日本における聴覚障がいのある子どもの乳児期の言語発達支援の現状と課題 □ 制度の検討を中心に

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The Present Status and Challenges of Support for Infant Language Development of Hearing-Impaired Children in Japan

Examination of Japan’s Current Systems

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The challenges encountered by Japan’s systems to support language development in children with hearing impairments from infancy have been discussed herein. Systems to support language development in children aged 3 or over in Japan have been established based on the School Education Act. Support to harness the hearing ability of children younger than 3, such as the fitting of hearing aids, is provided through education consultations at some schools for special needs education. Furthermore, based on the Child Welfare Act, some social welfare corporations and private educational institutions also provide support for infants, including pioneering approaches to support their language development through speech-based communication using infrared hearing aid systems.

Therefore, the unavailability of systems to ensure standardized support for language development in children with hearing impairments from infancy may be a challenge, and highlights the necessity of promoting this support during infancy, with a focus the role of speech sounds and effectively using the outcomes of activities in private institutions.

1. Introduction

The language we memorize enables us to communicate with others. It is also indispensable for the development of a concept structure that covers recognition, calculation, and information integration. Infancy is a particularly important period for developing language with these characteristics.

Speech sounds have been reported to play an important role in language development during infancy. The characteristics of the rhythms and intonations of mother language, which provide a basis for the classification of speech sounds and understanding of the semantic content of each word in subsequent developmental stages, are initially learned.
In order to support language development in children with hearing impairments from infancy, the findings of previous studies indicated that it is important to examine Japan’s systems to ensure standardized support for these children during infancy.

2. Objective and Methods

With a view to improving Japan’s systems to support language development in children with hearing impairments from infancy, details of its current systems to support language development were initially examined herein, and actual support approaches were then investigated in order to clarify their status and challenges.

3. Current Support Systems and Approaches

3.1 Current Support Systems

Based on the School Education Act, language development in children aged 3 or over with hearing impairments in Japan is supported in educational institutions, such as kindergartens and schools for special needs education (kindergarten divisions).

Support for the development of children with hearing impairments focuses on <hearing>, <communication>, and <understanding of the disability>. Regarding approaches to <hearing>, examinations are conducted to clarify the cause, region, and severity of the impairment, while providing children with opportunities to obtain knowledge and skills to use hearing aids and promote cochlear implant surgery as well as during the fetal period. Vowels and consonants are then classified into phoneme-based categories and learned at the age of 4 and 6 months, respectively. In consideration of such characteristics of language development, special support for children with hearing impairments, for whom it is difficult to accurately recognize speech sounds, should be initiated during infancy.

Previous Japanese studies examining language development in children aged 1 to 6 demonstrated that language dysfunction negatively influenced cooperative behavior, and children with a healthier language function participated in cooperative play more frequently. Another study reported that education that overemphasized the importance of language teaching was not appropriate, and based this on the absence of significant differences in the ability to implement tasks not requiring language skills or experience between healthy children and those with hearing impairments. Using movement media applicable to both the mother and child in the early stages during which auditory-phonetic activity is not yet sufficiently performed, a previous study confirmed that the process underlying the development of movement representations was similar to that of phonetic representations in healthy children. Furthermore, the application of cochlear implants effectively supported language acquisition in children with hearing impairments. These findings confirmed the important role of speech sounds in language development.

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In order to support language development in children with hearing impairments from infancy, the findings of previous studies indicated that it is important to examine Japan’s systems to ensure standardized support for these children during infancy.
One of the goals of education for infants is sharing the recognition of educational challenges and expected developmental statuses. Briefly, hearing impairments should be accurately evaluated in infants to determine goals, while appropriately recognizing their developmental statuses, and educational curricula should then be developed based on the results of such evaluations.

The Japanese Kindergarten Education Guidelines specify the contents and details of education in kindergartens or the kindergarten division of schools for special needs education, and are also applied to the education of children with hearing impairments who attend such educational institutions. The guidelines consist of 6 domains: 5 general domains, <health>, <interpersonal relationships>, <environments>, <language>, and <expressions>, in addition to <activities for independence>. The last domain <activities for independence>, previously called <nursing, education, and training>, was added when the Curriculum Guidelines were revised in 1999 ⁸). The goal of this domain is to guide individual children toward independence and creating a basis for physically and mentally appropriate development by nurturing necessary knowledge, skills, behavior, and habits to learn from the disability or independently overcome and resolve daily difficulties. In line with this, factors necessary to perform basic behaviors as a human, learn from the disability, and overcome and resolve
daily difficulties are classified into 6 categories: <health maintenance>, <psychological stability>, <interpersonal relationships>, <recognition of environments>, <physical movements>, and <communication>.

