children. Yet, due to past experience, the institution declined to accept the child. Thus, after studying actual circumstances of the institution, the

parents and I thought about the best way to ask the institution. We asked that a card detailing special requests for caretakers be attached to the child's bed, and the institution accepted this. Consequently, the institution, in response to the parents' request, changed the child's position in a timely manner so as to avoid bedsores, and doctors and nurses informed the family of content communicated via the child's blinking every morning. The family, thus, could rest with peace of mind. The parents later informed me that the child was able to spend time in the institution without worry."

3) On publishing class newsletters

Respondents mentioned "Homebound / Hospital Education Guides" (describing the objectives of the homebound / hospital education and policies of the school and published at the beginning of the school year) and "Homebound / Hospital Education Newsletters" as handouts from the school which parents showed the greatest response to. Articles on children in homebound / hospital education programmes are contained in either: (1) the newsletter of the home-room class to which a child belongs, or (2) the newsletter of the homebound / hospital education class (such as the "Homebound / Hospital Education Newsletter"). "Homebound / Hospital Education Newsletters" contain not only information on individual children, but also event-related articles and other information. Parents tend to read these newsletters and "Monthly Visiting Schedules," and look forward to the next issue.

Episodes described in response to this item are presented as examples below.

Episode (3-1) "The student suffers from cerebral palsy and tetralogy of Fallot (6th grade in elementary school ~2nd grade in junior high school). The student has profound and multiple handicaps and stays in bed all the time. Since 6th grade, the student has not gone out for schooling or for any other reasons, except for hospitalization. Doctors visit his home for checkups. The student, however, belongs to a class of school attending students and the comments on this student are included in the newsletter of his class. The student's mother enjoys encouragement from parents of the class and reading about the other students in the class. She also thoroughly reads the newsletter of the homebound / hospital education class (published once a month), and enjoys reading about news on other homebound children. She maintains such relationships even though her child cannot commute school."

Episode (3-2) "In the last two years or so, at the

end of the school year, I asked parents to reflect on the whole school year (of the homebound / hospital education department), as well as to list their hopes for the next school year. Some parents requested the publication of a newsletter for the homebound / hospital education department (by then, comments on the students in the department were included in their respective homeroom class of attending students, and this still continues). After starting to publish the newsletter for the homebound / hospital education department, we received a variety of opinions such as "the students of the department are trying hard and it makes me try harder, too," "Will you include this story because I want everyone to know about this," "Will you introduce this book?" "Will you increase the amount of information?" etc. The newsletter is circulated in each department and posted on a corridor wall. Parents of attending students can read it in the corridor, too."

4) On schooling

There are two types of schooling. The first involves education without an accompanying parent and the other includes an accompanying parent. In the former, parents can take a break. In the latter, there are various scenarios: (1) parents spend time separately from their children in a waiting room, or attending a PTA meeting while children spend time in transactional studies in their respective homeroom classes, or in group studies in the homebound / hospital education class, (2) both children and parents spend time in homeroom classes, and (3) both children and parents spend time in the homebound / hospital education class.

Episodes described in response to this item are presented as examples below.

Episode (4-1) "The student is severely handicapped. Schooling is conducted in principle without a parent and the teacher in charge of the student picks up and drops off the student using a prefectural transportation payment (to cover taxi costs). It is necessary for the mother who spends all her time in caring for the child to be apart from the child (including taking a break). She is often surprised that her child has a different facial expression on returning home."

Episode (4-2) "I plan schooling content to be enjoyable both for students and parents (bread making, udon-noodle making, pottery making, etc.) within a relaxed time allocation. Although many students plan to participate in a school event according to advance queries, often only one or two students were able to attend and the rest were unable due to physical problems, or family plans. There were times when

no students could attend. When two students were able to participate, communication between the two is heartwarming and mothers seem to enjoy chatting. When only one student could participate, I changed the content so that the student and parent could feel that it was good to visit (mainly involving the student's favourite activity which could be enjoyed only at school). Since school events are often cancelled despite detailed planning, I am disappointed, but try to reschedule since they have strong merits."

5) On health maintenance

Responses to this question are categorized as follows areas according to their main theme: (1) the teacher sometimes makes a judgement on the need for medical checkups based on daily health checkups, and advises the parent, (2) the teacher, based on data in a daily diary and a health chart recorded by parents, cooperates with parents and acts accordingly, (3) the teacher and the parent cooperate in maintaining the child's health (such as taking the child for a walk, or humidifying their room during winter), and (4) when the parents have requested the teacher to provide medical care for their child, the teacher needs to discuss school policies with them on such matters.

Episodes described in response to this item are presented as examples below.

Episode (5-1) "The student's health is stable after a tracheostomy, but cyanosis often occurs during winter. Throughout the year, the student received sunbathing and open air bathing treatments. Since the student's body has become too big to be taken out by the mother alone, the student enjoys being taken out by me. After I placed a thermometer and humidity gauge next to the student during winter to prepare an optimal environment, the mother started such preparations in advance of my visit. Since the parents cannot afford a nebulizer though they are aware of its necessity, we discussed various measures to avoid the student's phlegm from clotting, such as supplying extra water, changing his position frequently, tapping, drying laundry indoors, using a humidifier or boiling water, etc. Even so, sometimes it is difficult to avoid clotting."

Episode (5-2) "The student is a third grade boy in the elementary department suffering from sequelae of encephalitis of the brain stem. It is easy for nasal liquid to enter his throat due to chronic sinusitis, but his mother is sometimes unable to suction it right away as she is also taking care of a two year old son and, thus, she requested me to apply suction to a nasal cavity (by using hand operated suction machine), as an emergency measure. While deepening

my understanding of the boy's breathing problems, I discussed a variety of emergency measures with the boy's doctor as well. While conducting daily health checks with his mother, I check his health signs. As I improved my understanding of the boy's health, I feel we can discuss points of care more easily."

6) On promotion of stronger relationships among parents

From responses to this question, it became evident that teachers are doing the following to promote stronger relationships among parents of children in the homebound education programme: (1) teachers encourage parents to visit their own homes, to exchange information by phone, and to exchange letters via teachers, and (2) teachers plan dinners or parties to promote exchanges with parents in the same homeroom class.

Episodes described in response to this item are presented as examples below.

Episode (6-1) "The students are A who is repeatedly hospitalized due to gastroesophageal reflux, and B mentioned in Episode 2-1. Both parents of the two children learned that they lived nearby from the directory of the homebound/hospital education programme and were eager to know more about each other. I felt that mutual encouragement would help them to develop a relationship and I informed both of the mutual interest upon receiving consent. As a school event, I planed a concert in one of the homes. Although the concert was cancelled due to the health problem of one student, the plan created an opportunity for the two mothers to come to know each other, later leading to A's mother visiting B's home. Both mothers later informed me that they were encouraged and were exchanging information. Though B passed away, the relationship between the mothers still continues."

Episode (6-2) "The student is a first grade in the elementary department and stays in bed due to functional disabilities caused by lissencephalia. The parents were delighted at the enrolment of their only child to the school and held high expectation. However, child was not strong enough to commute to school. Since the student was unable to attend the entrance ceremony, I scheduled schooling at the end of April. The mother took pictures of the student with other students and the pictures were passed on to the parents of other students via the homeroom teacher. One of the mothers who received the pictures asked the teacher for the student's address because she wanted to send a thank you letter. The letter talked about her family (including the older brother

and younger sister of the student) and the mother who received the letter was very pleased and hopes to continue communication letter."

7) Other

Responses to this question are categorized as follows according to their main theme: (1) it is necessary to consider how a school should support the families during long vacations when no regular visits by teachers are made, or how a school should handle cases in which grandparents are guardians (such as how to alleviate their anxieties, how to reduce their stress), (2) it is necessary for teachers to recognize the need to play a thorough role of listener to parents, the need to accept parents' views, and the parental need to take a break and rejuvenate their spirit, and (3) if parents can participate in seminars for teachers (for example, invite a lecturer to the home of a student to offer advice), they can utilize such information as a reference.

Episodes described in response to this item are presented as examples below.

Episode (7-1) "The student had a tracheostomy and requires frequent suction. The mother is, thus, unable to be separated from the student, but during my visit, she went out for 30 minutes, or so. I was touched when she said that the outing was her first in a week.

Episode (7-2) "Parents are experiencing extreme physical and mental hardship far beyond what I have to go through, and I feel my lack of power to help them. It is my sincere wish that I can be of some help, however small, even simply by listening to parents. They tell me a variety of things. I try to differentiate the topics into those which I should simply listen to their hearts, those for which I can provide some kind of information, and those which I can work on with specialists, aiming to improve their child's condition. Sometimes communication takes time, but it is the only way to deal with both children and parents slowly, carefully, and sincerely. We need to gather information from many sources and it is important to expand our relationships with welfare programmes. I also feel that we teachers need to make requests or demands on behalf of parents."

Through the 1998 Kanagawa Survey, many detailed examples and meaningful suggestions involving homebound/hospital education teachers were obtained.

V Discussion

In order to obtain a variety of suggestions and

ideas to promote mutual understanding and cooperation between teachers of homebound / hospital education programme and parents of students in the programme, this study re-analyzed the 1996 National Survey and conducted the 1998 Kanagawa Survey, and analyzed responses to it. Although it is not easy for teachers of homebound / hospital education programme to build a relationship based on trust with parents and promote mutual cooperation, a re-analysis of the 1996 National Survey found that teachers had made a variety of attempts to build relationships with parents (Table 1). Below an analysis based upon six perspectives used for the 1998 Kanagawa Survey is presented.

1. Mutual Understanding and Cooperation regarding Teaching Objectives and Content

The re-analysis of the 1996 National Survey and responses to the 1998 Kanagawa Survey suggest that teachers should not overly hasten to obtain parental understanding on the significance of the homebound / hospital education and teaching objectives and content for individual students. Rather, teachers should first understand the long hardship endured by parents and accept the way they handle their children. It is important to listen to parents and maintain an open attitude to learn the parents' ways of caring for their children.

Kagi (1991), based on her long experience in homebound education, pointed out that women do not necessarily have a mature sense of motherhood by simply becoming mothers (that is, when the first born has a disability and lacks responses to stimuli, it is difficult for a maternal sense to grow), that parents are experiencing chronic grief, and that "lone child rearing" tends to produce overprotection and tapering rearing (that is, the amount of stimulus provided to the child gradually decreases). She emphasizes that mothers need confidence and to give confidence to them, it is important for teachers to accept them as they are. She also says that mothers need friends and that in order to regain their strength and to move from a sense of giving up, mothers need prospects and hope.

The 1996 National Survey found that the most often mentioned measure to obtain mutual understanding and cooperation for teaching objectives and content was having a discussion with parents, however short, during regular visits (Table 1). This is probably due to the fact that it's important for both sides to deepen their understanding and confirm the child's condition in discussions from various perspectives. Also, the 1998 Kanagawa Survey suggested

that teachers should begin with a topic to which parents can respond with confidence; that it is important for teachers to choose a topic which parents prefer, and that in addition to discussions during regular visits, it is necessary to offer opportunities for more formal discussion.

The homebound education does not only serve students. However profound the disability of a child is, or however fragile a child is, homebound education offers parents a person to whom they can entrust their child's welfare without worry and with whom they can share the problems and joys of child rearing. To repeat the points presented by Kagi and the Kanagawa teachers above, it is necessary for teachers to accept parents as they are, to obtain their trust, to offer parents information on how to check child's health and actions for clues to proper child rearing, and to communicate changes in a child, however subtle.

2. Utilizing Welfare and Medical Services

For maintenance and improvement of a child's health, utilization of welfare and medical services is important. As mentioned in the section "Results," the 1996 National Survey found that many children received a variety of welfare and medical services. Yet, it seems that many other children are not receiving such services. Although the number of students is not clear, the number of schools which answered that their students are receiving welfare and medical services in the 1996 National Survey was 212 while 109 schools answered that their students were not receiving such care (Takei et al., 1997).

In relation to the latter answer, the 1998 Kanagawa Survey assumed that some parents lacked information on welfare and medical services while others were unable to visit offices due to a profoundly disabled or fragile child even though they had information. Whatever the reason, it is necessary for teachers of homebound education programmes to offer either information, or assistance so that children can take advantage of such services.

3. Publishing Homebound / Hospital Education Class Newsletters

This study was based on 228 newsletter samples from schools nationwide offering homebound / hospital education programme after conducting the 1996 National Survey. The following was learned from the samples received. We found that class newsletters of homebound / hospital education programmes offered a variety of special themes and included articles on a range of topics. They had an easy-to-read format and

the content of articles communicated vivid images of the child's reactions to ordinary teaching situations, the teachers' sense of caring for the child and parents, and the parents' love for their child. From many newsletters, it became clear that parents and teachers cooperate with each other on many occasions.

The 1996 National Survey found that many schools believe that newsletters play an important role in obtaining understanding and cooperation from parents. From an analysis of the above mentioned newsletters and the responses of the 1998 Kanagawa Survey, the reasons why teachers consider newsletters important are the following. First, newsletters play the role of a window to the outside world and inform parents of the existence of many other similar families and reduce the parents' sense of isolation. They can also serve to provide a sense of expectation for their child's development. Second, newsletters are not a one-way means of teacher communication, and it is significant that they offer a means for communication outlet for those involved in the homebound / hospital education programme.

4. Schooling

Schooling has three implications in relation to parents. First, in order to make it possible for a child to visit a school and make contact with other children as well as to participate in activities their child is unable to do at home, parents try to maintain their child's health and think about the means to travel to school in cooperation with a teacher. Second, the period in which children participate in in-school activities can serve as a break for parents, however short. Third, schooling opportunities for children serve an opportunity to make friends for parents. These aspects of schooling suggest that it is significant not only for children, but also for parents.

5. Taking Health Maintenance Measures

As shown in Table 2, the most frequently discussed topic with parents concerned their child's health and medical institution they attended. Also, as mentioned in the "Introduction," the most important care issue mentioned by teachers of homebound / hospital education was to understand the health condition of the child and the method of health maintenance. These responses indicate that the maintenance and improvement of a child's health is the number one priority for the teacher and parents to tackle in cooperation. Teachers are now being sought to work with children with low weight and eating disorders, children with severe respiratory disorders, children with imperfect

regulation of their body temperature, etc.. Teachers are promoting stronger relationships with nurse-teachers, school doctors, and other medical professionals (Takei et al., 1997).

According to the 1996 National Survey, medical care requirements such as phlegm suction and tube-based nutrient injections were listed as reasons to place a child into the homebound education programme instead of regular schooling. As a result of the progress made in medical technology, advanced home medical care is available today. It is estimated that many parents want their child to commute school regularly if their child's health is stable and the child can handle commuting even though some medical care is required. In such cases, it is increasingly necessary to conduct a practical examination and discussion of what kind of activities are necessary for such children to lead meaningful school lives and what kind of health guidelines should be instituted (Kawasumi, 1998c). Answers to the 1998 Kanagawa Survey revealed that some schools discussed requirements in dealing students who require medical care when their parents requested regular schooling. It is necessary for teachers of homebound / hospital education to lead and deepen such debates.

6. Promoting Stronger Relationship among Parents

As mentioned earlier, Kagi (1991) stressed that mothers need friends. According to results from the 1996 National and the 1998 Kanagawa Surveys, teachers have made efforts to create opportunities in which parents of children in the programme can learn about one another, keeping ties among fathers in mind also. At the same time, teachers have played the role of go-between in developing relationships among specific pairs of parents. Further, in responses of the 1996 National Survey, we found that teachers make an effort to talk with parents about topics other than teaching during regular visits so that the parents can expand their world of hobbies and consequently reduce stress. Such effort on the part of the teachers in creating opportunities for parents to support each other as well as to direct their interest to areas outside of the home activities play an important role in homebound education.

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Motor Action Computer Simulation in Learning Japanese Syllabic Characters: A Training Programme for Mentally Retarded Children to Acquire the Ability to Decode the Syllabic Structure of Words

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Abstract : The research literature notes the importance of mentally retarded children learning to read Japanese syllabic characters (kanamoji) and using "vocal-coordinating motor action" in acquisition of the skill of analyzing the syllabic structure of words (ASSW), which is a key component of reading. This paper examines the effectiveness for mentally retarded children of motor-action simulation on a computer screen to acquire ASSW. Experiment 1 reports on the development of a computerized learning system designed to acquire ASSW using three pre-school aged children with developmental disability. Pre- and post hoc tests were administered to determine ASSW levels. It was found that, despite the youngest subject having difficulty in understanding the nature of the task and attending training sessions out-of-sequence, two subjects improved their ASSW levels. In addition, it was found that a female subject considered unsuitable to attend a conventional training programme using actual "motor action" also significantly improved her ASSW levels using the computerized learning programme. In Experiment 2, the subjects were four physically disabled students with mental retardation. It was found that three subjects improved their levels of ASSW after a brief training session. Videotapes of the training sessions were analyzed to determine whether or not the act of depressing a switch was the equivalent of a "vocal-coordinating motor action." It was found that subjects acquired ASSW without depressing the switch together with vocalization. These results suggest that in the acquisition of ASSW, the use of motor-action computerized simulation is the equivalent of actual motor action.

Key Words : Mental retardation, learning to read, computer screen (2-D display), ASSW (analyzing the syllabic structure of words), simulation

Educators should focus on teaching characters (letters and words) when they teach mentally retarded children to read (Shibazakim, 1985). Resnick and Weaver (1979), and Amano (1985) reviewed both practical and experimental training programmes on initial reading and found that research evidence demonstrated the effectiveness of computerized reading instruction programmes (see Atkinson, 1966, 1973; Lally, 1981; Kirkland, 1984). Lally (1981), described for example, the advantages of utilizing a computerized system detailing the consistency of synthesized voice output, the capacity to keep records of learning progress for individualized instruction (Lally, 1981), and Atkinson et al. (1973) examined the effectiveness of providing simultaneous reinforcements and appropriate feedback to learners (Atkinson et al., 1973).

In Japan, Amano (1973) conducted a study of initial reading in mentally retarded children. He successfully developed and trialed a training programme for reading Japanese syllabic characters (kanamoji) through the formation of the action of analyzing the syllabic structure of words (ASSW). Imai (1979, 1983, 1986) and Koyama and Ida (1973) suggested how to

use pictographs or verbal familiarization in teaching young children and mentally retarded children to read Japanese syllabic characters. In addition, using Kanamoji-printed wooden blocks (goju-on tsumiki) have been commonly used in the home.

This study reports on the development of computerized learning system based on Amano's training programme on the formation of the action of ASSW. There were two reasons underlying the development of the programme. First, the research design and methodology of the Amano study were considered by the present researcher to be a solid foundation on which to conduct the present study. Second, despite Kobayashi (1971) arguing that the perception of the shape of characters is an important factor in this process it is proposed that this cognitive ability is developed even further in children who have severe difficulty in reading (see Kawai, Inoue & Hara, 1978). Furthermore, the ability to separate a word into syllables is strongly related to reading ability (Kawai et al., 1978).

Amano's training programme aimed to acquire the ASSW by using "vocal coordinating motor action,"

for example, jumping into circles or placing small wooden dolls on a desk at some specified interval and pronouncing a syllable for each doll at the same time. While it is believed that this training programme is effective, it has not been widely used in schools. As a result, it is suggested that a training programme, based on the same theory aimed at the acquisition of ASSW using computers should be developed for use in schools.

Experiment 1: System development and application to children with developmental delay.

The purpose of the experiment was to develop and validate a computerized instruction system for the acquisition of ASSW by mentally retarded children using motor action simulation on a computer screen instead of real motor action. This is based on the hypothesis proposed by Amano (1977) that learning to separate a word into syllables in tasks that demand longer time intervals will not only make the child separate words more precisely, but also cause him to pay voluntary attention to the syllabic components of words.

Hardware Components

Hardware components and the system diagram are described in Figure 1.

Method

Subjects

Biological and medical profiles, levels of ASSW and

reading ability levels of subjects are as shown in Table 1. At the time of the experiment, all subjects attended the same private kindergarten in the Tokyo area and were in integrated educational settings. The subjects were tested on the following items:

- Level of rhythmic ability (Amano, 1977): Clapping hands rhythmically coordinating with a series of pulses given every 2-3 seconds.
- Level of Reciprocal Coordination ability of hands (Amano, 1977): Open-close hands in reciprocally coordinating with a series of pulses.
- Number of acquired Japanese syllabic characters/ letters (Kanamoji) (Muraishi & Amano, 1972): Reading of 71 basic Kanamojis, 16 six-syllable words, including special syllables, and four sentences.
- Vocabulary Quotient: Tested using the Language Development test (Gen-go hattatsu kensa).

Components of the Instructional Programme

Step 1

The objective of Step 1 of the programme was to learn to separate a word into words into syllables. The operation required by the learner to complete this task was to be able to touch the screen. The words or materials used in the task were nine two-syllabic words (viz., "ma-ma," "pa-pa," "u-ma," "sa-ru," "ku-ri," "mo-mo.,," "i-nu," "ka-me," and "ta-ko," and eight three-syllabic words (viz., "o-ma-me," "o-mi-mi," "ra-ku-da," "tsu-ku-e," "su-i-ka," "te-re-bi," "ka-ra-su," and "to-ke-i."

- a) Use of two or three squares on the screen, the number of squares according to the number of syllables of the word.

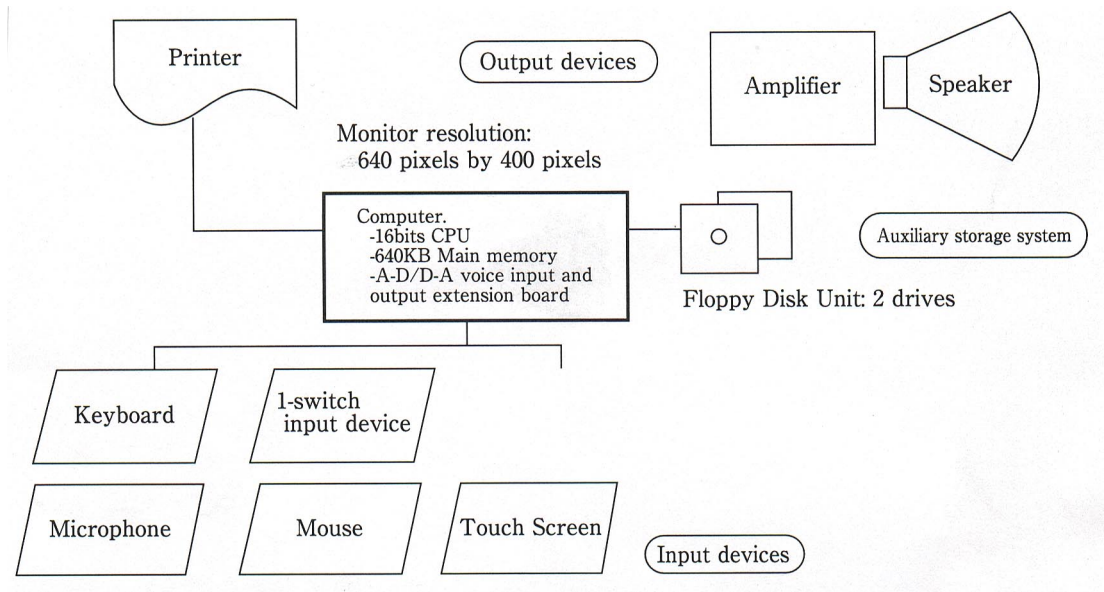


Fig. 1 Hardware components and the system diagram

Sample routine: After a word was selected from the list, a coloured picture of the word and two or three words were displayed on the screen, the number of squares according to the number of syllables of the word. The system, then, read out the whole word followed by the sound of each syllable in order. When the syllables have finished, a corresponding square is coloured and an icon of a boy (see Figure 2) appeared at the upper side of the coloured square.

Learning Routine: After the sample routine, the icon of the boy reappeared on the first square and started blinking until the learner responded to the system. If the learner touched the monitor anywhere, the system sounded the syllable aloud. At the same time, the instructor asked/guided the learner to vocalize the same sound.

- b) Use of a circle on the screen blinking at specific times according to the number of syllables of a word

Sample routine: A word was selected from the list, then, a coloured picture of the word was displayed and the system read the word aloud. The picture, then, disappeared and was followed by the display of a large circle. The icon of the boy appeared inside the circle. The system, then, sounded each syllable aloud in order. At the same time, the circle filled with a colour.

Learning routine: After the sample routine, the icon of the boy reappeared in the centre of the screen and started blinking until the learner responded to the system. If the learner touched the monitor anywhere, the system sounded the syllable aloud. At the same time, the instructor asked/ guided the learner to vocalize the same sound.

Step 2

The objective of Step 2 of the programme was to learn to separate words into syllables fluently. The operation required to complete this task was to push or hit a hand-made 1-switch input device placed on the desk. Words or materials used in this step were the same as for Step 1.

- a) To learn how to operate the 1-switch input device.

If the learner pushed or hit the 1-switch device, he/she should know the system would deliver a corresponding response to his/her motor action. The leading aim is to get the learner to use the switch well and to understand how to use this input device as well as learning method.

- b) Use of icons designed to have the same appearance as the 1-switch device. The number of icons on the screen is the same as for the number of syllables of the word presented.

Sample Routine: A word was selected from the list, and then a coloured picture of the word and two or three icons were displayed on the screen, the number of icons corresponding to the number of syllables in the word presented. The system then read out the whole word, followed by each syllable in order. When the syllables have been read, the corresponding icon filled with colour and the icon of the boy appeared in the upper side of the coloured-in icon.

Learning routine: After the sample routine, the boy reappeared on the first icon and started blinking until the learner responded to the system. If the learner pushed or hit the switch, the system sounded the syllable aloud. At the same time, the instructor asked/ guided the learner to vocalize the same sound.

Step 3

The objective of Step 3 of the programme was to learn to separate words into syllables in the tasks that demanded a longer time interval. The learner was required to push or hit a 1-switch input device place on the desk. The words used were the same as for Step 1.

- a) Motor action simulation on the computer screen:

A boy jumping between two points (see Figure 2).

