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SERVICES**

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ORIGINAL ARTICLE

Exploring the Benefits and Uses of Musical Experiences in the Context of Dementia Care

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ABSTRACT

By the time the average reader reaches the References section of this paper, statistics from the Alzheimer's Society (UK) suggest that an additional 187 people, worldwide, will have been diagnosed as having some form of dementia. A combination of the rising costs of dementia care and increasing evidence that costly medical interventions seem to provide a relatively limited number of benefits, has generated a corresponding interest in a wide range of non-pharmacological interventions for those with dementia. In this paper, we present a summary of the initial findings from an on-going comparative study carried out in Japan and England. Our research design involved a series of interviews and structured observations carried out with participants, nursing staff and family members, all of whom attended a series of music concerts in Japan and England. Our initial findings suggest that musical experiences can produce significant benefits for those people living with dementia and all those involved in their care.

⟨Key-words⟩

dementia care, music, psychology, families, nursing, care services

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I. Background

“Η μουσική είναι στο μυαλό όπως ο αέρας είναι για το σώμα.”

Plato

(Music is to the mind as air is to the body)

Worldwide, an estimated 46.8 million people have been diagnosed as living with dementia with approximately 9 million new cases occurring every year. This figure represents one new case every 3.2 seconds (Alzheimer’s Disease International, 2015). Globally, by 2030, the total number of people with dementia is projected to rise to almost 75 million and to increase to an estimated 135 million by 2050. If current patterns continue, 49% of these new cases will occur in Asia and 25% in Europe with the global costs of dementia estimated soon to reach US\$ 800 billion. In Japan, almost 4% of the population have been diagnosed as having some form of dementia; a figure that represents one person in every four people over the age of 65 years. In the UK, one in six people currently have been diagnosed as having dementia and it is estimated that 225,000 new cases will be diagnosed during the coming year; a figure which represents one new case of dementia occurring in the UK every three minutes.

The idea of music as ‘medicine’ or as a ‘nursing tool’ is far from new. In fact, music has long been associated with the treatment of various physical and psychological conditions and philosophers in ancient Greece believed that music could heal both the body and the soul (Fauval, Flood & Wilson, 2006). Yet, in spite of this long historical link, the current global, economic climate has caused people to question if the money spent on non-pharmacological interventions; such as musicians in care homes, is money well spent. However, Bellelli et al. (2012) recently calculated that the cost of musical interventions can be as little as 1/70th of the expenses involved in daily care. When compared to the costs of buying medication and various types of therapies, from which individuals may or not gain some benefit, (see Banerjee, 2013); we argue in this paper that music can be a highly cost effective and non-invasive, non-pharmacological intervention producing far ranging benefits for nursing staff, participants, and their families.

The use and benefits of music with those living with dementia, is a comprehensively documented and well researched area of academic interest with a plethora of studies reporting on the significant benefits to be gained by people living with dementia from regular engagement with musical activities (see for example, McDermott, Crellin, Ridder & Orrell, 2013; Sixsmith & Gibson, 2007; Spiro, 2010; Sung & Chang, 2006). More specifically, numerous studies have reported on the decreased levels of anxiety, aggression and agitation obtained following engagement with music (Cooke, Moyle, Shun, Harrison & Murfield. 2010; Lai, 2004; Ledger & Baker, 2007; Ueda et al. 2013; Vink, et al., 2013). Okabe & Kobayashi (2006) reported increased levels of communication, social

interaction, eye contact and concentration in people living with dementia following regular musical experiences and further studies have persistently demonstrated improved memory and decreased levels of anxiety and wandering in people with dementia (see Moroi et al., 2007; Nuki, 2009; Terauchi, 2001).

Dementia is not a natural feature of aging; it is a physical illness of the brain which results in many mental abilities ultimately diminishing. However, through work carried out by Yamada & Baba (2008), we know that musical skills are amongst the last mental abilities to disappear, (see also Yamada & Shimuzu, 2013). Memories of individual melodies, (although not their titles), and experiences or life events related to them, words to songs and associated feelings and emotions seem to remain long after other cognitive abilities and life memories have disappeared. Therefore in this respect, the case for using music with people with dementia seems to be well made and supported by a significant body of research – based evidence. However, there is one significant research issue to be addressed. Although a substantial number of these previous studies have highlighted the positive benefits to be gained by those living with dementia from engaging in musical activities, many of the previously reported studies, (see for example: Aldridge, 2000; Dennis & Rickson, 2014; Gold, 2014) have been carried out within the discipline of *music therapy*, whereas both the authors of this paper engage with this research area from the perspective of *music psychology*, and a number of significant differences exist here in terms of approach, methodology and theoretical foundation.

First, the most significant difference is that all music therapy activity (including research activity), is carried out with the absolute, explicit intention of producing a positive and beneficial effect; that is, music therapy is required to be *therapeutic*. Whereas from the perspective of music psychology, we are equally interested in all responses to the music, whether positive or negative. Music therapy builds on relationships and mutual understandings which develop through the engagement and interaction between the ‘therapist’ and the ‘patient’. In music psychology, we remain far more disengaged and objective and the relationship is more accurately described as ‘researcher’ and ‘participant’.

Second, the explicit purpose of the ‘therapy’ is to bring about some positive benefit in the ‘patient’ and therefore any activity which causes anything other than a positive and beneficial reaction or outcome, tends to be changed. Seen from this perspective, it is therefore hardly surprising that therapy – based research tends to report positive and beneficial outcomes. Third, methodologically speaking, music therapy usually takes place in either one to one settings (i.e. therapist and one patient), or in one to small group settings (i.e. therapist with small number of patients). From this perspective it is therefore often difficult to separate out, if or not the positive benefits to the patient occurs

as a result of the musical activity or as a result of having the undivided attention of one therapist devoted to building an understanding and positive relationship with them. Put simply, is it the music or is it the effect of the therapist /researcher? Thus, within the realm of music therapy, it is often difficult to identify to what extent any resulting benefits are due to the effect of the music or to the intense interaction between the therapist and the 'client' which is designed specifically to be therapeutic (see for example Raglio, et al.,2010; Sung et al., 2012).

From our perspective as music psychologists, our interest rests in a more objective realm. Our methodology attempts to remove the effect of the researcher from the research context; data is collected from *participants* and not from '*patients*' or '*clients*'. Our observations are carried out in large group, naturalistic settings in which individual participants become anonymous audience members rather than individuals who build a relationship with a therapist. At this point, we wish to emphasise that we neither doubt the significant, positive effects to be gained from engagement in music therapy, nor is it our intention to denigrate the highly effective and professional work done by numerous trained music therapists, our intention is simply to spell out the important theoretical and methodological differences that exist between music therapy and music psychology; and thus, it is these differences that in many ways shape and influence our research designs and the type of outcomes we search for.

In addition to the relatively few studies carried out from the perspective of music psychology, it is also the case that whilst numerous studies have reported on the positive and beneficial effects of music for people with dementia, a relatively limited number of studies have explored the effect of musical experiences on the levels of wellbeing in the family members, nursing staff and other people involved in providing care for those living with dementia, (Hicks-Moore & Robinson, 2008; McDermott, Orrell & Ridder, 2014). However, previous studies that have included family members, report that musical activities are persistently rated highly (Davidson, & Almeida, 2014; Davidson & Fidele, 2011; Osman, Tischler & Schneider, 2014). That is, of all the various activities in which participants and their families engage, music is perceived and reported as being amongst the most beneficial. As a result, certainly in the UK, a range of charities and organisations (e.g. '*Music in Hospitals*' and '*Singing for the Brain*'), put considerable efforts into obtaining funding in order to place musical experiences into hospitals and care facilities.

Therefore, in an initial attempt to explore a clear 'gap in the current knowledge', this research initiative was carried out to specifically explore the range of effects (positive or negative) of the same music experiences on participants, facility managers and nursing staff as well as family members.

II. Methods

A total of 22 one hour music concerts took place in 3 care facilities in Japan and 3 care facilities in the UK. Our research tools included systematic observations of individuals living with dementia and semi-structured interviews with some of the participants, their family members, with nursing staff and some activity coordinators. All concerts lasted for a minimum of one hour and involved one or two musicians. Concerts took place within a communal area of the care facility during the afternoon. In total, 53 participants were interviewed which included 27 participants, 13 family members, 9 members of nursing / volunteer staff and 4 care managers. The age of participants interviewed ranged from 71 through to 97 years ($M= 87.3$).

Although not all concerts were identical, three independent variables were controlled. First, the repertoire was partly controlled in that all concerts included a similar balance of instrumental listening music and familiar songs for joining in with. Second, all concerts were kept to about one hour duration, in order to avoid fatigue and all took place during the afternoon between 2pm and 4pm and finally, only professional musicians experienced in working with individuals with dementia were involved in the project. Interviews were carried out in a public space within the care facility immediately following each of the concerts and all interviews were recorded and later transcribed. Data from interviews was analysed in three stages according to standard qualitative procedures (see Robson, 2011). Our analysis consisted of producing summative sheets of keywords, key concepts and opinions taken from the transcriptions (Stage 1) of the 53 interviews. This summative data was subsequently assigned to one of a number of initial categories and following an iterative process, initial categories were re-organised until four main themes emerged into which all key words, concepts and responses could be assigned (Stage 2). Finally, reliability of thematic material and categories was established through an independent third party (Stage 3). As a result of this third stage, two of our initial themes were re-structured into alternative categories and one theme was re-titled.

Observations of residents with more advanced dementia were recorded manually in field notes. Ethical approval for the research was given by the UK University. All participants provided written consent. For participants with more advanced dementia who were unable to give written consent, family members were asked to give consent.

III. Results

Our initial results suggested that music can be an appropriate non-pharmacological intervention providing significant benefits not only to participants but also to their

families and to their care staff. Following standard qualitative procedures of analysis, we report our results according to our four main emerging themes namely, i) Music and physical impairment, ii) Music and physical responses, iii) Music and dementia and iv) Music as an indicator of cognitive activity.

1. Music and physical impairment

Overall, both participants and nursing staff reported on a number of benefits which the concerts provided for participants with physical impairment. In addition to having early to mid-stage dementia, 56% of our population were either disabled, blind or physically challenged in ways that limited their movement and coordination. For this category of participant, music was actually one of the only activities in which they could fully participate as an individual without needing additional support or feeling they were interfering with the pace and overall flow of the activity. For blind participants, music concerts provided an activity in which they could not only partake but also regain a degree of self respect and independence and 6 blind participants reported, 'feeling relatively normal' during the concert. Whilst blind participants spoke about being invited to take part in some of the other activities e.g. simple cookery or quiz activities, they also noted how they often felt too reliant on others for their participation and this ultimately impacted on their level of enjoyment. For example:

"When you have to rely on other people for almost everything you do, it feels so good to be able to do something on your own without somebody having to tell you what is going on"

and

"I get depressed when I cannot remember things or see to do things like other people can but in the concerts, I can remember every single word, and I think well! I am not totally useless - I can remember something"

For blind participants, musical concerts enabled them to re-gain their own individual musical identity, which mostly remained intact as opposed to their post dementia / disabled identity. More specifically, where other activities often generated a focus on what could no longer be done, the music concerts had the benefit of focussing on what could be done and mostly without the aid of additional help.

For nursing staff, music concerts were a way in which they could actively engage with blind participants in a different realm. Conversations about the music were seen to be different from those experienced in other contexts as the disability did not interfere with the activity. As one activities manager remarked:

“With the music, you forget they are blind and you engage with them on a different level – in fact they notice more than those of us who are not blind because their hearing can be more acute”

Similarly, other nursing staff reported that concerts enabled them to focus more on what the individual could do, rather than what they could not do. For example:

“In other activities, you focus on their safety and always making sure they know what is going on or having to help them, but the concerts enable us to listen to them and you get a very different idea of who they are”

2. Music and physical responses

Although it was not our intention to carry out any form of assessment of on-going physical conditions in people with dementia, our observations during the concerts highlighted the fact that it was possible to use music to make accurate observations of changes in physical conditions. For example, in one case study, one participant with dementia had recently suffered a chest infection and mild stroke affecting her ability to speak. Improvement in her physical condition was slow and assessment of her actual progress was hard to assess on a weekly basis, requiring a much longer period of time to pass before standard measures revealed any form of improvement. Additionally, some of the standard measures of assessment could either be invasive and unpleasant or require a degree of cooperation from the participant, which was not always forthcoming as a result of the dementia. Similarly, simply asking the participant to describe any changes she experienced in her physical condition was almost impossible, as a result of the dementia. However, during the music concerts, the participant always voluntarily joined in with the singing and would willingly partake in almost a full hour of vocal activity.

It was this vocal activity that enabled nursing staff to identify any improvements - or not:

	Observable changes	As evidenced by
i	Increase / changes in lung capacity	Duration of note she was able to sing
ii	Increase / changes in physical ability	Changes in ability to formulate the words to the song
iii	Increase / changes in stamina	Length of time she remained active in the concert
iv	Increase / changes in motor coordination	Degree of success in formulating words as tempo increased or ability to accurately tap in time to the rhythm or the beat of the music
v	Increase / changes in mental / emotional condition	Degree of engagement with the concert (e.g. smiling, interacting, recognising humour in the words or applauding at the end)

Nursing staff reported that taking part in the singing enabled not only a wider range of conditions to be assessed but also to assess individual improvement (or not) in far more detail than with other more invasive clinical measures.

Work by Levesque, Ducharme, & Lachance, (2000), reported on the significant levels of guilt often experienced by family members when a partner or parent transitions from home into a long term care facility. As a result of these increased levels of guilt, the study further highlighted the fact that many family members or partners continued to visit the care facility, often on a daily basis in order to continue to provide substantial levels of care for significant periods of time following transition (see also Kydd, 2001). Certainly, the family members interviewed in our current study reported feeling significantly increased levels of guilt, feelings of inadequacy and feeling they should have been better able to cope with their parent or partner. Over 86% of family members spoke about continually questioning their decision to place their family member into care. However, either attending the concerts with their family member or seeing video clips of their family taking part in the concert were highly valued and went some way towards reducing the level of guilt that many reported feeling. One family member reported:

“This place was not our first choice – we wanted another home and we were reluctant about (name)...coming here, but it was the concerts that were a turning point – they have nothing like this at the other place and this is the bit that we all like best”

Attending the concerts, or seeing video clips of their loved one in the context of the music concert, contributed to a good number of positive memories of their loved one being happy, joining in and enjoying life. One additional benefit was reported by a family member who noted that video clips of her parent taking part in the concerts were considerably more useful than frequent reports and updates from doctors and nursing staff, in that the video clips taken in the concert provided her with real concrete evidence of the gradual but significant improvements in her parent’s physical condition over a period of weeks.

In addition, participants who had both dementia and also had either further physical disabilities or had experienced a stroke, were frequently seen to benefit significantly from music concerts. In one instance, a severe stroke had left one participant with the limited use of only one arm. Exercising the arm to prevent muscle atrophy was vital and yet physiotherapists often experienced great difficulty in encouraging any form of exercise for significant periods of time. Constant requests or attempts to engage in any meaningful period of exercise mainly instigated increased levels of anxiety or agitation and sometimes even mild forms of verbal aggression. However, it was noted that during

musical events, this individual would persistently spend over one hour moving ('exercising') his arm voluntarily. Subsequently, nursing staff were able to use recorded music in between concerts in order to ensure some level of ability in using this one arm continued.

3. Music and dementia

For those living with dementia, it is not usually possible to carry out meaningful interviews. However, in this study, our interviews with nursing staff and families revealed the following benefits gained from engaging with the musical activities.