3.1.1 Health maintenance
The first category <health maintenance> focuses on the necessity of maintaining and improving the physical and mental condition in order to perform daily activities, in addition to maintaining life and executing appropriate health management. It consists of the 4 following items:

1) Creation of life rhythms and daily habits
Regulating body temperature, creating daily rhythms to maintain and improve health, such as waking and sleeping, developing appropriate daily habits, such as diet and bowel movement, and maintaining a favorable health condition through appropriate clothing, room temperature adjustments and ventilation, and cleaning to prevent infections.

2) Understanding pathological conditions and self-management
Understanding and making efforts to improve one's own pathological condition, deepening knowledge of appropriate lifestyles to prevent the progression of disease, and performing appropriate self-management.

3) Understanding of the physical condition and self-care
Understanding the status of nerve, muscle, bone, and skin damage due to a disease or accident, and preventing the progression of symptoms by performing appropriate self-care.

4) Maintenance of and improvements to the health status
Improving health management skills to avoid insufficient exercise or decreased physical strength due to a disability.

3.1.2 Psychological stability
The second category <psychological stability> consists of the 3 following items, with a view to enhancing psychological stability, establishing smooth interpersonal relationships, and creating a basis for participation in social activities:

1) Enhancement of emotional stability
Becoming able to perform daily activities in a stable emotional condition despite difficulties.

2) Recognition of situations and adaptation to changes
Improving the ability to perform appropriate behavior by reducing psychological resistance to places and situations and appropriately recognizing and adapting to changeable situations.

3) Motivation to overcome and resolve disability-related learning or daily disabilities
Understanding and accepting the reality of the disability and increasing motivation to make active efforts to overcome and resolve disability-related learning or daily disabilities.

3.1.3 Interpersonal relationships
The third category <interpersonal relationships> consists of the 4 following
items, with a view to deepening one’s own and others’ understanding, establishing smooth international relationships, and creating a basis for participation in group activities:
1) Creation of a basis for communication with others
   Developing basic confidence in others and becoming able to appropriately accept and respond to their approaches.
2) Recognition of others’ intentions and emotions
   Appropriately recognizing others’ intentions and emotions and becoming able to behave appropriately in each situation.
3) Self-understanding and behavioral adjustments
   Understanding one’s own strong and weak points and behavioral characteristics to become able to behave appropriately in each situation.
4) Creation of a basis for participation in group activities
   Learning appropriate behavior, procedures, and rules to become able to actively participate in cooperative play and group activities.

3.1.4 Recognition of environments
   The fourth category <recognition of environments> consists of the 5 following items, with a view to accurately recognizing surrounding environments and their associations with oneself, effectively using senses, and appropriately judging and acting based on the concepts of space and time:
1) Harnessing of the remaining senses
   Becoming able to effectively use visual, hearing, and tactile senses.
2) Sensory and cognitive characteristics
   Becoming able to appropriately manage information, considering and getting along with one’s own sensory and cognitive characteristics.
3) Use of sensory aids and compensation techniques
   Learning methods to effectively use sensory aids and compensation techniques to become able to recognize situations more accurately, with the remaining senses.
4) Sensory integration for the recognition of situations
   Becoming able to appropriately judge and act by collecting information and accurately recognizing environments by using various sensory organs, aids, and compensation techniques.
5) Development of concepts as cognitive and behavioral bases
   Developing the concepts of functional, attribute, shape, color, and sound changes, as well as space and time as cognitive bases.

3.1.5 Physical movements
   The fifth category <physical movements> consists of the 5 following items, with a view to obtaining basic skills to perform daily activities and execute appropriate physical movements during these activities:
1) Basic skills related to postural maintenance, exercise, and movements
   Obtaining basic skills related to postural maintenance, upper- and lower-limb exercises,
movement improvements and learning, articular contracture and deformity prevention, and muscle strength maintenance and strengthening.

2) Use of assistive technology for postural maintenance, exercise, and movements

Becoming able to effectively use assistive technology, such as assistive devices, when it is difficult to independently maintain posture, exercise, or move.

3) Acquisition of basic movements to perform daily activities

Acquiring basic movements to perform ADL, such as eating, toileting, dressing, grooming, and bathing, and learning to write and draw.

4) Physical mobility

Increasing physical mobility necessary for daily activities, such as moving or walking independently or using a walker or wheelchair.