Sample routine: After a word was selected from the list, a coloured picture of the word and two or three icons were displayed on the screen according to the number of syllables of the word. The system then read the whole word aloud. After that, the picture disappeared. The icon of the boy appeared on the screen and started jumping from left to right, or from the top syllable of the word to the bottom one. The system sounded each syllable aloud in order and at a specified time interval.

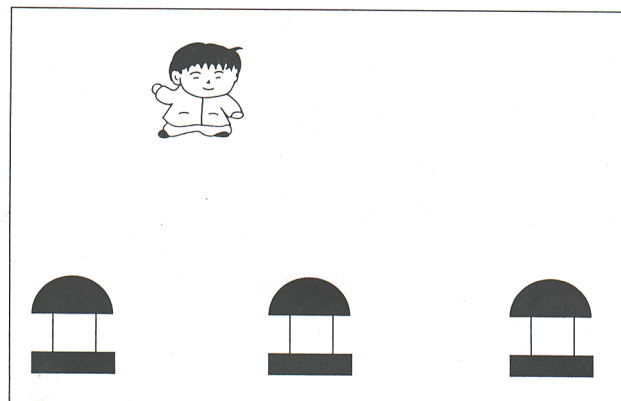


Fig. 2 Sample of motor-acts-simulations on a computer screen: A boy is jumping between two points

Learning routine: After the sample routine, the boy reappeared on the first icon and started jumping from left to right. The time interval was gradually increased. The instructor set the intervals from 0.3

seconds, 1.0 second, and 2.0 seconds. There was no response while the boy was jumping, or in the air, but if the boy reached the next icon and the learner pushed or hits the switch, the system sounded the syllable aloud. At the same time, the instructor asked or guided the learner to vocalize the same sound. This act of vocalization was very important in this routine.

b) Through the act of picking-up the sound of each syllable.

The objective of this task was to learn identify the position of each specific syllabic sound. The learner was required to directly touch the monitor.

Sample routine: After a word was selected from the list, a coloured picture of a word and two or three icons of the device were displayed on the screen, the number of icons corresponding to the number of syllables of the word. The system then read the whole word aloud. After that, the icon of the boy appeared on the screen and started jumping from left to right. The system sounded each word in order.

Learning routine: After the sample routine, the boy reappeared on the first icon and awaited the learner's response. If the learner touched one of the 1-switch devices on the screen, the boys jumped to the position and the system read the syllable aloud.

Procedure

In the pre- and post tests, ASSW levels were tested

Table 1 Biological, medical profiles, levels of ASSW, and reading abilities of the subjects in Experiment 1

Subject	D.I.	K.T.	A.I
Sex	M	M	F
C.A.	5:11	4:8	6:7
I.Q.	94* 1)	77* 2)	61* 3)
Medical Diagnosis	Developmental Language Disability		Cerebral Palsy(Hemiplegia), Epilepsy
Disorders of articulation	(-)	(+)	(-)
Level of Rhythmic	RT3	RT1	RT2
Level of Reciprocal Coordination Ability of Hands	RC3	RC1	RC1
Number of Acquired Letters	5	0	13
Vocabulary Quotient	80	71	90

Note: * 1) WPPSI, VIQ(84) and PIQ(106); * 2) Tanaka-Binet;
* 3) WPPSI, VIQ(61) and PIQ(<45).

using a procedure developed by Amano (1977). Words including "ka-me," "sa-su," "na-su," "ha-sa-mi," and "te-re-bi" were used for the trial session. "Wa-ni," "ku-ri," "su-i-ka," "me-ga-ne," "ma-ku-ra," "ma-ma," "pa-pa," "mo-mo," "mi-mi," and "me-me" were used for the clapping hands session. "Wa-ni," "ku-ri," "su-i-ka," "me-ga-ne," "ma-ku-ra," "hi-yo-ko," "ka-ra-su," "a-hi-ru," "ra-ku-da" and "ta-nu-ki" were used for the session using paper cards.

The experiment was conducted individually in a small room with his/her home room teacher. The experiment commenced on December 3, 1987 and concluded on December 21, 1987. Steps One, Two and Three were used in order for each subject. Nine to 10 sessions were provided for each subject and ranged from nine to 14 minutes.

Results

Subject (DI) took nine learning sessions during the experiment, session lengths ranging from four to 20 minutes. On the pre-test, he could identify the initial and final phoneme of a word using concrete operations (viz., using a picture board and block), and this corresponds with Amano's C2 level. After studying a total of 181 words, DI's level of ASSW increased from a C2 to a C3 level. At the C3 level DI could identify the middle phoneme of a word.

Subject (KT) was unable to improve his ASSW level through the sessions. He could barely separate a word into syllables by means of concrete operations at the post test level (i.e., B2 level).

Subject (KI) took nine learning sessions ranging in duration from six to 32 minutes. At the pre-test level, she was unable to identify any phonemes of a word (i.e., B2 level). After studying 244 words in total, her level of ASSW increased from the B3 level to the C2 level.

Discussion

Due to the school settings, subjects were provided with usual or daily instruction, in addition to these learning sessions. Hence, it should not be concluded that these learning improvements were due to the learning sessions themselves. DI and AI, in turn, had been completing tasks in a sequential way, so that it could be suggested that the system was effective.

Concerning instruction of Subject (KT) who was unable to improve his ASSW ability level, the instructor could not undertake the programme in a sequential manner. This is not only because he was the youngest of the three and was distractable, but

also the instructor had a problem. To avoid KT's distractable behaviour such as touching equipment and devices like the amplifier, PC, microphone, the frame of the monitor, attachments to the touch screen, and so on, the instructor attempted to keep KT's attention by showing him different parts of instructional programmes or gave him feedback. KT then began to enjoy hearing the voice of the feedback (e.g., Whenever he received feedback as reinforcement, such as "You won KT!" he tried to hide himself from the computer screen. In his case, the feedback did not make him attend to the learning programme, but rather, to the feedback itself.

Conclusion

This study reports on the development of a computerized learning system for mentally retarded children to acquire the act of ASSW. The system was designed to provide motor action stimulation on the computer screen. Three developmentally delayed preschool children attended the pre-test, learning sessions, and the post test on an individual basis. In the pre-tests, the researcher explained their ASSW levels to them. Results demonstrate that the youngest boy could only understand a little of what the task required and could not attend his programme in order. However, two subjects improved their levels of ASSW. As a result, it is suggested that the developed system is effective.

Experiment 2: Effectiveness of the use of motor action simulation on a computer screen for mentally retarded children with a physical disability

Table 2 Biological and medical profiles, and reading abilities of the subjects in Experiment 2

Subject	A.T.	K.W.	R.O.	Y.T.
Sex	M	F	F	F
C.A.	12:4	7:0	7:3	15:4
I.Q.	25	48	56	33
Medical Diagnosis	Cerebral Palsy	Spina Bifida, Hydrocephalus	Cerebral Palsy	Cerebral Palsy
Disorders of articulation	(+)	(-)	(-)	(++)
Number of Acquired Letters	0	0	0	42
Vocabulary Quotient	—	43	44	—

Note: Each of the Names and dates of the conducted I.Q. tests were for A.T. (Tanaka-Binet, 1991.5.23); K.W. (Tanaka-Binet, 1991.9.2); Y.T. (Owaki 1989.6.12). Vocabulary Quotient was based on Language Development Test [Gengo hattatsu kensa] and the score of A.T. was under 20 and Y.T. could not attend the test.

It is obvious that the majority of physically disabled children cannot attend to the reading programme using "vocal-coordinating motor action," even if this proves to be effective. Consequently, it was considered important to examine the effectiveness of the programme used in Experiment 1 for mentally retarded children who have difficulty performing "real" motor action. This finding had been supported by the results from Experiment 1 that indicated that a girl with hemiplegia had improved her ASSW levels significantly by using the computerized learning programme. The purpose of Experiment 2 was, therefore, to examine the effectiveness of the use of motor action simulation on a computer screen for mentally retarded children with physical disability.

Method

Subjects

Biological and medical profiles and reading abilities are shown in Table 2. These subjects had not acquired ASSW. They could name picture cards aloud, use a wheelchair, and it would not be possible to acquire ASSW by means of motor action.

Individual instruction took place in the Speech Therapy Room at subjects' school from October 5, 1991 to October 12, 1991. One to four sessions were given to each subject and the average duration of each session was 16 minutes.

The researcher took an instructors role in the sessions (accompanied homeroom teacher if necessary). The apparatus used in Experiment 2 was basically the same as for Experiment 1 with specific adaptations for the individual requirements of subjects in terms of input devices, display unit, and other materials. For example, a switch was adapted to a flat type of switch. In terms of materials, KW and RO used the same materials, and owing to AT's limited vocabulary and difficulty in looking at picture cards, different materials were prepared and used. Digital photographs were taken of familiar teachers and his friends and their names were added to the word list. They were "Ki-mu-ra," "Ta-ke-ya," "O-gi-no," "Na-o-ya," "Na-gu-mo," and "Ma-sa-shi." For future learning, words of digital pictures which had been developed and kept at his school were also added to the list. These words were "su-i-ka," "to-ma-to," "ba-na-na," "ha-sa-mi," "me-ga-ne," and "te-re-bi." The

voice of his homeroom teacher was recorded and used in the presentation and motor action simulation was the same as for Experiment 1.

Results

Subject YT had great difficulty learning with the system, especially in the operation of the input device. In addition, the researcher could not use the same strategy to examine her level of ASSW.

Subject AT was unable to separate simple two syllabic words such as "pa-pa" and "ma-ma" in his pre-test (< A1 level). After four learning sessions, he attained the A2 level (i.e., he could distinguish more complex two syllabic words and some three syllabic words). The duration of sessions ranged from 11-30 minutes and 151 words were used during the sessions.

Subject KT could distinguish two syllabic words in her pre-test (A2 level), and after four training sessions, achieved the B2 level. (i.e., She could separate three syllabic words and identify each phoneme of two syllabic words using her index finger). The duration of sessions ranged from eight to 16 minutes and 176 words were used during the sessions.

Subject RO could separate two syllabic words in her pre-test (A2 levels) and after three sessions, she reached the A3 level (i.e., she could separate three syllabic words).

Discussion

In this learning programme, subjects were asked to depress a switch with vocalization of a phoneme to assist the learner to actively engage in his learning programme. However, the action of depressing the switch itself was problematic in that could it be considered as the equivalent of a "vocal-coordination motor action," even though this fine motor movement was small in comparison with the gross motor action of jumping as in the conventional programme. The researcher re-evaluated the records of all sessions and found that AT had the tendency to vocalize as he depressed the switch. Subjects KW and RO depressed the switch many times at a vocalization act and their action seemed to imply that they were trying to move the picture of the boy forward, or move on in the programme itself. These observations suggest that subjects could improve their ASSW abilities, not only through the use of small amounts of "vocal coordinating motor action" compared with jumping, but also without "vocal coordinating motor action."

The system was equipped with a commercial AD-

DA voice input and output board (Sampling rate = 6KHz), so that voice quality was not very good. To overcome this the instructor enunciated any unclear words that emanated from the system. As a result, it is suggested that any poor voice quality would not have affected the learning. This assumption was, however, tested. Each voice was presented to individually to subjects. First, a word was presented, and then each of its phonemes was presented in order. Subjects made no mistakes. Second, subjects were presented with a word, and then each phoneme of the word was presented in reverse order. Subjects made four mistakes (viz. /ba/mi/re/ and /bi/ of the 17 phonemes).

While these results revealed a weakness of the system, for Subject (KT), the test was conducted during the mid-period of her learning session and her results revealed that awareness of phonemes was established at the mid-period of her learning session.

Conclusion

As described above, three of the four subjects in this study improved their ASSW levels following the learning sessions, even though the sessions were relatively brief. For YT, who was unable to improve her skills, she had only one learning session and used 36 words, because of the deficiency of the input device. These results suggest that the use of motor action simulation on a computer screen is the equivalent of the use of real motor action, at least in the acquisition of the act of ASSW in mentally retarded children with physical disabilities.

General Discussion

Although the researcher was aware that it would be better to prepare both a control and experimental group to evaluate the effectiveness of the learning programme, he was unable to prepare a control group in the experiments described above. However, because both experiments were conducted separately and a wide time interval, the results were positive, suggesting that the system was effective.

Amano (1977) reports that it was very difficult for mentally retarded children to acquire ASSW without "vocal-coordination motor action." He conducted the training programme using the action and had a positive outcome. The results of the present study suggest that the use of motor action simulation on a computer screen is the equivalent of the use of real motor action, at least in the acquisition of the act of ASSW. This is extremely important for mentally

retarded children with physical disabilities (e.g., the subjects used in Experiment 2), because they were unable to participate in a conventional programme using real motor action.

Future Research Issues

This paper found that the use of motor action simulation on a computer screen is the equivalent of the use of real motor action, at least in the acquisition of the act of ASSW. However, factors related to, and the mechanism of the learning process itself was not revealed. Owing to the fact that there are many mentally retarded children who have difficulty in performing motor action, the conducting of an effectiveness study on the use of motor action simulation using a computer in various other learning areas is suggested.

Research in the field of virtual reality investigates simulation of human motor action and sensory behaviour in a "virtual environment". In this research field, advanced computer simulation is used (e.g., the creation of a virtual 3-D space). While on the one hand, the findings of the present study contribute some information to this field, on the other the use of advanced technologies should be used to develop more effective instructional systems.

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Developmental Process of Self-Image in an Autistic Child

— Relationship between Self-Consciousness and Consciousness of Others —

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Abstract : A boy diagnosed as autistic based on the DSM-III (R) criteria was referred to an educational guidance session at the National Institute of Special Education (NISE). In early childhood, the child was found to have difficulties in language and social development, but intelligence testing found him to be within the normal range. The child was observed to exhibit phases in his release from his autistic world through verbalization in his development during six years of elementary school education. In the process, he verbalized his internal world, in particular, his self-image. This was charted over a period of six years as he made good progress in his social development.

This report describes the child's developmental process and provides an analysis focusing on the following issues: 1) the developmental process during his infancy and early childhood 2) social development during elementary schooling, and 3) the developmental process of his verbalized self-image and its changes in the middle and upper grades of elementary school.

Key Words : Autistic Child, Self-Image, Self-Consciousness, Consciousness of Others, Sociality

I Case Introduction

The subject lives with his parents and elder sister. He first attended sessions at NISE 12 months prior to entering elementary school and attended sessions regularly a monthly basis until graduation from elementary school, a period of seven years.

This paper reports on the developmental process until his graduation from elementary school and is based on the detail record kept by his mother in her childcare Diary as well as case records.

1. Life History

The child weighed 2800 grams at birth and started walking at 15 months.

2. Time Taken to Recognize the Problem and Subject's Behaviour

The child's parents became concerned at his slow language development at approximately 24 months and at his unusual behaviour at about 30 months. 1) He became particularly interested in the specifics of weather forecast reports on television and he made his mother repeatedly read forecasts printed in the newspaper. 2) He settled on a particular route he liked to walk on a daily basis and any deviation resulted in shouting and crying. He only walked on the edge of the road and if any people were standing in his way and he could not avoid them, he cried. 3) Even when with his age peers, he ignored them and continued to move a toy car back and forth for long

periods while lying down. When passing other children, he closed his eyes, pulled his mother's hand, and walked on by. He noticed even the finest of detail and would not tolerate even the smallest of deviations such as the arrangements of miniature cars. He was also fixated on label marks and logos.

3. Counselling History

When the subject was four years and five months of age, his mother sought advice at a child guidance clinic on how to help him. He attended a group therapy session aimed at mitigating his hyperactivity. At the time, she was advised to visit her child guidance centre. One month later, the boy was diagnosed by his medical practitioner as being "mildly autistic," and it was recommended that he be placed in an educational setting with other normal children.

At age five and a half, his mother took the advice of a worker at the children's centre where the boy often played and visited NISE. According to the mother, the boy was exhibiting the following 1) When absorbed with letters and numerals, he was unable to stop, 2) When something out of the ordinary happened, such as the page of a book ripping, he panicked and became overly excited, and 3) he started to talk a lot and followed rules in the home. His family hoped that he would do the same thing outside of the home.

4. Educational History

For two years prior to entering elementary school,

the subject attended guidance sessions in a group setting of six to eight children. These sessions lasted for approximately 150 minutes and were held three times each week at a club for young children at the Children's Centre. Following consultation concerning educational placement, the boy entered a normal class in an elementary school.

5. *Intelligence*

Intelligence testing at the NISE when the subject was eight years old found his score was within the normal range with a WISC Verbal IQ of 88, Performance IQ of 86, and a Full Scale IQ of 86. Analysis of weaknesses revealed by testing found that he achieved low scores on general knowledge and picture arrangement. From this it was inferred that he was weak in contextual reading. Although the boy's responses to several questions in general knowledge and picture arrangement were incorrect, he did offer correct answers at the end of the test. It was possible that he was being mischievous and that his actual IQ score is higher.

II Development During Infancy and Early Childhood

1. *Developmental Process of Emotion and Play*

From two to three months after birth, the boy responded verbally when he saw the faces of others. He laughed, slept well, and did not trouble his caregivers. Yet at three months, he began crying continuously for no apparent reason.

At four months he began crying at the approach of strangers, or if they hugged him. At five months, he started to cry when he entered a new place even if carried on his mother's back. At age six to seven months, his negative reaction to new people or places intensified. In contrast, when he was taken from his mother's lap, he showed no sign of protest and, in addition, did not follow his mother when she moved out-of-sight. He smiled when his mother played "peek-a-boo," but never imitated her gestures.

At 18 months, he became absorbed in reading picture books about vehicles and cooking books. He looked at them all day long, often turning the pages and wearing out the books. Occasionally he ventured outside with bare feet and became lost.

At 24 months, he became interested in television weather forecasts and muttered incomprehensibly when looking at weather charts in newspapers.

At 34 months, he started seeing eye-to-eye with others, looking back when his name was called, and missing his mother when she left. At this time, he

also started playing with other children outside, but his play was considered to be self-centred. He poked other children and made them cry, consequently earning him the reputation of a playground bully. This situation continued until he was four years old.

At about 42 months, he became interested in story-based picture books, and at 48 months, he enjoyed listening to stories being read to him.

When he was approximately three and a half years old, however, he was frightened by the sudden stopping of a car during his daily walk, and cried. Following this incident, he refused to venture out again. However, when invited to go for a ride in a bus or train, he was willing to go. His fascination with trains and buses escalated and he continually asked to go for a ride on the subway. His mother reluctantly took him, and this continued. When she was unable to take for a ride, and explained this to him, he shed tears and stared at a book. This continued for a month or so, and after this, he cried when walking on the edge of the road, often jumping off when surprised.

At 48 months, he showed interest in drawing and for more than a month made his mother draw for him. At this point, he began drawing by himself using a crayon, and became absorbed in his drawing. He also started playing with his older sister through singing and drawing. He also entered other people's houses and carried away pot plants, while he laughed loudly. This behaviour forced his family to keep a close watch on him.

At 48 months he was able to memorize songs from the television and could ride a tricycle with training wheels.

2. *Language Developmental Process*

The subject uttered his first word when he was 13 months old. His vocabulary, however, did not increase and simple "parrot-like" imitation of the speech of others continued. At 24 months, he started finger pointing, and at 30 months, his command of two word sentences was firmly established. At 36 months, he started referring to his family members using words such as "Okahan," meaning "Okaa-san" (mother).

At 36 months, he imitated the intonation of television announcers, repeated weather forecasts like a parrot, and forced people to repeat back to them while he read a weather bulletin aloud. At this time, he suddenly started imitating words, but juxtaposed them with no regard for meaning. For example, "Datsun" (a type of car) and "pitiful." He also used words in groups he had defined himself. For

example, when he wanted a biscuit he said "Cheese, milk, give me, biscuit." At 42 months, he was fascinated with opposites and enjoyed being corrected. He then began word play on a non-stop basis (e.g., saying "soup" while pointing at rice. When his mother replied, "No, it's not soup. It's rice," he would reiterate the word "rice" while continuing to point at the soup). He memorized Chinese characters from weather forecasts and maps, and used them for his opposite word games. This behaviour continued until he was 4 years old.

His first successful conversation occurred when he was 41 months old. At approximately four and a half, he could understand most of what his mother was saying, as well as express most of what he wanted to say.

III Elementary School Period Development

1. *Lower Elementary Grades: The First use of "I" and the Fear of Invasion*

<First Grade>

On starting elementary school, the subject began screaming. On another occasion, he explored the entire school building during a break in classes. The subject asked other students in his commuting group, as well as teachers, their ages and dates of their birthdays. He often spent time in class just doing what he wanted to do, but on coming home after school, he told his mother, "A-chan (A is his first name) worked from Page 25 to Page 45 in only one and a half hours, but why could other students only study the three words "tsu-ku-shi" (horse tail) during that time?"

In the second semester, his classroom teacher told the class, "We should all take care of B (a child with nephrosis), C (a child with hearing impairment), and A (the subject). On returning home, the boy asked his mother, "What's wrong with me?" This was the first time that the subject had referred to himself in the first person. Subsequently, when his class discussed a no-littering policy, he replied that he would "take care of what applies to myself from tomorrow," demonstrating his willingness to make an effort. Meanwhile, when one of his classmates visited his house and touched one of his favourite toys, he frequently became over-excited, repeatedly vomited, lost his appetite and, consequently, missed school from the next day.

<Second Grade>

When the subject came home from a school excursion during the first semester, he said, "Let's go

some place where no-one bothers me. Let's hide," and he hid in his closet. When a classmate entered his room, he said, "There is no safety zone for me," and pushed his friend out of his room. The number of things he considered to be his favourite and, hence, didn't want his classmates to touch increased. When his classmates visited him, he told them, "Don't come in for three minutes," and he hid his favourite things in excitement while uttering, "Things are more important than friends, or "I will guard my things and not let anyone in when my mother is not around."

During the second semester, when his mother was not home, his classmate tried to come into his house. The boy refused to let him in and the two argued. A neighbour came and asked his classmate to leave, and later, he wrote on a piece of paper "16 Prohibitions Regarding Friends" that included items such as illustrated reference books, maps, a flashlight, watch, and so on. He presented this list to his friends while telling them, "Read the list aloud." When a friend touched one of the prohibited items accidentally, the boy became angry and said, "You've just read about it a little while ago," and he grabbed his friend by the collar. Later, he came to play with his friends in a more relaxed atmosphere by establishing the following rules:

- When his friends visited him, he moved his favourite things from his room to upstairs, and covered them with a wrapping cloth.
- Things were classified into "for friends" and "for myself," and friends were not supposed to touch the latter.
- Things that cannot be moved from his room were covered with a wrapping cloth.

Later, when his friends visited him suddenly, he could allow them to touch his favourite things with the purpose of moving them.

During this time, he started to worry about what other people were saying about him. He asked his mother, for example, "Why am I famous (because other children in the class were talking about him)?" or "Am I a normal child?" When he visited NISE during this period, a nervous tic that manifested itself in the form of blinking was noticed for the first time. Both at home and at school, motor tics such as neck bending and twisting of the lips were also observed.

2. *Middle Elementary Grades: Shaken Self-Image and Taking the First Step towards Peer Membership*

<Third Grade>

When the subject was asked a question during a session, he often replied, "I'm not going to tell you."

While miming a hypodermic syringe, he also said, "diphtheria shot" (the subject was the centre of 'a scene' after entering school made in an effort to avoid getting the vaccine). He also told the researcher, "You don't have the right to live." As seen in these examples, he began to express refusals in a rather offensive manner. During this period, he often talked about his friends at home and recreated scenes of their games, as well as their speech and behaviour.

At school, he mentioned the name of his favourite girl and asked to be seated next to her. He chose to belong to a group to which she belonged, for example, on occasions such as an excursion lunch. Though his friends made fun of his romantic affection, he did not understand their sex-related vocabulary, and asked his parents what these words meant. Meanwhile, he engaged in a game of "strip stone" (a game in which the loser takes off an article of clothing), with his friends, and was left naked in the school grounds. He apparently did not mind this.

Concurrently, there were peer relationship problems caused by misunderstandings and in the third semester, his class was involved in a discussion on how to solve these problems. The frequency of facial motor tics increased during this period, and before the spring vacation, the facial tic changed to an opening and closing of his mouth and the making of a sound with his jaw. The problem, however, appeared to have disappeared during the spring vacation.

At home, he started to assert himself more and more regarding his daily schedule (he decided his schedule by himself and acted on it compulsively), as well as his clothing. In addition, during this period, his habit of questioning increased, and he persistently harassed people around him by saying things such as, "Please answer. I'm begging you," "Answer me please, even with a guess," or "Even a rough answer is all right." Such persistent questioning became particularly noticeable when his mother was busy with household chores.

<Fourth Grade>

After the ceremony marking the opening of the new school term, the subject told his mother that the replacement for his homeroom teacher was sad and he cried. The he asked his mother not to tell his sister about his crying. This was observed to be the first verbal expression of sadness.

His nervous symptoms broadened to include shoulder movements, and soon afterwards included the uttering of the sound "Ah, ah," as if coughing. Although the motor tic disappeared soon after this,

the sound habit remained and was loud enough to be heard from outside his house. During this period, when the subject ate, he cited where the food was produced and the nutrients it contained. When someone interrupted him in this, he felt obliged to restart the process. At the same time, his tic worsened. During school lunch, he continued this process with talking out aloud, but since it took time, he had to eat in a hurry and ended-up putting a large amount of food into his mouth at once and washing it down with milk. Due to this behaviour, his table manners deteriorated, and he was often told to behave himself. Consequently, his sound tic increased in frequency, but it disappeared immediately prior to the summer vacation.

During this period, the subject often uttered rude words such as, "shit," "pee," "penis," and "tits" at school. He made an effort to stop himself from saying these words, and said, "I will stop saying them when I become ten." On his birthday, he repeated the words over and over, and then made an effort to stop it at the exact moment of his birth. In November, he wrote a poem entitled "Shit and Penis," and said in closing, "I want to stop saying 'shit' and 'penis', but I cannot stop yet. I wonder why?" In the cartoon club to which he belonged (a school club activity), he repeatedly drew pictures of shit and penises.