First, music was seen as an appropriate and effective stimulus for promoting memories of life events, stories and people. In common with the work reported previously by Yamada & Baba (2008), and others, in our study it was noted that participants became more social, more vocal and more motivated to talk. Family members reported that individual pieces of music often generated memories and stories they had not previously heard or had forgotten and nursing staff reported that this effect often lasted for a considerable period of time beyond the day of the actual concert. This effect was found to be particularly beneficial for males in that whereas it was often the case that females would frequently interact and converse with each other, males were more often likely to be quiet, detached and less communicative. However, nursing staff observed that males were far more likely to talk to each other following the musical events.

The increased levels of communication was a feature seen as being particularly important to family members. Not only did the concerts give family members more to talk about, family members appreciated what might be their final memories of their loved one. For example, one family reported:

"I will remember today because you we have had such a great time and it is nice to have good memories rather than all the other things that happened- this is what you remember and in years to come it will bring a smile to my face"

Second, even those participants with more severe forms of dementia often managed to demonstrate they had a musical identity and this remained long after other personality traits had disappeared. Participants, even those with quite advanced stages of dementia still demonstrated evidence of musical taste by expressing preferences for individual songs and musical styles they either enjoyed or not. Positive responses and preferences for musical styles or individual songs were expressed through:

i	Increased levels of attention to the musician
ii	Joining in by tapping, moving or singing
iii	Smiling or other indicator of positive emotion
iv	Staying awake or remaining within the concert space throughout

Negative responses or dislike of pieces or lack of tolerance for individual songs or styles of music included:

i	Decreased levels of attention
ii	Fidgeting or attending to something other than the music (the chair / handbag etc.)
iii	Asking to, or getting up to leave the concert space
iv	Anti-social behaviour such as shouting, annoying others, banging cups or books
v	Talking loudly

One interesting effect of the benefit of the music on some participants with quite advanced dementia was the fact that they simply sat quietly and did not react. For example, where participants often engaged in frequent anti-social behaviour, the benefit of the music was that they ceased that behaviour and sat quietly. That is, the total lack of a reaction was in fact the strongest and most beneficial reaction. One member of the nursing staff pointed out:

“(name)...will always want to wander off to find his father and sometimes he can get a bit difficult but he is fine here, some of the nurses are amazed to see him just sitting there – listening and joining in”

Other indications of the benefits of the concerts on those with dementia included decreased levels of attachment behaviours such as reaching out and touching others or attempting to leave or wanting to look for a parent and in addition, the fact that almost all participants remained in the concert space for over an hour focussing on essentially one activity was seen as a major and significant feature of the music. It was reported by one nurse that very few activities lasted for over thirty minutes due to the inability to concentrate however, the music concerts often lasted for well over one hour and almost all participants not only remained within the performance space but actively took part throughout the whole performance.

4. Music as an indicator of cognitive activity

In addition to assisting nursing staff to make more accurate and sensitive, non-invasive assessments of changes in motor co-ordination and certain physical abilities, we here argue that in some individuals, the physical movements and reactions to musical stimuli we observed, frequently provided detailed evidence for the levels of cognitive activity. Participants with limited language capacity and who were frequently unable to recognise close family members or to communicate basic requests were still able to provide evidence of quite sophisticated cognitive activity in relation to the music. For example, participants were able to:

i	Recognise and react to a steady beat or a rhythm
ii	Recognise and respond to changes in speed (tempo)
iii	Recognise the meaning within the words of songs
iv	Predict and respond to humour in the words of songs
v	Display evidence of liking / disliking for a musical style or individual song
vi	Predict endings to musical pieces and songs by appropriate clapping
vii	Provide evidence of concentration for prolonged periods of time

In three instances, participants with limited language ability were still able to demonstrate quite sophisticated cognitive processing of musical data as evidenced by their immediate responses to changes in pitch by moving either hands or arms in the direction of the pitch change, or what could be described as 'drawing the tune'. For example in one case study, analysis of a video clip revealed an ability to process changes in pitch from one note to the next. Evidence of this came in the form of moving the right hand up or down the left arm. In each instance, the movement of the hand (up or down) corresponded closely to the direction of change of pitch taking place within the song (up or down). There were no corresponding movements, up or down, during longer notes or pauses.

By observing responses throughout the duration of the research project and by gradually identifying reactions which provided evidence of varying levels of cognitive processing, we were able to see changes occurring in the level of cognitive ability which participants were capable of; a feature which proved to be a useful tool in helping nursing staff to more closely assess if changes in an individual's wellbeing were due to a physical or a mental deterioration. Put simply, in the case of people living with dementia, there is often an expectation that decreasing levels of ability or wellbeing are a result of a diminished cognitive ability brought about through the natural progression of the disease. However, in reality it could be that the cognitive ability remains unchanged and it is the physical ability the individual requires to demonstrate this, that has deteriorated. All

told, we simply argue that observing physical reactions and simple responses to musical stimuli gives a further layer of evidence as to what the individual is capable of, in terms of their cognitive processing.

IV. Considerations and Conclusions

In considering our initial findings from this research, we argue that the use of musical activities within the context of individual care can be an effective and efficient tool in promoting wellbeing and improving levels of care amongst participants, family members and nursing staff. We consider music to be a valuable nursing 'tool' that can provide valuable respite for the full range of professionals, and the individuals in their care and at best, can be an effective 'treatment' and replacement for more expensive pharmacological products. We consider also that the inclusion of specific training for all professionals working in any care context, would enable the full potential of musical activities to be realised.

In conclusion, we would argue that there is evidence to suggest that musical experiences can contribute to increased levels of human service by promoting and creating memories and wellbeing in participants through stimulating, motivating and encouraging increased levels of physical and cognitive activity. There is also evidence that musical events contribute to a more positive atmosphere for all concerned and contribute to an increase in the level of care by increasing levels cooperation, reducing the levels of anti-social behaviour and providing an increased understanding of care needs.

Given the findings of this and previous studies, the increasing costs of dementia care to society and the need to consider further the ways in which non-pharmacological interventions can contribute to the process of caring (Petrovsky et al., 2015), we suggest that future research in this area would be benefit to all those involved in the care of the elderly.

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ORIGINAL ARTICLE

Indices of Undernutrition in the Care-dependent Elderly

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ABSTRACT

Undernutrition is a factor associated with care dependency in the elderly. Undernutrition means the state that a nutrient necessary to live healthfully can't take in. This study examined the nutritional status and mental/physical functions of the care-dependent elderly living in facilities and home covered by long-term care insurance to clarify factors influencing their nutritional status, as well as indices for the early identification of undernutrition among them. I analyzed it about the Alb level and BMI to become indices of undernutrition in this study. Data regarding the actual status of 529 care-dependent elderly individuals, 369 (69.8%) residents of Long-term Care Insurance-covered facilities (facility group), and 160 (30.2%) living at home (home group), were obtained in 9 arbitrarily selected areas. Care dependency was frequently marked in the facility group, while it was generally mild in the home group. Regarding the nutritional status, there were no differences in the BMI between the groups, but the Alb level was lower in the former. The Alb level was also significantly correlated with 4 factors: BMI, mode of feeding, dietary intake, and ability to walk. On detailed analysis, decreases in the Alb level were associated with altered modes of feeding and a reduced ability to walk in the facility group, and a decreased dietary intake in the home group. These results support the feasibility of predicting decreases in the Alb level by clarifying altered modes of feeding and a reduced ability to walk among those with marked care dependency, and by detecting decreases in the dietary intake among those with mild care dependency even when the Alb level is unclear. The factors identified in this study may be new indices for the identification of undernutrition in the care-dependent elderly.

< Key-words >

undernutrition, mode of feeding, dietary intake, ability to walk, Alb

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I . Background

Undernutrition is a factor associated with care dependency in the elderly. Undernutrition means the state that a nutrient necessary to live healthfully can't take in. When the Long-term Care Insurance Act was revised in 2006, measures to prevent the development and progression of care dependency, such as plans to resolve undernutrition, were adopted. However, in a study to comprehensively evaluate and analyze the outcomes of care prevention projects conducted in 2008, nutritional improvement was still necessary for approximately 30% of specific elderly individuals who may possibly become care-dependent and those requiring assistance¹⁾. Furthermore, according to the Report of a Survey on the Dietary and Nutritional Statuses of the Elderly Receiving Long-term Home Care 2012, the prevalence of undernutrition among the elderly receiving long-term home care, based on the MNA-SF (Mini Nutritional Assessment-Short Form) score and BMI, was approximately 30%²⁾. These findings indicate that undernutrition remains in the elderly, requiring improved approaches to resolve it as countermeasures against the development and progression of care dependency.

Under these circumstances, we conducted an awareness survey in 2014, involving those providing Long-term Care Insurance services (n=641) and focusing on the nutritional status of the care-dependent elderly. Both those providing home and facility care services showed poor awareness of this issue, as they rarely clarify their clients' BMI or serum albumin (Alb) levels as indices of the nutritional status (Table 1)⁵⁾.

Table 1: Care staff awareness of the undernutrition management of elderly individuals needing long-term care: Comparisons by service type (n=641)

	All		Most		A few		None	
	In-home	Facility	Home	Facility	Home	Facility	Home	Facility
BMI	6.2%	9.6%	19.1%	24.8%	57.3%	44.2%	17.3%	21.4%
Alb	0.0%	4.6%	7.6%	23.1%	56.4%	38.5%	36.0%	33.9%

In some previous studies, altered modes of feeding were shown to influence the nutrient intake³⁾, and the cognitive and physical functions of the care-dependent elderly were correlated with the nutritional status⁴⁾. However, none of them examined indices for the early identification of undernutrition in consideration of the above-mentioned poor awareness of the nutritional status of the care-dependent elderly among those providing care services.

Therefore, the present study examined the nutritional status and mental/physical functions of the care-dependent elderly living in facilities and home covered by long-term care insurance to clarify factors influencing their nutritional status, as well as indices for the early identification of undernutrition among them. I analyzed it about the Alb level and BMI to become indices of undernutrition in this study.

The study may have significance in providing a basis for preventing the development and progression of care dependency in not only Japan, in which the proportion of those aged 60 or over will reach 32.0% of the total population in 2050 (UN report, 2013)⁶, but also other countries that are similarly facing population aging, such as Germany, Italy, and Sweden. The results may also contribute to the reduction of social insurance costs.

II. Objective

The present study examined the nutritional status and mental/physical functions of the care-dependent elderly living in facilities and home covered by long-term care insurance to clarify factors influencing their nutritional status, as well as indices for the early identification of undernutrition among them.

III. Methods

1. Design

A quantitative, descriptive study (to clarify the actual status).

2. Subjects

The care-dependent elderly living in Long-term Care Insurance-covered facilities and at home.

3. Period

Between April 2014 and March 2015.

4. Study items

Sex, age, type of service, Long-term Care Grade, Degree of ADL Independence of the Elderly with Disabilities, Degree of ADL Independence of the Elderly with Dementia, BMI, serum albumin (Alb) level, daily dietary intake, mode of feeding, ability to walk, dental status, and presence/absence of choking.

5. Methods of data collection and analysis

A questionnaire survey was conducted to clarify the actual status, involving those providing the Long-term Care Insurance services and asking them to provide data and other materials regarding their care-dependent elderly clients. Their responses were analyzed to clarify factors influencing the nutritional status of the care-dependent elderly, using SPSS Ver. 22.0 as statistical analysis software.

IV. Ethical considerations

Prior to the study, the heads of target facilities or home care service stations were provided with explanations regarding the following items: ensuring anonymity to prevent the identification of individuals; encoding data for analysis and limiting their use to the present study; and utilizing the results only for social benefit through presentations at academic meetings or publication in scientific journals. Care service providers who consented were asked to provide data and other materials regarding their care-dependent elderly clients as their responses to the questionnaire. The study was conducted with the approval of the Ethics Committee of the Juntendo University Faculty of Health Sciences and Nursing (approval number: 25003).

V. Results

Data regarding the actual status of 529 care-dependent elderly individuals, 369 (69.8%) residents of Long-term Care Insurance-covered facilities (facility group), and 160 (30.2%) living at home (home group) were obtained in 9 arbitrarily selected areas (Hokkaido, Aomori, Iwate, Tokyo, Aichi, Gifu, Fukui, Kochi, and Miyazaki). As their basic attributes, the facility group consisted of 86 (23.3%) males and 283 (76.7%) females, while the home group consisted of 50 (31.2%) males and 110 (68.8%) females. The mean ages were 85.19 ± 7.62 and 84.42 ± 7.69 , respectively, and the mean Long-term Care Grades were 3.47 ± 1.24 and 2.81 ± 1.40 , respectively. The Degree of ADL Independence of the Elderly with Disabilities was as follows: facility: J1: 5 (1.4%), J2: 11 (3.0%), A1: 56 (15.3%), A2: 82 (22.4%), B1: 57 (15.6%), B2: 105 (28.7%), C1: 12 (3.3%), and C2: 38 (10.4%); and home: J1: 17 (11.3%), J2: 5 (3.3%), A1: 37 (24.7%), A2: 31 (20.7%), B1: 18 (12.0%), B2: 29 (19.3%), C1: 4 (2.7%), and C2: 9 (6.0%). The Degree of ADL Independence of the Elderly with Dementia was as follows: facility: I: 35 (9.6%), IIa: 31 (8.5%), IIb: 77 (21.0%), IIIa: 125 (34.2%), IIIb: 28 (7.7%), IV: 61 (16.7%), and M: 9 (2.5%); and home: I: 35 (23.3%), IIa: 10 (6.7%), IIb: 44 (29.3%), IIIa: 34 (22.7%), IIIb: 12 (8.0%), IV: 11 (7.3%), and M: 4 (2.7%). In short, care dependency was frequently marked in the facility group, while it was generally mild in the home group (Table 2).

Table 2: Basic Attributes of the Care-dependent Elderly (n=529)

		In-home	Facility
Sex	Male	23.3%	31.2%
	Female	76.7%	68.8%
Age (Mean±SD)		85.19±7.62,year	84.42±7.69,year
Level of requiring nursing care (Mean±SD)		3.47±1.23	2.81±1.40
Levels of Living Independence of the Elderly with Disabilities	J1	1.4%	11.3%
	J2	3.0%	3.3%
	A1	15.3%	24.7%
	A2	22.4%	20.7%
	B1	15.6%	12.0%
	B2	28.7%	19.3%
	C1	3.3%	2.7%
	C2	10.4%	6.0%
Levels of Living Independence of the Elderly with Dementia	I	9.6%	23.3%
	II a	8.5%	6.7%
	II b	21.0%	29.3%
	III a	34.2%	22.7%
	III b	7.7%	8.0%
	IV	16.7%	7.3%
	M	2.5%	2.7%

J1,J2:Walk level B1,B2:Chair Level C1,C2:Bed level

On comparison of nutrition-related items, the mean BMI was 21.23 ± 3.90 and 21.22 ± 3.86 kg/m² in the facility and home groups, respectively, revealing no differences. In contrast, the mean Alb levels were 3.62 ± 0.42 and 3.82 ± 0.46 g/dL, respectively; the level was lower in the former. The mean dietary intakes were $1,327.27 \pm 244.44$ and $1,389.06 \pm 317.32$ kcal, respectively; the volume was also lower in the former. The mode of feeding in the facility group was regular: 189 (51.8%), chopped food: 46 (12.6%), paste food: 112 (30.7%), and tube feeding: 18 (4.9%). In the home group, it was regular: 120 (76.9%), chopped food: 25 (16.0%), paste food: 7 (4.5%), and tube feeding: 4 (2.6%); altered modes of feeding were observed more frequently in the former. The ability to walk was as follows: facility: walking independently: 63 (17.1%), requiring monitoring: 35 (9.5%), requiring partial assistance: 53 (14.4%), and using a wheelchair: 218 (59.1%); and home: walking independently: 44 (27.5%), requiring monitoring: 26 (16.3%), requiring partial assistance: 40 (25.0%), and using a wheelchair: 50 (31.3%); wheelchair users accounted for the majority in both groups, but their proportion was higher in the facility group. The dental status was as follows: facility: natural teeth: 129 (35.1%), using dentures: 183 (49.9%), and not using dentures due to poor fit: 55 (15.0%); and home: natural teeth: 41 (25.6%), using dentures: 100 (62.5%), and not using dentures due to poor fit: 19 (11.9%); the natural tooth rate was higher in the facility group, although the difference was non-significant when including those using dentures. The presence/absence of choking was as follows: facility: absent: 243 (68.3%), once or twice a day: 56 (15.7%), once or twice during each meal: 53 (14.9%), and every bite: 4 (1.1%); and home: absent: 119 (74.8%), once or twice a day: 24 (15.1%), once or twice during each meal: 13 (8.2%), and every bite: 3 (1.9%); choking was rare in both groups, but a slightly decreased oral function was observed more frequently in the facility group (Table 3).