5) Smooth implementation of tasks

Acquiring basic movements to implement tasks and enhance their dexterity and durability, while increasing the ability to implement each task smoothly.

3.1.6 Communication

The sixth category <communication> consists of the 5 following items, with a view to smoothly communicating with others in each situation:

1) Basic communication ability

Obtaining the basic ability to communicate with others appropriately using facial expressions, gestures, and assistive devices in consideration of the type and degree of disability and personal interest.

2) Language-based communication

Becoming able to understand others’ intentions and express one’s own emotions through language-based communication using speech, characters, and signs.

3) Language development and use

Developing language concepts through communication that correspond to each object, event, or behavior in order to systematically acquire language.

4) Selection and use of communication methods

Appropriately selecting and using communication methods, such as speech, characters, signs, and devices, to smoothly communicate with others.

5) Appropriate communication in each situation

Becoming able to appropriately and independently communicate with others in each situation.

The 6 domains, including <activities for independence>, focus on approaches to harness hearing sense and promote language development, and aim to develop reading habits, communication behavior and skills, and appropriate subjective views on hearing, while addressing psychological issues. They have been designed to provide approaches to the remaining hearing sense, experience-based concept development and language acquisition, and basic abilities, such as expressions with natural gestures and vocalization, in addition to education to
improve pronunciation, harness the visual sense, and enhance abstract language comprehension. Their contents include: <harnessing the hearing sense>, <pronunciation and language>, <communication>, and <recognition of the disability>. Among these contents, <harnessing the hearing sense> aims to educate children on how to use hearing aids (cochlear implants) appropriately and habitually, enhance their ability to listen to sounds, music, and language as well as their knowledge of hearing abilities and aids, and develop their interest and positive attitude toward harnessing the hearing sense. On the other hand, <pronunciation and speech> focuses on vocal functions and organs (breathing, voice, tongue, jaw, and lips), phones (vowels and consonants), and words, phrases, and sentences, while <communication and language> refers to willingness to communicate with others, acceptance and expressions through communication, understanding language, and expressions using it.

The Curriculum Guidelines specify the contents of education related to language and communication. They describe methods of expression through communication, such as speech, characters, and sign language, and advise the appropriately selection and use of these methods in consideration of children’s functions, characteristics, and situations. They include: the cued speech technique in which the communication process is divided into lip-reading, pronunciation, and speech, and phonemes to convey intentions, harnessing the hearing sense, character conversation, finger-spelling, and sign language. The use of sign language and finger-spelling is recommended among these methods, based on systematic learning programs to enjoy communication and using Japanese versions of learning materials, such as sign language word and textbooks.

In the guidelines, language education is regarded as important not only as an educational curriculum, but also for the development of abilities to perform daily activities. Based on this, the necessity of daily approaches, such as increasing children’s willingness to talk in daily scenes, improving their expressions, encouraging them to imitate, and developing the concepts of language in them, is highlighted.

Schools for special needs education target children to whom these educational curricula are applied with a hearing level of 60 decibels or more on both sides, for whom it is impossible or very difficult to comprehend usual speech even with hearing aids, and conform to Article 22-3 of the School Education Act. In these schools, each class is organized with 8 or fewer students and a certified teacher for special needs education who specializes in 1 or 2 types of disability, based on Article 120-1 of the same act. Furthermore, diverse audio-visual devices related to education and language teaching, such as group hearing aids and flush emergency lighting systems, large public address appliances, vocalization guidance and
teaching material presentation apparatuses, and examination instruments in hearing training rooms, are used for communication, information provision, and activities for independence. In recent years, the necessity of providing educational approaches that consider the improved quality of hearing aids, such as cochlear implants, due to advances in electronics and medical services has also been highlighted. In the kindergarten division, importance is given to the establishment of cooperative relationships with each household and creation of a basis for character formation. Coping with a disability, the achievement of kindergarten education goals, development of appropriate behavior and habits to overcome and resolve difficulties, and physically and mentally appropriate development are also supported.