In summer, the circle of people he would talk to expand beyond his parents and older sister. The circle now included younger children who participated in his swimming lessons (owing to his limited ability to swim, he was in a class for younger children), five or six year old children living in the neighbourhood, and his grandmother. In winter, he began playing with six other boys who were unable to join other peer group activities such as baseball. Their play was mainly based on a scissors-paper-stone game, and the chasing of each other. At the close of an essay entitled "Memories of my Third and Fourth Grades" which was written at the end of the fourth grade, he wrote, "We played the Arcene A (a boy's name) game, hen shit picking, and A's shit space and became really good friends."

The boy then reflected on his 10 years and wrote the following essay at the end of his fourth grade. It was entitled "Ten Years of My Life," and the following is an extract:

(Omitted). After entering school, because I made a scene to avoid an injection, I became famous right away; I was quick and good at calculations, but ran around during class and broke a plastic board.

Thanks to Teacher E as well as due to my own efforts, however, I suddenly became a good boy at the third semester of the third grade. I returned to my old self a little in the first semester of the third grade, but in the next semester, I became a better boy than ever before, almost to the normal level. In the third semester, however, I returned to my old self a little again. In the fourth grade, I got worse to the point in the first semester of the third grade. In general, I became noisy.

In the past (Omitted), I had many bad points, but now I understand them and am able to improve myself significantly.

3. Upper Elementary Grades: Release from Autism, and Am I handicapped?

<Fifth Grade>

The subject sang the parody song, "A's (a boy's name) hand has shit on it," and was told by girls that he was dirty. Since that time, whenever he wanted to sing the song, he told himself, "to get an injection," and made an effort not to sing the song. He also said that he was ignoring provocations from other children, but whenever he was made fun of by other children, he cried and was upset.

At the end of the first semester, he joined the boys ball game called "Propane," but he did not understand the rules of hand baseball and was told to only watch. At that time, even when his father watched baseball on television, he showed no interest.

Before going to sleep at night, he required a ritual to be performed of his mother saying "Goodnight," tapping his futon lightly, and turning off his light. On one occasion, his mother had to answer the phone just as he was about to go to sleep, and he cried. Even though his father took him to bed, he continued to cry until his mother came. Next morning, he told her, "Did you hang up in the middle of your call?" and "I felt bad about it." Around this time he said, "I wonder whether it's strange for a fifth grader to have his mother do this kind of thing?" and "Do you think every boy asks for this?" Soon after this, he stopped several of his long rituals such as those he required before sleeping, while taking a bath, or reading the weather data.

During the first semester he refused to go out after being scared by a stopping car), and said, "I have a car phobia these days," and "What if I were hit by a car?" He even cried, "Mother! I'm scared. My body doesn't move at all." Due to this problem, it took more time for him to come to the NISE, but he made a conscious effort to improve, and said, "I was better today than before, right?" In the second

semester, he felt joy at being able to go to swimming lessons alone, dropping into the book shop on the way home, and reading reference books for boys. He said, "Going alone is fun. I'm not scared by cars any more."

At swimming lessons, the boy started watching other children with disabilities in other grades. About one disabled child he saw, in particular, he said, "Sorry to say this, but he seems to be handicapped. He looks like D (a disabled student in another grade at his school). I am probably better than him." Also, in October, he said with a delightful look, "I don't understand why I used to go about naked in public." "Why don't people forget about things that happened before?" and "I wonder why people call me handicapped?" When his mother was out, he read the diary she kept on his development and asked her many questions about it.

<Sixth Grade>

When he entered sixth grade, the subject came to sessions alone, and on weekends and holidays, he went to amusement parks and other places with friends. His interest in the weather subsided, and in turn, he studied history, read the economic pages of newspapers, and watched the business reports on television. Meanwhile he took an interest in his report card, comparing his with that of his sister, or current grades with past achievement. He also asked his former homeroom teachers why they had given him low grades. He also complained about how difficult it was to understand sentences in his Japanese language class. Inspired by his classmates who were preparing for the Entrance examinations for junior high school, he talked about "good grades and good companies."

His interest about children with disabilities continued. When he visited NISE, he carefully observed other children and asked questions comparing himself to them. At school, he wanted to make children with disabilities in other classes the topic of conversation among his classmates. One of his peers, bothered by his persistence said, "He is not like that because he likes it." The subject then replied, "I am not like this because I like it. If he does not, he is sick." Another of his peers said, "You are not qualified to make fun of other disabled children." In addition, out of desire to be recognized by his peers, he joined in teasing a particular girl, but was worried that his older sister would find out about it. "She will get angry at me if she hears about it."

Just before graduation, he received a letter at school from his first and second grade homeroom

teacher who was teaching at another school. In the letter, he found out about a first grade boy who used to run backwards in the relay sprint, and he spat out the word, "Shameful!"

Reflecting on his elementary school years, he wrote the following piece entitled "Memories of Six Years" in a collection of graduation essays:

I entered the elementary school in 19××. My homeroom teacher was Teacher E. After the Entrance ceremony, I made scenes around the school. In a relay sprint, I even ran backwards, I ran carrying a first prize flag. I troubled everyone in the school with my screaming voice.

I improved a little in second grade, but was still a trouble maker. I was not much better than in the first grade.

When I became a third grader, Teacher F became my homeroom teacher. Teacher F was quite strict, and I didn't like Teacher F at the time. I sometimes cried, but now I think Teacher F was a good teacher. I made progress during the third grade

In the fourth grade, Teacher G was my homeroom teacher. I was disgusting during the fourth grade. I went around naked in public, picked bird shits, and played the Arcene A (a boy's name) game I think that I, in this period, was imply enjoying my freedom rather than retrogressing.

When I became a fifth grader, I made a great leap forward. When we assembled, I behaved well. My studies went well. During this time, teacher H became my homeroom teacher.

I became a sixth grader, finally. (Omitted). It was the last time for everything and we had to guide the students in the lower grades as we were the oldest. It was difficult to guide younger students, but I tried hard.

When I reflect back on those six years, many things happened. Recently, when I see my former teachers, they say, "You have become much better." I think I have too, I will try hard, even after I go to a junior high school.

IV Analysis

1. *Self-Consciousness and Consciousness of Others*

In the beginning of the first grade, the subject referred to himself as "A-chan" (A is his first name), but in the second semester, he used "I" for the first time. It is not clear when he first used "A-chan," in imitation of the way others named him, but when he was three, he referred to his family members using terms such as "Mother." When vocabulary referring to others emerges. It is often felt that the user has

established a self-consciousness and awareness of consciousness of others. The use of these words often indicates that the user can clearly distinguish himself from others. Also, since the use of the first personal pronoun implies the ability to weigh one's own desires against the desires of others, the use of "I" is thought to be confirmation of independence of will.

In this case, the emergence of the personal pronoun "I" indicates that he was able to consciously place his needs above the needs of others, and act independently. Yet, his responses as manifested by his objections to the actions of others, such as his friends touching his favourite toys, were quite limited, and he was easily excited and responded with a range of psychosomatic symptomatology.

In the second grade, he was able to verbalize his anxiety at having his private world invaded when his friend tried to enter his room. He acquired the means to refuse the intrusions of others through verbal communication. Further, even regarding his obsession of refusing to let others touch his favourite things, he could implement a defence mechanism by listing prohibited items and making others read the list.

These actions during the lower elementary school grades indicate that he could visualize himself as an individual who could understand and act alone. Such placement of himself against others, however, was limited to his relationships with friends when they visited his home. He was still unable to build these relationships with his school peers.

2. *Emotional Troubles Presented by the Autistic Child*

In the third grade, the subject imitated and repeated the games played by his friends and what they had said. This indicates his expansion of interest in those, other than his friends.

In actual peer relationships at school, he involved himself with a group of girls whom he could easily identify with his mother and sister. With boys, he started playing games one-on-one, using the scissors-paper-stone game, as well as the game of chase which he had invented and named. In the overall pattern of human relationships he had at school. However, he had much trouble, and his class discussed how to deal with it. Consequently, the nervous tics that had first appeared in the latter half of the second grade, increased in frequency.

At home, he frequently asked questions when his mother was busy.

In the fourth grade, his tics included, not only motor tics, but also sound tics. The former

disappeared first and the latter disappeared over the summer vacation. As his tics had become less severe or disappeared, they were considered to have a close causal relationship with school.

A review of the developmental process of the subject reveals that his continual use of rude words such as "shit" and "pee" at school in Grade Four, suggests that he had developed the symptoms of Tourette syndrome, according to the DSM-III(R) criteria.

Despite the tic symptomatology, during the fourth grade, the boy expanded the number of people he could converse with outside that of his family and the younger children he encountered in swimming classes and the local area. He also developed his own verbal ability and human relationships as can be seen by his playing with six other boys even though the play included negative aspects.

The subject's; (1) persistent questioning; and (2) repetition of rude words occurred at a stage when the number of his human relationships were increasing and he was under great personal stress. Thus, in Case 1, he obtained peace-of-mind by questioning his mother and hanging around her when she was busy; that is, when he was sure that she was staying in one place. In Case 2, he relieved stress by repeatedly using rude words. Ordinary children manifest such behaviour in their development, and it can be said that the boy also experienced this phase of development, even if somewhat delayed. Thus, it could be that this was only a temporary problem in the developmental process. It is, however, also possible that Case 2 was a verbal self-detrimental behaviour, and that the subject was sending a signal for help that he was unable to cope with the stress of his situation. It is believed that the latter idea implies the possibility for positive and negative treatment.

From the boy's developmental phases, such as persistent questioning and tic symptomatology during the mid-elementary school years, it is induced that autistic children experience emotional strife and inner conflict regarding human relationships, and that these troubles and inner conflicts occur only after children reach a certain developmental stage of self-consciousness.

3. Self-Recognition of Disability

In the fifth grade, the subject mastered the handling of provocations from friends and the teasing that is often intrinsic to boys paly. He also developed the ability to see himself objectively and ceased the long-term compulsive habits he had acquired. He also

made a conscious effort to adjust himself to overcome his fears and found enjoyment in doing other things.

At the same time, he developed the ability to self reflect, for example, reviewing his past behaviour with regret. He, thus, started noticing his own problems and verbalizing them with emotion.

In the sixth grade, due to inner conflicts arising from others calling him handicapped, he increased his interest in the differences between himself and other disabled children. These comparisons were made, also, with report cards. This behaviour, however, resulted in verbal communication with others and led to a desire to improve academically which he considered to be socially acceptable behaviour.

The boy also expressed embarrassment over his past. This he considered to be shameful when his former homeroom teacher mentioned it. This seems to indicate that difficulty he had in accepting a negative self image of his past. Such difficulty is often experienced by high functioning autistic children in the transition period from childhood to adolescence.. The period underscores the need for further refined psychotherapy to assist these children in developing their inner worlds.

4. Verbalization of Self-Image in Written Form

The self-image expressions used in essays written in the fourth grade indicate that he was making an emotional effort to accept his sensitive mental fluctuations, although at that point, such effort had not reached a concrete form. In comparison, an essay written in the sixth grade described the past as an object, and he could express each of the developmental stages in detail, even in concise sentences. This indicates his growth as a person.

It should also be noted that in the fourth grade, the subject composed poems and drew pictures when he was experiencing strong nervous tics.

These findings indicate the possibility for additional therapies for high functioning autistic children as an effective method with which to approach their inner world. In other words, in addition to a non-verbal approach such as miniature garden therapy drawing therapy which have been widely used, the projection method can be improved by using written language in the form of essays and poetry. Such an approach could make it possible for individuals to relate their inner experiences to their understanding of the world.

Telecommunication Instruction for Children with Hearing Impairment

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Abstract : This paper reports on observation and analysis of telecommunication instruction for two children with hearing impairment. It found that telecommunication skill, the condition of the telecommunication and the options for use of telecommunication equipment were major factors in telecommunication instruction.

Key Words : telecommunication, sensori-neural hearing loss, communication skill, telecommunication equipment.

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The environment of communication for children and adults with hearing impairment has changed according to the progress of assistive technologies. This is especially so in the context of "telecommunication" for children and adults with hearing impairment, a technology that has significantly progressed in terms of use of the videophone, facsimile, internet, and so on. Although various types of communication equipment have been developed, it is a fact that many people with hearing impairment cannot cope with using it, and understand how to telecommunicate with such equipment (Sato, 1997). In addition, Onuma (1997) reported that training of telecommunication in a school for the deaf and a special unit for hard of hearing children is essential and confronts the same issues as everyday face-to-face communication skill. Onuma addresses these issues in the sense that education of telecommunication includes, not only basic exercises such as comprehension of other's names, calling other people, and taking action according to requests made by other people, but also social exercises such as enlargement of communication with people at a distance, and skills of compilation of necessary information.

This paper reports on the observation and analysis of telecommunication instruction of two children with hearing impairment. A checklist encompassing the areas of the context of telecommunication, the condition of telecommunication, and telecommunication equipment is proposed

Method

Subjects

Subject A

A 12 year old child with sensori-neural hearing loss on both ears. Hearing levels (July 25, 1997) were 95dB (HL) on the right ear and 93dB (HL) on the left

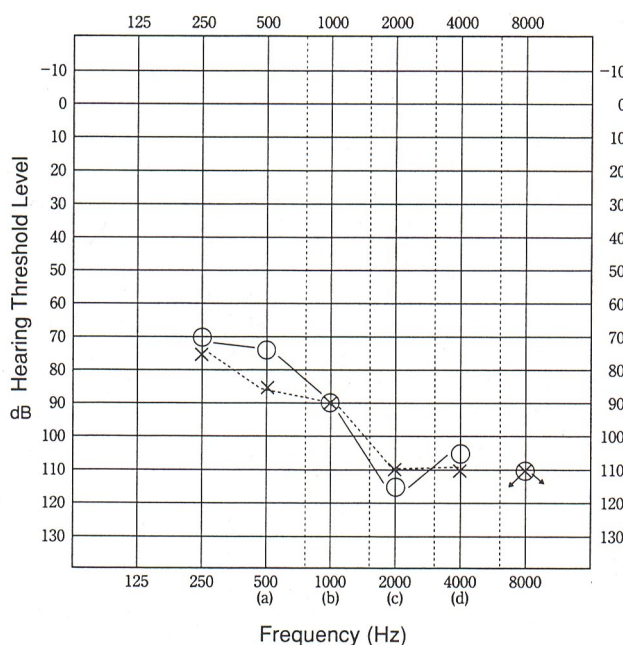


Figure. 1 Audiogram of Subject A

ear. His audiogram is shown in Figure 1.

Subject B

A 12 year old child with sensori-neural hearing loss on both ears. Hearing levels (July 25, 1997) were 98dB (HL) on the right ear and 94 dB (HL) on the left ear. Subject B's audiogram is shown in Figure 2.

The subjects were twins. Audiological care and auditory learning had been commenced immediately following an initial consultation at the Attached Child Guidance Clinic of the National Institute of Special Education (NISE) when the twins were two years of age. They received regular audiological care together, and commuted to a regional primary school and visited Y School for the deaf for education guidance once a week. The hearing aids they wore in each

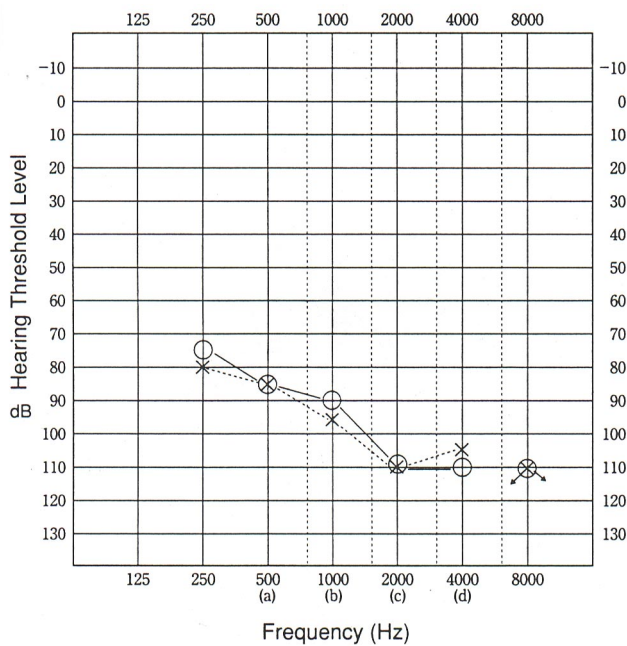


Figure. 2 Audiogram of Subject B

ear were Pico Forte PPC-L manufactured by the Phonak Company, and they also used a radio hearing aid (Free Ear of the Phonic Ear Company) in their classroom activity. Their communication modes were mainly by the auditory-oral method using their hearing aids. For telecommunication learning from June 1997 to September 4 1997, they used telecommunication equipment that had normal telephone adaptors including amplifiers. However, because they had come to experience hearing by using such equipment, since September 5, 1997 they had continued to use a telephone with amplifier for hard of hearing people (viz., "How day YOU" manufactured by NTT).

Procedure

Their telecommunication started from June 1997. Although this learning is still underway, records of learning taken from June 1997 to September 1997 were used in this study. These records on telecommunication learning were compiled by the children's mother together with the teacher of the school for the deaf (T). The contents used in the telecommunication were based on school topics such as the clubs they belonged to, television programmes they watched, and so on. The researcher advised the children and T on telecommunication learning. Table 1-10 shows records that were compiled as important issues on telecommunication learning. In this paper, telecommunication learning was enacted by means of communication between T and Subject A, or Subject B via telephone. Telecommunication instruction means all communication the researcher had

with T, Subject A or Subject B and their mother on the procedure and contents of telecommunication learning based on records compiled by the mother.

Results

Subject A

June 20, 1997

The topics on telecommunication learning were "Uri-Nari (NB: Television Programme) and A's volleyball club. Since questions from T were concrete ones such as "Have you watched Uri-Nari on television?" or "Have you practiced volleyball as a club activity?" the telecommunications between A and T were smooth. However, when T asked A, "That is hard, isn't it?" there was no response. He might not have understood the question, even though the preceding question was "Did you go home by bicycle in the rain?" The subject fell silent because he could not understand why it was hard for him to go home by bicycle (see Table 1).

Table. 1 June 20

T	A
Did you watch "Uri-Nari" on Television	It was fascinating to me.
Who appeared on "Uri-Nari"
Hello?	Hello?
Did you practice on volleyball as the club activity?	No, I did not practice.
You have not had school today because of typhoon isn't it?	I have not had school school.
(on Volleyball club) Did you go back to your home by bicycle in the rain? I have gone home. (Repeated twice)
That is hard isn't it?
That might be hard for you to go back to your home by bicycle in the rain isn't it?

June 27, 1997

Topics on this day centred on the game of volleyball, supper and "Tamagocchi" (an electronic game). Questions from T included the interrogative pronouns, such as "Where will you play volleyball?" and "Who will go with you?" The subject was unable to immediately respond to these questions.

It seemed difficult for him to communicate when T said, "Where will you be going on June 29?" immediately asked after "Good evening" (see Table 2),

because there was a sudden change in topics of telecommunication. In this case, it was thought that if T had said the words "now," or "well" to express a change in topic, telecommunication would have been more intelligible to A.

Table. 2 June 27

T	A
Tommorrow?	• • • • •
Saturday?	• • • • •
Where will you go on Sunday, June, 29th?	• • • • • (It seems to be difficult to understand)
Sunday, the game of volleyball	SUNDAY! I will participate in the game.
Where will the game be held at?	Sagamihara
Will you have a game in Sagamihara?	Yes!
Sagamihara is a long way from here, isn't it?	• • • • • It will be pleasant, but, I think that the adversary will be stronger than us.
How will you go to Sagamihara, by train, car or bus?	Sagamihara? I will go there by car. (repeated twice)

June 30, 1997

Topics were on volleyball, "Tamogocchi" and daily work activity. On the subject of volleyball, it seemed difficult for him to answer questions about the score, and he replied only with answers such as "I'm not sure." He could answer a question such as "Have you done your homework?" In this case he might have been able to associate work, home and homework. Since this session, T has endeavoured to change the topics in the telecommunication learning after calling A as "Mr. A," when T wants to change topics.

July 7, 1997

Before the telecommunication learning session, the researcher advised A that if he could not understand what T had said, he should not leave it and he should ask T until he fully understood the contents of the telecommunication. As a consequence, he was observed to persevere and recurrently asked T to repeat her question. In particular, he asked T seven times "Please repeat what you said" to the question "Good evening. Don't you feel sleepy? / Do you feel sleepy?" He then seemed to understand what T had said and began to demonstrate that he was seeking

to understand what T had said in telecommunication learning. On Tanabata Day (The Star of the Festival, a traditional event held on July 7), he misheard "Ohoshisama" (the star), as "Okozukai" (pocket money). This suggests that it was difficult for him to associate "Tanabata" with "Ohoshisama." Following this, he again misheard "Hoshi" as "Hoshii" (want)? and "Hoshikunai" (don't want) to have different meanings. But when T asked A in other words such as "Hoshi ga mieru? Tanabata no hoshi?" (Can you watch the star? The star of the Star festival?), he could answer adequately after he asked T to repeat the question three times (see Table 3). It is suggested that T had sought to ask A with other words if he had wrongly understood at first.

Table. 3 July 7

T	A
Good evening. Are you sleepy or not?	Yes, would you repeat what you said. (repeated seven times) slightly cold! Not sleepy.
What is it today?	• • • • • Today is July 7th, Tanabata (after three times repetition of the question)
Today is Tanabata isn't it? Did you make the Tanabata tree decoration?	No, I did not, because I didn't have the bamboo.
Did you watch the star? Star? ••••• OHOSHISAMA (the star)	I did not watch the Tanabata. ••••• OKOZUKAI? (the pocket money)
Did you watch the star of TANABATA?	••••• TANABATA NO HOSHI? ("want" of TANABATA?) HOSHIKUNAI (Don't want)
Can you watch the star? the star of TANABATA? Can you or Can't you watch?	• • • • • the star? Let me see, I might have watched. (after three times repetition of the question)

July 11, 1997

It was observed that the subject checked the equipment for telecommunication learning. He could not understand "Puuru" (swimming pool), and it seemed that he misheard "Puuru" as "Paai." Then he thought that he had heard wrongly, and checked his own equipment (i.e., telephone aid). On the topic of going out to the theatre in Shinjuku, T said to A that "Shinjuku is not near, is far off," instead of "Shinjuku is far." (see Table 4).

Table. 4 July 11

T	A
Are you watching television? (TEREBI MITETENO?)	I have not gone, because today is a rainy day. (ITTE NAKATTA. AME GA FUTTE ITAKARA) (after this question was repeated three times) Now, I'm watching television. from 7 o'clock, "Ninety Nine" and from 8 o'clock, "Uri-Nari". Yes.
Are you watching with (name of B)? it is fascinating to you isn't it? Did you swim in the swimming pool (PUURU)? Did you swim in the swimming pool in your school?	This was fascinating to me. PIIRU? (after this question was repeated three times) Please, wait for a moment. (check the telephone aid) PAAI? (with the help of his mother) I did not swim today. I swam yesterday.
Where will you go on Sunday?	I will go to the theater to see "O's Wizard" in Shinjuku with friends of Triangle.
Where is the theater?	"Preformer" (the Casts)! I will get their signature
Where is the theater?	Shinjuku?
Shinjuku is not near, it is far off.	Far off! (after time repetition of the question)

August 5, 1997

On this occasion there were many topics centring on the summer vacation. He seemed to hardly hear words such as "Puuru" (swimming pool), "Genki" (How are you?), and "Shukudai" (homework). If he had difficulty hearing what T had said, he began to say "Please repeat slowly what you said," as well as "Please repeat what you said." He seemed to understand (Name of Subject B), "Otoosan" (father) and "Okaasan" (mother).

August 28, 1997

Subject A had telecommunication learning with the ability to regulate the volume of his own telephone aid. At first he used his own set at maximum volume, but later turned it to an intermediate level because he became tired. The topic of telecommunication learning was on a trip to Yomiuri Land (an amusement park), with his friends from the Triangle organization (an association for deaf children and their parents). He asked T to repeat the

questions such as "How are you?" and "How many friends went there with you?" three times. He could answer other questions at once. The reason for this smooth telecommunication was thought to be that T had taken the topic on the Triangle organization as the first topic.

September 1, 1997

This telecommunication learning was the first session held in the new school term. Before this session, his mother had helped him if he could not hear what T said, but in this session he could rapidly communicate with T on the telephone without the help of his mother. Furthermore, his answers to T's question on the telephone were flexible. He could answer "I went to Akehama Shogakko" (Akehama primary school), to the question "Did you go to your school?" In addition, he answered "I would not like to answer your question." He also replied "That is a secret," to the question "Who is that sitting next to you?" Prior to this session, he took 15-20 minutes on telecommunication learning, but this time he could finish telecommunication learning within a 5 minute period. It is suggested that he had acquired the manner for telecommunication.

September 5, 1997

It was relatively easy for the subject to answer questions using rules such as "What are you doing now?" "What is your mother doing now?" and "What is your father doing now?" He made sure of the questions that he could hear and understand, and asked T again "What is the anything of Akahama primary school?" It is suggested that he seemed to manipulate the way of asking again on telecommunication. The same method was used on another topic on his summer vacation. However, he misheard "Puuru" (swimming pool), as "Geemu" (electronic game) on audition. It is thought that T should consider replacing the word "Puuru" (swimming pool) with "Suiei" (swimming), or "Oyogi ni iku (to go for a swim). This is because T asked the question using the phrase "What is..." on previous telecommunication learning. The subject appeared to be weak on choice questions such as "What kind of homework do you have, arithmetic or Japanese language?" It is suggested that on these questions he was stressed in that he felt that he should listen to the question right to the end, and then answer correctly, while he thought he might answer simply what he thought to the question of "What is..." in this situation.