Table 3: Nutritional Status, Ability to Walk, and Oral Function of the Care-dependent Elderly (n=529)

		Home	Facility
BMI (Mean±SD)		21.23±3.90,kg/m ²	21.21±3.86,kg/m ²
Alb (Mean±SD)		3.62±0.42,g/dl	3.82±0.46,g/dl
Dietary intake (Mean±SD)		1327.27±244.44,kcal	1389.06±317.32,kcal
Mode of feeding	Regular food	51.8%	76.9%
	Chopped food	12.6%	16.0%
	Paste food	30.7%	4.5%
	Tube feeding	4.9%	2.6%
Ability to walk	Walking independently	17.1%	27.5%
	Requiring monitoring	9.5%	16.3%
	Requiring partial assistance	14.4%	25.0%
	Using a wheelchair	59.1%	31.3%
Dental conditions	Natural teeth	35.1%	25.6%
	Using dentures	49.9%	62.5%
	Not using dentures due to poor fit	15.0%	11.9%
Susceptibility to choking/aspiration	Absent	68.3%	74.8%
	Once or twice a day	15.7%	15.1%
	Once or twice during each meal	14.9%	8.2%
	Every bite	1.1%	1.9%

On analyzing the correlation of the Alb level as an index of the nutritional status with each factor using Spearman's ρ , it was significantly correlated with the mode of feeding, dietary intake, and ability to walk in the facility group, and with the BMI, dietary intake, and ability to walk in the home group (Table 4).

Table 4: Correlations among the Alb Level and 4 Factors (Spearman's ρ)

		BMI	Mode of feeding	Dietary intake	Ability to walk
Alb	Home (N=295)	.188 **	-.423 **	.242 **	-.325 **
	Facility (N=77)	.473 **	-.149	.496 **	-.288 *

* $p < .05$, ** $p < .01$

Furthermore, the following regression equations were obtained through multiple regression analysis (using the forced entry method) for these 4 factors:

Facility: Alb level = $-0.136 \times [\text{mode of feeding}] - 0.071 \times [\text{ability to walk}] - 0.002 \times [\text{BMI}] + 0.001 \times [\text{dietary intake}] + 4.137$ (Table 5).

Table 5: Results of Multiple Regression Analysis with the Alb Level of the Facility Group as a Dependent

	Standardizing coefficient
BMI	-.021
Mode of feeding	-.347***
Dietary intake	.001
Ability to walk	-.199**
Multiple correlation coefficient	.467***
Coefficient of determination	.218***

** : $p < .01$

*** : $p < .001$

Home: Alb level = $0.001 \times [\text{dietary intake}] + 0.022 \times [\text{BMI}] - 0.048 \times [\text{ability to walk}] + 0.046 \times [\text{mode of feeding}] + 2.617$ (Table 6).

Table 6: Results of Multiple Regression Analysis with the Alb Level of the In-home Group as a Dependent Variable

	Standardizing coefficient
BMI	.165
Mode of feeding	.060
Dietary intake	.318*
Ability to walk	-.118
Multiple correlation coefficient	.468**
Coefficient of determination	.219**

* : p<.05 ** : p<.01

A decreased Alb level was associated with altered modes of feeding and a reduced ability to walk in the facility group, and a decreased dietary intake in the home group.

VI. Discussion

The present study examined the nutritional status and mental/physical functions of the care-dependent elderly living in facilities and home covered by long-term care insurance. Analysis of their Long-term Care Grades, Degrees of ADL Independence of the Elderly with Disabilities, and Degrees of ADL Independence of the Elderly with Dementia revealed that care dependency was frequently marked among the former and generally mild among the latter. Regarding the nutritional status, although there were no differences in the BMI between the facility and home groups, the Alb level was lower in the former. The Alb level was also correlated with the dietary intake and mode of feeding, as the dietary intake was lower, and regular food was used less frequently in the facility group. Based on these results, the nutritional status of the elderly with marked care dependency may have declined due to a decreased dietary intake and altered modes of feeding. Decreases in the energy intake due to a soft diet were also noted in some previous studies³⁾. Furthermore, in the facility group, the rate of wheelchair use as an index of the ability to walk was higher, in addition to an increased incidence of choking, indicating a decreased oral function. These results suggest that the elderly with marked care dependency also faced decreases in the ability to walk and oral function, resulting in an impaired nutritional status. In previous studies, declines in the nutritional status were associated with a decreased ADL level and cognitive function of the care-dependent elderly⁴⁾. Regarding the cognitive function and nutrition, the latter was shown to be a factor associated with decreases in the former, highlighting the necessity of nutritional care, in a study examining methods of education for the families of patients with dementia⁷⁾.

In the present study, 4 factors, the BMI, mode of feeding, dietary intake, and ability to

walk, were correlated with the Alb level as an index of the nutritional status. On detailed analysis, a decreased Alb level was associated with altered modes of feeding and a reduced ability to walk in the facility group, and a decreased dietary intake in the home group. In the facility group in which marked care dependency was observed, a soft diet to compensate for a decreased oral function may have led to an impaired nutritional status, resulting in an impaired ability to walk. In contrast, in the home group in which care dependency was generally mild, and normal oral and physical functions were maintained, only a decreased dietary intake may have influenced the nutritional status. These results may be useful to address the poor awareness of the nutritional status of the care-dependent elderly among those providing Long-term Care Insurance services⁵⁾, and support the feasibility of predicting decreases in the Alb level by clarifying altered modes of feeding and a reduced ability to walk among those with marked care dependency and by detecting decreases in the dietary intake among those with mild care dependency even when the Alb level is unclear. The factors identified in the study may be new indices for the identification of undernutrition in the care-dependent elderly.

The study was conducted as part of a study entitled: Development of a Home-facility Liaison Care Model to Resolve Undernutrition as a Countermeasure against the Progression of Care Dependency, and supported by a Grant-in-Aid for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology.

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ORIGINAL ARTICLE

A Study on the Development of the Tool for the Performance Appraisal for Companies Employing Persons with Disabilities

: Centering on the Development of the Tool for the Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution

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ABSTRACT

This study aimed to develop the tool to comprehensively evaluate the performance of companies employing persons with disabilities in the aspect of social contribution, based on the draft of the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution by KIM and HAN (2015).

Based on the results of the consultation with the experts on the employment of persons with disabilities, the draft that was composed of 12 items of three categories has been modified to the 10 items of three categories including ① Compliance and social norm (2items), ② Guarantee of human right and prohibition of discrimination (4items), ③ Community resources development (4 items).

In the results of the verification of reliability through the values of Cronbach's α based on the data from Japan and South Korea, the values of Cronbach's α of three categories showed the high degrees of reliability. And, construct validity was verified using the goodness-of-fit of the SEM analysis based on the data from Japan and South Korea. In the result, all the values of goodness-of-fit indices ranged within the acceptable level.

<Key-words>

companies employing persons with disabilities, performance appraisal, social contribution, verification of the reliability and validity

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I . Introduction

According to the research of Kudo et al.(2006), more companies have actively increased the employment of persons with disabilities as they take their Corporate Social Responsibility(CSR) seriously, which may be because the number of companies who have considered or opened the employment of persons with disabilities as their goals or results of CSR has increased.

In this study, the CSR refers to the management philosophy that the company should take the ethical and legal responsibilities as well as the economical ones (the maximization of interest) for its sustainable development, even though there are various definitions of the CSR. In this aspect, it can be said that the employment of persons with disabilities can be definitely regarded as the way of practicing the CSR of companies, because it may enable the companies to take their ethical and legal responsibilities while contributing to the improvement of employment rate and labor conditions of persons with disabilities and the protection of their human rights and observing the employment quota system.

In the meantime, many precedent studies including Kayahara (1996) and Aoyama (1997) suggested that most of the companies considered the employment of persons with disabilities as the negative counterpart of their economical goals, since the employment of persons with disabilities would cause the productivity loss or additional cost burden to companies, which would make them fail to accomplish the maximization of interest in the aspect of the management. However, Okamoto and Umetsu (2006) who have empirically analyzed the relationship between company's CSR and their financial performance argued that they found the positive relationship between them. Suto and Takehara (2008) also suggested that the financial performance of the companies with higher level of social performances was better than that with lower level of social performances, which also showed statistical significance. Furthermore, in the aspect of economic profit, the cost that is involved in implementing the CSR, e.g. the employment of persons with disabilities, can be regarded as the cost to internalize external costs and to avoid the distributional conflict; when the maximization of interest of companies maximizes the social welfare, the resources may be efficiently distributed. In other words, the CSR is meaningful in the areas that the governments cannot solve the environmental conflict or distributional conflicts. Moreover, the CSR may be considered as the indispensable business activity for the sustainable management in the society with the social mood focusing on the economic democratization (economic equality) or environmental issues (Heal, 2005).

Based on the above-mentioned meanings of the CSR that have been derived from the precedent studies in the aspects of economy and management, the employment of persons with disabilities can be conclusively regarded as the business activity to accomplish the economic responsibility as well as the ethical and legal responsibilities.

To improve the effectivity and efficiency of business activities, they need to be administered and improved through the performance appraisal. In this context, Kim (2016) developed the tool that enables to evaluate the management performance that has been produced through the employment of persons with disabilities based on the case analysis and empirical analysis. Kim and Han (2015)¹ also analyzed the performance of companies who have hired persons with disabilities through the case analysis. There, however, was the limitation that Kim and Han didn't develop the tool that would enable to comprehensively evaluate their performance and only showed the case analysis.

Therefore, this study aimed to develop the tool that enables to evaluate the performance of the companies employing persons with disabilities in the aspect of social contribution based on the study results of Kim and Han.

II. Methods

This study aimed to verify the content validity, reliability and construct validity of the Development Draft of the Outcome Evaluation Tool for Companies Employing Persons with disabilities in Japan and Korea, which is the outcome of the research of Kim and Han (2015). The tests were conducted for South Korea and Japan and the methods to test them were as follows.

1. Content validity

The questionnaires for the first survey were distributed to the experts on the employment of persons with disabilities in South Korea and Japan between June 1 and June 30 in 2015 for one month. The distribution and collection of questionnaires were implemented by e-mail or mail (Table 1).

2. Reliability and Construct validity

The questionnaires for the second survey were distributed to the 320 experts on the employment of persons with disabilities in South Korea and Japan between July 6 and August 10 in 2015 for about one month. The distribution and collection of questionnaires were implemented by e-mail or mail (Table 2).

For the verification of reliability, the value of Cronbach's α was measured via SPSS 17.0. For the verification of construct validity, the structural equation modeling (SEM) was used via AMOS 23.0.

¹ Moonjung Kim & Changwan Han(2015) The Development Draft of the Outcome Evaluation Tool for Companies Employing Persons with disabilities in Japan and Korea: The Development Draft Evaluation Tool to the Social Contribution Outcome and Evaluation Index to the Management Outcome', *Asian Journal Human Services* ,8, 90-106.

<Table 1> Verification of Content Validity

Country	Japan	South Korea
Number of Experts	12 experts on the employment of persons with disabilities ¹⁾	10 experts on the employment of persons with disabilities
Structure of Questionnaire	<p>The questionnaire was composed of three categories as follows:</p> <p>I. The concept of the Tool for the Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution and its contents</p> <p>II. The evaluation of the content validity of the Tool for the Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution</p> <p>The questionnaire was composed of three categories with 13 items including ❶ Guarantee of human right and prohibition of discrimination, ❷ Community resource development and ❸ Compliance</p> <p>III. The assessment of the tasks to promote the employment of persons with disabilities</p>	
Distribution of Questionnaire	-Distributed to individuals or groups in person before interviewing	-Distributed by email or mail
Collection of Questionnaire	-Collected in person right after interviewing. -Collected by e-mail or mail	-Collected by email or mail

1) Experts on the employment of persons with disabilities refer to the persons who have studied the employment of persons with disabilities in the universities or research institutes or employees or employers who have performed the jobs related to it.

<Table 2> Verification of the Reliability and Construct Validity

Country	Japan	South Korea
Number of Experts	120 experts on the employment of persons with disabilities	200 experts on the employment of persons with disabilities
Structure of Questionnaire	<p>The questionnaire was composed of three categories as follows:</p> <p>I. The concept of the tool for the Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution and its contents</p> <p>II. The Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution</p> <p>The questionnaire was composed of three categories with 10 items including ❶ Compliance and social norm, ❷ Guarantee of human right and prohibition of discrimination, ❸ Community resource development</p> <p>III. The assessment of the tasks to promote the employment of persons with disabilities</p>	
Distribution of Questionnaire	-Distributed to individuals or groups in person before interviewing	-Distributed by email or mail
Collection of Questionnaire	-Collected in person right after interviewing -Collected by e-mail or mail	-Collected by email or mail

III. Results

1. Verification of Content validity

1) Demographic Information on the Respondents of the First Survey

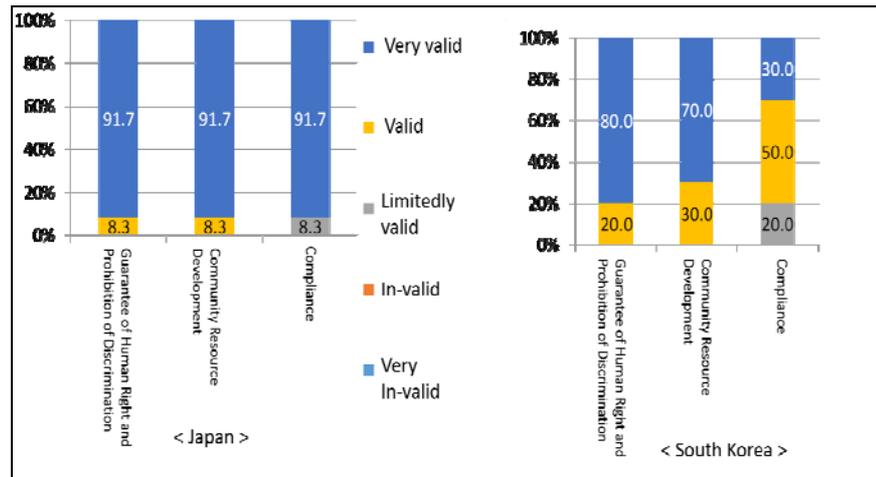
For the verification of content validity, the first survey was conducted for 22 experts on the employment of persons with disabilities in South Korea and Japan. The demographic information on them is shown in Table 3. The information included whether they have disabilities or not as well as their gender, age and occupation. As for the respondents' occupation, the percentages of researchers (58.3%) in Japan and university professors (40.0%) in South Korea who have studied the employment of persons with disabilities accounted for the largest percentage among total respondents.