Schools for special needs education are also expected to function as centers. On the revision of the School Education Act in 2006, Article 74 was revised so that schools for special needs education would also provide education for the purposes specified in Article 72 and advice or support for education as specified in Article 81-1 at the request of kindergartens, elementary, junior, or senior high schools, or secondary education schools. These articles were developed based on the final report submitted in 2003, entitled: Future Perspectives on Special Needs Education. After stating that “schools for blind or deaf children and those with disabilities have been institutionally designated as special educational institutions for specific children”, this report emphasized that “in order to provide more specialized, higher-quality education in elementary and junior high schools, it is necessary for schools for blind or deaf children and those with disabilities to function as centers supporting education for children with disabilities at elementary and junior high schools in the community, based on their accumulated education-related experiences, knowledge, and skills”. Furthermore, in the proposal made in 2005, entitled: Development of Systems to Promote Special Needs Education (Report), their roles were defined as follows: “It is expected that schools for special needs education will play a central role in the development of systems to promote special needs education in the community. In order to provide children with disabilities, attending elementary or junior high schools, with education appropriately meeting their educational needs, it is particularly necessary for schools for special needs education to actively support elementary, junior, and senior high schools in the community, based on their specialties”. In addition, in the report submitted in 2008, entitled: Improvement of the Curriculum Guidelines for Kindergartens, Elementary, Junior, and Senior High Schools and Those for Special Needs Education, the following items were defined in relation to educational curricula:

- Ensuring necessary advice and support for children with disabilities or their teachers at the request of kindergartens, elementary, junior, or senior high schools
Making efforts to serve as a center for special needs education in the community

Developing in-school systems to systematically address this issue

Establishing cooperative relationships with other schools for special needs education, kindergartens, and elementary, junior, and senior high schools

In this report, the following functions were listed in relation to the above-described items: supporting elementary and junior high school teachers; providing consultation and information regarding special needs education; and teaching and supporting children with disabilities.

To teach and support infants and preschool children, the report also referred to functions such as: communication and coordination with welfare, medical, and labor institutions; and cooperation for elementary and junior high school teacher training. In line with this, the development of in-school systems, cooperation with related institutions, and clarification of community needs were mentioned as system development-related approaches. A special mention was also made to the necessity of developing specialties to accurately recognize the needs of nurseries, kindergartens, and elementary, junior, and senior high schools.

3.2 Support approaches

In addition to the above-described schools for special needs education, some social welfare corporations and private educational institutions in Japan also support language development in children with hearing impairments during infancy.

Support for language development is provided in some schools for special needs education through education consultations for infants aged 0 to 2, such as the fitting of hearing aids and learning of methods to harness the hearing sense. Tokyo Metropolitan Otsuka School for Deaf Children (Otsuka School) is playing a central role in this support system. This school consists of a kindergarten and elementary school, with 3 branch schools, Koto, Jonan, and Eifuku. By focusing on Japanese language learning, sociability, and health as its education policy, it aims to develop communication and Japanese abilities, and supports language development by creating appropriate educational environments to harness the remaining hearing sense and enhancing communication skills using lip-reading, sign language, and finger-spelling. Approaches to develop teachers’ specialties related to the hearing sense, lip-reading, and sign language are provided at this school for such support, and publicity activities, such as open school events, extension lectures, seminars, provision of information on its website, and visits to related institutions are promoted. Original education activities are performed at each branch school, such as health-promoting physical activities and book reading (Koto), cooperation with community libraries (Jonan), and non-age-based grouping and effective use
of drums (Eifuku). Programs such as friendly playing and personalized learning are also implemented in the Kindergarten Division, and focus on children enjoying communication with others, thinking by themselves, playing with friends, and being vigorous.

Through these approaches, an education consultation system for the parents of infants aged 0 or over has been adopted at Otsuka School in order to provide them with free personal or group consultation services at their request by various means of communication, such as telephone, fax, or e-mail. These services cover consultations regarding communication with children, their language development, and daily activities to appropriate hearing tests and hearing aid fitting. In 2013, the school had a total of approximately 120 consultations, and their outcomes and tips for developmental support are presented on its website, as well as “Hiyokodayori”, a school bulletin issued almost monthly. Similar activities have been reported at other schools for deaf children with a kindergarten.

Some social welfare corporations in Japan also support language development in children with hearing impairments from infancy, and this is based on the Child Welfare Act applied to children aged 0 to 18. For example, a child development support center located in Osaka City called Yunagien that provides language- and communication-related development support for infants with hearing impairments, including those with multiple disabilities, has an Institutional Beneficiary Certificate issued by the Director of the Child Home Center and attending community nurseries, and provides support based on each contract, while harnessing the remaining hearing ability and effectively using hearing aids, sign languages, and cochlear implants.