Table. 5 September 5

T	A
Do you have your homework from school?	What is it from school? (GAKKO NO NANI?)
Do you have your homework?	(after twice repetition of the question) Yes, I have my homework, but, I have finished my homework.
Do you work with your father?	(after twice repetition of the question) I'm not sure.
Which is your homework arithmetic or Japanese Language?	• • • • •
Is your homework sociology?	Sociology, I have described names of industrial products
Was your homework easy or difficult?	Easy.
Did you swim in the swimming pool?	(after six times repetition of the question)
pool	game?
pool	Yes! I swam in pool.
How far could you swim?	I'm not sure.
Can you swim or not?	I can swim, but I can not.
How far could you swim?	I'm not sure.

September 19, 1997

On this session he could communicate with T on the telephone with a little help from his mother. However, the contents of the telecommunication learning had become more difficult in comparison with the initial stages of telecommunication learning. He complained that the volume of T's was low with a telephone aid. According to records made by his mother, the minimum volume on the telephone aid was sufficient to communicate with T on the telephone prior to this session, but even if the volume was now set at the maximum level, it was felt to be insufficient. It is suggested that he had made an effort to listen harder to T's speech over the telephone, and that an improvement (e.g., his telecommunication equipment) was necessary in the communication context with telephone.

*Subject B*June 20, 1997

In this session, telecommunication centred on the topics of the typhoon and "Uri-nari." Subject B answered "Great! The big tree in my school fell to the

ground!" to T's question "Now, will the typhoon approach here?" or "Has it been windy?" Thus, once he understood the topics of the telecommunication learning, he could answer T's question with not only a "Yes" or a "No," but also with some words on topics of the telecommunication learning.

June 27, 1997

He answered the question "What is the day of the week today?" "Yes, it's Saturday, I will play soccer today." He seemed to answer after he had confirmed the answer to the question from T. When T asked him "What's the date tomorrow?" or "What will you do tomorrow?" For example, when he could not understand the meaning of the question "Asatte wa Naniyoubi?" (What's the date the day after tomorrow?) he replaced the word as "Gohan" (meal) at first, but he asked T four times. In addition, he also worked hard to grasp the meaning of T's question and it was thought that he had begun to gain self confidence in telecommunicating by telephone (see Table 6).

Table. 6 June 27

T	A
What's the date after tomorrow?	meal (GOHAN)? (after the question was repeated four times)
	What's the date?
What will you to on Sunday?	(after the question was repeated three times) Game of soccer.
Have your father come back home?	He has comeback.
What is your mother doing?	She is taking a bath.
Please, call your mother.	(after the question was repeated three times, called his mother.)

June 30, 1997

He was unable to answer the question "Do you have homework?" Then, although T asked in other words "Do you have homework from school?" he only answered after T repeated the question four times. T sought to ask the question in as many different ways as possible, however, the researcher advised T to repeat the same question because directionless change of topic ran the risk of the subject losing motivation. He could smoothly answer questions like "Have you worked at home?" and "Who watches television with you?" However, his ability to listen and understand was unsatisfactory because of the poor condition of his health (see Table 7).

Table. 7 June 30

T	A
Good evening!	Good evening!
What are you doing?	I am watching television.
What are you watching on television?	"KINDAICHI-SHONEN" from 7 o'clock "KONAN" from half past seven "MARUMIE" from 8 o'clock, that'all.
Did you study?	Finished!
Did you study?	The arthematic drill
Did you have homework?	• • • (after the quesitin was repeated twice)
Did you have homework?	(after the quesitin was repeated twice) The arthematic drill
Finished?	Yes!
The typhoon came here on Saturday.	(after the quesitin was repeated twice) No! the typhoon did not come.
That was the great typhoon isn't it?	• • • • • (after the quesitin was repeated third time)
Was it blew on Saturday?	It was rainy also.
Have your father come back home?	He has com back home.
What are your father doing?	(after the quesitin was repeated twice) He is watching television.
Who watches television with him?	(after the quesitin was repeated twice) (name of Subject A)
Would you call your mother.	(after the quesitin was repeated twice, he changed to his mother)

July 7, 1997

The topic on this day was "Tanabata" (The Star Festival). He seemed to work hard to listen and asked six times "Please repeat what you said," because he was unaccustomed to questions including the alternative of "Are you sleepy, or not?" He also asked for the question "What day of the month is it today?" to be repeated four times and then answered "Today is July 7." Furthermore, it seemed difficult to listen to "Tanabata no Hoshi" (The Star of the Star Festival) or "Ohoshisama" (the Star). Then it was necessary in these circumstances to consider changing the topics of telecommunication learning (see Table 8). That is, it was considered that it would probably be more intelligible to take specific topics with questions such as "Today is the 7th of July. Let me see, what is today?" or "Today is Tanabata," than to begin with the question "What's the date today?"

July 11, 1997

In this session he was able to answer "I will go by

Table. 8 July 7

T	A
Hello	Good evening.
How are you?	Would you repeat what you said. (repeated six times)
Are you sleepy or not?	Would you repeat what you said.
Are you sleepy?	Would you repeat what you said. (repeated twice)
What's the date of today?	Would you repeat what you said. (repeated three times)
What's the date of today?	July 7th
What day is it today?	Today is july 7th, then today is the day of TANABATA.
Have you made the decoration of TANABATA?	No.
Have you watched the star of TANABATA?	• • • • • (repeated three times)
• • • • • OHOSHISAMA	• • • • • (repeated twice)
Have you watched OHOSHISAMA	(with mother's help) No, I have not.

train. Not the Yokosuka Line, but by the Keikyu Line, that is, the red train," to the question "Will you go by train or car?" This is because he could understand the topic of where he would go on Sunday. On the contrary, he could not understand the question "Will you have soccer practice tomorrow?" although the question was repeated six times. T modified the question to "Will you have soccer practice tomorrow, Saturday?" and asked the question twice. The question was then understood. As shown with Subject A above, Subject B could also not follow circulation of topics in telecommunication learning because T had suddenly changed topics. When the topic was changed to that of bowling, questions had to be repeated four times.

August 5, 1997

Topics on this session were on homework, the swimming pool, tennis, and cartoons because it was a day during the summer vacation. He could understand topics associated with the summer vacation from the very beginning, The asking of questions was reduced to two or three times. He could understand every word, such as "Jikan"(time), "Shukudai" (homework), and "Puuru" (swimming pool), "Oyoida" (swam), "Dare" (who), "Doko" (where), "Otoosan" (father), "Okaasan" (mother), Subject A's name, "Kun"

(A's name), "Kyo" (today), "Asu" (tomorrow), "Benkyo" (study), and "Rogakko" (school for the deaf).

August 28, 1997

Communication on telecommunication learning centred on his overnight trip to Yomiuri Land with his friends in the Triangle organization. He could answer every question including questions such as "Who did you go with?" "How many friends went with you?" "Where has your father gone?" and "Does your mother watch television?" without the question having to be repeated.

September 1, 1997

This was the first telecommunication session following the summer vacation. The condition of his telecommunication learning at that time was unpredictable because it was difficult to tell what topics there would be. He could not answer questions like "Did you switch seats in your classroom?" which were repeated three times. Then he was motivated by T asking the question "Can you listen?" Subsequent

to this question, when T asked Subject B "Did you change places?" he could answer this simple phrase after it was repeated twice. If there was no answer from Subject B, there was the possibility that B had had difficulty hearing T. In this situation, it was thought that T should give B some time to confirm the condition of the hearing and telephone aid with a question like "Can you hear?"

September 5, 1997

he could answer to the question like "What are you doing now?" and "What have you done?" without repetition. On the contrary, on question as "What is your father doing now?", it seemed hard to understand "father (Otoosan)", then it was observed that he had mis-understood as "mother? (Okaasan desuka)", as he had listened. T sought to ask to B not to repeat the same words, but she repeated only words which he requiring confirmation, then he could understand in twice repetition (Table 9).

Table. 10 september 19

T	A
What did you eat supper?	Croquette and sushi.
Did you have a delicious meal?	Yes.
Have your father come back home?	just now!
What is (Subject A) doing?	He is watching television.
What did you do today?	When?
What did you do today?	I went to school.
What did you do in school?	Kachi-cochi! Swimming! swimming pool!.
Did you go to swimming pool?	Yes.
Who have gone to swimming pool with you?	All member of my class
With all member?	• • • •
Was it cold in the swimming pool?	No, because it was fine .
How far could you swim?	(after repeated four times) 31 meters
Great!	Thank you
Can you listen? All right?	All right.
What is your father doing?	Mother?
Father father. Yes!	Father?

T	A
Hello can you listen to me?	Yes, I can listen.
What are you doing now?	I'm reading the book on "Captain Tsubasa".
Did you watch "Uri-Nari"?	(after the question was repeated twice) Uri-Nari? Nanchan has been the champion of last year in America. • • • • •
Did he forget the dance?	• • • • •
Did you have the supper?	• • • • •
Did you change the battery?	(Although the question was repeated twice, he could not listen.) • • • • •
All right? Can you listen?	• • • • •
All right?	(repeated four times)
Can you listen?	I'm not sure.
Have your father come back home?	Yes he has come back.
Now, what is your father doing?	He went to the room with the tatami.
What is your father doing?	He is watching television in the room with tatami.
Will you watch the game of soccer?	Yes!
Who will play in that game?	Japan versus Arab
Which is stronger, Japan or Arab?	Kazu and Nakata both are bast the players.

September 19, 1997

"Uri-Nari" and the preliminaries of the World Soccer Cup were topics that were raised in telecommunication learning in this session. In this telecommunication learning, he complained about the lack of adjustment on the telephone aid. As shown with Subject A above, it was suggested that he would like to listen to T's speech with his telecommunication equipment operating more effectively. Then it became necessary to consider the telecommunication environment. He looked nervous as he said "I can hear you speaking, but I'm not sure," to the question "Can you hear my speech?" or "All right?" (see Table 10).

Discussion

The following three factors arose from the records of telecommunication learning with Subjects A and B:

- i . Telecommunication skill.
- ii . The condition of telecommunication learning (specifically talking and response).
- iii . The options available for telecommunication equipment.

On telecommunication skill, the issue of how the subjects changed their telecommunication skill dependent on the partner in the telecommunication and through the condition of everyday communication. On the condition of telecommunication learning, the issue of how their conditions of telecommunication were altered by the contents of the telecommunication was analyzed. On the options available for telecommunication equipment, the options available were examined.

Telecommunication Skill

Problems of telecommunication skill of children with hearing impairment were discussed focussing on the issues of everyday communication and the partners in the telecommunication. In general, as discussed by Onuma (1997), it is obvious that the usual communication skill of each child with hearing impairment was important in telecommunication under conditions where it was difficult to perform lip-reading and only audiological information was available. Telecommunication requires the language skill of analogism before achieving audiological information on telecommunication. These language skills depend on a large store of usual audiological experiences. Subjects A and B mainly communicated using the auditory-oral method with appropriate usage of their hearing aids. Then it was suggested

that their analogism on their telecommunication learning was achieved by making use of their language skill which was provided by audiological experiences in their everyday lives (see Table 4 and 9).

In this telecommunication activity, the partner on telecommunication (T) was a teacher at a school for the deaf, and was well experienced in the conditions of hearing impairment. She had been accustomed to dealing with conditions in which children experience difficulties in listening to her speech. In this activity, if it was found that they were having difficulty in listening, T sought to ask them using other words with a similar meaning (e.g., "Tanabata no Hoshi" (The Star of the Star Festival)). It is suggested that her selection of words and phrases was well suited to telecommunication. However, in daily life, the everyday partner in telecommunication is not a teacher of the deaf, but people who are unaware of the conditions of hearing impairment. Thus, in the future, these hearing impaired subjects should be given the opportunity to communicate with a variety of partners under various conditions on the telephone with the aim of improving their telecommunication skill. According to maternal records, Subjects A and B appeared to have communication, not only with T, but also with their grandmother and friends. These telecommunication activities seem to be important learning opportunities for developing communication skills with a wider circle of partners.

The Condition of Telecommunication

In this section, the questions and answers between T and Subject A, and Subject B are analysed.

First, when topics changed unexpectedly, it was observed that the subjects experienced difficulties, not only in telecommunication, but also in operating their analogism (e.g., topics on the bicycle in Table 1, the swimming pool in Table 5, supper in Table 10). In such situations, T seemed to take more time, or to call them "Mr" (name of either "A" or "B") later on. Sometimes she used the phrase "Tokoro de" (by the way), or "Sate" (now) which were used on telecommunication in general. Nevertheless, saying their name seemed to be helpful in understanding change of topic.

Second, it was observed that the contents of T's speech had not accurately heard by the subjects and they misunderstood. In particular, they misheard "Puruu" (swimming pool) as "Paai," or "Geemu"(game), and "Ohoshi sama (the Star), as "Hoshi" (want) (see Tables 4 and 5). They tended to easily answer the question with an interrogative pronoun (e.g., "What are you doing?"), but they had difficulty answering

questions that required selection: e.g., "What is your homework, arithmetic or Japanese language?" (see Table 5), or "Are you sleepy or not?" (see Table 8). T sought to use a variety of words that would not confuse them. It could be said that one of the kinds of handicapping conditions children with hearing impairment experience is the problem of communicating through auditory perception alone in telecommunication, while they might compensate with a lack of information with expression, lip-reading, and so on in usual communication. In this situation it was thought necessary to select the appropriate words that children with hearing impairment would not confuse, and that it would be necessary to consider not confusing the children with topic changes.

In analysis of the condition of their response to T's questions, in a series of telecommunication activity, Subjects A and B showed two interesting aspects. The first was the difficulty and ease of answering questions. For example, questions with an interrogative pronoun such as "What are you doing?" or "Who?" were easily answered because, probably, the question could be predicted, and it was obvious what the question was (viz., Tables 2, 5, 7 and 8). However, choice questions like "What is your homework, arithmetic or Japanese language?" were difficult to answer. If the subjects could not completely understand the question, it may have been difficult to answer because in telecommunication there was no visual information such as lip-reading, and analogisms were difficult. In general, because the condition of questions requiring are considered to be closed set questions with limited answers, they are easy to answer. But the problem arose in which they could not listen and could not understand the question on telecommunication.

Also it was observed that when the subjects were unable to hear the question and were confused with their answers, both of them repeatedly asked "Please repeat what you said" until they understood the content of the question (e.g., Tables 3 and 8). This positive attitude reflected the emergence of strong motivation to listen to and appropriately understand the speech of the partner, and to not leave it unclear. It is also felt that their attitude might also be a way of accepting that they were children with a hearing impairment. In these telecommunication activities they seemed to repeatedly and unhesitatingly ask because the partner in the telecommunication was a teacher of a school for the deaf who knew the condition of their hearing impairment well. However, if they attempted to communicate with other people on telecommunication, ordinary people may not accept

such ways of communication described above and their way of communication may give people the wrong impression such as "They did not listen to what we said." The researcher advised that if they could not listen to all of what a partner said, they should repeat that they could understand and ask again what they could not understand. They should practice this way of communicating with others because it is direct and helps them minimize the stress of their communication.

Telecommunication Equipment

During the initial stages of this study, the subjects used a normal telephone with telephone aid and communicated with T by adjusting the volume. This telephone aid is a type of telecommunication equipment for hard of hearing persons with amplification raising the voice level. Sometimes, in the development of telecommunication learning, it was observed that they examined their own hearing aid because they experienced difficulties in hearing because of deficiencies in the equipment itself, problems caused by a low battery level and an inconsistent level of amplification. At the end of the research period on telecommunication learning their telephone aid was functioning ineffectively (see Table 5 on Subject A; Table 9 on Subject B), so the equipment was changed to a telephone with amplification.

In this study, the researcher advised that the contents of telecommunication learning should not be difficult because the purpose was to ensure fluency of communication in questions and answers. However, in the real world, the contents of telecommunication may not be readily understood by the subjects using only the telephone. In this situation, and dependent on the contents of telecommunication, and it is suggested that they use the telephone together with a facsimile machine as a supportive device.

Checklist on Telecommunication Learning

Based on the information gathered on telecommunication learning with two children with hearing impairment, a checklist was developed for the assessment of the progress of telecommunication learning (see Figure 3).

The checklist consists of the basic information and three specific sections. The basic information includes the partner on telecommunication and telecommunication equipment used (Which do they use, the telephone, or the telephone and facsimile?). The three sections deal with the environment of communication, the state of the telecommunication, and the operation

Basic Information

Partner <ul style="list-style-type: none"> • Teachers • Parents (or Family) • Friends (Hearing) • Friends (with Hearing Impairment) • Others 	Telecommunication Equipments <ul style="list-style-type: none"> • Telephone • Telephone and Facsimile Together • Facsimile 	○ The Conditions of Asking to Partner <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> – Whether does he (she) communicate confirming to what the partner said? – Is the timing of asking very appropriate? – Whether does he (she) ask again, if he (she) could not understand? (He (she) said "Please repeat what you said".) </div>
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1. The Environment of Telecommunication

– Whether can he (she) adjust the hearing aid is comfort?
 To change to T or MT mode on the hearing aid
 To adjust the volume on the telephone

The partner of Telecommunication
 – Whether does the partner of Telecommunication Know the condition of his (her) hearing impairment very well?

2. The Conditions of Telecommunication

○ The Audiological Condition of Telecommunication

– Whether can he (she) adjust the volume of hearing aid and telephone at level of the partner's voice?
 – Whether can he (she) appeal to the partner on his (her) condition of hearing handicap?
 – Whether is the partner cooperative?

○ The General Condition of Telecommunication

– Whether can he (she) communicate with his (her) analogy on the Telecommunication?
 – Whether can he (she) enjoy the Telecommunication?

3. The Operation of Telecommunication? Equipments

– Whether can he (she) operate the telecommunication equipments without description or advice?
 – Whether does he (she) think that the telecommunication equipments are to disadvantage for him (her)?

Figure. 3 The Check List of Telecommunication Learning

of the telecommunication equipment.

First, the section of the environment of telecommunication consists of items about the environment of telecommunication for children with hearing impairment such as the performance and maintenance of telecommunication equipment, and the condition of the partner in the telecommunication.

Second, the state of telecommunication consists of items which check the state (Question and Answer) of the telecommunication. In using the telephone, there are items about whether the child with a hearing impairment is able to disclose or not disclose his handicapping condition to his partner (e.g., in terms of difficulty in listening to the speech of the partner). There are also items on whether the child tries to confirm the contents of the telecommunication or not, and if he has difficulties in listening. In using the facsimile, or both the telephone and facsimile, there are items on whether the child can appropriately understand the contents of the message on the

facsimile.

Finally, the section on the operation of telecommunication equipment consists of items that check the ease of operation of the telecommunication equipment.

The item mention above not only validates the progress of the telecommunication learning in children with hearing impairment, but also operates as a model in instruction in telecommunication learning.

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Dissemination of Special Education Information on the Internet: Issues for Consideration

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Abstract : This study examines problems related to the utilization of the Internet in the field of special education. First, problems concerning the following three aspects are examined: (1) the creation of Web pages to relay information concerning special education to the community; (2) the collection of information through the Internet, and (3) information exchange using e-mail. Second, current trends in these areas are outlined: (1) protection of personal information; (2) protection of copyright, and (3) implementation of measures designed to guard against the dissemination of undesirable information. Finally, future issues in each of these key areas are discussed.

Key Words : Special education, Internet, personal information, copyright, undesirable information

The rapid spread of the Internet is contributing to the diffusion and use of information related to special education through the Internet. At the same time, a variety of problematic issues have arisen. The purpose of this study is to examine the following: (1) what issues exist regarding the distribution of special education information through the Internet? and (2) what measures are required to deal with these issues in the future?

The Internet and Special Education

The rapid spread of the Internet has contributed to many problematic issues concerning its use in special education activities.

Internet Use in Special Schools

This section presents an overview of the present use of the Internet in special education facilities in Japan.

The Ministry of Education conducted a survey on "Joho Kyouiku" (information education, or education of computer literacy) (Ministry of Education, Science, Sports & Culture, 1998b). The results of this survey showed that the number of schools linked to the Internet that year as follows: 6,499 elementary schools (27.4% of all elementary schools), 4,461 lower secondary schools (42.8%), 2,651 upper secondary schools (63.7%), and 334 special schools (36.3%). In special education schools, 28 schools for the blind (41.2% of such schools), 46 schools for the deaf (44.2%), and 260 other special education facilities (34.8%) were linked. Thus, nearly half of special education schools

in Japan were connected to the Internet in 1998.

The survey also found how many schools had homepages. The numbers were as follows: 1,908 elementary schools (29.4% of the elementary schools connected to the Internet), 1,290 lower secondary schools (28.9% of the lower secondary schools connected to the Internet), 1,465 upper secondary schools (55.3% of the upper secondary schools connected to the Internet), and 179 special schools (53.6% of the special schools connected to the Internet). In special schools, 17 schools for the blind (60.7%), 28 schools for the deaf (60.9%), and 134 other special schools (51.5%) had homepages. As these findings demonstrate, there has been considerable penetration of the Internet into special education schools in Japan.

Moreover, the use of the Internet is expected to increase in the future. The Ministry of Education has announced that all public schools would have access to the Internet by 2001 (Ministry of Education, Science, Sports & Culture, 1999a), and new standards for educational curricula to be implemented after 2002 emphasize the importance of "information education" (Ministry of Education, Science, Sports & Culture, 1999b). Based on this, an examination of the issues concerning Internet use from the perspective of special education is warranted.

The Expansion of the Internet and Special Education

This issue is investigated from the following three aspects: (1) the creation of Web pages; (2) the collection of information via the Internet, and (3) the use of e-mail.

Web pages

It is important to introduce special education activities and study results on Web pages to promote the distribution of special education information. However, the following potential problematic issues arise in the creation of Web pages:

- i. Issues related to personal information.
- ii. Issues related to personal photographs.
- iii. Issue related to copyright.
- iv. Issues related to appropriateness of descriptions.

Issue (1) concerns the publication of descriptions of students on Web pages. For example, there are problems concerning how much concrete information can actually be published when introducing educational practice. Issue (2) relates to the publication of a given person's portrait on a Web page. For example, photographs may be needed to provide concrete information about educational activities. In this case, the publication of an individual's portrait is problematic. Issue (3) relates to copyright. In this case, there is a problem of the copyright attached to pictures or poetry. Finally, Issue (4) relates to appropriateness of descriptions. These have the potential to make some people feel uncomfortable, especially when they are published on the Web. Therefore, there are a number of issues that need to be addressed when designing Web pages to publish special education information.

Collection of Information via the Internet

It appears that a common usage of the Internet in schools is to explore Web pages with the purpose of collecting information, but there are a variety of potential problems that arise. In this respect, the following issues need to be considered:

- i. The possibility of viewing inappropriate information from an educational viewpoint.
- ii. The possibility of viewing illegal information.
- iii. The possibility of accepting low reliability information as the truth.
- iv. The possibility of divulging personal information when prompted to do so by Web pages.
- v. The possibility of writing slanderous information on community message boards.

Issue (1) deals with the problem students may have if they view information that is inappropriate from an educational viewpoint. For example, some Web pages may have contents depicting or describing violence and, therefore, it is necessary to prevent student access to such information. Issue (2) concerns

the problem of student access to illegal information on some Web pages. To problem of preventing access to such information needs to be addressed. Issue (3) is the problem of students accepting low validity information on the Internet at "face value." While some Web pages do provide valid information, others pages do not. Subsequently, it is important to examine what types of information can be acquired from Web pages. Issue (4) concerns the problem of divulging personal information about students over the Internet. Some Web pages require the completion of personal details such as the input of names and date of birth. There is the potential that students may input some information about themselves, or their peers, so the problem of how students deal with these requests needs to be addressed. Finally, Issue (5) deals with the posting of messages on community message boards. Certain boards, for instance bulletin boards, enable anonymous users to post material and there is the possibility that students may post slanderous material.

Thus, there are various potential problems when student browse Web pages and collect information as part of special education activities.

The Use of e-mail

In some cases, students use e-mail to exchange information as part of their special education activities. For example, they may exchange information with students in other schools. The following are the potential problems in the exchange of information via e-mail:

- i. The possibility of exchanging personal information.
- ii. The possibilities of suffering damage because of the receiving of unwelcome messages.
- iii. The possibility the e-mail may be accessed by unauthorized third parties.

Issue (1) deals with the problem of protecting personal information in e-mail. There is the possibility, for example, that students may send personal information about themselves, or their peers. While the sender may only intend the message to reach a specific person, the receiver may forward the message on to others. While forwarding and copying of e-mail is easy, there is the potential danger that information may be leaked. Issue (2) concerns the damage an individual may suffer as a result of receiving unwelcome messages. For example there is the possibility that students may receive mischief e-mail, sales e-mails, solicitation e-mails, chain e-mails, and so on.

Therefore, to take measures to safeguard against the malicious use of e-mails and to protect children from suffering their damaging effects is of importance. Issue (3) concerns privacy of e-mail communication. E-mail is liable to be intercepted, or accidentally viewed because they are sent via networks. Therefore, it is necessary to be vigilant about the contents of e-mails exchanged.

As this brief overview reveals, various issues exist regarding the use of e-mail in special education.

Areas Requiring Investigation

From analysis of the above three aspects, there needs to be consideration of the following:

- i. Protection of personal information.
- ii. Protection of copyright.
- iii. Measures to safeguard against harmful information.

The first concerns the protection of personal information in the use of the Internet. Protection of personal information is an area that requires full consideration in the creation of Web pages, or the exchange of personal information via e-mail. The second concerns the protection of copyright when using the Internet. This area is of concern when special education activities are introduced on Web pages. Third, measures taken to safeguard against harmful information in Internet use require full consideration as there is the potential that students may receive or access inappropriate information.

Current Trends

Three areas are investigated in this section: (1) international trends; (2) domestic trends, and (3) problems that affect the distribution of information about special education.