<Table 3> Demographic Information on the Respondents to Content Validity

Characteristics	Japan	South Korea
Gender	Male: 6 (50.0%) Female: 6 (50.0%)	Male: 2 (20.0%) Female: 8 (80.0%)
Age (mean)	33.7	36.8
With or without disabilities	With disabilities: 1 (8.3%) Without disabilities: 11 (91.7%)	With disabilities: 1 (10.0%) Without disabilities: 9 (90.0%)
Occupation	Professor: 4 (33.3%) Researcher: 7 (58.3%) Employees or employers who have performed the jobs related to the employment of persons with disabilities: 1 (8.3%)	Professor: 4 (40.0%) Researcher: 3 (30.0%) Employees or employers who have performed the jobs related to the employment of persons with disabilities: 3 (30.0%)
Total	12 (100.0%)	10 (100.0%)

2) The Verification of Content Validity of Three Categories

The content validity of three categories including ❶ Guarantee of human right and prohibition of discrimination, ❷ Development of community resources and ❸ Compliance to evaluate the performance of companies employing persons with disabilities in the aspect of social contribution was verified based on the consultation with experts. Their opinions that were provided based on the five-level scale are shown in Figure 1; very valid, valid, limitedly valid, in-valid and very in-valid.



<Figure 1> Verification of the Content Validity of Three Categories

In the results of analyzing the content validity based on the consultations with the experts on the employment of persons with disabilities in South Korea and Japan, it was verified that the contents of all the three categories are valid. There, however, was an opinion that the division of the categories needs to be modified more clearly, because the compliance already include the category of 'the guarantee of human right and prohibition of discrimination'.

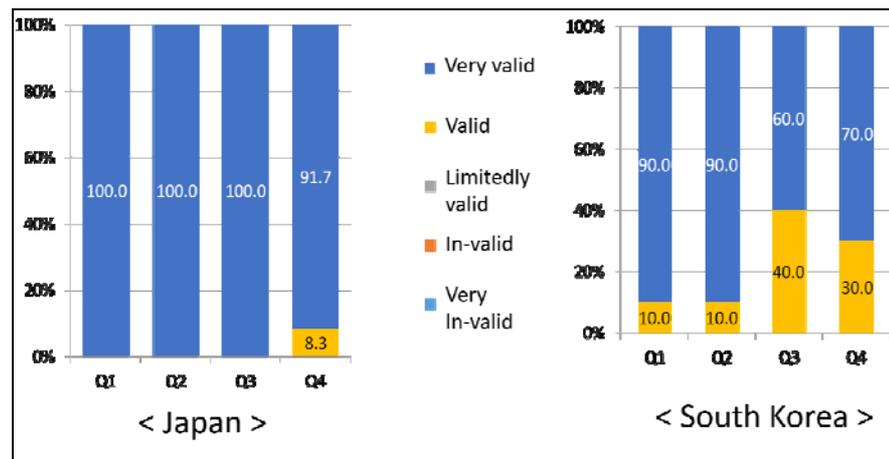
3) Verification of Content Validity of 12 Items

The content validity of 12 items from three categories including ① Guarantee of human right and prohibition of discrimination (four items), ② Development of community resources (four items) and ③ Compliance (five items) to evaluate the performance of companies employing persons with disabilities in the aspect of social contribution was verified based on the consultation with experts who provided their opinions about them; the composition, contents and word choice were evaluated.

First, the content validity of the four items in the category of ① Guarantee of human right and Prohibition of discrimination² was evaluated based on the five-level scales. In results, it was verified that all the four items were valid (Figure 2). As for the Q1, however, there was an opinion that the target of the measures and plans for the guarantee of human right was not clarified, so it may not be considered as the performance for the employment of persons with disabilities.

² The category of ① Guarantee of human right and prohibition of discrimination was composed of four items;

- Q1. Have the measures and plans for the guarantee of human right been prepared?
- Q2. Have the education for understanding the disabilities been implemented?
- Q3. Have the working conditions that take the characteristics of disabilities into consideration been provided?
- Q4. Have the fair human resource management without the discrimination against disabilities been implemented?

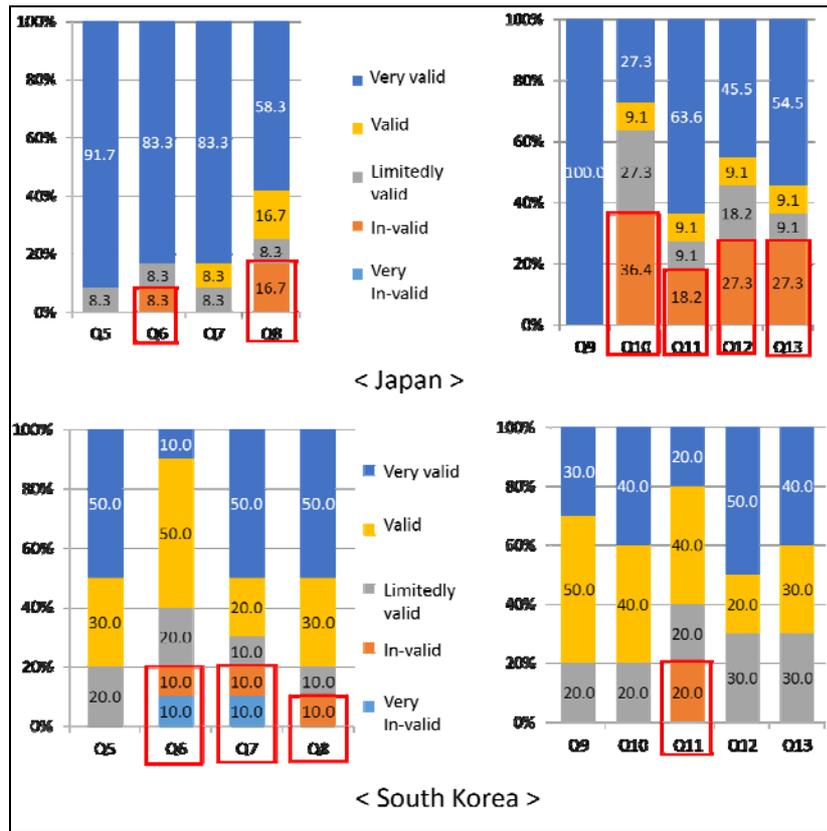


<Figure 2> Verification of Content Validity of the Items of Q1 to Q4

As for the four items of ②Development of community resources³ and five items of ③Compliance⁴, it was concluded that the majority of the items of the second and third categories were not valid (Figure 3). As for the Q6, Q8 and Q11, the opinions that three items of Q6, Q8 and Q11 were not valid were suggested in both countries; 1) the definitions of the words were not clear; and 2) the connection between the items and their categories was not clear. As for the Q10, Q11, Q12 and Q13, the opinions were suggested that 1) the meanings of each item are overlapped and 2) the supplementary explanation about the words needs to be added.

³ The category of ②Development of community resources was composed of four items;
 Q5. Have the community organizations been networked?
 Q6. Have the efforts to enable persons with disabilities to develop their competence taken?
 Q7. Have the know-how and information on the employment of persons with disabilities been provided?
 Q8. Have the opportunities to enable community members to participate in voluntary works been provided?

⁴ The category of ③Compliance is composed of five items;
 Q9. Have the employment quota rate for persons with disabilities been maintained and heightened?
 Q10. Have the barrier-free working environments been made?
 Q11. Have the trust relationship with stakeholders been established?
 Q12. Have the efforts to build the diversity in society been taken?
 Q13. Have the efforts to establish the business climate that is open to the employment of persons with disabilities been taken?



<Figure 3> Verification of Content Validity of the Items of Q5 to Q13

Based on the analysis of the results of the verification of content validity via the first survey for experts, the items of the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution were reorganized as shown in Table 4.

<Table 4> Items of the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution based on the Analysis of Content Validity

Compliance · Social Norms	Q1	Have the employment quota rate for persons with disabilities been attained pursuant to the Act on Employment Promotion for Disabled Persons?
	Q2	Have the plans or policies to maintain and settle the employment rate of persons with disabilities been established?
Guarantee of Human Right · Prohibition of Discrimination	Q3	Have the <u>diversity</u> has been attained by planning and implementing the education for understanding persons with disabilities? ※ <i>Diversity in society refers to the acknowledgment and respect of the characteristics such as age, gender, disabilities, etc. and the embracement of diverse people of abilities.</i>
	Q4	Have the <u>working conditions (provision of personnel)</u> that the characteristics of disabilities are taken into consideration been provided? ※ <i>The working conditions that the characteristics of disabilities are taken into consideration refer to the working environments that provide personnel who can assist the job performance of persons with disabilities or improve it, for example, sign language interpreter, job coach and vocational life counselor for employees with disabilities.</i>
	Q5	Have the <u>barrier-free</u> working environments been made? ※ <i>Barrier-free refers to providing the assistance to help persons with disabilities settle in workplaces by installing or modifying equipments, purchasing assistant aids, etc.</i>
	Q6	Has the <u>fair labor management</u> regardless of with or without disabilities been practiced? ※ <i>Fair labor management refers to fairly providing employees with the opportunities including employment, working hours, wage, promotion, working conditions, etc.</i>
Community Resource Development	Q7	Have the <u>community organizations been networked</u> ? ※ <i>The networking of community organization refers to connect community organizations including community welfare centers, NPO, private educational organizations (special school, etc.), the Korea Employment Agency for the Disabled, etc. to employ persons with disabilities, maintain the employment and settle them in workplaces.</i>
	Q8	Has the sheltered-workplace for the disabled been installed to activate the community? Or have a number of persons with disabilities been employed?
	Q9	Have the programs to develop the competence of employees with disabilities been implemented or planned? ※ <i>The development of competence of persons with disabilities refers to the vocational training and practices to utilize the human resource with disabilities.</i>
	Q10	Have the efforts to provide the opportunity for voluntary works of community members been taken through the <u>events</u> ? ※ <i>Events refers to the seminar, workshop, presentation meeting, etc. that deal with the employment of persons with disabilities.</i>

2. The Verification of Reliability

1) The Demographic Information on the Respondents for the Second Survey

Based on the analysis results of content validity, the second survey was conducted to verify the reliability and construct validity of the indicators of the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution (Table 4). The statistics about the demographic information on respondents are shown in Table 5.

The second survey was conducted for 120 experts in Japan and 200 experts in South Korea and the return rates were 65% (78 responded) in Japan and 94%(177 responded) in South Korea. Finally the completed 77 questionnaires in Japan and 177 questionnaires in South Korea were used to verify the reliability and construct validity.

<Table 5> The Demographic Information on Reliability and Construct validity

		Age (year)		Gender		Disabilities		Occupation		Work Experience (year)	
		Japan	South Korea	Japan	South Korea	Japan	South Korea	Japan	South Korea	Japan	South Korea
N	Valid	73	173	73	175	73	171	73	169	66	152
	Missing	4	4	4	2	4	6	4	8	11	25
Mean		44.0	35.8	-	-	-	-	-	-	15.5	7.8
Median		44.0	34.0	-	-	-	-	-	-	15.2	6.4
Std. Deviation		11.5	9.7	-	-	-	-	-	-	10.3	6.3
Minimum		20	21.0	1	1	1	1	1	1	0.3	0.1
Maximum		69	61.0	2	2	2	2	3	3	40.3	30.0
Percentiles	25	37.5	28.0	-	-	-	-	-	-	6.9	2.0
	50	44.0	34.0	-	-	-	-	-	-	15.2	6.4
	75	49.5	42.6	-	-	-	-	-	-	20.5	11.0

2) Verification of Reliability

Based on the evaluation of 10 items of three categories were evaluated based on the five-level scale such as very valid, valid, limitedly valid, in-valid and very in-valid, the value of Cronbach's α was measured. Generally when the value of Cronbach's α is beyond 0.80, the tool can be considered as one with high reliability (=the high degree of internal consistency) (Koshiho, 2014).

As for the values of Cronbach's α that were measured with the data(n=77) from Japan, the values of Cronbach's α of three categories showed the high degrees of reliability as follows; ①Compliance • social norms=0.876, ②Guarantee of human right • prohibition of discrimination=0.857 and ③Community resource development=0.848. The reliability of ①compliance • social norms was highest(Table 6).

As for the values of Cronbach's α that were measured with the data(=177) from South

Korea, the values of Cronbach's α of three categories showed the high degrees of reliability as follows: ①Compliance \cdot social norms=0.844', ②Guarantee of human right \cdot prohibition of discrimination=0.904 and ③Community resource development=0.874. The reliability of the four items of ②Guarantee of human right \cdot prohibition of discrimination was highest(Table 7).

<Table 6> Values of Cronbach's α of the Tool for Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution (Japan) (n=77)

Constructs	Mean	SD	Corrected Item-Total Correlation	Cronbach's alpha if item deleted	Cronbach's alpha
① Compliance \cdot Social Norms					.876
Q1	2.58	1.351	.784		
Q2	2.31	1.217	.784		
② Guarantee of Human Right \cdot Prohibition of Discrimination					.857
Q3	2.23	1.202	.731	.805	
Q4	2.56	1.343	.805	.771	
Q5	2.38	1.203	.574	.869	
Q6	2.18	1.073	.713	.816	
③ Community Resource Development					.848
Q7	2.39	1.090	.669	.815	
Q8	2.03	1.063	.770	.769	
Q9	2.04	1.019	.783	.765	
Q10	1.92	.943	.534	.865	

<Table 7> Values of Cronbach's α of the Tool for Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution (South Korea) (n=177)

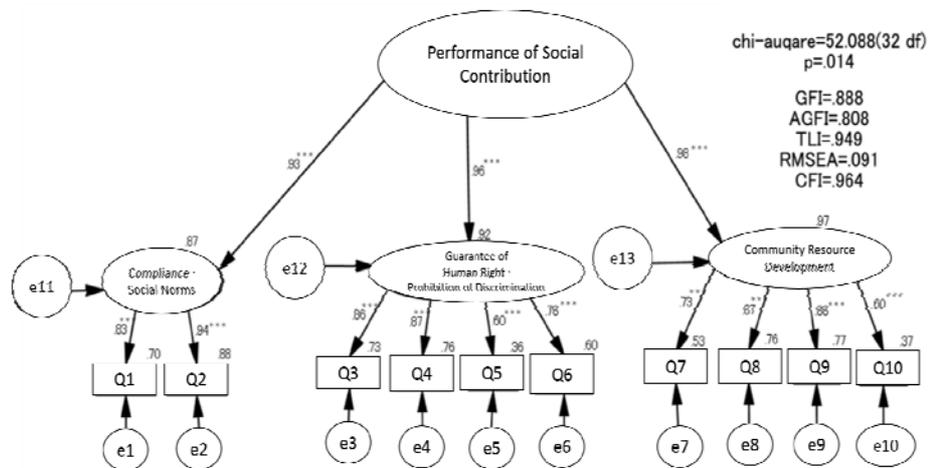
Constructs	Mean	SD	Corrected Item-Total Correlation	Cronbach's alpha if item deleted	Cronbach's alpha
① Compliance \cdot Social Norms					.844
Q1	2.91	.943	.730		
Q2	2.68	.907	.730		
② Guarantee of Human Right \cdot Prohibition of Discrimination					.904
Q3	2.59	.979	.761	.886	
Q4	2.68	.930	.808	.868	
Q5	2.74	.983	.770	.882	
Q6	2.51	.893	.806	.870	
③ Community Resource Development					.874
Q7	2.85	.962	.666	.865	
Q8	2.69	.934	.788	.814	
Q9	2.53	.840	.780	.821	
Q10	2.34	.903	.694	.852	

3. Verification of Construct validity

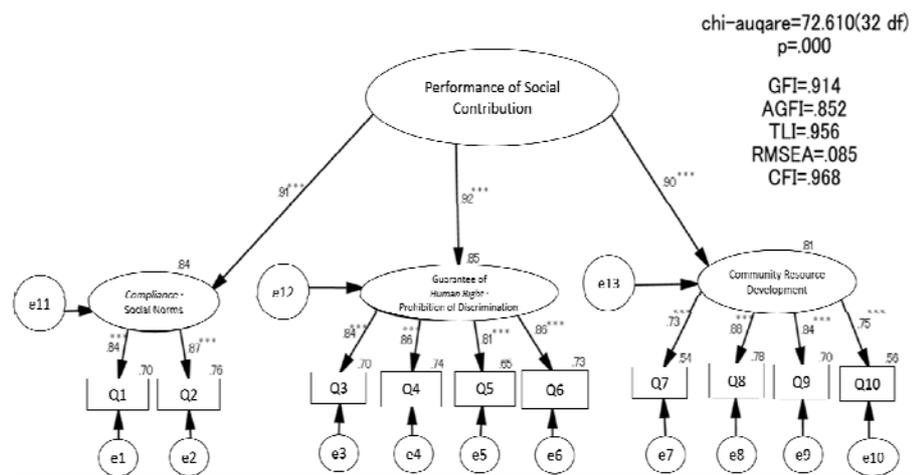
Based on the evaluation of 10 items of three categories were evaluated based on the five-level scale such as very valid, valid, limitedly valid, in-valid and very in-valid, the SEM analysis was conducted. Even though there are over 50 indices for SEM's goodness of fit, this study used GFI (goodness-of-fit index), AGFI (adjusted goodness-of-fit index), CFI (comparative fit index), RMSEA (root-mean-square error of approximation) and TLI (Tucker-Lewis index).