Language development in children with hearing impairments is also supported during infancy by some private educational institutions in Japan. A pioneering example of such support approaches is provided by a private educational institution located in Machida City, Tokyo called Nippon Rowa Gakko. At the Reischauer-Kramer Nursery (opened in 1977), which mainly provides education for infants, and the Child Development Support Center in this school, child educators and speech-language-hearing therapists have been engaged in activities to comprehensively support language and development, such as the development of hearing ability in 0-year-olds to junior high school students, by harnessing the remaining hearing sense through sound- and voice-listening since 1966 based on the Child Welfare Act. Nippon Rowa Gakko also provides language development support using an infrared hearing aid system developed in cooperation with the Japanese electronics manufacturer, Sony Corporation, in which speech sounds are collected with a microphone, and are converted into infrared data to be heard through an assistive device. This high-performance system, which even enables children with severe hearing impairments to hear speech sounds within a
certain area as if they were issued from a distance of a few decimeters, allows educational activities to harness children's hearing sense and encourage them to enjoy speaking without sign language during their break time. In addition to the confirmation of appropriate hearing aid use, diverse programs are also available at the school, such as individualized parent guidance, group activities for families, eating support, lectures, and home visits, as well as education guidance for fathers. As a testament to the favorable outcomes of these support approaches, the rate of advancement to university for graduates of Nippon Rowa Gakko is almost as high as those for general senior high school graduates. Regarding the expense of such support for infants, although 90% is paid by the public, the remainder, up to 1,000 yen per day, needs to be paid at private expense.

4. Discussion

A detailed examination of Japan's current support systems and approaches revealed that the unavailability of systems to ensure standardized support for language development in children with hearing impairments from infancy may be a challenge. As previously described, the importance of early language development support for children with hearing impairments appears to be well-recognized in Japan, considering that the necessity of the early initiation of educational approaches is specified as a basic idea for the development of educational curricula. However, systems to ensure all children with hearing impairments have access to such support have not yet been fully established.

Approaches for infants under 3 years old, to whom the School Education Act is not applied, have been performed at some schools for special needs education through infantile education consultations, such as the creation of appropriate educational environments to harness the hearing sense and improve communication skills using lip-reading, sign language, and finger-spelling. However, these approaches do not cover all children with hearing impairments requiring language development support from infancy. Therefore, the realization of education that harnesses the hearing sense from infancy, rather than that simply reflecting or applying the outcomes of pioneering approaches to support language development, such as the infrared hearing aid system used in some private educational institutions, is an issue that needs to be addressed.

In language development, it is important for children themselves to identify rules and mechanisms to learn the meaning of words. The necessity of understanding the basic characteristics of language to appropriately deal with abstract thoughts related to system creation, and not those limited to language acquisition has been highlighted. For example, children memorize the association of objects and movements with combinations of sounds and their names, and learn to represent such names through combinations of sounds and express their own intentions by...
combining words. The memorization of criteria for the use of language and targets, in addition to anticipating and memorizing the scope of language use, is also given importance in language development 11).

Therefore, systems to ensure standardized support for language development in children with hearing impairments from infancy need to be developed with a view to realizing education with a focus on the role of speech sounds to ensure the quality of such support.

5. Conclusion

The challenges encountered by Japan's systems to support language development in children with hearing impairments from infancy have been discussed herein.

Systems to support language development in children aged 3 or over have been established in kindergartens and schools for special needs education (kindergarten division) based on the School Education Act. Furthermore, the necessity of early educational approaches has been specified as a basis for the development of educational curricula for children with hearing impairments.

On the other hand, to provide early support for language development in these children, approaches for those younger than 3 to harness their hearing ability are also provided through infantile education consultations at some schools for special needs education, such as hearing tests and hearing aid fitting. Furthermore, based on the Child Welfare Act, some social welfare corporations and private educational institutions also provide support for infants. Private institutions in particular have been providing pioneering approaches to support language development through enjoyable communication using speech, rather than sign language, and infrared hearing aid systems.

Therefore, the unavailability of systems to ensure standardized support for language development in children with hearing impairments from infancy represents a challenge. In order to ensure sufficient quality when developing such systems, it may be necessary to promote support for language development during infancy, with a focus on the role of speech sounds and effectively using the outcomes of private institutions' activities.

References

3) At schools, the term "hearing impairment" refers to an impairment in some part of the sound transmission pathway from the auricle and external auditory canal to the primary auditory cortex of the cerebrum. The different types of hearing loss have also been classified into: conductive (physical problems with inner ear sensory cell stimulation by sound), sensorineural (neural problems from sensory cells to the primary auditory cortex), and mixed (conductive-


8) “Nursing, education, and training” was defined as a domain common to schools for blind or deaf children and those with disabilities on revision of the Curriculum Guidelines in 1971, with a view to improving and overcoming disabilities.


10) Mutsumi Imai: Solving the Mysteries of Language development, ChikumashoboCo., Ltd., 2013, pp.41-42.