Protection of Personal Information

International trends re. protection of personal information

The protection of personal information has become an important area of international cooperation. In 1980, the Organization for Economic Cooperation and Development (OECD) advocated eight principles concerning the protection of privacy and personal information (OECD, 1980):

- i. Collection Limitation Principle
- ii. Data Quality Principle
- iii. Purpose Specification Principle

- iv. Use Limitation Principle
- v. Security Safeguards Principle
- vi. Openness Principle
- vii. Individual Participation Principle
- viii. Accountability Principle

Since the release of the OECD principles, they have had a major impact on measures dealing with the protection of personal information in each country.

Among recent international topics, the Children's Online Privacy Protection Act of October 1998 in the USA is especially important (FTC, 1998). This legislation requires operators of websites, or online services directed to children to post on the website what information is collected from children and how this information will be used. It also requires "verifiable parental consent," and prohibits the solicitation of personal information over and above what is necessary for games, prizes, and other like activities. As a result, the USA has taken legislative measures to protect the privacy of the personal details of children on the Internet.

Personal Information Protection in Japan

The Act for Protection of Computer Processed Personal Data held by Administrative Organs was passed in December 1988 (Management & Coordination Agency, 1988). This law was designed to protect the personal information processed by computers in administration. In addition, 1,407 municipal corporations (42% of all municipal corporations) had regulations concerning the protection of personal information as of April 1998 (Ministry of Home Affairs, 1998). Within these municipal corporations, 18 prefectures had regulations concerning the protection of personal information. The regulations cover records, the use of these records, their maintenance, the obligations of staff, and so on. Moreover, 556 municipal corporations have regulations whose rules prohibit the connection of computer networks to other organizations (Ministry of Home Affairs, 1998).

Problems Affecting the Distribution of Information in Special Education

This section examines issues related to the protection of personal information in the distribution of information concerning special education. First, a definition of the term "personal information" is required. Personal information is defined in the Act for Protection of Computer Processed Personal Data held by Administrative Organs (Management & Coordination Agency, 1988). It is defined as follows:

It is information on an individual that includes his name, date of birth, and other descriptions of the individual which can be identified by a number, sign, and so on. It includes information that does not enable identification based on this information alone, but can be easily compared with other information to identify an individual.

Many municipal corporations have adopted similar definitions in the regulation of personal information protection, and the above definition will be used in the present study.

A case illustration of protection of personal information involving the educational usage of the Internet has recently surfaced in Japan. An outline of the case is presented here (Yomiuri, 1996):

A teacher of an elementary school connected to the Internet through his own PC published the names, hobbies, and photographs of pupils on his Web page. The Board of Education and the Section of Information Processing notified the teacher in the district that he had violated "The Regulation of Personal information Protection," and he was directed to remove the information from his Web site. In this case, violation of the prohibition to offer personal information externally (Article 14), and violation of the prohibition to connect to external computer networks (Article 18) were highlighted in relation to the Regulation. It was the opinion of the Board of Education that the permission of the Personal Information Protection Council was required.

Thus, regarding the use of the Internet in the context of educational activities, the protection of personal information has become important.

Use of the Internet in special education activities requires full consideration be given to the protection of personal information. However, in special education, Article 18 of the Regulation of Personal Information Protection is problematic. As mentioned above, the regulations of many municipal authorities include rules prohibiting the linking of PC to external networks. Thus, it is sometimes difficult to connect school computers to the Internet. In relation to this, a final report on the promotion of information education in primary and secondary education in Japan was made in 1998 (Ministry of Education, Science Sports & Culture, 1998a). This report states:

There are some cases where schools cannot connect to the Internet because connecting to the

Internet conflicts with regulations regarding the protection of personal information in a section of a municipal corporation. Since the 1970's each municipal authority has controlled information obtained through citizen registration with the computer system, and has established rules that prohibit connection of such systems with external networks. Some municipal authorities have interpreted these regulations as applying to the connection of schools to the Internet.

Considering the difficulties this presents, it is important that municipal authorities and local Boards of Education establish clear policy guidelines concerning the educational use of the Internet. In particular, they should take into consideration the fact that Internet, as a new information technology, developed after the promulgation of the regulations.

The report highlights the need for municipal authorities to take appropriate measures to ensure that schools have access to the Internet. In addition, it stresses that guidelines concerning the educational use of the Internet are necessary in municipal corporations and Boards of Education. Some municipal authorities have already established necessary guidelines for the protection of personal information on the Internet.

In special education, the requirement to protect personal information is even more critical than in general education because special education activities are often closely related to the state of the disabilities of individual students. Therefore, if special education activities are to be introduced on Web pages, the appropriateness of such information should be critically examined in terms of its purpose and meaning in the context of special education. It is necessary to examine certain aspects when disseminating information concerning special education from the perspective of the protection of personal information.

Protection of Copyright

International trends in copyright protection

With the rising popularity of the Internet, various types of information are being distributed globally. In this context, an internationally acceptable understanding on the protection of copyright has become necessary.

The World Intellectual Property Organization (WIPO) convened in December 1996 to examine the use of copyright materials, and two new agreements were signed as a result; these were the WIPO Copyright Agreement and the WIPO Performances

and Phonograms Agreement (Bando, 1997). Up to the present, publishers, movie companies, broadcasters etc., played a major role in the distribution of copyright materials, but the rapid spread of the Internet has enabled a far wider distribution of these materials. However, the signing of the WIPO copyright agreements can be seen as a step forward in attempts to coordinate copyright laws internationally (Aizawa, 1997).

Trends in Copyright Protection in Japan

As the WIPO agreements were adopted in December 1996, the multimedia committee of the Copyright Council of the Agency for Cultural Affairs presented a Discussion Report in February 1997. Based on this report, the following revisions were presented to the Diet in May 1997 (Bando, 1997):

- i. Establishment of the rights of performing artists and record manufacturers concerning interactive transmission.
- ii. Expansion of copyright scope concerning interactive transmission.
- iii. Rights of transmission of computer programs within the same premises.
- iv. Standardization of transmission related terminology.

The first revision implies that performing artists and record manufacturers be given new rights to enable interactive transmission which designates transmission through individual access from a terminal at a computer. The second means that copyright extends to data uploading, which is the stage preceding transmission. This is because individual acts of transmission are not easily monitored on the Internet. The third revision means that copyright covers the transmission of computer programmes on a network within the same premises because there are some cases in which such transmission may harm the interests of the owner of the copyright. The fourth item means that all public transmissions, including interactive transmissions through the media of cable and wireless, are covered by the term "public transmission." The revision of some parts of the copyright law was accepted in June 1997 (Bando, 1997). As a result, Japanese regulations concerning interactive transmission over the Internet now comply with the new WIPO agreements.

Problem of copyright protection in Special Education

Many special education schools have established web sites as previously mentioned. This raises a

number of copyright issues.

"The Public Transmission Right" (Article 23) applies to the transmission of information through the Internet according to the revision of the Copyright Law in 1997. Therefore, when other people's work is used on Web sites without their permission, this represents a violation of public transmission rights; for example, the use of pictures that are protected by copyright without permission of the copyright owner. Furthermore, making it possible to listen to copyright music without permission also becomes a violation of public transmission rights. It should also be noted that animation characters cannot be used without the permission of the copyright holder. This is also the case when student's poetry or pictures are put on Web pages.

Under the copyright legislation, the author is defined as "the person who creates the work" (Article 2, 1st term, 2nd). Moreover, works protected by copyright law are "things that creatively express thoughts or feeling" (Copyright Law Study Group, 1999). The term creatively used here means that the individuality of a person is reflected in the work, and neither artistic eminence, nor economic value is a factor. Therefore, if a student writes poetry, draws pictures, or plays music, these are considered to be works protected by copyright law, and the student is considered to be the author of this work. As a result, the posting of such work on Web pages requires the permission of the student. This is an important matter for consideration by teachers in the field of special education.

A further issue concerns the posting of photographs of Web pages. For example, photographs may be desirable to post in relation to special education activities. In this case, it is necessary to consider "portrait right." The right concerning personal photographs has been admitted as a right that should be protected based on the Constitution or Civil Law, although the right is not clearly defined as a "portrait right" by law. In 1969, a Supreme Court decision was handed down that the taking of a photograph of an individual's features without proper cause contradicts Article 13 of the Constitution (i.e. esteem of the right to the pursuit of life, freedom, and happiness), and stated that "everyone has the freedom not to have photographs of their features and form taken without approval and that this is one of the freedoms of individual personal life" (Sakuhana, 1995).

Therefore, when an individual's photograph is posted on Web pages, it is necessary to obtain the approval of the person portrayed. A careful examination of copyright and portrait rights is necessary

when information about special education activities are posted on Web pages.

Measures to Guard against Undesirable Information
International Trends in measures to safeguard against undesirable information

The Action Plan on Promoting Safe Use of the Internet of the European Commission states "illegal content" as content that violates the following (European Commission, 1997a):

- i. National security (i.e., instructions on the making of bombs, illegal drug production, terrorist activities).
- ii. Protection of minors (i.e., abusive forms of marketing, violence, pornography).
- iii. Protection of human dignity (i.e., the incitement to racial hatred or racial discrimination).
- iv. Economic security (i.e., fraud, instruction of pirating credit cards).
- v. Information security (i.e., malicious hacking).
- vi. Protection of privacy (i.e., unauthorised communication of personal information, electronic harassment).
- vii. Protection of reputation (i.e., libel, unlawful comparative advertising).
- viii. Intellectual property (i.e., unauthorised distribution of copyrighted materials).

On the other hand, harmful information, both illegal and harmful content, are considered to be any information that seems undesirable in a general sense (Ministry of Posts and Telecommunications, 1997), and it is this sense of the term that is implied in this paper.

The following is an overview of international trends concerning measures taken to protect against harmful information. First, in November 1997, the European Commission published a "Green Paper on the Protection of Minors and Human Dignity in Audiovisual and Information Services," in which measures were proposed regarding the protection of minors from harmful and illegal information (European Commission, 1997b). Also, in May 1996, the World Wide Web Consortium (W3C) based in the USA proposed a Platform for Internet Content Selection (PICS) (World Wide Web Consortium, 1997), and this platform has had a worldwide effect. In the United Kingdom, the R3 Safety Net plan was announced in September 1996 (The Safety Net Foundation, 1996). This plan proposes that content providers voluntarily regulate information on the Internet. In Germany, according to the "Multimedia

Act" passed in June 1996, a person who offers all information communication services that include the Internet is responsible for the information content under regulation of the common law (Deutschen Bundestage, 1997).

The trends gathered here from a few international sources are summarized in a report of the study group on the rules for the flow of information in telecommunication services announced by the Ministry of Posts and Telecommunications in 1997 (Ministry of Posts and Telecommunications, 1997).

Trends in measures against harmful information in Japan

The study group for the advancement of the condition for the use of telecommunications established by the Bureau of the Ministry of Posts and Telecommunications published a report in December 1996 dealing with various problems that affect the distribution of information on the Internet (Ministry of Posts and Telecommunications, 1996). The report highlighted the importance of reinforcement of international cooperation, planning and the establishment of guidelines by providers, and the development of a filtering system. Moreover, the National Police Agency announced in April 1996 an "Intermediate Report on Security of the Information Systems" that outlined measures to be taken against Internet crime (National Police Agency, 1996). Finally, an organization called the Electronic Network Consortium published a document entitled "Rules and Manners for Internet Users" in March 1999 (Electronic Network Consortium, 1999).

Measures taken against harmful information in Special education

Measures against harmful information are an extremely important consideration in the use of the internet in special education. The report of the Bureaus of the Ministry of Posts and Telecommunications cited above (Ministry of Posts and Telecommunications, 1996), highlighted the following problematic issues:

- i. Professional job ethics of the publication, the newspaper, and the broadcasting do not work on the information content of the Internet.
- ii. Owing to the anonymity of the senders of information, irresponsible information sending and illegal acts are easy to commit psychologically.
- iii. Even if illegal content is deleted from a server, it can be easily copied and forwarded to another server.

- iv. Even if a country prohibits illegal information under Civil law, but it is not illegal in another country, this type of information can spread worldwide.
- v. Even if a given Internet provider limits access to illegal information, it is possible to access this information through another provider.

As a result of the rapid spread of the Internet, everyone is able to post information, but in many cases the content of this information is not sufficiently screened to ascertain whether or not it should be posted. There are many cases of individuals sending harmful information carelessly, or putting personal information on Web pages without sufficient consideration of the effect of doing so. Therefore, it is necessary to consider measures to be taken against harmful information in education. Recently, a filtering mechanism has been developed to prevent access to harmful information. There are two methods whereby information can be blocked or filtered, and they are referred to as the white and the black list method (Kubo and Takiguchi, 1997). The white list method is a method listing authorised information. Any information not listed is prohibited. In contrast, the black list method authorizes information that is not prohibited. Under this method, information listed is prohibited and other information is permitted.

Both methods have their merits and demerits. In the white list method, if the list is appropriately compiled, information that should be prohibited does not pass through the filter. However, because any information not listed is prohibited, the chance of obtaining useful new information is limited. The black list method, on the other hand, allows the possibility of harmful information not listed to pass through. Nevertheless, the black list method has the advantage of allowing greater access to new and useful information.

Although technologies that block the flow of harmful information are progressing, it seems that the judgement of the Internet user is still a very important determinant of the harmfulness or otherwise of information accessed.

A report of the Research Cooperation Conference of the Ministry of Education published in August 1998 (Ministry of Education, Science, Sports and Culture, 1998a) on the measures to be taken against harmful information in the context of education states:

There is a large amount of information that is improper for children (so-called harmful

information) on the Internet. Filtering technology is in general use at this time to block improper information that may thwart the healthy development of children from reaching those children.

Filtering of information has both benefits and deficits depending on where the control is exerted, whether at individual terminals in schools, servers in schools, or at education centres, and it is also dependent on the method of filtering technology used (whether the black list or the white list method). There are innumerable Web sites on the Internet with frequently changing addresses, and new Web sites appear continually. Therefore, filter lists must be often updated. From an economical and technological perspective, it is more efficient to do this at a central location such as an education centre, rather than at individual schools.

At the same time, there are no definitive measures to protect against improper information in the context of education. At present, it is important to supply information concerning the current state of research on filtering technology and illustrations of applied practice to boards of education and to schools.

Concerning the issue of filtering, it is the opinion of some that access to harmful sites can be prevented as long as students use the Internet under the proper guidance of teachers. Many others believe that harmful content, slander and personal attacks through e-mail or electronic bulletin boards are the problem.

Thus, the report highlights the importance of popularising information about measures to protect students from harmful information. In addition, it stresses the possibility that students may inadvertently disseminate slanderous information.

Slander is becoming a major social issue. The slanderous acts mentioned here refer to actions that contribute to the lower social evaluation of an individual, and acts of slander fall under Civil and Criminal law (Yamashita, 1997). If the social evaluation of a person is threatened, under Civil Law (Article 709), this is considered to be an act of slander. Therefore, the publishing of messages that damage another person's reputation on Web pages contributes to damaging that reputation in public, and is considered to be slander. In this case, the message can be prevented and compensation for damages claimed under Article 709 of the Civil Law. Moreover, deletion of the slanderous message can be requested of the Web master (Yamashita, 1997).

Under Criminal Law, the acts of slander (Article

230 of the Criminal Law) and the act of insult (Article 231 of the Criminal Law) are provided for separately. It is assumed that an act that lowers social evaluation by pointing out facts is slander, and that an act that lowers social evaluation by only showing evaluation and judgement is an insult. Article 230 of the Criminal Law prescribes "the person who damages a person's honour publicly is sentenced to penal servitude of three years or a penalty of 500,000-yen or less, regardless of the presence of the fact" (Yamashita, 1997). On the other hand, Article 231 of the Criminal Law prescribes "even if the fact is not pointed out, the person who publicly insults a person is sentenced to detention or penalty" (Yamashita, 1997).

For acts of slander and insult on the Internet, a common international accord has been reached that "What is illegal offline remains illegal online." (Ministry of Posts and Telecommunications, 1997) Therefore, it is important to promote student understanding concerning the responsibilities and risks involved in use of the Internet in the context of special education. It is necessary to make students understand that information gathered from the Internet could contain information with low validity, or is illegal, and students should carefully consider the value and meaning of any information. Also, it is important that students do not suffer damage from harmful information when the Internet is used in special education activities, and it is important for students to exercise care when using the Internet to avoid inadvertently disseminating harmful information.

Progress in Establishing Guidelines

Thus far the problem has been investigated in three areas: (1) protection of personal information; (2) protection of copyright, and (3) measures to safeguard against harmful information. It is believed that guidelines regarding the use of the Internet in educational activities are important in each of these areas. Therefore, the guidelines for Internet use are examined in the following section.

Guidelines for Internet Use in Special Education

First, a general view of the guidelines concerning Internet use is examined. According to the Ministry of Education (Ministry of Education, Science, Sports and Culture, 1998b), guidelines have been established in 2,316 elementary schools (35.6% of the elementary schools connected to the Internet), 1,497 lower secondary schools (33.6% of the lower secondary schools

connected to the Internet), 1,210 upper secondary schools (45.6% of the upper secondary schools connected to the Internet), and 184 special schools (55.1% of the special schools connected to the Internet). Of the special education schools, 14 (50%) of schools for the blind, 26 (56.5%) of schools for the deaf, and 144 (55.4%) "other" special schools have established guidelines. This is more than one half of such schools.

In addition, the Board of Education in some municipal corporations has established guidelines for use of the Internet in the context of education. The advantage of this is that this establishes common recognition between schools over which boards of education have jurisdiction. Moreover, the formulation of the guidelines is important in that it relates to the regulation of personal information protection enacted by municipal authorities. Municipal authority guidelines are examined in the following section in terms of: (1) protection of personal information; (2) protection of copyright, and (3) measures to safeguard against harmful information.

Protection of Personal Information

The Yokohama City Board of Education established "Guidelines for the Use of the Internet" in April 1998 (Yokohama City Board of Education, 1998). In Yokohama the guidelines are planned with the assent of the Yokohama City Personal Information Protection Council as a common set of rules to be applied by all municipal schools concerning the use of the Internet. The protection of personal information is described as follows:

It is preferable not to post student's personal information on public Web pages from the viewpoint of the student's human rights and student's safety insofar as possible. However, if it is thought that the posting of information is necessary to introduce school events, the work of students, and the results of activities, for promoting educational activities, one can post information in the following ranges based on consideration of the purpose, the educational effect, and the danger of the posting. In this case, it is necessary to obtain the consent of the student, parent or guardian after the liabilities of posting such information have been fully explained.

a) Name: As a rule, personal information is not posted when student's work is posted to a Web page. However, if it is necessary to post personal information for the purpose of the article, the range of the posting shall be limited to name, school year, and the subject.

- b) Photographs: If it is necessary to post student's photographs on Web pages, group photographs should be used with care taken so those individuals may not be specified from the photograph. When a photograph in which individual can be recognized is posted to a Web page, it should be posted in such a manner that it is not likely to coincide with the name after the photograph is shown to the student and the guardian, and the consent for posting is obtained.
- c) Other personal Information: Information concerning individual lives, such as nationality, registered domicile, address, telephone number, date of birth, family composition, etc., must not be posted on public Web pages.

In summary, the guidelines state that personal information should not be posted on school Web sites insofar as possible, and the purpose and educational effect, and the danger of posting personal information should be fully taken into consideration. Moreover, the range of posting when names and photographs are posted to Web pages is described in concrete terms in the document. In addition, the guidelines oblige schools to obtain the consent of students, parents and guardians and that the liabilities of posting this material be fully explained.

In May 1998, Kawasaki City published a set of guidelines called "Guidelines for Internet Use at School" (Kawasaki City, 1998). The guidelines describe the posting of personal information. The following consideration is necessary for the personal information of students and school personnel:

Personal information such as name, opinions, photographs, etc., based upon which an individual might be identified, should not be posted to Web pages unless the agreement of the guardian or student (Format 6) is submitted to the school principal and permission is received.

However, information concerning the individual's life such as address, telephone number, date of birth, nationality, registered domicile, thoughts, religion, etc., must not be posted to Web pages.

In the guidelines of Kawasaki City, the format for the agreement of guardians and students is concretely shown when the information is posted.

In addition, guidelines for the posting of personal information in the Meguro Ward of Tokyo entitled "Outline concerning the Use of the Internet in Meguro Ward Elementary and Lower Secondary Schools" (Meguro Ward, 1999) describes:

- i. The posting of the personal information of the student to Web pages is limited only to cases when the school principal recognizes the necessity of such posting for the educational activities of the school. If personal information is posted, it is necessary to consider measures that protect students from damages arising from the posting of personal information.
- ii. When student's personal information is posted to Web pages, such posting must be done with the guidance of the teacher after the outline and the liabilities of posting such personal information have been explained to the students and the guardians, and agreement is obtained for posting.
- iii. It is necessary to take appropriate measures promptly when the correction and deletion of personal information posted on the school's Web site is requested from the student or guardian.

Thus, the item concerning the measure when the correction and the deletion are requested from the student or the guardian is included in the guidelines of the Meguro Ward.

Moreover, at the Hyogo Prefecture Internet Use Promotion Conference held in March 1999, "Guidelines for Internet Use" were written for individual users; that is, the child, the student, school personnel, and administrators. The contents include simple to understand explanations for the protection of personal information using concrete illustrations such as "e-mail" and "Making a Web Page." (Hyogo Prefecture Internet Use Promotion Conference, 1999)

As mentioned above, guidelines concerning the educational use of the Internet have already been formulated, and policy for the protection of personal information has already been established by some municipal authorities. It is important that more municipal authorities become involved in this process in the future.

Protection of Copyright

The guidelines formulated by Yokohama City concerning copyright are as follows (Yokohama City Board of Education, 1998):

It is necessary to consider the copyright of such information as writings, paintings, photographs, and music, etc., which is posted to school Web pages. Therefore, when information is posted to school Web pages, the principle is that the person who made the information posts the information that was made for the web page. If other persons prepare the information, or the information relates

to other persons, it is necessary to obtain the agreement for the posting and accept the instructions for such posting.

In addition, there are guidelines relating to the protection of copyright in Kawasaki City (Kawasaki City, 1998):

When work with copyright is posted on school Web pages, it is necessary to obtain the permission of the author. Moreover, when a student's work is posted to school Web pages, it is necessary to obtain the agreement of the student or guardian. For information collected through the Internet, the user must make proper use according to copyright law and regulations.

That is, the copyright of student's work is referred to here in these guidelines.

The issue of the copyright of student work was also addressed at the Hyogo Prefecture Internet Use Promotion Conference. For example, the chapter for school personnel describes the protection of copyright as follows (Hyogo Prefecture Internet Use Promotion Conference, 1999):

Protection of student's copyright

There is a copyright, also, in student's work, please obtain the consent of the student or guardian when you post work on Web pages.

Thus, the guidelines of some municipal authorities include items concerning the protection of copyright, although their descriptive expressions differ.

Measures Taken Against Harmful Information

These are the following measures adopted by Yokohama City against harmful information (Yokohama City Board of education, 1998).

All information which is posted on school Web pages has to be approved by the school principal, and school personnel and the student should be aware that it is information for the educational purposes of a public organization. The school principal must note the following content should not be posted when approval is given for such posting:

- i. Content which violates the law.
- ii. Content with the aim of the pursuit of profit.
- iii. Content that violates copyright and other rights.
- iv. Content that slanders others or is discriminative.
- v. Content judged improper to post information

to the public from a school.

In addition, there are the following descriptions as a consideration matter in the use of the student (Yokohama City Board of education, 1998):

- i. Guidance when students use the Internet: When students post information on school Web pages, school personnel should pay attention to the following; the problem of slander, the protection of copyright, portrait rights, intellectual property rights, and protection of privacy of personal information, etc. Moreover, teachers should guide their students in the basic ethics and manners in using the Internet, and promote student understanding and consciousness concerning the responsibility for the posting. When students receive information that contains unpleasant content or slanderous content by e-mail, school personnel must promptly take appropriate measures.
- ii. Consideration of information that disturbs the healthy development of students: When a PC is connected to the Internet, it is necessary to consider that students do not access information that disturbs their healthy development.

Related issues in the guidelines of Kawasaki City have also been described (Kawasaki City, 1998):

Before opening Web pages to the public, one should check whether they contain contents that violate the law such as slanderous material, and the use of character without permission at the Network Proper Use Committee.

Moreover, guidelines describe teacher guidance in this issue (Kawasaki City, 1998):

When students use the Internet, they should do so under the guidance of a teacher. When the internet is used, the teacher should provide the following guidance; (1) contents about privacy, personal information, and network etiquette; (2) ethics education concerning measures against harmful information that takes account of the characteristics of the internet; and (3) matters that the school principal considers necessary.

These are the guidelines proposed by the Hyogo Prefecture Internet Use Promotion Conference (Hyogo Prefecture Internet Use Promotion Conference, 1999).

Action to be taken against harmful Web pages

Please prohibit students from visiting harmful Web pages through guidance. If you find harmful Web pages that cannot be filtered, please report these to the appropriate school committee.

Removal of harmful information

Please take appropriate steps to remove harmful information, such as through the use of filtering software, or the use of an information retrieval service by which harmful information may be removed.

Moreover, the following descriptions targeting e-mail are addressed in the chapter for school personnel (Hyogo Prefecture Internet Use Promotion Conference, 1999):

Respect for Human rights

Please offer guidance so as not to violate another's human rights, please take appropriate and immediate action if you receive annoying e-mails or threatening e-mails.

Thus, measures against harmful information are referred to in the guidelines of some municipal corporations.

Internet Use and Guidelines for Municipal Corporations

As mentioned above, some municipal corporations have established guidelines for the use of the Internet in the context of education. The guidelines include descriptions concerning the protection of personal information, the protection of copyright, and measures required to safeguard against harmful information.

When the Internet is used in special schools, it is necessary to use it in accordance with the guidelines established by municipal corporations. Furthermore, the following important point should be taken into consideration in this regard. Because the work corresponding to an individual is very important to special education activities, when the educational practice is introduced on the Web pages, it is important to carefully consider the descriptions that relate to personal information. For example, it is necessary to examine points about how to describe information by what expression in the description concerning the activities to meet the unique needs of each child with a disability from the viewpoint of education.