First, using the data (n=77) from Japan, the SEM analysis was conducted for the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution. In results, all the values of goodness-of-fit indices ranged within the acceptable level; GFI=0.888, AGFI=0.808, CFI=0.964, RMSEA=0.091 and TLI=0.949 (Figure 4).

Next, using the data (n=177) from South Korea, the SEM analysis was conducted for the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution. In results, all the values of goodness-of-fit indices ranged within the acceptable level; GFI=0.914, AGFI=0.852, CFI=0.968, RMSEA=0.085 and TLI=0.956 (Figure 5).



<Figure 4> SEM Analysis of the Tool for Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution (Japan) (n=77)



<Figure 5> SEM Analysis of the Tool for Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution (South Korea) (n=177)

IV. Considerations and Conclusions

This study aimed to develop the tool to comprehensively evaluate the performance of companies employing persons with disabilities in the aspect of social contribution. Since the development of the tool has been attempted for the first time, it is critical to verify the construct and contents of the Tool. Therefore, based on the draft of the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution by Kim and Han (2015), the content validity, reliability and construct validity were empirically verified.

The content validity of 12 items of three categories from the draft of the Tool such as ❶ Guarantee of human right and prohibition of discrimination (three items), ❷ Community resource development (four items), ❸ Compliance (five items) were verified. In the results of the consultation with experts on the employment of persons with disabilities of South Korea and Japan, the content validity of three categories was verified. However, the result that the majority of 12 items of three categories were not valid came out. The reasons were as follows; 1) the definitions of the words of items were not clear, 2) the relationship between each category and its items was not clear, 3) the several overlapped contents were included and 4) the supplementary explanation about the words in the items needed to be added. Based on the results of the consultation with the experts on the employment of persons with disabilities, the draft that was composed of 12 items of three categories has been modified to the 10 items of three categories including ❶ Compliance and social norm(two items), ❷ Guarantee of human right and prohibition of discrimination (four items), ❸ Community resources development (four items).

And then the reliability and construct validity of the modified tool of 10 items of three categories were verified.

In the results of the verification of reliability through the values of Cronbach's α based on the data from Japan, the values of Cronbach's α of three categories showed the high degrees of reliability as follows; ❶ Compliance · social Norms=0.876', ❷ Guarantee of human right · prohibition of discrimination=0.857 and ❸ Community resource development=0.848. The reliability of two items of ❶ Compliance · social norms was highest.

In the results of the verification of reliability through the values of Cronbach's α based on the data from South Korea, the values of Cronbach's α of three categories showed the high degrees of reliability as follows; ❶ Compliance · social norms=0.844, ❷ Guarantee of human right · prohibition of discrimination=0.904 and ❸ Community resource development=0.874. The reliability of four items of ❷ Guarantee of human right · prohibition of discrimination was highest. Conclusively the reliability of the Tool was verified based on the data from South Korea and Japan.

The construct validity of the Tool was verified using the goodness-of-fit of the SEM analysis. Based on the data from Japan, all the values of goodness-of-fit indices ranged within the acceptable level; GFI=0.888, AGFI=0.808, CFI=0.964, RMSEA=0.091 and TLI=0.949. And based on the data from South Korea, all the values of goodness-of-fit indices ranged within the acceptable level; GFI=0.914, AGFI=0.852, CFI=0.968, RMSEA=0.085 and TLI=0.956. Conclusively the construct validity of the Tool was verified based on the data from South Korea and Japan.

Finally the Tool for the Performance Appraisal of Companies Employing Persons with Disabilities in the Aspect of Social Contribution that may be used in South Korea and Japan has been developed based on the results of the verification of content validity, reliability and construct validity. That is, the performance of companies employing persons with disabilities in the aspect of social contribution can be evaluated based on the three categories including ❶ Compliance · social norms (two items) ❷ Guarantee of human right · prohibition of discrimination (four items) and ❸ Community resource development (four items)(Figure 6).

However, there were the financial and time limitations, which made the collection of enough data to verify content validity, reliability and construct validity difficult. Therefore, the further verification of reliability and validity of this Tool needs to be conducted by more experts on persons with disabilities. Furthermore, the research to clarify the performance in the aspect of economic results as well as social contribution needs to be conducted in the future.

Performance Appraisal Tool for Companies Employing Persons with Disabilities in the Aspect of Social Contribution						
1) This is tool for the performance appraisal for companies employing persons with disabilities in the aspect of social contribution.						
2) Please check the (O) corresponding to the answer that you think is most appropriate for each question between Q1 and Q10.						
Total ●+●+●					/100	
㉑ Compliance • Social Norms						
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Q1	Have the employment quota rate for persons with disabilities been attained pursuant to the Act on Employment Promotion for Disabled Persons?	5	4	3	2	1
Q2	Have the plans or policies to maintain and settle the employment rate of persons with disabilities been established?	5	4	3	2	1
㉑ Total Score of Compliance • Social Norms					/20	
㉒ Guarantee of Human Right • Prohibition of Discrimination						
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Q3	Have the <u>diversity</u> has been attained by planning and implementing the education for understanding persons with disabilities? <i>※ Diversity in society refers to the acknowledgment and respect of the characteristics such as age, gender, disabilities, etc. and the embracement of diverse people of abilities.</i>	5	4	3	2	1
Q4	Have the <u>working conditions</u> (provision of personnel) that the characteristics of disabilities are taken into consideration been provided? <i>※ The working conditions that the characteristics of disabilities are taken into consideration refer to the working environments that provide personnel who can assist the job performance of persons with disabilities or improve it, for example, sign language interpreter, job coach and vocational life counselor for employees with disabilities.</i>	5	4	3	2	1
Q5	Have the <u>barrier-free</u> working environments been made? <i>※ Barrier-free refers to providing the assistance to help persons with disabilities settle in workplaces by installing or modifying equipments, purchasing assistant aids, etc.</i>	5	4	3	2	1
Q6	Has the <u>fair labor management</u> regardless of with or without disabilities been practiced? <i>※ Fair labor management refers to fairly providing employees with the opportunities including employment, working hours, wage, promotion, working conditions, etc.</i>	5	4	3	2	1
㉒ Total Score of Guarantee of Human Right • Prohibition of Discrimination					/40	
㉓ Community Resource Development						
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Q7	Have the <u>community organizations</u> been networked? <i>※ The networking of community organization refers to connect community organizations including community welfare centers, NPO, private educational organizations (special school, etc.), the Korea Employment Agency for the Disabled, etc. to employ persons with disabilities, maintain the employment and settle them in workplaces.</i>	5	4	3	2	1
Q8	Has the <u>sheltered-workplace</u> for the disabled been installed to activate the community? Or have a number of persons with disabilities been employed?	5	4	3	2	1
Q9	Have the programs to develop the competence of employees with disabilities been implemented or planned? <i>※ The development of competence of persons with disabilities refers to the vocational training and practices to utilize the human resource with disabilities.</i>	5	4	3	2	1
Q10	Have the efforts to provide the opportunity for voluntary works of community members been taken through the <u>events</u> ? <i>※ Events refers to the seminar, workshop, presentation meeting, etc. that deal with the employment of persons with disabilities.</i>	5	4	3	2	1
㉓ Total Score of Community Resource Development					/40	
Calculation	<ul style="list-style-type: none"> • Please do the sum of three sub-totals. • Each answer of questions can be changed to the corresponding score; strongly agree=10, agree=8, neutral=6, disagree=4, strongly disagree=2. 					

<Figure 6> Tool for the Performance Appraisal for Companies Employing Persons with Disabilities in the Aspect of Social Contribution

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ORIGINAL ARTICLE

The Definition and Current State of the Education for Children with Developmental Disabilities and the Tasks for the Education for Them in the Aspects of System and Policy

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ABSTRACT

This study had two purposes; first, it aimed to clarify the problems in the definitions of developmental disabilities by analyzing the pertinent laws to them; second, it also aimed to suggest the tasks in the aspects of system and policy by understanding the current state of the field of education. Even the same disabilities are called as different names from whether they are used in the field of education or medicine; the definition of developmental disabilities needs to be unified regardless of the fields. It doesn't have to be unified with the terms that have been used in the field of education, but the definitions and terms related to developmental disabilities must be unified. For the sufficient supports for students with developmental disabilities, it is critical to improve the expertise of teachers. To improve their expertise, the teaching certificate for special needs education needs to be newly created and the curriculum that would be helpful to teach students with developmental disabilities should be prepared.

<Key-words>

special needs education, developmental disabilities, educational policies

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I . Background

Beginning with the report by the Board of the Research Partners on the Future Direction and Issues in Special Needs Education, which was published by Ministry of Education, Culture, Sports, Science and Technology (hereafter, MEXT) in 2003, the special education had been changed over to special needs education. In this context, several types of disabilities such as learning disorder (LD), attention deficit/hyperactivity disorder (AD/HD) and high-functioning autism were newly included to the subjects of the special needs education. Low on Support for Persons with Developmental Disabilities was reinforced in April, 2005. In the Article 1, the purposes of this Low are stipulated as follows; "This low aims to provide the comprehensive supports that contribute to the independent life and social participation of persons with developmental disabilities and to improve their welfare by prescribing the responsibilities of the government and local public authorities that have to conduct the early detection of developmental disabilities and the supports for the development of persons with developmental disabilities, the supports for their school education and employment and the designation of support centers for persons with developmental disabilities, considering that it is critical that the supports for the development in the early stages just after the symptom appearance of developmental disabilities need to be provided for the proper development of psychological functions and the facilitation of active social life. The Low on Support for Persons with Developmental Disabilities pointed out the importance of the supports for children and students with developmental disabilities in the field of education by stipulating 'the supports for the school education of persons with developmental disabilities'. The special needs education has been included in the School Education Law from April of 2007. Since then, it has been implemented in earnest and the supports for students with disabilities have been provided more dutifully in all the schools.

There is the Nationwide Survey on the Children Who Need Special Supports in the Regular Classes, which was comprehensively conducted for the developmental disabilities including the AD/HD and LD by MEXT in 2002. According to the aforementioned survey, 6.3 percent of students answered that they had considerable difficulty in the school life in the aspects of learning and activity. According to the Results of the Research on the Children with Special Needs Education because of the Possibility of Developmental Disabilities among the Students Who Attend Regular Class (MEXT, 2012), which was conducted after ten years of aforementioned survey, 6.5 percent (estimation) (increased by 0.2% from 10 years before) of students answered that they had considerable difficulty in the school life in the aspects of learning and activity. However, those 6.5 percent of students were just regarded as distracted students in regular class and the necessity of special supports for them was not considered at all. In recent, the studies that avoid the term of 'distracted child', but use the term of 'IN-Child (Inclusive Needs Child)' that means the children who needs special supports have come out (Han,

Ota, Kwon, 2016).

Even though the number of students or children who need special supports and assistance has increased, many problems have arisen in the field of education, e.g., how to guide children with special needs and the expertise of teachers or other staff. According to the study on the View of Homeroom Teachers of Regular Class and Teachers in Charge of the Education of Children with Disabilities on Guiding Children with Mild Developmental Disabilities by TSUZUKI (2004), the homeroom teachers of regular class frequently expressed concern about explaining the disabilities to students without disabilities. Given the current state of the field of education and the opinions of teachers, in 2015, Central Council for Education suggested the measures in a Study on the Improvement of Teachers in Charge of School Education in the Future(subtitle: For the establishment of the community that teachers can learn each other and improve their competence) to cultivate the competence of teachers to respond with the needs of children who needs special supports including children with developmental disabilities based on the establishment of integrated education system. The term of development disability is defined in the Basic Law for Persons with Disabilities, Low on Support for Persons with Developmental Disabilities and Child Welfare Low. Basic Law for Persons with Disabilities stipulates that "person with a disability refers to a person with physical disability, a person with an intellectual disability, a person with a mental disability (including developmental disabilities) and other persons with disabilities...". Child Welfare Low prescribed that "the term 'disabled child' as used in this Low shall mean a child with physical disabilities or a child with mental retardation (including the definition of a child with developmental disability of the Article 2 Item 2 of Low on Support for Persons with Developmental Disabilities) and classified the developmental disability into mental disorders.

Low on Support for Persons with Developmental Disabilities stipulated that "the following disabilities prescribed by the government ordinance and whose symptoms appear in childhood: autism, Asperger's syndromes and other pervasive developmental disorders (PDD), learning disabilities/disorders (LD) and attention-deficit hyperactivity disorders (ADHD) and other similar cerebral dysfunctions." As shown in above-mentioned definitions, the definitions of developmental disability are varied. In the aspect of medicine, it seems to be no problem in the classification of developmental disability into mental disorders, but in the aspect of education, there are some problems in the delivery of supports that are tailored to the characteristics of disabilities and the needs of individuals. The children (persons) with developmental disabilities have difficulty in daily living and studying, so that the educational responses to persons with mental disorders and developmental disabilities should be different. Therefore, the beneficiaries and the benefits that they would receive should be prescribed in the laws and the laws would be the grounds that the beneficiaries can be provided with supports so that they should be clearly prescribed. Namely, the laws must be prepared to fully

provide the supports for persons with disabilities including developmental disabilities.

II. Objective

This study had two purposes; first, it aimed to clarify the problems in the definitions of developmental disabilities by analyzing the pertinent laws to them; second, it also aimed to suggest the tasks in the aspects of system and policy by understanding the current state of the field of education.

III. Methods

1. Definition of Developmental Disabilities

The definitions of and pertinent parts to developmental disabilities were extracted and analyzed and their problems were reviewed in the Basic Law for Persons with Disabilities, Law on Support for Persons with Developmental Disabilities, Child Welfare Law, Basic Law on Education and School Education Law.

2. Tasks in the Aspects of System and Policy

The pertinent parts to developmental disabilities in the MEXT and the Ministry of Health, Labour and Welfare (MHLW) were extracted and analyzed and their problems were reviewed.

3. Tasks in the Field of Education

The collection and analysis of the information on literatures and cases about developmental disabilities were implemented by retrieving the keywords including developmental disability, task, current state, regular class and pertinent laws to developmental disability in the various databases including CiNii.

IV. Definition of Developmental Disabilities

1. Definition of the Developmental Disability in the Low on Support for Persons with Developmental Disabilities

The enforcement ordinance of the Low on Support for Persons with Developmental Disabilities defined the developmental disability as follows; the following disabilities prescribed by the government ordinance and whose symptoms appear in childhood: autism, Asperger's syndromes and other pervasive developmental disorders (PDD), learning disabilities/disorders (LD) and attention-deficit hyperactivity disorders (ADHD) and other similar cerebral dysfunctions. The enforcement regulation of the aforementioned Low that is enforced by the Ministry of Health, Labour and Welfare limited the developmental disabilities to the disorders of psychological development and behavioral and emotional disorders (excluding autism, Asperger's syndromes, Other

Pervasive Developmental Disorders, AD/HD, LD, speech disorders and dyspraxia). The definitions of developmental disability that are prescribed in the laws, the government ordinances and the ministerial decree are shown in Table 1.

< Table 1 > Definitions of Developmental Disabilities in the Law on Support for Persons with Developmental Disabilities

Low on Support for Persons with Developmental Disabilities	Autism	Asperger Syndrome	Other Pervasive Developmental Disorders	LD	AD/HD	Other Similar Cerebral Dysfunctions
Enforcement Ordinance	Speech disorder and dyspraxia among the symptoms that are included in the disorders of brain functions and appear in childhood					
Enforcement Regulation	Disorders of psychological development and behavioral and emotional disorders					

The disabilities prescribed in those laws refers to those that are included in the disorders of brain functions and the symptoms that appear in childhood and are included in other disorders of psychological development (F80-F89) and behavioral and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98) of ICD-10 (International Statistical Classification of Diseases and Related Health Problems 10th Revision) (MHLW, 2007).

2. Problems in the Law of Support for Persons with Developmental Disabilities

The definitions of developmental disability are prescribed in the Basic Law for Persons with Disabilities, Law on Support for Persons with Developmental Disabilities and Child Welfare Law. However, there are some problems that the definitions of developmental disability are varied from each law or conflict each other.

1) Unclear definitions in the Law on Support for Persons with Developmental Disabilities

The Law on Support for Persons with Developmental Disabilities prescribes the specific types of developmental disabilities and also stipulates that those are caused by the disorders of brain functions and appear in childhood. The government ordinance of the aforementioned Law includes only the three types such as speech disorder, dyspraxia and other disabilities prescribed in the ministerial ordinance of the Ministry of Health, Labour and Welfare (MHLW) among the types of disabilities that are prescribed in the Law on Support for Persons with Developmental Disabilities. The enforcement regulation of the same Law (ministerial ordinance) defined the developmental disability as the disorders of psychological development and behavioral and emotional disorders excluding the speech disorder and dyspraxia. Even though the enforcement ordinance of the Law on Support for Persons with Developmental Disabilities added some explanation to the definition of the developmental disabilities of the same Law, the definition of the

enforcement regulation of the same Law is somewhat vague given the other definitions.

2) Unclear Definitions of Disabilities in the Laws

The enforcement regulation (ministerial ordinance of MHLW) of the Law on Support for Persons with Developmental Disabilities defines the developmental disability as the disorders of psychological development and behavioral and emotional disorders (excluding autism, Asperger's syndromes, other pervasive developmental disorders, AD/HD, LD, speech disorders and dyspraxia). The disorders of psychological development may be exemplified by autism, Asperger's syndromes, pervasive developmental disabilities and specific reading disability (dyslexia) and the behavioral and emotional disorders may be exemplified by the behavioral disabilities, hyperactivity disorder and stammering. The terms of speech disorder and dyspraxia in the enforcement ordinance of the Law on Support for Persons with Developmental Disabilities are somewhat different from the meaning of those in the fields of education and medicine, which may cause the confusion about the recognition of disabilities.

3) Contradictions between the Definitions of Two Laws under the Authority of Ministry of Health, Labour and Welfare

The Law on Support for Persons with Developmental Disabilities (Article 2) under the authority of the Ministry of Health, Labour and Welfare defined the developmental disability as "the following disabilities prescribed by the government ordinance and whose symptoms appear in childhood: autism, Asperger's syndromes and other pervasive developmental disorders (PDD), learning disabilities/disorders (LD) and attention-deficit hyperactivity disorders (ADHD) and other similar cerebral dysfunctions." However, the Child Welfare Law (Article 4, items (2)) under the same Ministry prescribed as follows: "the term 'disabled child' as used in this Law shall mean a child with physical disabilities or a child with mental retardation"(including the types of developmental disabilities that are prescribed in Items 2 of Article 2 of the Law on Support for Persons with Developmental Disabilities (Enforced in 2004, A Low No. 1617). The developmental disability is defined as the disorders of brain function in the Law on Support for Persons with Developmental Disabilities, but as the children with mental retardation in the Child Welfare Law. Even though those Laws are under the authority of the Ministry of Health, Labour and Welfare, the definitions of developmental disability are different from each other.

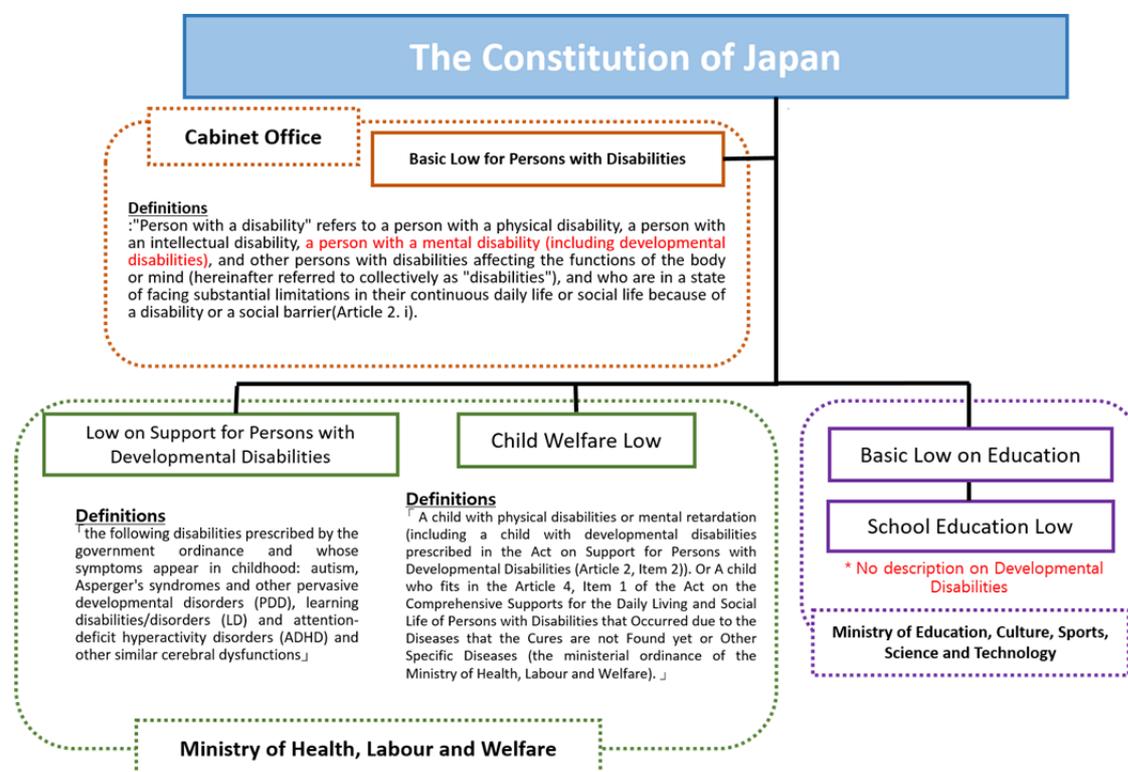
4) No Description of Developmental Disability in the Law under the Authority of the Ministry of Education, Culture, Sports, Science and Cultural Affairs (MEXT)

By the report by The MEXT in 2003, the persons with developmental disability became the beneficiaries of special needs education. However, there is no description about the developmental disability in the Basic Law on Education and School Education Law under

the authority of the MEXT. It can be said that the fact that there is no description of developmental disability in such Laws that have the control over the education shows the lack of legal preparation.

5) Classification of Mental Disorders

The Basic Law for Persons with Disabilities classified persons with disabilities into persons with physical, intellectual and mental disorders (including developmental disabilities) and the Child Welfare Law classified persons with disabilities into a child with physical disabilities or mental retardation (including a child with developmental disabilities prescribed in the Law on Support for Persons with Developmental Disabilities (Article 2, Item 2)); developmental disability is classified into mental disorders. The Law on Support for Persons with Developmental Disabilities defined developmental disability as follows: the following disabilities prescribed by the government ordinance and whose symptoms appear in childhood: autism, Asperger's syndromes and other pervasive developmental disorders (PDD), learning disabilities/disorders (LD) and attention-deficit hyperactivity disorders (ADHD) and other similar cerebral dysfunctions. In the aspect of medicine, it seems to be no problem in the classification of developmental disability into mental disorders, but in the aspect of education, there are some problems in the delivery of supports that are tailored to the characteristics of disabilities and the needs of individuals.



<Figure 1> Definitions of Developmental Disabilities

V. The Current State of Children with Developmental Disabilities in Regular Class

In the survey of the MEXT in 2012, the proportion of students who answered that they had considerable difficulty in the school life in the aspects of learning and activity accounted for 6.5 percent (estimation). Given the increase of only 0.2 percent of the students with difficulty at school from 2002 to 2012, two problems may be assumed; first, the lack of the diagnosis system to identify students with developmental disabilities; and second, the delay of the supports of students who have developmental disabilities or difficulty in learning or activity.

The number of children or students with developmental disabilities has increased year by year. So, the assistance and support for them have been emphasized until now. Among the above-mentioned 6.5 percent (estimation) of students, 18.4 percent of them answered that the special educational supports from 'intramural committee' are currently required and 79 percent (estimation) answered not required. Among the above-mentioned 6.5 percent of students, 93.3 percent (estimation) answered that they haven't receive any guidance from resource room and 87.2 percent (estimation) answered that they were not the beneficiaries of the assistants for special needs education. Among the 18.4 percent (estimation) who answered that the special educational supports from 'intramural committee' are currently required, 92.2 percent answered that they have received at least one kind of supports.

In the field of education, as the number of students with developmental disabilities has increased, it became an urgent task to respond with the educational needs of the students with developmental disabilities who have LD, AD/HD and high-functional autism and attend regular class. Homeroom teachers with students with developmental disabilities have often failed to properly respond with the needs of those students due to the lack of the understanding and experiences of developmental disability or the difficulty in collaborating with resources within school. Moreover, they have experienced the situations that they could not control the class (MEXT, 2003). According to the survey by FUKUCHI& SAKATSUME (2009), the majority of teachers in charge of regular classes in public schools have relatively shorter teaching experiences or/and are not sufficiently aware of developmental disabilities. The fact that teachers without the knowledge and experiences about children with developmental disabilities have conducted the special needs education for them may prove the current situation that students with developmental disabilities may not be provided with sufficient support at the classroom or school, which doesn't seem to be the problem that is limited to the public elementary schools (HUKUCHI& SAKATSUME, 2009). Homeroom teachers are burdened by the tasks to guide and assist students with developmental disabilities, to acquire expertise in them and to manage the class.

It has been pointed out that the majority of homeroom teachers in charge of regular

class lack the awareness of, knowledge and experiences about developmental disabilities. The expertise that homeroom teachers in charge of regular class are as follows: ①the fundamental knowledge about special needs education (the characteristics of disabilities, the guidance considering the characteristics of disabilities, the planning and utilization of the plans for individual guidance and educational assistance); and ②the fundamental knowledge about each type of disabilities (psychological, physiological and pathological knowledge about students with disabilities and the process and method for their education) (MEXT,2010). Teachers, of course, should be equipped with the comprehensive qualities to manage and to teach class. Furthermore, taking one step further, it is important that teachers should be aware of special needs education and equipped with the knowledge and experiences about it so that they can properly respond with the needs of students who need special supports.

The numbers of students who have received the guidance from resource rooms and those who attend special needs class have increased. Even though the number of students who needs special educational supports has increased, 72 percent of teachers had the teaching certificate for special needs education at special support schools and only 30 percent of teachers had that at the special support class. It is predicted that the proportion of homeroom teachers with teaching license for special needs education in regular class must be low, because the proportion of homeroom teachers with teaching certificate for special needs education at the special needs class is low. Given the proportion of teachers with teaching certificate for special needs education, which can be considered as the barometer for the expertise of teachers, it cannot be said that their expertise is secured (OZAWA et al., 2006).

VI. Discussion

This study aimed to clarify the problems in defining the developmental disabilities by analyzing the pertinent laws to developmental disabilities and to suggest the task in the aspects of system and policy by understanding the current state of the field of education.

1. Tasks in the Pertinent Laws to Developmental Disabilities

Even the same disabilities are called as different names from whether they are used in the field of education or medicine; the definition of developmental disabilities needs to be unified regardless of the fields. It doesn't have to be unified with the terms that have been used in the field of education, but the definitions and terms related to developmental disabilities must be unified.

The teachers working at the MEXT or schools generally lack the medical knowledge. However, the definition of developmental disability in the Law on Support for Persons with Developmental Disabilities is prescribed based on the medical diagnosis criteria.

Since persons with developmental disabilities have difficulty in daily living or learning, the way of responding to their educational needs should be different from that of persons with mental disorders. Therefore, the definitions based on the medicine may make the range of supports for students with developmental disabilities limited and make the identification of their individual characteristics and needs difficult. In the current situation that there is no unified definition of developmental disabilities, it is important that the supports based on the definitions in the aspect of education should be delivered rather than those based on the definitions in the aspect of medicine. There is no mention about developmental disabilities in the Basic Law on Education and the School Education Law under the authority of the MEXT, but the definition of developmental disabilities is prescribed in the website of the MEXT. The awareness of developmental disabilities may be raised and the proper supports for them would be delivered when the definition of the website of the MEXT is used. The laws that stipulate the beneficiaries and benefits should be enforced to provide the supports for persons with disabilities including persons with developmental disabilities.

2. Tasks in the Field of Education

1) Tasks Derived from the Survey by the MEXT (2012)

18.4 percent (estimation) of students who answered that they had considerable difficulty in the school life in the aspects of learning and activity was determined that the special educational supports from 'intramural committee' are currently required. There were differences between the opinions of homeroom teacher and intramural committee about whether students require special educational supports. Among the students that the intramural committee determined that the student require special educational supports, over 90 percent (estimation) of the students answered that they have received at least one kind of supports. However, even though homeroom teacher answered that there was a student who needed special educational supports, it cannot be said that sufficient educational supports have been given to the student who were determined not to require special educational supports by intramural committee. Some surveys showed that more than 50 percent of students who required special educational supports have not received the services such as individual support plan, individual guidance plan, the staffing of assistants and the utilization of resources room for guidance. This figure suggests that the system to support the students who need special supports has not been fully established and that whether the supports that students need can be provided should be considered (MINAMISAWA, 2008). It cannot be said that the considerations and supports that have been provided in the class have been provided only for the students who need special supports and that they were proper for the students who need special supports.