In summary, it is believed that consideration from an educational perspective should be done concerning the use of the Internet in special education schools, in addition to observance of guidelines for its use.

Future Issues

This final section of the paper discusses the future issues that need to be addressed concerning the use of the Internet.

Guidelines for Special Education

The present task is to examine the guidelines for the educational use of the Internet from the viewpoint of special education. In the boards of education of some municipal corporations, guidelines concerning the use of the Internet in schools are available to the public. These guidelines are necessary to avoid the confusion and misunderstanding regarding Internet use in schools. There are important differences in attitude concerning the use of the Internet in special education. There are those who adopt a more conservative approach to its use, and those who want to use it more actively. It is believed that the guidelines help to clarify some of the confusion that this causes. Furthermore, it will be necessary to review the present guidelines of municipal corporations and schools at some appropriate time in the future. As the Internet is rapidly expanding, there is a need to adjust current needs and conditions in special schools to these trends.

Promotion of Student Understanding of Legal Aspects

It is important to promote student understanding of the law and how it relates to Internet use. While students may feel that legal aspects are not relevant, it is important to provide concrete guidance about the dangers that exist and the precautions students should take to avoid the damage that may be caused. In the new standard for educational curricula to be implemented in 2002, a policy to expand information education was announced (Ministry of Education, Science, Sports and Culture, 1999). It is necessary to examine content relating to legal aspects of information education in the future.

Promotion of Guardians Understanding of Legal Aspects

It is important to promote an understanding of the legal aspects of Internet use in guardians. As it is projected that students will increasingly use the Internet both at home and school, the cooperation of the school and the home is required to prevent, or ameliorate the effects of harmful information. Furthermore, there are many students who have difficulty in communication in the students who have disabilities. Therefore, the guardian and the school personnel should cooperate together so that students

who have disabilities are not at a disadvantage regarding the use of the Internet.

Inservice Training for Teachers.

The inservice training of school personnel in special education is very important to promote an understanding of students and guardians about the legal aspects of the Internet. Measures have already been adopted to address problematic issues in some areas, and there is the possibility of international agreement on various legal aspects in the future. Information about these latest trends should be made available to special education teachers.

Conclusion

The authors examined the tasks concerning the protection of personal information, the protection of copyright, and measures that need to be taken against harmful information on the Internet. As the Internet will become increasingly used in the future, it is critical that special education personnel should be fully acquainted with the problems there are and the measures that have been adopted to meet them. If this is achieved, then the use of the Internet in special education schools in Japan will be more effective.

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Cooperation Between Teachers and Parents of Pupils with Severe and Multiple Handicaps Who Utilize Homebound/Hospital Education Services

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The purpose of this study was to investigate the cooperation between teachers-in-charge and parents of pupils with severe and multiple handicaps who utilize homebound/hospital education services. Three analyses were conducted. First, a national survey of homebound/hospital education services in 1996 was reanalyzed and the following six perspectives were extracted from the data: The need to discuss the curriculum with parents, the need to encourage greater use of medical or welfare services, the need to publish a class paper, the need to increase opportunity of schooling, the need to cooperate with parents in the health care of their children, and the need to have more interaction among parents. Second, nine highly experienced special education teachers involved in the provision of homebound/hospital educa-

tion in Kanagawa Prefecture completed a questionnaire based on the reanalyzed data gathered in the first phase of the study. Third, in the initial national survey (1996), the publishing of a class paper was found to be effective in promoting cooperation between teachers and parents. To investigate this issue, 228 samples of class papers collected from 23 special schools were analyzed.

Results of this multi-phase study suggest that teachers involved in the program have been working hard to promote mutual understanding and cooperation with parents. Detailed examples of such activity are presented and relevant perspectives are discussed.

Key Words: Homebound/hospital education service, cooperation, class paper, severe and multiple handicap

Changes in the Communicative Relationship Between a Child and a Teacher (3) : Practical Approaches to Support for Communication Disorders

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The purpose of this study was to consider the importance of keeping a teaching diary and utilizing the case conference approach in improving communication disorders between child and teacher. The paper, based on the teaching diaries and case conference involvement of three teachers, reports not only observations of the child's behavior and teaching program, but also the introspective comments of both child and teacher. Results indicate that the teaching diary and case conference approaches are effective in improving the relationship between child

and teacher and that the introspective perspectives of both teachers and children should be considered in case reports and case conferences. The researchers propose an applied approach be combined with an introspective perspective when considering the relationship between child and teacher.

Key Words: Communicative relationship, communication disorders, support for communication disorders, teaching diary, case conference

Analysis of and Perspective of Support for Issues Related to Deafblindness: As Seen from Referrals to NISE

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The Department of Education for the Multiply Handicapped of the National Institute of Special Education (NISE) is the sole organization in Japan to conduct research in the field of deafblindness. As a result, it acts as a national consultant for deafblind issues as well as

offering a limited overseas service. This current analysis is based on 132 referrals to NISE made during the past six years (1993-99) and provides an overall perspective on relevant issues in the field of deafblindness including service provision. It was found that the Internet is a promis-

ing tool in deafblind education from the aspect of dissemination and the sharing of information. Discussion mainly focuses on issues that have so far been neglected in the research literature, in particular progressive deafblindness due to Usher syndrome. The investigation provides a more comprehensive view of the variegated needs

of and the necessary support for deafblindness by complementing past research conducted by NISE.

Key Words: Deafblind, progressive, Usher syndrome, multiple disability, visual impairment, hearing impairment, Internet

Making and Using Picture Books for Blind Children: A Case Study Approach

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Picture books for blind children include pictures made with tactile materials to enhance understanding. Nevertheless, while the use of pictures leads to increased comprehension of the stories, occasionally pictures are not understood tactually, especially by very young children with visual impairment. This paper addresses the following issues: The production of readily comprehensible pictures aimed at the early stages of the child's development, the production of simple yet interesting picture books for visually handicapped children, measures to encourage the children to touch pictures in the books with the aim of improving tactile perception, and the production of picture books for blind children based on ordinary picture books.

To examine these issues, picture books for blind children were developed and tested with two visually handicapped children both aged three years. It was found that: 1) The attributes of pictures (e.g. tactile material, size, form, location) should be considered in making pictures. 2) Different tactile materials should be used for each picture. 3) The value of one attribute in each picture should be changed on each page in order to make simple yet interesting picture books for blind children. 4) It is possible to facilitate 'searching', and 'tracing' tactile perception of visually handicapped children using picture books.

Key Words: Picture books for blind children, visually handicapped infant, tactile perception

Educational Guidance in Classrooms for the Emotionally Disturbed: An Analysis Based on Length of Teacher Experience in Ordinary Education, Special Education, and Education for the Emotionally Disturbed

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The purpose of this study was to investigate the relationships between teaching experience in ordinary education, special education and education for the emotionally disturbed and the current educational practice in special classes for emotionally disturbed children. The investigation is based on information collected from a questionnaire survey distributed to all special classes for the emotionally disturbed in Japan.

Results were as follows: 1) The most significant relationship was found to be between teachers' years of experience in education for the emotionally disturbed and educational practice in the special class for emotionally disturbed children. 2) There is a significant relationship between years of experience in teaching the emotionally

disturbed and class size, the use of standardized testing procedures, a greater frequency of curriculum planning on a monthly and term basis, a decrease in difficulties experienced in the classroom, and more use of consulting staff from special education centres and education committees in contrast to informal support from professional colleagues in the school. These findings suggest teacher experience in catering to the needs of the emotionally disturbed is related to the professionalism of special education teachers and should be considered in their training.

Key Words: Autism, educational carrier, special class, elementary school

Two Word Mand Training of a Child With Developmental Disorder Using Behavior Therapy: A Single Case Study

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It is said that to generalize and to maintain behaviors taught using behavior therapy are difficult for children with developmental disorder. To solve these problems, behaviorists propose a variety of methods. Among these teaching methodologies is the teaching of 'mand' rather than 'tact' and improving teaching itself. The mand model method and time-delay method have developed using this approach.

In this case study, a two word mand was thought using the mand model method and the time delay method in a baseball game setting to accomplish generalization and maintenance. It was found that the mand was learned when the program was completed and the maintenance and generalization of the mand was successfully achieved.

These findings suggest: 1) The use of imitation to learn spontaneous words is paradoxical so it is necessary to prepare for this problem. 2) Difficulty associated with achieving generalization and maintenance of learned performances using behavior therapy is not caused by the behavioral scheme, but the content and method of teaching. 3) The time of changing a procedure and the length of interruption of a procedure are important factors in achieving successful learning. 4) The single case experimental design is useful because it teaches us function of the intervention when we lose our way.

Key Words: behavior therapy, mand, generalization, maintenance, single case experimental design

Telecommunication Instruction of Children with Hearing Impairment

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This paper reports on an observation and analysis of telecommunication instruction of children with hearing impairment. Subjects were twin boys with profound hearing sensori-neural hearing loss over 90dB each. The instruction of telecommunication started from June 1997 and the instructor on telecommunication was a teacher of a school for the deaf. The record of telecommunication was complied by the mother of the children. Three aspects of this analysis are discussed: 1) The skill of the telecommunication in terms of communication skill and the

telecommunication partner. 2) the situation of the telecommunication in terms of talking to the partner, asking again and the contents of the communication, and 3) The option of the telecommunication equipment used viz. telephone aid, telephone with amplifier and the use of the telephone together with facsimile. Finally a check list including the above three factors as an index of progress on the telecommunication is proposed.

Key Words: Telecommunication, sensorineural hearing loss, communication skill, telecommunication equipment

Formation of Braille Sign System Activity of a Student with Deaf-blindness: Action Research in the Early Stages of Braille Learning

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This action research carried out at the Attached Child Guidance Clinic of The National Institute of Special Education was designed to investigate the leaning process of a student with blindness and severe hearing loss on the formation of Braille sign system activity. We adopted a teaching strategy which is based on the Postulate System of Sign System Activity (Umezu; 1980).

The formation process of Braille sign system activity was divided into five stages, that is 1) differentiation of direction in behavioral space, 2) differentiation of plane geometrical space, 3) discrimination and setting up of Braille types, 4) construction of one to one correspondence among elements of three sets; X (event system), Y (Braille sign system), and Z (behavior system), and 5) advancement

in order of each sets.

The result shows that 1) the subject grasped the relation among the three sets; X, Y, Z. The Braille types used was two or three-molecules (syllables)-synthetic construct (ie. ku/shi; comb, ha/sa/mi; scissors; ha/ko: box. sa/ra: plate), 2) the subject composed Braille sentences consisting of three molecule-synthetic constructs (ie. "kushio/hakoe/ireru", that is "go-comb/box-to/put: put comb into the plate") as the construction of the Cartesian product among three sets, that is A (characteristics of handled objects) $\times B$ (characteristics of object as recep-

tacle) $\times C$ (characteristics of handling movement), and 3) the learning was facilitated by assistance of verbal cues but sometimes confused by the subject's unclear utterance.

The findings suggest that 1) the strategy adopted in this action research is useful not only to develop the teaching-and-learning tactics to produce Braille sentences, but also to modify it in ever-changing situation, and 2) teaching-and-learning process should be as a mutual interaction process characterized by sharing and collaboration.

Key Words: Deaf-blindness, Braille, sign system activity, situational constitution, mutual interaction

Identification of Learning Disabilities in the USA: The Issue of the Aptitude-Achievement Discrepancy Model

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This article reviews the issue of the definition of learning disabilities and eligibility criteria for students with learning disabilities in the United States of America. Even though in the USA, in that students with learning disabilities have been an issue in special education for a long time, there remains the problem of lack of clarification of the definition of learning disabilities and the norm of diagnosis for learning disabilities. It is considered essential to review the ongoing debate concerning the definition of learning disabilities in the USA. Because the aptitude-achievement discrepancy is a key component in the identification of learning disabilities in the various States of the USA, this study focuses on the aptitude-achievement discrepancy model.

The article consists of four sections:

1) an historical review of the discrepancy model in definitions of learning disabilities; 2) methods of quantifying these discrepancies; 3) the problems of the discrepancy model itself; and 4) alternative methods of the discrepancy model. The methods of quantifying a severe discrepancy include the following four common procedures: deviation from grade level, expectancy formulae, standard score differences, and regression discrepancy. However, disadvantages in the discrepancy model consist of problems in identifying students with learning disabilities, problems with the model itself, and the essential problem of the discrepancy model for identification of students with learning disabilities.

The first group of issues include the following three

problems: 1) the discrepancy model depends on their quantifying methods or tests that are used arbitrarily in the identification of learning disabilities; 2) eligibility criteria depend on the circumstances of each state; and 3) the data from the model do little to aid in the formulation of individualized education programs.

The second group of issues are problems of the overlap of groups identified by the discrepancy formula and the problem that IQ is irrelevant to the identification of learning disabilities.

The third issue is that many students must reach the threshold of severe failure before they can receive special education services.

As alternative methods of aptitude-achievement discrepancy, discrepancies intra and inter-academic skills and discrepancies among cognitive processing skills are introduced. These alternative methods facilitate the reconsideration of the label of learning disabilities and the description of students with learning disabilities by means of their strength in skills and needs in special education.

The final section of the paper highlights the differences between Japan and the USA as follows: 1) educational support system for students with disabilities; 2) characteristics of students with learning disabilities; and 3) the standardized assessment methods and training teachers in these assessment methods.

Key Words: Learning disabilities, discrepancy, eligibility criteria, the United States of America, cognitive processing skills

Parent Support in Early Intervention Programs for Children with Special Needs

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It is generally agreed today that early intervention with infants and young children with special needs is essential. This paper suggests that not only the nature of support given to family members and the networks of early intervention should be examined. Focus is on the type of support given to family members, especially to parents and guardians who key caregivers for infants and young children. The research literature in Japan since 1990 is reviewed and categorized into five groups: 1) The relationship between children with special needs and their mothers. 2) The roles of the mother. 3) Expectations

of parents and guardians of the nature of early intervention provided. 4) Network systems of early intervention and their substance. 5) Further issues concerning support given to parents and guardians. It is proposed that not only specialized support be given to meet the child's needs but that the intervention process meet the needs of the whole child in the completeness of the family setting. If such a structure is established, parents and guardians can bring up their children with confidence.

Key Words: Parent support, early intervention, educational guidance, network systems of early intervention

National Survey on the Current Situation of Vocational Education and Courses Offered for Graduates From the Upper Secondary Department of Special Schools for the Health Impaired

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This paper reports on the current situation of vocational education and graduate courses in the upper secondary departments of special schools for the health impaired in Japan. 39 schools with a total of 285 graduates at the 1997 academic year were involved in the survey. It was found that the major disease categories of graduate students were as follows; 121 (42.5%) had neurological disorders, 49 (1.2%) behavioral disorders, 27 (9.5%) had diseases of the respiratory system, and 25 (8.8%) had renal diseases. In 79.5% of special schools for the health impaired, vocational education subjects based on the regular school curriculum, such as home economics, business and industry were offered and 171 graduates

(60%) actually took vocational education subjects. In 69.2% of the above mentioned schools, several kinds of job training were carried out and 94 graduates (33%) actually had experience of on the job training. Finally, using the knowledge gained from understanding the current status of graduates (e.g. disease status), the vocational education and the course of graduates from the upper secondary department in special schools for the health impaired is discussed.

Key Words: Upper-secondary department in special schools for the health impaired, graduate course, vocational education job training

Analysis of Trends in the "Tsukyu" System for Emotionally Disturbed Children (2)

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The purpose of this study was to analyze trends in the "Tsukyu" system (i.e. resource rooms in schools) and individualized education programs for emotionally disturbed children. The focus of the project was resource rooms in elementary schools and secondary schools. Questionnaires were sent to prefectural boards of education and

resource room teachers in schools. The main findings of this investigation were as follows: 1) The number of resource rooms for emotionally disturbed children has increased each year, but the number of prefectural established resource rooms has not increased. 2) About 30% of children in elementary schools have an autistic disorder,

and about 70% of students in secondary schools have school phobia. 3) About 90% of children in elementary schools and about 80% of students in secondary schools are employed one-to-one instruction. 4) About 90% of elementary schools and 70% of secondary schools make individualized educational programs. 5) In one-to-one

instruction, children are offered educational therapeutic activities (Yougo Kunren) and supplementary academic skills.

Key Words: Tsukyu system, resource room, autism, emotional disturbance, individualized education programs

Individualized Education Program in Special Classes for Emotionally Disturbed Children in Ordinary Elementary and Secondary Schools

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Recently, "teaching according to the individuality" has thought to be important. So, we made questionnaires about the practice of one-to-one instruction in special classes for emotionally disturbed children in ordinary schools in metropolitan area (Tokyo, Kanagawa, Saitama, Chiba), and received answers from 181 out of 270 elementary schools and 68 out of 116 lower secondary schools. The main findings of this investigation were as follows; 1) In the elementary schools, more than half of the children in special classes for emotionally disturbed are autism. 2) In the lower secondary schools, school refusal (50%) and autism (21%) are mainly found. 3) 93% of the elementary schools and 85% of the lower secondary schools provide one-to-one instruction, and average hours of the instruction

are 8.2 hours per week per children in the elementary schools, and 6.8 hours in the lower secondary schools. 4) Both in the elementary schools and the lower secondary schools, the main content of one-to-one instruction is the supplementary academic skills. 5) Individualized education programs are made in 85% of the elementary schools and 65% of the lower secondary schools. 6) The programs are made mainly by the teachers of special class, and parents and the teachers of ordinary class are involved as well. 7) 95% of the schools evaluate the programs after practice.

Key Words: individualized education programs, IEP, one-to-one instruction, emotional disturbance, autism

Issues of Copyright in Special Education

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This article is concerned with the issue of copyright in the various fields of special education practice. First, the copyright law in Japan is reviewed from the perspective of special education. Second, how special education personnel should deal with the copyright issues is discussed using the following practical examples:

1) Utilization of teaching materials developed by special schools

- 2) Dealing with copyright issues in children's work.
- 3) Utilization of materials on Internet homepages.
- 4) Utilization of multimedia software materials.

Finally, the importance of placing the issue of copyright in the teacher education curriculum is discussed.

Key Words: Copyright, Internet, Multimedia, Teacher education

Self-Efficacy, Coping Behaviour and Health Locus of Control in Junior High School Students with Renal Disease

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The purpose of this research was to investigate the relationship between self-efficacy, coping behaviour, stress reactions and HLC (Health Locus of Control) in junior high school students with renal disease. Subjects were 44 junior high school students. The results of the analysis were as follows:

1. There was no significant difference in self-efficacy, stress reactions and HLC between students with renal disease and healthy students.
2. There was a positive medium correlation between self-efficacy and active coping, and a negative correlation between self-efficacy and passive coping in the renal disease group. There was a significant positive difference in active coping between subjects with high and low scores in self-efficacy, and a significant negative difference between the two groups in passive coping.
3. A negative low correlation was found between self-

efficacy and stress responses (viz. irritated-angry effect) in the renal disease group. A positive medium correlation was found between self-efficacy and stress responses (viz. cognition-thought of helplessness), and ratings of stress response for high self-efficacy subjects were significantly lower than for subjects in the low self-efficacy group.

4. A positive medium correlation was found between self-efficacy and HLC. Ratings of HLC of subjects with high self-efficacy were significantly higher than for subjects in the low self-efficacy group.

In conclusion, this investigation considered the effect of self-efficacy on the coping of students with renal disease as well as stress response. In addition, the relationship between self-efficacy and HLC was explored.

Key Words: Renal disease, self-efficacy, coping behaviour, stress responses, health locus of control

A Pragmatic - Based Approach to Communication Structure in the Teaching of a Multiple Handicapped Child

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The pragmatic-based approach appears to be more efficient than the traditional experience-based approach in objective analysis of the behaviours of handicapped students and in clarifying the structure of communication these students and their teachers adopt. A survey was conducted to determine the kinds of communicative structures used in the teaching of students with severe multiple handicaps, and the findings were interpreted from a pragmatic-based perspective.

It was found that in classroom lessons, the teacher initially gave the student information that appeared to be useful for that student. By observing the physical responses of the student, including simple verbal information, the teacher was able to determine what the student was thinking (i.e. whether or not the

child was willing to do what the teacher had requested). If contextual information was taken into consideration, the teacher was able to better ascertain the student's motivation. It is important to state that the information given by the teacher was relevant to what was going on in the classroom.

These results suggest that pragmatic-based analysis is able to provide some objective interpretation of the communication structure between a student with multiple handicaps and his teacher. It is suggested that the pragmatic-based approach could be applied to various fields of communication analysis in the education of handicapped pupils and students.

Key Words: Multiple handicapped child, communication structure, emotional (kan sei) information, pragmatic-based analysis, self-evaluation of classroom lessons

Parental Intervention in Education Counselling of Children with Special Needs in Early Childhood

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In recent years, there has been increasing emphasis on educational counselling in early childhood and on the importance of parental intervention in this process. The purpose of this investigation is to determine what structures are required to support this type of intervention and the issues that need to be addressed.

Questionnaire data was collected from early childhood caregivers and parents associated with Tsukyu (i.e. resource rooms) in elementary schools. The following issues were investigated: Discontent with the institution, the memorable words and actions of staff, the times it was difficult to provide child-care and why, and the kinds of partnerships required to

provide adequate care to children.

The findings suggest that intervention should be commenced as soon as possible after the physical examination has been administered, and that that a more comprehensive type of intervention with children younger than three years of age and their parents be implemented. In addition, a dedicated network of parents of children with special needs should be established, and advice to parents should be given only after their current style of child-care has been approved.

Key Words : Educational counselling, parents, Tsukyu, childcare support, disclosure of disability

Teacher Attitudes and Behaviours to Deafness in Teaching Deaf Children

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Teacher attitudes and behaviour in the teaching of children with hearing handicap and issues concerning language and communication mode are important research issues in the field of deaf education. This is largely due to the current paradigm shift in the concept of disability that is having an effect on the curriculum for children with special needs. The present research was based on a data set established by the Information Center (NISE). The findings suggest that the usage of vocabulary about disability and attitudes to disability have become increasingly positive.

In addition, the study proposes an original three-type model of educational activity for deafness and other disabilities viz. the rehabilitation model, the developmental task model and the cultural diversity model. The teaching of deaf children was analysed using this model. The findings of this analysis suggest that teacher activities are progressing in three directions (1) individualised programming, (2) systematic programming, and (3) intercultural programming.

Key Words : disability, deafness, deaf awareness, deaf, study

Occurrence-pattern Analysis of Self-injurious Behaviours in Persons with Intellectual Disabilities: Systematic Observation under Controlled Conditions

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(Kibi International University)

Occurrence-pattern analysis of seven subjects with self-injurious traits were analysed for the purpose of assessing the suitability of a four category framework for the classification of self-injurious behaviour proposed by Higo and Kobayashi (1990).

Analysis of the data revealed that the occurrence-patterns of three subjects were able to be categorised within that framework and four subjects were able to be categorised as 'the type' (i.e. mixed-plural categories). On the other hand, the re-appearance of self-injurious behaviour in four of the

subjects did not occur during the period of observation. To understand why this happened, stimulus control other than external stimuli is suggested.

The findings of this investigation suggest that in using this classification it is important to recognise the concept of mixed-type and to locate stimulus control other than external stimuli within the framework of classification.

Key Words: Self-injurious behaviour, occurrence-pattern, motivation, taxonomy

Educational Support Aimed at Promoting Communication and Use of Media in a Child with Multiple Disabilities

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This Case Report is concerned with educational support designed to promote communication and the use of media in a child with multiple disabilities. The subject and his mother regularly attended sessions for seven years at the Guidance and Counselling Unit of NISE. The boy had restricted mobility due to high muscular tension resulting in limited spontaneous interaction with others despite his being receptive to their approach.

To promote active social interaction, "relationship-play" between the subject and his caregivers was introduced, and to promote communication activities, Augmentative and Alternative Communication (ACC) was conducted. Results of this intervention suggest that picture-symbols, handwriting pictures, photographs, and so on should be considered as options for caregivers to use in intervention with the subject.

In addition, it is suggested that Voice Output Communication Aids (VOCAs) might be a particularly effective media with this subject.

On the other hand, the subject required medical support because of vomiting, rejection of food and severe bouts of coughing. These symptoms are assumed to be primarily due to stress arising from the difficulty he had in 'speaking his own mind'. In counselling, this issue has been addressed. A 'conversation' time has been established to allow ample time for the subject to talk about several topics. As a result, he has become increasingly willing to communicate with others.

Key Words: Communication, Augmentative and Alternative Communication (AAC), Voice Output Communication Aid (VOCA), multiple disabilities, physical disabilities

An Inter-subjective Approach to Aggression in an Eight Years of Age "Hyperactive" Boy: A Case Study

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This paper reports the case of an eight-year-old "hyperactive" boy with emphasis on the child's expression of his inner world. It was observed that aggression was readily released through 'sand-play' therapy. In inter-subjective relationships, the meaning of problem behaviour is the essential energy for

the growth of the child. As the therapist relates to the child using an inter-subjective approach, the child organizes his aggressions with his inner world and this enhances the growth of the child.

Key Words: Aggression, Sand-play therapy, object-relationship, inter-subjectivity

Negotiation as a Framework for the Emergence of Communication in Congenital Deaf-Blind People

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Negotiation may be considered as a framework for the realisation of the emergence of communication in congenital deaf-blind people. The process of negotiation consists of four stages:

1. A child with deaf-blindness makes a gesture (e.g. representing aspects of a joyful event).
2. Her partner confirms the gesture, often by imitation of the gesture itself, and
3. Suggests a proposal for interpretation of the gesture. The partner waits for the child with deaf-blindness to accept or reject the proposed interpretation. If the proposal is rejected (often shown by some form of emotional expression), the partner tries a new proposal for interpretation.
4. If the proposal is accepted (often shown by some form of emotional expression), the shared meaning of the gesture and a shared vocabulary is negotiated.