2) Problems in the Survey by the MEXT (2012)

Even though the nationwide Survey on the Children Who Need Special Supports in the Regular Classes (excluding Iwate, Miyagi and Fukushima Prefectures) was conducted for students in the regular class of elementary and middle schools, the number of sample was 53,882 (35,892 at elementary schools and 17,990 at middle schools), which accounted for 0.56 percent of entire elementary and middle school students. HAN et al.(2014) pointed out that the number of students who needs special needs education (e.g. students with developmental disabilities) needs to be clarified through the full-scale nationwide survey. It is also noted that the survey was conducted not based on the diagnosis of experts, but on the responses of homeroom teachers. The current state of students who needs special educational supports needs to be understood with speed via the research on the reliability by the experts (HAN et al, 2014).

3) Expertise of Teachers

The reason that the low retention rate of teaching certificate for special support school may be cause by the Article 6 of the supplementary provision of the School Teacher's License Law; the teachers with teaching certificate for kindergarten, elementary, middle and high schools may teach at the special support schools, even though they don't have the teaching certificate for special support schools. Given that there are no data for the retention rate of teaching certificate for special support schools of the homeroom teachers in charge of regular class and that the retention rate of teaching certificate for special support schools of the teachers of special support school or class is not high, it is assumed that the retention rate of teaching certificate for special support schools may be also low. It is necessary to improve the expertise of entire teachers about children with developmental disabilities to provide supports to the students with developmental disabilities by organizing the curriculum that enables the teachers to acquire the pertinent knowledge and experiences to developmental disabilities in the university and actively having them participate in the training course of teachers. Therefore, the system to provide training course or class to the teachers needs to be established. With a few teachers with the pertinent knowledge and experiences to children with mild developmental disabilities at the school, the tailored supports for individual student may not be provided. TSUZUKI (2004) suggested that the training and classes related to special needs education need to be encouraged in the level of school.

Since frequent changes in personnel may negatively affect the provision of the supports to students with special needs, the considerations for personnel should be made such as the extension of the service period of the teacher in one school who has the expertise of special needs education and the proper personnel exchanges between regular schools and special support schools (MEXT, 2010).

3. Tasks in the Aspects of System and Policy

The courses about the special needs education should be increased in the curriculum of the teacher training in the university to cultivate the teachers with the high level of expertise. In spite of the demands of teachers, the training and classes about special needs education have been hardly provided in the training course of teachers. As well as the basic information such as the types and characteristics of disabilities, teachers should acquire the knowledge about the system and policies for persons with disabilities and help the support measures and policies related to them promoted. Moreover, they need to acquire the knowledge and teaching methods to understand students with special needs in regular class (ISIGAMI et al, 2012).

The report by the Board of the Research Partners on the Future Direction and Issues in Special Needs Education, which was published by the MEXT suggested that the licensing system to deal with children with developmental disabilities who attend special support class and regular class needs to be established. That is to say, the licensing system to issue the teaching certificate for special needs education to the teachers who are qualified to guide the students with developmental disabilities at special support class, regular class or resource room as well as the teaching certificate for special support schools. Furthermore, the above-mentioned report by the MEXT also mentioned that it would be necessary that new courses need to be created in the university that deal with how to teach and guide students with developmental disabilities focusing on guiding students with developmental disabilities by utilizing resource room or teaching them in regular class as for the creation of the licensing system to issue the teaching certificate for special needs education.

If teachers who hold the teaching certificate for special needs education are placed in the regular class, the students who attend regular class and have special educational needs may be provided with proper guidance and supports; if not, they would not be provided with proper guidance and supports. In current, the teachers of special support schools must hold the special teaching certificate in addition to the teaching certificate for elementary, middle and high schools or kindergarten. Teachers with teaching license for kindergarten, elementary, middle and high schools may become the teachers for special support schools, even though they don't have the teaching certificate for special support schools (Article 6 of the supplementary provision of School Teacher's License Law). Therefore, the teachers without teaching license for special support schools are often disposed for the special support schools.

Moreover, it happened that the teacher without teaching certificate for special needs education was transferred in the short term to other school from the school where he or she had taught. It would be better if the teachers with the teaching certificate for special needs education were disposed for the special support schools.

The teaching license for special support schools are issued according to the categories of special needs education pursuant to the Item 2 of Article 4 of School Teacher's License

Low. The categories of special needs education include the five types of visual impairments, hearing impairments, intellectual disabilities, physical disabilities and health impairments (including physically weak persons) (Item 5 of Article 2 of School Teacher's License Law). It would be a problem that the developmental disability is not included in the categories of special needs education. Therefore, developmental disability should be included to the categories of special needs education and also to the curriculum for the acquisition of teaching certificate for special support school.

There is the support center for persons with developmental disabilities that provides supports to persons with developmental disabilities. Support center for persons with developmental disabilities aims to comprehensively support persons with developmental disabilities and its management is entrusted to social welfare foundation or non-profit organizations that were designated by governors of prefectures. Support centers for persons with developmental disabilities take the responsibility to establish the comprehensive support network in the community by connecting related organizations such as health, medicine, welfare, education and labor and to provide the guidance and consultations to the diverse needs of persons with developmental disabilities and their family. Developmental disabilities support coordinators play the key roles in the support center for persons with developmental disabilities. Developmental disabilities support coordinators keep the partnership with related organizations and special support schools, support students with disabilities and counsel the parents. It is important to connect other related organizations including education related organization for the supports for persons with developmental disabilities. Therefore, the teachers with the high level of expertise should be appointed as the special education coordinators. Special education coordinators should have the three kinds of expertise as follows: ①the fundamental knowledge about the special needs education (its background and trend in the aspects of system and society); ②the general knowledge about the psychology of children with disabilities (including development) and the physiology and pathology of their disabilities; and ③The Knowledge and skills to comprehensively coordinate special needs education of the elementary and middle schools that the special education coordinators work for (MEXT, 2010). It is important that the expertise of individual teachers needs to be heightened by establishing the support system to connect special support schools that play the role of centers with community resources.

There are many projects or measures to support persons with developmental disabilities, but not many projects that were institutionalized. The measures that are applied for schools among those measures that were been institutionalized were stipulated the Article 18, Education of the Low on Support for Persons with Developmental Disabilities. The Article 18 of the Low on Support for Persons with Developmental Disabilities prescribed all the children and students who attend special support schools and the regular class of kindergartens, elementary, middle and high schools and secondary schools as the beneficiary of special needs education. There are

many students who need special supports to improve or overcome the difficulty in the living or learning, even though they were not diagnosed as persons with developmental disabilities. To identify the educational needs of each child who needs special supports, the resources including personnel and materials are prepared and maintained regardless of whether they were diagnosed as persons with developmental disabilities. For example, the environment that student with special needs receive proper guidance and necessary support in the special place such as the staffing of assistants and the guidance using resource room needs to be built. Furthermore, comprehensive measures should be implemented such as the setting of environment including staffing, the reform of consciousness at the school and the improvement of the teaching skills of teachers.

VII. Conclusion

In this study, the current state of students with special needs in regular class and the pertinent laws to developmental disabilities were analyzed. Even though there are many students who require special needs education in regular class, the supports have not been sufficiently provided. The disabilities are related to the medicine, which makes teachers understand disabilities fully. Teachers have the burden to manage all the students as well as students with disabilities; teachers should guide students with disabilities according to the characteristics of their disabilities and take care of not only students who have difficulty in learning and activity in the class, but also other students without disabilities.

The unclearness of the definitions of developmental disabilities in the laws would cause some confusion. The definitions of developmental disabilities in the laws need to be clarified and the children with developmental disabilities in regular class need to be fully supported.

For the sufficient supports for students with developmental disabilities, it is critical to improve the expertise of teachers. To improve their expertise, the teaching certificate for special needs education needs to be newly created and the curriculum that would be helpful to teach students with developmental disabilities should be prepared. The developmental disability should be included the five categories of special needs education such as visual impairment, hearing impairment, intellectual disabilities, physical disabilities and health impairment (including physically weak persons). It is necessary to cultivate the teachers who are equipped with the high level of expertise by letting the students of college of education acquire the teaching certificate for special needs education and having the students who are major in special needs education deepen the knowledge about developmental disabilities.

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ORIGINAL ARTICLE

Research of the Effect of Social Service User's Perceived Adequacy of Cost on Service Satisfaction

: Focusing on the User of Community Service Investment

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ABSTRACT

This study aimed to improve the user's satisfaction of Community Service Investment (CSI), which conducted from 2007 by Ministry of Health and Welfare, by understanding and analyzing if CSI user's perception of cost adequacy might affect service user's satisfaction through Secondary analysis that conducted by utilizing the data from 'A Satisfaction survey of The Local Social Services Investment Projects 2012' by Ministry of Health and Welfare in 2012. User satisfaction is the most adequate index to evaluate CSI and moreover, user satisfaction can be the indirect outcome of service because CSI depends on the characteristics of people and community.

In the analysis, the dependent variable is the user's satisfaction and the independent variable is the user's Perception of adequacy of cost. The data was analyzed though SPSS Statistics 20.0.

In the analysis results, first, Users think total cost of service is adequate, their satisfaction increases. Second, Users think the out-of-pocket payment is adequate, their satisfaction increases. Based on these results of the research, it is necessary to consider user's real amount of out-of-pocket payment and if they think it is adequate or not. However, this study couldn't consider the real amount of money users paid because we used secondary data. In order to find out more reasonable results, follow-up research considering real amount of out-of-pocket money is necessary which considers real amount of out-of-pocket payment users paid.

<Key-words>

community service investment, user's satisfaction, perception of adequacy of cost

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I . Background

1. Community Service Investment (CSI)

Recently in Korea, people's demand of social services which has purpose of marketing has increased because of many changes in their life style. Population structure has been changing due to low birth rate and aging. Family structure has also been changing into nuclear family. Finally, new social risks such as women's participation in economy made people to require social services (Lee, 2011). Government understood them and started E-voucher program in 2007 to expand social services. Social service E-voucher program is now under the Ministry of Health and Welfare and it has 9 services such as Elderly Care Service, Assistance for Person with Disability and Medical Expense Support Before Childbirth.

However, those services are not enough to satisfy various demand from each community's characteristics or its residents with recent social services which are planned and managed by the main government. Moreover, the main government is suffering to deal with those diversifications of demands from different communities. It became an issue and government developed a program which has consumer-focused supply system. Therefore, one of social service E-voucher programs, Community Service Investment, is promoted. Community Service Investment intensifies autonomy of community to develop effective supply of social services. According to the Ministry of Health and Welfare (2012), Community Service Investment has a purpose of supplying social services to satisfy residents of communities. Local governments lead to find out and enforce Community Service Investment which is accord with various characteristics and demands of each community or family. Therefore, it has significant difference from the provider-focused supply system of recent social services which are planned and managed by the main government.

2. Performance evaluation of Community Service Investment (CSI)

The main government gives subsidies and grants autonomy to local governments which perform CSI. Then, it regularly evaluates performance of CSI in order to improve the quality of it.

When evaluating performance of service, quality of service, service effectiveness and user satisfaction are generally used as measurement indicators. In case of CSI, local governments have to manage services that are proper to each community's characteristics and its states. Moreover, community's characteristics and needs should be reflected to services because each community autonomically plans and develops those services. For that reason, services managed by CSI from each community seem to have unique characteristics. Therefore, it is not easy to check performance of services through effectiveness or quality of them. Because CSI is supplying services which are fit to demands of each community, user satisfaction will be an important indicator to see the

outcome of services (Lee, 2009). In other words, user satisfaction can be seen as indirect performance of services. Through understanding satisfaction of users, providers get to know general performance of services. To improve achievements through understanding performance of services, it is important to analyze which factors affect user satisfaction in the process of using services (Lee, 2011).

According to The Factors affecting Parental Satisfaction with the Use of the Voucher Service for Disabled Children's Development Rehabilitation (Park, 2014), accessibility of services, out-of-pocket payment and characteristics of service provider significantly affect parental satisfaction. Moreover, according to Kim and Jung(2012), information that users have, whether child is disabled or not, age of respondent, number of service usage per month and out-of-pocket payment affect satisfaction of Early Intervention about Children with Problem Behavior Service users.

Likewise, many factors such as characteristics of services, users or providers affect user satisfaction. In case of CSI, characteristics related to users are main factors which affect satisfaction. Especially in this research, we focused on the characteristics of costs out of many factors related to users.

3. Cost of Social Service Users

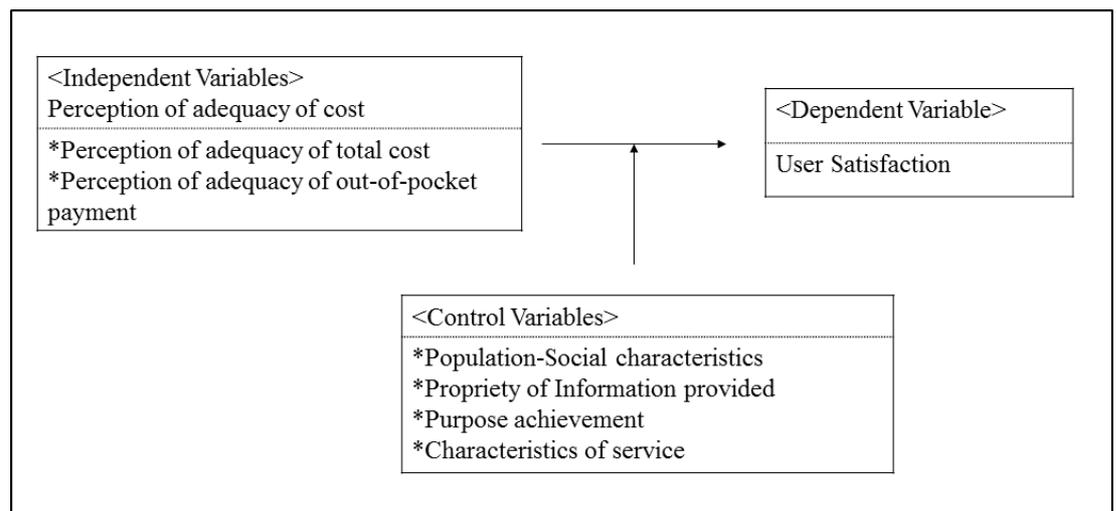
Cost of social service users is composed of government subsidy and out-of-pocket payment which users actually pay. In case of CSI, Local governments autonomically set the actual amount of out-of-pocket payment and make users to pay some of service cost. By doing that, they prevent moral hazard and intensify responsibility of attending services. Recently, there are some competitions between providers to make profit and they excessively reduce out-of-pocket payment or they even make it free to keep more users. Because of those problems, there might be some difference on perception of cost adequacy among service users who actually pay out-of-pocket payment. As result, it will affect user's service satisfaction.

Therefore, this research aimed to improve the CSI user's satisfaction through finding out if CSI user's perceived adequacy of cost (perception of cost) affect user satisfaction or not.

II. Methods

1. Research Model

This research has a purpose to analyze the impact of CSI user's economic cost on user satisfaction. Then, we set our research model as <Figure 1>.