When the negotiation of shared meaning and shared vocabulary has taken place, then the gesture can be used as a shared vocabulary in new conversation. Additional new expressions can be negotiated, thereby expanding on the already shared vocabulary. In this Case Study, four episodes with two children with congenital deaf-blindness were interpreted as 'negotiation'. The first episode was negotiation in social and musical interactive play, and the second episode was negotiation in social interactive play with joyful body movements. Episode three was negotiation in a routine situation and the fourth episode was an expansion of an already negotiated gesture as a shared vocabulary in new conversation two days after the third episode had been negotiated.

Key Words: Congenital deaf-blindness, deaf-blindness, negotiation, communication interaction

Similarities between Students with Learning Disabilities and Low Achievers: The Perspective from Research Outcomes of the Minnesota Group

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Do students with learning disabilities (LD) differ from low achievers (LD) or not? This question is fundamental to the identification of students who

have learning difficulties in school. The purpose of this study was to review the debate of the similarities between students with LD and LA in the United

States. Ysseldyke et al. (1982) indicated considerable similarities between school-identified LD children and LA on 49 psycho-educational measures. This finding was supported by the work of the University of Minnesota Institute for Research on Learning Disabilities. A series of empirical studies found no specific characteristics that differentiated LD and LA groups. Moreover, the Minnesota group had focused on the problem whether instruction for students with LD was the same as that for other students with non-LD or other categories (i.e. mild mental retardation). The outcomes of these researches raised questions about the appropriateness of categorical grouping of students for instruction and issues related to the personnel training of categorical programs. They emphasized the viewpoint of educational intervention for students who were failing in school, and the pointed out that the problem should be recognized and treated as an issue of the practical use rather than as a conceptual problem to be resolved

by educational researchers. The following three changes were needed: a new philosophy of special education, a new perspective on assessment, and a new perspective on intervention. In the 1990s, although the finding of similarities between LD and LA was supported by findings from empirical researches, some researchers found significant differences between the LD and LA students. More recent studies, using meta-analysis (effect size), have isolated some differences between LD and LA. However, we can easily understand that these studies using meta-analysis were based on the misinterpretations of meta-analysis. Review of these findings of Ysseldyke et al., suggests issue of practical use for the assessment of LD and the necessity of a paradigm shift in research.

Key Words : Students with learning disabilities, low achievers, the United States of America special education, assessment.

Survey on Support for Students with Learning Disabilities in Middle School and High School in Southern California: For Principals and Teachers of Regular, Resource and Special Classrooms

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(University of California, Los Angeles (UCLA))

The purpose of this paper is to survey the support for students with learning disabilities in middle and high school in Los Angeles and its environs in California (USA). A questionnaire survey of principals and teachers in regular, resource and special classrooms in four school districts was conducted. Questions designed to gather basic information and data about special education services in the school were asked of principals. Questions designed to gather basic information and data about the classroom situation, support networks, parental needs, and difficulties individual teachers experience in teaching in regular, resource and special classrooms were asked of classroom teachers. The results show that students with learning disabilities and their teachers receive support from other types of classrooms in the school in addition to support received in their own class-

room. Teachers also believe that parents get support from other types of classrooms in the school, and that school psychologists support students with learning disabilities and their teachers. Also, both students and teachers in each type of classroom surveyed believe that they get out-of-school support, as do parents. Furthermore, while many teachers in all types of classroom show 'goodwill' in their teaching of children with learning disabilities, they also report difficulties in teaching them. Finally, the survey findings show that the proportion of students who receive support, and years of teaching experience and inservice training for individual teachers is dependent on type of classroom and school.

Key Words : Learning disabilities, educational support, middle school, high school, questionnaire survey

The New Information Network and System of the National Institute of Special Education

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(Division of Research and Development)
(The Information Center of Special Education)

The previous computer network of the National Institute of Special Education consisted of a mainframe computer, UNIX servers and personal computers. The mainframe computer managed data base services and personal computers worked both as 'stand-alone' workstations, and as terminals of the mainframe through a Local area network (LAN). The UNIX servers managed the LAN and were connected to the Internet. However, December 1999 saw an upgrading of this existing system.

The new system is a server/client system that provides the service previously offered by the mainframe

computer. The new LAN is a GIGA-bit Ethernet.

Four important issues should be emphasised when the replacement of the computer system at NISE is considered. First, the new system has no mainframe computer. Two, all users will be able to access the system more readily. Three, the new system will implement "Single sign-on". Four, Intranet will be integrated within the system in addition to usual Internet access and other work tools required by users to access a variety of information.

Key Words: UNIX, Windows-NT, mainframe, LAN, "Single sign-on", data base, Intranet, Internet

The Problem of Confidentiality of Personal Information in Educational Counseling

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(The Information Center of Special Education)

This article presents an overview of the problem of confidentiality of personal information in educational counseling. First, three researches on current practice in Special Education Centers in several prefectures were reviewed. These studies indicate some progress in addressing the issue of confidentiality in the protection of personal information has been made in these prefectures. This is reflected in the minimal collection of data during the initial phase of educational counseling as well as the prior determination by each

Centre of how long the data will be stored. Second, case studies of how to deal with personal data during the actual counseling process were reviewed. Findings of this review suggest that, in some instances, the utilisation of personal information is unsatisfactory. Finally, the article reviews the issue of children's rights and the importance of inservice training designed to enhance awareness of ethics among educational counselors.

Topics on Special Education in Japan

Actual Conditions of Special Education in Japan

Japanese Special Education and Related Statistics

Kenichi Yoshimi

Department of Administration

1. History of Special Education

(1) Before World War II

The modern school system in Japan was established in 1872 with the enactment of the "Education System Order". The Order, although it contained a description of education for disabled children, offered no suggestions or framework for special education. In the private sector, however, education for the blind and the deaf was experimented with and the "Kyoto School for the Blind and Dumb" was established in 1878. This is said to be the birth of special education in Japan. In 1880, the "Rakuzenkai School for the Blind" was established in Tokyo. With such developments as background, the "Elementary School Order" of 1890 contained provisions for schools for the blind and the deaf, and as a result many such schools were built throughout Japan. Furthermore, the "Order concerning Schools for the Blind and Schools for the Deaf" was promulgated in 1923 and firmly established the education system for the blind and the deaf.

With the popularization of compulsory education, children with delayed intellectual development started entering schools, and special classes for these children were established about 1890. A school to teach children with intellectual disabilities was established in Osaka in 1940 and a school for the physically disabled was established in Tokyo in 1932. While schools for the blind and the deaf were built throughout Japan, however, full-scale building of schools for other disabled children did not occur before World War II.

(2) After World War II

In 1947, the "School Education Law" was promulgated and a new education system was established. The law clearly made special education part of the public education system. Consequently schools for the blind and the deaf were made compulsory from 1948. Schools for other disabled children, however, were not made compulsory due to the delay in the

building of schools as well as other reasons. Later the construction of schools for other disabled children moved ahead rapidly and schools for other disabled children were made compulsory in 1979.

Virtually all special classes for children with disabilities within ordinary schools were abolished as a consequence of Japan's involvement in World War II. After the war, the establishment of special classes for the intellectual disabilities were first promoted, followed by classes for children with other disabilities. In 1993, teaching in resource rooms for children with mild disabilities in ordinary classes was incorporated into the system.

(3) Future Improvements in Special Education

Recently the special care needs of children with mild disabilities as well as a recognition of the importance of early educational intervention are receiving more attention. At the same time, enrolments in upper secondary education following the completion of compulsory education are increasing. Paths taken after graduation are diversifying as well. At the same time, a variety of issues including re-examination of national and local government roles in education as well as school autonomy are being publicly aired. Subsequently, special education in Japan is in transition, and the MESSC has started examining "special education in the 21st century." And the report has been published at Jan. 2001.

2. Current System

The current Japanese school system was established by the "School Education Law" promulgated in 1947, and it is primarily a single track 6-3-3-4 system. A total of nine years of education consisting of six years in elementary school (the elementary department), and three years in lower secondary school (the lower secondary department) are compulsory (see Chart 1).

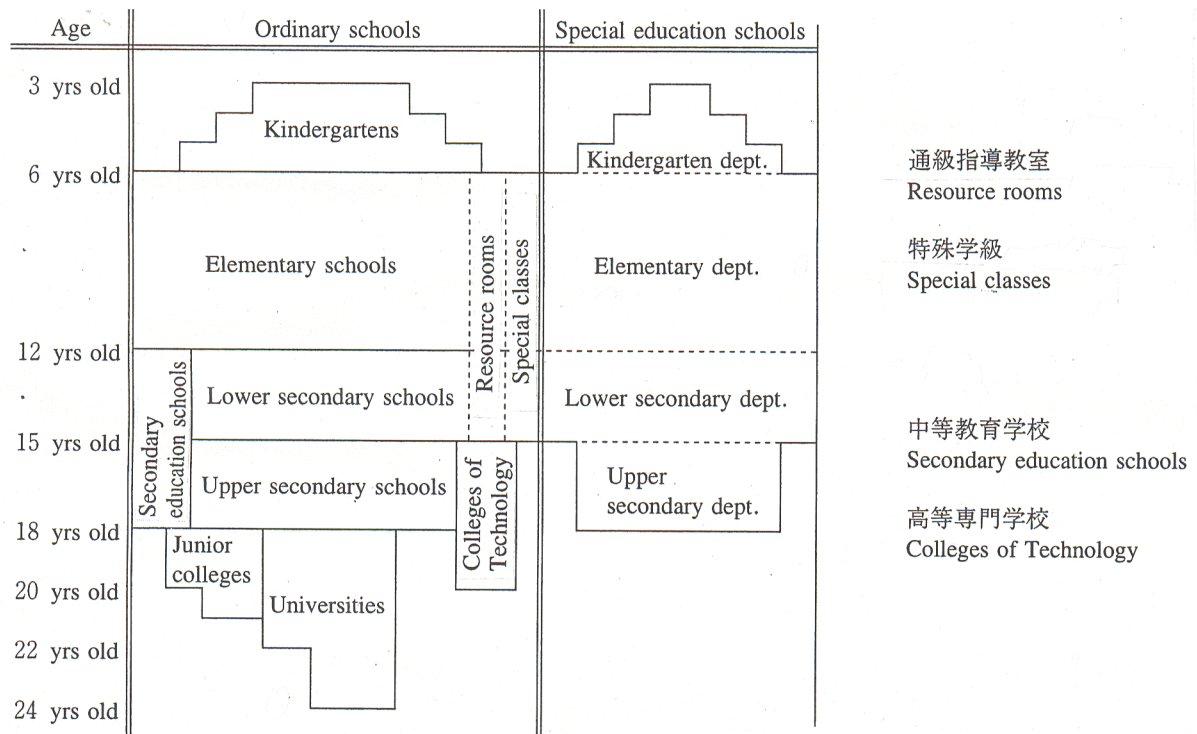


Chart 1: Japanese School System (Special training colleges, miscellaneous schools, advanced courses of high schools, universities, & junior colleges, and graduate schools are omitted.)

Chart 1 Japanese School System (Special training colleges, miscellaneous schools, advanced courses of high schools, universities, & junior colleges, and graduate schools are omitted.)

(1) Special Education Schools

Schools catering to the needs of students with relatively severe disabilities include schools for the blind (visual disabilities), schools for the deaf (auditory disabilities), and schools for other disabled children which are three types for the intellectually disabled, the physically disabled, and the health impaired. These schools have been organized independently with separate elementary and lower secondary departments while some even possess kindergarten and upper secondary departments. Each department offers an education equivalent to mainstream kindergarten, elementary school, lower secondary school, and upper secondary school, respectively. They also aim to nurture knowledge, skills, attitudes, and habits to overcome a variety of difficulties arising from the disability itself.

(2) Special Education at Ordinary Schools

1) Special Classes

Special classes within elementary and lower secondary schools have been established for children who have difficulty learning in ordinary classes. Special classes are organized with a small number of children and are categorized into classes for the intellectual disabilities, the physically disabled, the health impaired and physically weak, the partially sighted,

the hard of hearing, the speech impaired, and the emotionally disturbed.

In special classes, education similar to that in ordinary classes is offered, but it is possible to utilize a special curriculum if necessary.

2) Resource Rooms

For children who are unable to enjoy an adequate learning experience in ordinary classes, "resource rooms" have been established. Children belong to ordinary classes and receive subject and other teaching while receiving additional support to improve and overcome their disabilities in the resource rooms. Such rooms are categorized into those for the speech impaired, the emotionally disturbed, the partially sighted, the hard of hearing, the physically disabled, and the health impaired and physically weak.

In resource rooms, in addition to teaching aimed at improving or overcoming the effects of disability, it is possible to offer teaching to supplement standard subject lectures.

(3) Home Instruction

Home based teaching is offered to children who have difficulty commuting to school due to the constant care needs caused by severe or multiple disabilities. Teachers of special education schools visit children's homes, institutions for the disabled,

medical institutions, etc.. While special education schools are actively accepting serious disabilities children, almost no postponement of or exemption from compulsory schooling due to disabilities exists in Japan.

(4) Transactional Education

Transactional education in which children in ordinary classes and people in the community hold joint activities with children in special education schools and special classes as a part of their education is carried out in a variety of forms. Transactional education is important not only because children can expand their experience, nurture social skills, and develop favorable human relationship with others, but also because children in partner elementary and lower secondary schools and people in the community can deepen their knowledge about children with disabilities and their education.

(5) Teacher Certificates

Teachers at special education schools should in principle possess two types of teacher certificates.

The first is a teacher certificate for ordinary schools (e.g., elementary, lower secondary, upper secondary, or kindergarten teacher certificates) while the second is a teacher certificate relevant to the type of special education school in which they are employed (i.e., schools for the blind, schools for the deaf, or schools for other disabled children). Teachers with an elementary or lower secondary teacher certificate can teach in special classes, or resource rooms in elementary and lower secondary schools.

(6) School Expense Subsidy

In fiscal 1954, to reduce the financial burden on parents or guardians who send their children to special education schools, subsidies for textbooks and school supplies, school lunches, commuting expenses, etc. have been provided dependent on income. In fiscal 1971, the subsidy was extended to include parents or guardians of children who attend special classes of elementary and lower secondary schools. Textbooks used during compulsory education have been provided free of charge since fiscal 1963.

Source: Monbusho School Survey (MESSC) & Special Education Documents
(Special Education Division, Elementary and Secondary Education Bureau, MESSC)

Table 1 Number of Special Education Schools, Their Classes, Children Enrolled, & Teachers

As of May 1, 1999

		Number of schools	Number of classes	Number of children enrolled				Total	Number of full-time teachers
				Kindergarten dept.	Elementary dept	Lower secondary dept.	Upper secondary dept.		
Schools for the blind		71	1,394	238	717	517	2,700	4,172	3,467
Schools for the deaf		107	2,032	1,296	2,263	1,202	2,063	6,824	4,883
Schools for the other disabled children	Intellectually disabled	519	13,382	48	16,159	12,506	26,274	54,987	30,346
	Physically disabled	196	6,376	75	7,836	4,658	5,898	18,467	14,166
	Health impaired	95	1,568	3	1,615	1,554	1,192	4,364	3,631
	Sub-total	810	21,326	126	25,610	18,718	33,364	77,818	48,143
Total		988	24,752	1,660	28,590	20,437	38,127	88,814	56,493

Table 2 Number of Special Classes and Children Enrolled

As of May 1, 1999

	Elementary schools		Lower secondary schools		Total	
	Number of classes	Number of children enrolled	Number of classes	Number of children enrolled	Number of classes	Number of children enrolled
Intellectually disabled	10,560	30,436	5,366	16,813	15,926	47,249
Physically disabled	929	1,718	359	571	1,288	2,289
Health impaired and physically weak	569	1,391	231	475	800	1,866
Partially sighted	87	130	28	36	115	166
Hard of hearing	350	749	140	312	490	1,061
Speech impaired	360	1,246	24	52	384	1,298
Emotionally disturbed	4,305	11,699	1,759	4,461	6,064	16,160
Total	17,160	47,369	7,907	22,720	25,067	70,089

Table 3 Number of Children Receiving Guidance at Resource Rooms

As of May 1, 1999

	Elementary schools	Lower secondary schools	Total
	Number of children enrolled	Number of children enrolled	Number of children enrolled
Speech impaired	21,862	82	21,944
Emotionally disturbed	2,008	450	2,458
Partially sighted	129	15	144
Hard of hearing	1,210	159	1,369
Physically disabled	5	2	7
Health impaired and physically weak	0	0	0
Total	25,214	708	25,922

Table 4 Enrollment Status of Children in Compulsory Education

As of May 1, 1999

	Number of children	Ratio
Number of children enrolled in special education schools (A)	49,027	0.4 %
Number of children enrolled in special classes (B)	70,089	0.6
Number of children receiving guidance at resource rooms (C)	25,922	0.2
Sub-total (A+ B + C)	145,038	1.2
Number of all compulsory education age children	11,795,071	100.0
Number of children allowed postponement of or exemption from compulsory schooling due to disability	164	0.001

Table 5 Changes in the Number of Special Education Schools and Children Enrolled

As of May 1, 1999

	Schools for the blind		Schools for the deaf		Schools for the other disabled children		Total	
	Number of schools	Number of children enrolled	Number of schools	Number of children enrolled	Number of schools	Number of children enrolled	Number of schools	Number of children enrolled
1950	76	5,155	82	11,600	3	110	161	16,865
1960	76	10,261	103	20,723	46	7,794	225	35,778
1970	75	9,510	108	16,586	234	24,700	417	50,796
1980	73	8,113	110	11,577	677	72,122	860	91,812
1990	70	5,599	108	8,169	769	79,729	947	93,497
1999	71	4,172	107	6,824	810	77,818	988	88,814

Table 6 Changes of Numbers of Special Classes and Children Enrolled

As of May 1, 1999

	Elementary schools		Lower secondary schools		Total	
	Number of schools	Number of children enrolled	Number of schools	Number of children enrolled	Number of schools	Number of children enrolled
1950	602	17,513	49	1,655	651	19,168
1960	2,029	24,406	908	10,430	2,937	34,836
1970	9,290	72,676	6,250	52,971	15,540	125,647
1980	14,336	76,398	6,725	36,802	21,061	113,200
1990	14,388	49,971	6,895	27,191	21,283	77,162
1999	17,160	47,369	7,907	22,720	25,067	70,089

Table 7 Changes in the Number of Children Receiving Guidance in Resource Rooms

As of May 1, 1999

	Elementary schools	Lower secondary schools	Total
	Number of children enrolled	Number of children enrolled	Number of children enrolled
1993	11,963	296	12,259
1995	16,207	493	16,700
1997	22,272	656	22,928
1999	25,214	708	25,922

The Course of Study for Special Education Schools and Its Revision

Teruzo Yamashita

Department of Education for Children with Multiple Disabilities

In Japan, the Course of Study which is the national standard for curriculum is issued separately for kindergartens, elementary schools, lower secondary schools, upper secondary schools, and special education schools. Each Course of Study is revised approximately every ten years in order to respond to the needs of the time and society. The Course of Study for special education schools was recently revised in March 1999. This paper introduces outlines of curriculum in special education schools and the Course of Study as curricular standards.

1. Special Education Schools and their Curriculum

Special education schools in Japan are categorized into schools for the blind, schools for the deaf, schools for other disabled children (intellectually disabled, physically disabled, or health impaired). Each school possesses an elementary department (equivalent to elementary school) and a lower secondary department (equivalent to lower secondary school). In addition, most schools for the blind and schools for the deaf possess a kindergarten department (equivalent to kindergarten) and an upper secondary department (upper secondary school). Most of schools for the other disabled children possess an upper secondary department while only a few of them possess a kindergarten department.

This paper focuses on elementary and lower secondary departments.

The curriculum in the elementary and lower secondary departments consists of four areas, which are subjects, moral education, special activities, and educational therapeutic activities [JIRITSU KATSUDO], as well as period for integrated study. The educational therapeutic activities are a guidance area unique to special education schools as well as all special education schools are required to offer. This is because the educational therapeutic activities have an aim that "individual children learn the knowledge, skills, attitude, and habits necessary to actively improve and conquer various difficulties caused by their disabilities and to nurture foundations for harmonious mental and physical development while aiming at independence."

Subjects, moral education, and special activities are in principle taught based upon the content of individual subjects in elementary schools and lower secondary schools. For subjects in schools for the intellectually disabled, however, subjects consisting of special objectives and contents are offered in consideration of disabilities so that the guidance given matches the level of development.

The period for integrated study is an educational activity period which was created in the most recent revision. The purposes for establishing this period are (1) individual schools will have time to offer creative and unique educational activities that match the realities of communities and children and (2) schools will have time to smoothly implement broad and integrated learning that transcend a simple framework of subjects in order to nurture qualities and abilities that allow children to respond to societal changes including internationalization and information-related changes. The period will be offered at all schools including special education schools. Further details will be discussed below.

2. The Course of Study and Its Revision

(1) The Objectives and Basic Policies of the Revision

The recent revision aims for children to acquire human characters rich in spirit as well as basic knowledge and skills, to develop their personalities, and to nurture "living power" which allows individuals to learn and think on their own. The revision followed the five fundamental objectives listed below. Objectives (1) ~ (4) are common for all children.

- (1) To encourage the development of young people who are rich in heart and well equipped to contribute to society, as well as young people with an increased awareness of themselves as members of an international community.
- (2) To enhance ability of children to think and learn for themselves.
- (3) To develop a comfortable educational environment which successfully equips students with essential knowledge and skills as well as developing students' individual personalities.
- (4) To encourage each school to seek out its own special characteristics and redefine itself as a

unique site of distinctive education.

- (5) To further improve careful guidance in accordance with the disabilities of individual children.

Concretely, improvements were made based upon the following five criteria.

- Appropriate response to severe, multiple, and diversified disabilities

To make improvements with the aim of giving more importance to guidance in response to individual conditions.

- Appropriate educational response from an early stage

To make improvements in educational guidance to include infants below three years old.

- Promotion of occupational independence

To make improvements in subject offering and educational content with the objective of nurturing individual occupational and work ethics among students in upper secondary departments and further promote occupational independence.

- Response to students with mild disabilities

To make improvements in guidance content and others in order to further promote education in accordance with the realities faced by each student receiving guidance in special classes or resource rooms.

(2) Main Content of the New Course of Study

The new Course of Study was revised based upon above described objectives and basic policies. The principal content of the Course of Study for elementary departments and lower secondary departments will be introduced below including the relevant revised regulations. The Course of Study for elementary and lower secondary departments consists of chapters of "general rules," "subjects," "moral education," "special activities," and "educational therapeutic activities."

a. General Rules

General rules consist of items relating to educational objectives and curriculum formation (such as the number of class hours, periods for integrated study, special cases for the multiply disabled, transactional programs between ordinary schools and special education schools, educational guidance from early ages, etc.).

(a) Educational Objectives

In addition to educational objectives for elementary school and lower secondary school, that is, for children without disabilities, the Course of Study for special education schools stipulates that students are "to learn the knowledge, skills, attitude, and habits

necessary to actively improve and conquer various difficulties caused by their disabilities" as their educational objective.

(b) Period for Integrated Study

The period for integrated study was established in the most recent revision. It aims to offer educational activities taking advantage of individual school's originality, for example, broad and integrated learning as well appropriate responses to the interest and curiosity of children in accordance with the realities of individual communities and children.

The period for integrated study deals with issues including broad and integrated topics such as international understanding, information, the environment, and welfare, topics concerning the interest and curiosity of children, and topics that characterize communities and schools. Through a variety of methods such as nature and community experiences, observation and experiments, visits and investigations, presentations and discussions, craft making, and learning through problem solving, children are encouraged to develop the ability to resolve issues by themselves, to learn by themselves, to think by themselves, to form judgments independently, and to solve problems in a more desirable way.

(c) Special Provisions for the Multiply Disabled and Others

The Course of Study contains a specific provision to allowing special guidance for children with severe or multiple disabilities. Listed below are some of the major exceptions.

- (1) For children who face difficulty in learning subject content at their actual age level, it is acceptable to teach content below their actual grade level.
- (2) For children with both intellectual and physical disabilities, it is acceptable to teach content used by schools for the intellectually disabled.
- (3) For children with severe learning disabilities, it is acceptable to teach mainly educational therapeutic activities without subject teaching.

b. Subjects, Moral Education, and Special Activities

Subjects, moral education, and special activities are to be taught in principle with the content stipulated in the Course of Study for elementary schools and lower secondary schools.

Subjects in schools for the intellectually disabled, however, may include original subjects that allow guidance in accordance with developmental level. For example, the objectives as well as the contents of level 1 (out of three levels, not by grade) for the

"Japanese language" curriculum taught in elementary department are presented below.

<Elementary Department "Japanese Language">

Objective: To nurture the ability and attitude to understand and express the Japanese language necessary for daily living.

Contents: (Level 1)

- (1) To listen to a teacher talking or reading story books.
- (2) To respond to a teacher talking to a child and to express thoughts using facial expressions, gestures, voice, or simple words.
- (3) To enjoy story books and similar activities with a teacher.
- (4) To become familiar with writing using a variety of writing utensils.

c. Educational Therapeutic Activities

Educational therapeutic activities are a guidance area that is established only for special education schools and are meant to serve as educational activities for children to improve and conquer various difficulties caused by their disabilities on their own.

Therefore, the guidance content in the educational therapeutic activities differs depending upon the details of individual disabilities. The Course of Study presents four or five items as criteria when teachers

choose guidance content in each of the five categories: "health maintenance," "psychological stability," "understanding the environment," "physical movements," and "communication." The following is an example relating to communication.

Category: Communication

- (1) Things relating basic communication ability
- (2) Things relating to receptivity and expression of language
- (3) Things relating to language formation and utilization
- (4) Things relating to the selection and utilization of a means for communication
- (5) Things relating to communication in accordance with situational circumstances

From among the five categories mentioned above and items offered for each category, teachers are to select the appropriate items in accordance with the disabilities of individual children, to organize the items into guidance content, and to teach said content.

This paper introduced the main provisions of the new Course of Study. As presented, it is possible in Japan to organize curriculum and conduct teaching in accordance with conditions of individual children's disabilities and levels of development.

NISE Activity in International Cooperation

International Academic Exchange and Cooperation

International Academic Exchange and Cooperation

Ken Sasamoto

Department of Education for Children with Physical Disabilities

1. History of International Research Exchange and Cooperation in the NISE

International exchange activities in the academic area have been conducted since the establishment of the National Institute of Special Education (NISE) but most were activities carried out at the individual level such as participation in international conferences and academic exchanges through the fellowship programs that support overseas travel for researchers by the Ministry of Education, Science, Sports and Culture (MESSC). The first public academic activity of the NISE in cooperation with international organizations was the "International Seminar on Vocational Education for the Mentally and Physically Disabled Youth" jointly sponsored with the Organization for Economic Cooperation and Development (OECD) / the Center for Educational Research and Innovation (CERI) in 1980. Since then, the NISE has made an effort to widen its areas of activity as well as to organize yet more activities: It has continued the "APED Regional Seminar on Special Education" which started in 1981 as a public project, international joint research which has been conducted for four terms since 1990, and academic exchanges with foreign researchers by NISE researchers as individuals or a group.

Actual results from these activities include:

- (1) Through exchange activities with UNESCO and OECD, information on special education trends worldwide was obtained as early as possible and consequently could be examined and investigated from early on.
- (2) The contents of the research described in (1) have been spread nationwide through the NISE publication, "Special Education in the World," national special education seminars, etc..
- (3) The NISE has undertaken academic exchange agreements with the Korea National Institute for Special Education (KAISE) as well as the Faculty of Special Education, University of Cologne.
- (4) The number of visits and stays by researchers not

only from the Asian-Pacific region and South America but also from advanced western nations increased.

- (5) The fraction of NISE researchers with academic experience abroad reached almost two-thirds.

As a result, though the international exchange activities of the NISE used to be focused on the collection and accumulation of exhaustive documents from advanced nations in the special education area, the direction of current activities is moving toward academic exchanges on an equal footing to deepen research content with the aim of making academic contributions.

2. Improvements in the Support System

When the International research activities of the NISE were initiated on an official basis, the need for systematic organization to aid in activities being implemented smoothly became apparent and in 1986 the International Investigation Sub-Committee was organized as a subordinate organization of the Research Planning Committee. The objective of this sub-committee was to investigate the current situation of special education in foreign countries as well as to gather and offer information in an effort to contribute to the progress in the research of Japanese special education. The International Investigation sub-committee was renamed the International Research Cooperation Sub-Committee in 1994 because the sub-committee expanded and deepened its objectives from document gathering to joint research.

Subsequently, the International Research Cooperation Sub-Committee, in pursuit of international trends in special education, became independent from the Research Planning Committee, changing into the International Exchange Committee in 1999 in order to improve its support function for a variety of international academic exchange activities and collaborative projects.

The APEID Seminar Committee, as an independent organization since the beginning of the APEID

seminars, has continued its role in planning and management of the still ongoing seminars.

3. The Condition of International Exchange Activities

(1) Researcher Exchanges

(Sending Researchers Abroad)

NISE researchers may go abroad through a variety of programs and funding such as fellowships for research abroad from the MESSC (long-term & short-term), international research conference funding, research funding by the Japan Society for the Promotion of Science (JSPS), the foreign study programs of the APEID seminar, and invitations by foreign government officials. Researchers may also go abroad to attend international conference via private funds.

Since the establishment of the NISE, researchers have been visiting abroad on an ongoing basis; an average of a little less than 20 people per year have traveled abroad over the last seven to eight years. As a result, as of December 1999, approximately two-thirds of current NISE researchers have gone abroad for research related activities via the programs listed above. Such experiences no doubt play an important role when researchers try to obtain new knowledge and information in their own research fields. Researchers who were sent abroad have played an important role in helping to understand the latest trends in special education in many countries.

(Inviting & Hosting Foreign Researchers)

Visits to the NISE by foreign researchers consist of mainly individual researchers arranging visits or via invitations from the JSPS. The activities on the part of individuals resulted in exchanges of opinion based upon observation of facilities and explanations of educational activities and tended to be one to two days in duration, while the visits under the auspices of the JSPS played the role of helping gather the information necessary for research through special lectures and similar activities during stays of several days duration.

Through the organizing of international conferences and APEID seminars, inviting foreign researchers as special guests to information seminars, and participating in the UNESCO conferences and related events, the circle of exchanges with foreign researchers has gradually enlarged. With these developments, the countries from which foreign researchers originate expanded from western nations to a wide

variety of nations throughout the world. Recently in particular, researchers from Asia and Central and South America where special education schools are to be established are staying for a long period in increasing numbers through the invitation program of the Japan International Cooperation Agency (JICA).

(2) Research Relationships with Foreign Research Institutions

(Exchange Agreement)

The agreement for research exchanges with foreign research institutions by the NISE is a result of the deepening of researcher exchanges as described above. Formal agreements made with the NISE as of today include the "Korea National Institute for Special Education" (November 1995) and the "Faculty of Special Education, University of Cologne" in Germany (November 1998).

The University of Cologne is an European center of the academic network on special education. Academic activities and international joint research for that network as well as invitations to APEID seminars and research exchanges mainly with NISE's Department of Education for Children with Physical Disabilities have been producing results.

Meanwhile, because the research staff of the Korea National Institute for Special Education at signing of the agreement have already moved out, systematic exchanges are not conducted at the moment, but the new staff have informed the NISE of their wish to restart academic exchanges.

(Cooperation with Nations from the Asian & Pacific Region)

The APEID Special Education Seminar plays a large role in the cooperation with Asian and Pacific nations. This seminar started in 1981 as a part of the Asia and the Pacific Programme of Educational Innovation for Development (APEID) for UNESCO member nations in the Asia and Pacific region in cooperation with the Japanese UNESCO Committee. Since then, the seminar has been held once a year at the NISE.

The seminar cost was budgeted by ODA and within the budget, people from approximately 13 nations are invited every year to facilitate information exchange among special education specialists (administrators, researchers, educators, etc.). In relation to this seminar, the NISE dispatches researchers to member countries for cooperation and accepts researchers from foreign nations.

(Cooperation with European, North American, & Other Nations)

A joint seminar with OECD / CERl (the International Seminar on Vocational Education for the Mentally and Physically Disabled Youth) in 1980 established the foundation for research exchanges with western nations. As a consequence, the NISE has conducted joint research as well as exchanges with researchers from the U.S., Germany, Britain, and Scandinavian Nations. At the 20th Anniversary of the NISE in 1992, the seminar "Issues and Perspectives of Special Education" was held with participants from the U.S., Britain, Italy, Canada, and Norway.

The MESSC is now examining the future of special education in the coming 21st century and the need for comparative studies on special education systems among western nations and Japan. Improvement of research exchanges with western nations is being considered.

At the same time, regions that had relatively little contact with Japan in the past such as Central and South America, Middle East, Africa, etc. are participating in exchanges through the Japan International Cooperation Agency (JICA). Such exchanges are an opportunity to make the best use of research results and are a fundamental part of the international activities of the NISE.

(Cooperation with International Organizations Such As UNESCO)

Since 1981 when the UNESCO started its cooperation with APEID projects, based upon a request from UNESCO, the NISE has contributed to the infrastructure building in special education in certain nations by sending researchers, cooperating in

implementing workshops, etc.. It is necessary to yet deepen relationships and exchanges with international organizations such as UNESCO and OECD in the future in order to get the largest benefit from exchanges of personnel with other nations and to optimally use NISE's research results.

(3) Global Information Gathering and Dissemination

(Information Gathering)

The Information Center of Special Education (NISE Library) systematically collects foreign research bulletins, books, journals, and related documents; it currently owns over 13,480 books and 435 journals. In addition, individual research departments collect books and journals. Thus the NISE as a whole possesses a large collection.

(Information Dissemination)

To disseminate NISE's research results to both international and domestic research institutions, an English version of the research bulletin has been published once every three years since 1981. Five bulletins have been published to date and an improvement in content as well as a two-year publication schedule is planned. The reporting of research results abroad is a project to back up research exchanges and in this sense, publication of English bulletin is expected to become more and more important.

Furthermore, an English newsletter on related topics on special education both in Japan and abroad is published once a year and is sent to APEID participants and UNESCO related institutions in the Asian region.

SUPPLEMENTS

APEID Seminar on Special Education

NISE has been hosting APEID "Asia and the Pacific Programme of Educational Innovation for Development" Special Education Seminar with attendance of professionals (administrators, researchers and teachers etc.)

from Asia and the Pacific regional nations with co-operation of Japanese National Commission for

UNESCO. The seminar is held once in a year as an undertaking of ODA project. The seminar aims at strengthening educational cooperation among member nations of UNESCO in the Asia and Pacific region as well as fostering the intrinsic development of education within the member nations.

The Eighteenth APEID Regional Seminar on Special Education

Eimei OSHIRO

(The National Institute of Special Education)

The 18th APEID Regional Seminar on Special Education was held at the National Institute of Special Education, Yokosuka City, Kanagawa prefecture, Japan from 9th to 14th of November 1998.

1. Theme of the Seminar

The 6th programming (1997-2001) cycle was started last year. The main theme of the 6th cycle is "Special Education Partnerships for the 21st Century". The sub-theme of the seminar was "Networking in the Community"

2. Objectives

The objectives of the seminar were to discuss and learn practices of networking in the community in each member countries, which are important in effectively utilizing human and material resources to realize appropriate educational support for children with disabilities and their families, and are important in order to realize "Partnerships in Special Education" in the community.

In the seminar, eleven country reports and three keynote speeches on "networking in the community" for supports for children with special educational needs and their families were presented by delegates in each member countries. And each delegate and participants in the seminar discussed on above mentioned theme. Three keynote speakers in the seminar were Mr. SUDHIR Gunvantrai Mankad (India), Mr. Abd. WAHAB Hashim (Malaysia) and Mr. Onno Koopmans (UNESCO/PROAP).

The following points were discussed in the seminar.

- 1) Policies and legislations to promote networking in communities.
- 2) Local features to be considered when networking.
- 3) Networking based on local features, its issues and perspectives. Emphasis was placed on case studies with unique or outstanding examples of networking particularly in rural or sparsely populated areas where resources are limited.

3. Organizers

The Japanese National Commission for UNESCO (JNCU) and The National Institute of Special Education (NISE)

4. Date and Venue

Date: November 9-14, 1998

Venue: National Institute of Special Education (NISE) and related sites.

Schedule of the Seminar:

- 9th (Mon.) Registration and Orientation
- 10th (Tue.) Presentation of Country Reports/Discussion Session
- 11th (Wed.) Study visit to Yokohama Municipal Hakkei Elementary School
- 12th (Thu.) Keynote Speech I, II, III/Discussion Session
- 13th (Fri.) Study visit to The National Kurihama School and NISE.
- Final Session / Closing Ceremony
- 14th (Sat.) Leave Japan

5. Participants

Representatives from twelve countries as listed in the following page, participated at the Seminar. Mr. Toshio IOYA, Director-General of NISE, represented Japan. Participants of the 18th APEID Seminar.

Bangladesh: Mr. Md. Zahir Uddin BHUIYA

Joint Secretary, Ministry of Social Welfare, Government of the People's Republic of BANGLADESH

China: Ms. Lixia QIAN

Deputy Director/ Senior Teacher, Education Science Research Institute of Western District of Beijing, Educational Association of Western District of Beijing

India: Mr. Sudhir Gunvantra MANKAD

Additional Chief Secretary, Education Department, Government of Gujrat

Indonesia: Mr. Samino Bin RESOSEMITO

Staff of Sub Directorate, Ministry of Education and Culture, Directorate General of Primary and Secondary Education, Directorate of Primary Education

Malaysia: Mr. Abd. WAHAB Hashim

Deputy Director General Special Education, Special Education Department, Ministry of Education, Malaysia

Nepal: Mr. Bishnu Kumar DEVKOTA

Unit Chief, Ministry of Education, Basic and Primary Education Project Special Education Unit

New Zealand: Ms. Christine HILTON-JONES

Project Development Manager, Specialist Education Services (SES)

Pakistan: Mr. Ali Akbar KALHORO

Director/Principal, Al-Maktoom Special Education Centre for Visually Handicapped Children

Philippines: Dr. Yolanda S. QUIJANO

Chief Education Program Specialist, Special Education Division Bureau of Elementary Education Department of Education Culture and Sports

Republic of Korea: Dr. Won Hee PARK

Associate Professor, Special Education Department, College of Education, Dankook University

Sri Lanka: Mrs. A.L.P. WEERASINGHE

Assistant Director, Special Education, Sri Lanka Educational Administrative Service-Class III

Thailand: Mr. Vichain ANANMAHAPONG

Director of Special Education Division, Department of General Education, Ministry of Education

UNESCO/PROAP: Mr. Onno KOOPMANS

Associate Expert, Special Needs Education, UNESCO Principal Regional Office for Asia and Pacific

OBSERVER

Republic of Korea: Dr. Ju-seak KNOW

Educational Researcher, Korean National Institute for Special Education (KISE)

Republic of Korea: Mr. Jong-mu KIM

Educational Researcher, Korean National Institute for Special Education (KISE)

6. Conclusions and Recommendations

The thirteen representatives including UNESCO and Japanese participants spoke of constraints in their countries to providing equal access to education for all children. Each delegate shared a variety of initiatives and programs. These showed that changing attitudes, values and beliefs, through the power of networking in communities, bring about positive outcomes for children with special needs.

CONCLUSIONS

- We believe in upholding the fundamental rights of children with special needs to be equal members of their communities and receive access to quality education to meet those needs.
- We believe in fair, just and equitable opportunities for all children with special needs regardless of the setting and in accordance with their potentials.
- We believe in the need to identify all available resources and through networking and partnership and the power of cooperation, involvement and commitment, we can make a positive difference in the lives of the children with special needs.
- We call upon governments to provide adequate resources to meet the needs of special education.

RECOMMENDATIONS FOR NETWORKING IN COMMUNITIES

Concerted government efforts, leadership and commitment can be demonstrated to "networking in communities" to support children with special needs by:

- including parents on policy and decision making groups at all levels

- supporting and building on initiatives arising in the community
 - consulting that is extensive and multilevel through forums and focus groups (face to face and using technology) to assist communities and individuals to articulate their needs
 - coordinating action between and within government agencies, non-government organizations, professional groups, and businesses, while respecting, recognizing and valuing the contribution of voluntary service
 - establishing a plan of action that identifies positive education outcomes for children with special needs,
- that is family and community based and utilizes best practice as well as community contributions in relation to their circumstances
 - clarifying roles, responsibilities and accountabilities in relation to the action plan
 - implementing individualized programs through integrated and collaborative approaches of educators, parents and the community
 - building on awareness, concerns, commitment and passion through learning together, identifying successful models and creating respectful environments for all such children.

The Nineteenth APEID Regional Seminar on Special Education

Eimei OSHIRO

(The National Institute of Special Education)

The 19th APEID Regional Seminar on Special Education was held at the National Institute of Special Education, Yokosuka City, Kanagawa prefecture, Japan from 8th to 13th of November 1999.

1. Theme of the Seminar

The 6th programming (1997-2001) cycle was started last year. The main theme of the 6th cycle is "Special Education Partnerships for the 21st Century". The sub-theme of the seminar was "Charting a New Course for Teacher Development"

2. Objectives and Contents of the Seminar

The objectives of the seminar were to discuss and learn the practices of Teacher Development Based on Partnerships in each member countries. With regard to "Teacher Development", we have included the development of support staff, parents and volunteers as well as the special education teacher who work in special education.

In the seminar, thirteen country reports were presented by delegates in each member countries. The seminar gave participants an occasion to enrich and strengthen their activities through the exchange of information regarding the state-of-the-art of teacher

education in their countries and also highlighted the future prospects. In addition to the country reports a special guest speaker (Mr. Xu Bailun, The Beijing Golden Key Research Center of Education for the Visually Impaired) made a presentation on the Golden Key Project in order to facilitate the education for the visually impaired in China in carrying out special education through collaboration among related parties. And also three keynote speakers (Prof. Mel Ainscow, University of Manchester, Prof. Walther Dreher, University of Koln, Mr. Onno Koopmans, UNESCO PROAP) made a presentation a process of reflection on how to shape and contextualize the teacher education programmes in their respective countries to improve the quality of education for children with special needs in inclusive schools.

The following points were discussed in the seminar.

- 1) Inclusive education for children with special needs and teacher education to improve the quality of education for them.
- 2) The need for building up partnerships, collaboration and networking at national and international levels, for creation an environment for technology transfer and mutual cooperation for improving the quality

of life for children with special needs.

- 3) The empowerment of teachers to enable them to be creative, try-out new strategies and take risks with their pedagogical skills to meet the range of diversities in their classroom.

3. Organizers

The Japanese National Commission for UNESCO (JNCU) and The National Institute of Special Education (NISE)

4. Date and Venue

Date: November 8-13, 1999

Venue: National Institute of Special Education (NISE) and related sites.

Schedule of the Seminar:

- 8th (Mon.) Registration and Orientation
9th (Tue.) Presentation of Country Reports / Discussion Session
10th (Wed.) Presentation of Country Reports and Guest Participants
11th (Thu.) Field Tour of Kanagawa Prefectural Kamakura Special School
12th (Fri.) Study visit to The National Kurihama School and NISE.
Final Session / Closing Ceremony
13th (Sat.) Leave Japan

5. Participants

Representatives from thirteen countries as listed in the following page, participated at the Seminar. Dr. Hiroichi SUGAWARA, Director, Dept. of Children with Speech and Hearing Handicap of NISE, represented Japan.

Participants of the 19th APEID Seminar

Bangladesh: Mr. Md. Katebur Rahman

Joint Secretary, Ministry of Social Welfare, Government of the People's Republic of BANGLADESH

China: Ms. PENG Xianguang

Associate Professor, China National Institute for Educational Research, Department of Special Education

India: Dr. (Ms.) Anita JULKA

Reader in Special Education, Department of

Education of Groups with Special Needs, National Council of Educational Research and Training (NECERT)

Indonesia: Mrs. Suyatmi Karsodimedjo

Member of Sub Directorate of Special Education, Directorate of Primary and Secondary Education, The Ministry of Education and Culture

Malaysia: Mr. Haji Ahmad Bin Mohamad Said
Deputy Director General, Special Education Department, Department of Special Education, Ministry of Education MALAYSIA

Nepal: Mr. Ganesh Prasad PAUDEL

Training Officer, Special Education Section, Department of Education

New Zealand: Mr. Antony Ross DAVIES

Senior Policy Analyst, New Zealand Ministry of Education

Pakistan: Mr. Pervez Iqbal SHEIKH

Director / Directorate General of Special Education, Ministry of women Development, Special Education and Social Welfare, Government of Pakistan

Philippines: Dr. (Ms.) Perlita M. JAMORALIN
Education Supervisor, (Special Education Unit Chief) Department of Education, Culture and Sports - National Capital Region (DECS-NCR)

Republic of Korea: Dr. (Ms.) Mi-soon LEE
Teacher, Educational Researcher, Korea Institute for Special Education

Sri Lanka: Mr. Kulasinghe WEERASEKERA
Master Teacher / Special Education, Southern Provincial Education Department

Thailand: Dr. (Ms.) Benja CHONLATANON
Director / Special Education Center Faculty of Education

UNESCO /PROAP: Mr. Onno Koopmans

Associate Expert, Special Education APPEAL

Guest Participants

China: Mr. XU Bailun

Director-General, The Beijing Golden Key Research Center of Education for the Visually Impaired

U.K.: Prof. Mel Ainscow

Professor of Centre for Educational Needs, School of Education, The University of

Manchester
Germany: Prof. Walther Dreher
Professor of Universitaet zu Koeln, Heilpaedagogische
Fakultaet

Observers

Germany: Mr. Christian Goedecke
Universitaet zu Koeln, Heilpaedagogische
Fakultaet

Germany: Ms. Barbara Brokamp
Universitaet zu Koeln, Heilpaedagogische
Fakultaet

Malaysia: Dr. Zalizan Mohd JELAS
Associate Professor, Faculty of Education,
University Kebangsaan Malaysia

Paraguay: Mr. Jose Daniel ESCOBAR Cardozo
Coordinater, Department of Special Education,
Ministry of Education and Cultur, PARAGUAY

China: Ms. JI YU QIN
Secretary, The Beijing Golden Key Research
Center of Education for the Visually Impaired

China: Ms. Chenhui Liu
Secretary, The Beijing Golden Key Research
Center of Education for the Visually Impaired

6. Conclusions and Recommendations in the seminar

The Seminar comprised of thirteen delegates from different countries, the UNESCO representative, three guest participants, observers from Japan and other countries. The participants exchanged information regarding the state of the art of teacher education in their countries and also highlighted the future prospects. Discussions on their presentations initiated a process of reflection on how best to shape and contextualize the teacher education programs in their respective countries to improve the quality of education for children with special needs in inclusive schools. The following conclusions were drawn:

- We all believe in inclusive education for children with special needs both in philosophy and practice
- We all believe that the role of teachers has to be redefined in the light of a paradigm shift from a child deficit model to sociological or

modified environmental interactions model

- We all believe in the need for building up partnerships, collaborations and networking both at the national and the international levels for creating an environment for technology transfer and mutual cooperation for improving the quality of life for children with special needs
- We all believe in the empowerment of teachers to enable them to be creative, innovative, experimenting and taking risks with their pedagogical skills for meeting the wide range of diversities of all children including children with special needs in the inclusive classrooms.

Recommendations

'Charting a New Course for Teacher Development' for inclusive education of children with special needs requires both governmental and non-governmental efforts and efforts of international organization. The following recommendations were crafted out of the discussions held in the seminar:

- Communicating and developing the concept of inclusive education to all those who are involved in designing policy and programs for training teachers for education of children with special needs - universities, colleges and institutes for teacher training
- Enhancing and improving the partnership among community members, policy makers, parents and other family members, and administrators to acknowledge, appreciate the efforts made by the teachers and empower them in handling a wide range of diversities in the inclusive classrooms
- Orientating of decision makers / leaders / policy makers / administrators for understanding the strength of teachers in meeting the educational needs of all children
- Preparing all educational personnel such as principals, administrators, and teachers at all levels and types of training i.e. pre-service, in-service, early intervention, preschool, elementary and secondary levels
- Redefining the role of all teachers (special education and regular teachers) in the light of

- inclusive education and encouraging them to engage in collaborative problem solving efforts involving all the other partners significant in the education of special needs children
- Developing national and international networking for finding better solutions for problems and concerns in the development of teacher education programs in particular in the Asia Pacific Region
 - Focussing teacher training programs not only on academic teaching skills but also on non academic teaching skills like social and classroom management skills for fostering more interactive environment for children with special needs
 - Piloting of training initiatives in phases and evaluation to form a research base for betterment of future teacher training programs
 - Focussing more on the enhancement of abilities than on disabilities of the children for building up a better psycho - social climate for all children
 - Encouraging the educational authorities to be responsible for the education of all children including education of children with special needs.

National Special Education Seminar

The seminars have been held once in a year at cities around the nation together with the local educational boards. The purpose of the seminar to exchange the information among NISE staffs, researches and professionals of special education including foreign experts and to disseminate the professional and up-to-date knowledge to the special education teachers. The program usually consisted of keynote address, lectures and discussion within lecturers and with audiences.

Summary of the fiscal 1998 seminar

The seminar was held on January 28th and 29th, 1999 at Shimane prefecture with the theme of "The educational support of the children with learning disability - looking for the interface between special education and regular classroom - ". Contents of the seminar were as follows;

Lecture : Sharon Vaughn (Professor, Texas University, USA)

Education for the students with problems of learning and behavior - relationship between individualized education and inclusion -

Lecture : Patricia Winter (Executive Officer, Ministerial advisory committee, Australia)

Establishment of the supporting framework - for the children with learning difficulties -

Lecture : Hara Hitoshi (Director, Dept. of education for children with health impairments, NISE)

Development and validation of instructional methods and support systems for students with learning difficulties

Lecture : Ueno Kazuhiko (Professor, Tokyo Gaku-gei University, Tokyo)

Current conditions of supports for the learning disabilities in Japan

Panel Discussion : All of lecturers and audiences
Chaired by Ochiai Toshiro (Chief, Section of severe intellectual disability, Dept. of education for children with intellectual disability, NISE)

Educational supports for the learning disabilities - the ways of special education in future -

with Brief presentation of the topic :

Mishima Shuji (Executive Officer, educational committee of Izumo city, Shimane prefecture)

Current condition of the educational support for the learning disabilities

Summary of the fiscal 1999 seminar

The seminar was held on January 27th and 28th, 2000 at Yokohama city with the theme of "Issues in education for the people with autism at present and in future - total-care and the role of education in it for the independent life in the community -". Contents of the seminar were as follows;

Lecture : Eric Schopler (Co-director, Division TEACCH, North Carolina, USA)

Supporting system for the people with autism to live independently and meaningfully in society - done by TEACCH and The Autism Society of North Carolina -

Lecture : Laurie F. Eckenrode (Teacher, Special class in Washington elementary school, North Carolina, USA)

Educational supports from early stage for the people with autism to live independently - Practice of Education and IEP -

Lecture : Arisawa Naoto (Teacher, resource room in Edogawakuritsu-daisan elementary school, Tokyo)

Practice of education for the people with autism to live independently in Japan

Lecture : Sasaki Masami (Professor, Kawasaki University of Medical Welfare, Kurashiki)

Issues of treatment and education for the people with autism - to promote the independent life in society -

Panel Discussion ; All of lecturers and audiences
Chaired by Terasaki Hiroshi (Chief, Section of emotional disturbance, NISE)

Framework to support the people with autism for the independent life in the community - think for the ways of special education in future -

Brief presentation of the topic :

Atsumi Yoshikata (Director, Dept. education for the children with emotional disturbance, NISE)

Suda Hatsue (Vice-president of Japan Autism Association)