<Figure 1> Research Model

2. Hypothesis

Hypothesis 1.

Satisfaction will increase when CSI users think total cost of service is reasonable compared to content of service.

Hypothesis 2.

Satisfaction will increase when CSI users think out-of-pocket payment is reasonable.

3. Measurement tools

In this research, we set user's service satisfaction as a dependent variable and set perception of cost as an independent variable. Then, we measured each of them with 5 point scale. For control variables, factors of purpose achievement, provided information and service characteristics are set. In previously existing researches, these factors were considered as main factors which affect user satisfaction. However, we set them as control variables to see pure impact of perception of cost.

<Table 1> Key variables

Variables	Item	Details
Dependent Variable	Service Satisfaction	Overall service satisfaction of user (5point scale)
Independent Variables	Perception of cost	Perception of adequacy of total cost compared to content of service (5point scale)
		Perception of adequacy of out-of-pocket payment (5point scale)
Control Variables	Population-Social characteristics	Gender, Age, Region
	Type of service	Service for children, Service for aged, Service for disabled, other services
	Propriety of Information provided	Propriety of information about supply organization provided from local government (5point scale)
		Propriety of information about service provided from supply organization (5point scale)
	Purpose achievement	Degree of Purpose achievement considering the original purpose of service use (5point scale)
	Service Characteristics	
Propriety of personnel of service (5point scale)		
Kindness of service personnel (5point scale)		

4. Data Collection and Subject

We did secondary data analysis by using the data named “CSI satisfaction research 2012” from the Ministry of Health and Welfare in 2012. This survey was conducted in order to review the effectiveness, issues and improvement plans of the CSI services and to secure the basis for future projects through measuring the utilization and satisfaction of CSI.

So subject of this study is 5,421 CSI users. In case when users cannot respond (children, severely disabled, etc), parents or guardian answered the questionnaire.

5. Analysis Method

This research analyzed each questionnaire with statistics by using SPSS Statistics 20.0. Analysis method is as following.

First, we figured out general characteristics of users, user satisfaction and perception of cost through frequency analysis.

Second, we analyzed average difference according to general characteristics of users through T-test and Analysis of variance (ANOVA).

Third, we verified impact of perception of cost which is an independent variable on user satisfaction which is dependent variable through regression analysis.

III. The Results of the Research

1. General Characteristics of Users

General characteristics of users are as following as <Table 2>.

Out of 5,421 CSI users, there are 2,479 (45.7%) men and 2,942 (54.3%) women. The result came out that women use CSI more than men. When we look at the age, majority of users are children (61.5%) and the second high is elderly (23.1%). In the result of the size of city, people in small and medium-size cities (57.2%) use CSI more than people in major cities (42.8%).

We categorized 10 CSI services into four groups. They are children-targeted, elderly-targeted, disabled-targeted and others. If we look at the number of users by category above, users of children-targeted services are 1,066 (19.7%), users of disabled-targeted services are 669 (12.3%) and users of elderly-targeted services are 189 (3.5%). The result came out that the number of children-targeted service users is the highest. Moreover, 3,497 (64.5%) people use other services than those 10 CSI services which is majority. This is because of the characteristic of CSI which means there are various and different services in each community except the 10 services.

<Table 2> General characteristics of CSI Users

Variables	Classification	Frequencies of people	Percentage(%)
Gender	Male	2,479	45.7
	Female	2,942	54.3
	Total	5,421	100.0
Age	0~4	250	4.6
	5~14	3,333	61.5
	15~19	135	2.5
	20~59	453	8.4
	Over 60	1,250	23.1
	Total	5,421	100.0
Size of city	Major cities	2,322	42.8
	Small and Medium-size cities	3,099	57.2
	Total	5,421	100.0
Type of service	Service for children	1,066	19.7
	Service for aged	189	3.5
	Service for disabled	669	12.3
	Others	3,497	64.5
	Total	5,421	100.0

2. Characteristics of Perception of Cost

Characteristics of Perception of Cost are as following as <Table 3>.

Perception of adequacy of total cost shows if users think the total cost of service is adequate compare to the content of services and the result came out the mean of 3.90. Users think total cost of service is quite adequate.

Perception of adequacy of out-of-pocket payment shows if users think the out-of-pocket payment for service usage is adequate and the result came out the mean of 4.09. Users think out-of-pocket payment is very adequate.

The result came out that perception of adequacy of both total cost and out-of-pocket payment are partly high. With this result, we can say that total cost and out-of-pocket payment of CSI are quite adequate from user's standpoint.

<Table 3> Level of perception of adequacy of cost

Variables	Mean	S.D.
Perception of adequacy of total cost	3.90	1.893
Perception of adequacy of out-of-pocket payment	4.09	1.319

3. Characteristics of User Satisfaction

A characteristic of User Satisfaction is as following as <Table 4>. Overall satisfaction of service users came out the mean of 4.11. CSI user's satisfaction came out very high.

<Table 4> CSI user's satisfaction

Variable	Mean	S.D.
User Satisfaction	4.11	.843

4. Difference of Satisfaction in general characteristics of users

To understand difference of satisfaction in general characteristics of users, we did T-test and Analysis of variance (ANOVA) as following <Table 5>.

When we look at the difference in gender, mean of male is 4.08 (SD = .810) and mean of female is 4.14 (SD = .869). This means that the satisfaction of female is little higher than the satisfaction of male.

To check with T-test if this difference is statistically significant or not, t-value came out -2.483 which means the difference is statistically significant in the level of $p < .05$. In other words, mean of user satisfaction of CSI depends on gender and female's satisfaction is higher than male's.

When we look at the difference in age, satisfaction of elderly group (over 60) is the highest with the mean of 4.27, middle-aged group is the second high with the mean of

4.13, the mean of infant group (0~4) is 4.07, the mean of children group is 4.06, and the mean of teenager group is 4.00. To check if the mean of satisfaction is statistically significant, the result came out significantly with F-value of 15.012 in the level of $P < .001$. To figure out if any specific groups have differences, we did Post-hoc analysis with Scheffe's. Mean of elderly group's satisfaction has statistically significant difference compared to infant group, children group and teenager group. There is no significant difference between the mean of elderly group's satisfaction and the mean of middle-aged group's satisfaction. Moreover, there are not significant differences in satisfaction among other groups.

When we look at the difference of satisfaction mean, in region of service usage, the mean of satisfaction of users in major cities is 4.10 (SD = .856) and the mean of satisfaction of users in small and medium-size cities is 4.12 (SD = .832). It shows that user satisfaction of small and medium-size cities came out little higher than user satisfaction of major cities. Through T-test, we checked if the result is statistically significant. The t-value came out -.991 in the level of $p > .05$ which is not significant result. In other words, there is no mean of satisfaction difference in region.

Finally, when we look at the difference of satisfaction mean in service type, elderly-targeted service user's satisfaction is the highest with the mean of 4.31. The second high is disabled-targeted service user's satisfaction with the mean of 4.17. Then, children-targeted service came out the mean of 4.12 and other services came out 4.09. F-value is 5.371 in the level of $P < .01$ and differences among type of services came out statistically significant. Through Post-hoc analysis with Scheffe's, we find out that there are significant satisfaction difference between children-targeted service and elderly-targeted service. Moreover, elderly-targeted service and other services have significant difference in their satisfaction mean. However, there is not significant difference in other services.

<Table 5> Satisfaction difference by General characteristics of Users

	Variables	Number of case	Mean	S.D.	t / F
Gender	Male	2,479	4.08	.810	-2.483*
	Famale	2,942	4.14	.869	
Age	0~4	250	4.07	.842	15.012***
	5~14	3,333	4.06	.853	
	15~19	135	4.00	.712	
	20~59	453	4.13	.848	
	Over 60	1,250	4.27	.804	
Region	Major city	2,322	4.10	.856	-.991
	Small and medium-size city	3,099	4.12	.832	
Type of service	Children	1,066	4.12	.831	5.371*
	Aged	189	4.31	.912	
	Disabled	669	4.17	.823	
	Others	3,497	4.09	.843	

* $p < .05$, ** $p < .01$, *** $p < .001$

5. Analysis of factors affecting user satisfaction

To find out the impact of adequacy of cost which is independent variable on user satisfaction which is dependent variable, we used regression analysis and the result is as following as <Table 6>.

To compare the influence of total cost and out-of-pocket payment which are under user's economic cost factor on user satisfaction, adequacy of total cost is = .029 ($p < .05$), and adequacy of out-of-pocket payment is = .040 ($p < .05$). With this result, adequacy of out-of-pocket payment affects user satisfaction relatively more than adequacy of total cost.

Independent variable, user's economic cost factors, significantly affects user satisfaction. In case of CSI, when users feel the total cost and their out-of-pocket payment of services are adequate, user satisfaction comes out higher. Moreover, when users think adequacy of out-of-pocket payment more positively than adequacy of total cost, user satisfaction comes out higher.

<Table 6> Analysis of effect factors on user satisfaction

Model	Unstandardized coefficient		Standardized coefficient	t
	B	S.D.	Beta	
(invariables)	1.146	.088		13.081
Perception of adequacy of total cost	.013	.005	.029	2.501*
Perception of adequacy of out-of-pocket payment	.026	.007	.040	3.578***
Information provided from local government	.017	.006	.033	2.824 *
Information provided from supply organization	.058	.008	.093	7.562***
Purpose achievement	.092	.008	.133	11.208***
Characteristics of service	.511	.013	.485	40.133***
R ²			.385	
Corrected R ²			.383	
Standard error of the mean of estimated value			.662	

a. dependent variable: user satisfaction

* $p < .05$, ** $p < .01$, *** $p < .001$

IV. Considerations and Conclusions

To sum up the result of research, CSI user's perceived adequacy of total cost affects user satisfaction. Then, the hypothesis 1 can be true. In other words, when users think total cost of service is adequate compared to the service content, satisfaction increases.

In addition, CSI user's perceived adequacy of out-of-pocket payment affects user satisfaction. Then, the hypothesis 2 also can be true which means that satisfaction increases when users think out-of-pocket payment is adequate.

Therefore, CSI user's satisfaction increases, when they think the cost for service is adequate.

In this research, we found out that perceived adequacy of user's cost affects satisfaction, but it is necessary to research which factors affect user's perception. Especially, it should be considered how adequate users think considering to how much they actually paid. However, this research used secondary data and it is limited to consider the actual payment of users.

Finally, based on this result, a follow-up study will be necessary regarding how much users actually pay for services to make better suggestions and implications.

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ORIGINAL ARTICLE

The Performance Verification of Foreign Language Activity Using TPR for the Elementary Students with Intellectual Disabilities

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ABSTRACT

TPR (Total Physical Response) can be the teaching method for the foreign language activity in the special needs education. One of the representative characteristics of TPR is that the student is not asked to respond with verbal language and they can respond with whole-body actions instead. Therefore, during the foreign language activities, students can respond with actions instead of striving to respond with verbal language. TPR method may be the most suitable method for the students who need special supports when learning foreign language and would reduce their burden during the foreign language activities.

This study aimed to verify the effects of TPR method using the SNEAT by participating in the foreign language activity that employed the TPR method in special needs schools and analyzing the classes, since the TPR method would play the great role for the foreign language activity in the special needs education.

<Key-words>

foreign language activity, intellectual disability, Special Needs Education Assessment Tool (SNEAT), Total Physical Response (TPR)

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I . Background

Pursuant to the Teaching Guidance for Elementary Students, which was revised in March, 2008, it became mandatory to provide 35 credit hours (one credit hour = 50 minutes) of foreign language activity to fifth and sixth graders that became mandatory nationwide in 2011 (MEXT, 2009). 35 credit hours of foreign language activity also became to be mandatory in the special support schools, but various problems came out including the lack of the experiences for teaching students with special needs foreign language, the lacks of supports and demonstration classes for how to teach and the reason to teach them foreign language (Nakayama, 2010; Hayashida & Ishida, 2012; Ito & Kobayashi, 2011; Muarakami, 2009).

According to the Teaching Guidance, the foreign language activity aims to deepen the understanding of the language and culture while learning foreign languages, to help students have the attitude for active communication with people and to enable them to develop the communication ability by having them practice the sounds and basic expressions of foreign languages. The Teaching Guidance for Elementary Students in Special Support Schools also stipulates two things that should be considered during classes in the 4th chapter (Foreign Language Activity); 1) the contents and the way of teaching need to be carefully selected according to the degrees of students' abilities and 2) the foreign language activity should be closely related with the teaching of independent activity (Ministry of Education, Culture, Sports, Science and Technology, 2009). The foreign language activity in the special support schools is supposed to be taught effectively and step by step while taking account of the conditions of region, schools and students and the degree of disabilities and development stages of students (Chapter 1, General Provision 4.1.).

Yasuda, Iwasaki, Ushiro (2001) suggested that the foreign language activity in special support schools does not just aim to enable the students with disabilities to acquire the four skills such as listening, speaking, reading and writing by having them practicing patterns and phonics and memorizing dialogues does not fit into that in special support schools. Moreover, foreign language activity is not officially given credits, but is reported only in writing.

Because of the above-mentioned reasons, the foreign language activity in special support schools may be flexibly provided according to the types and degrees of disabilities of students just like other courses. Moreover, it may be assumed that the foreign language activity can be conducted according to the tailored goals of individual students and the performance of students during the activity can be evaluated without worrying the score, because it is not officially given credits.

Total Physical Response (TPR) is one of the teaching methods for foreign language activity of special needs education. One of the representative characteristics of TPR is that the student is not asked to respond with verbal language and they can respond with whole-body actions instead (Asher, 1966). Therefore, during the foreign language

activities, students can respond with actions instead of striving to respond with verbal language. It has been reported that TPR method can reduce the anxiety and stress of learners and help improving their memory retention. TPR method may be the most suitable method for the students who need special supports when learning foreign language and would reduce their stress during the foreign language activities.

The foreign language activity that has been conducted in elementary school and special support schools has focused on listening and speaking. However, according to the studies on the foreign language anxiety, students feel the highest level of anxiety in the activities of listening and speaking (Yashima, 2003).

Masaki (2013) suggested that foreign language activity using songs is effective to ease the students' mind and to lead them to feel stable and pleasant. Since the foreign language activity that employs TPR method would create synergy effects using songs, picture cards and textbooks that are made of ICT and animations (Kashiwagi, 2007), it is needed to review whether the method would be also useful for the students with special needs.

Preparation of Teaching Plan and Contents of Classes 2 of the Teaching Guidance for Elementary Students emphasizes the importance of the nonverbal communication to the students with special needs, prescribing that gestures should be used during foreign language activity, because non-verbal language is also the way of communication. Because TPR method has students respond with whole-body actions for the commands that were given verbally, it also provides the opportunities that students can acquire the non-verbal communication ability. Furthermore, it would eventually heighten the quality of life of students owing to the increasing communication between students and teachers and ALT (alternative learning teachers) via the foreign language activity that employs TPR method.

In this context, this study aimed to analyze the foreign language activity in the special support schools in the Okinawa Prefecture and to verify the effects of that activity using the SNEAT (Special Needs Education Assessment Tool), since it is expected that the foreign language activity that employs TPR method would be very effective for the special needs education.

II. Methods

1. The Subjects of Study

This study was conducted for the 29 students with intellectual disabilities in 1st, 2nd, 4th and 5th graders who attend 'A' Special Support School in Okinawa Prefecture and 20 homeroom teachers was designated as the evaluators using the SNEAT.

2. Procedure

The foreign language activities that were conducted in 2nd and 3rd classes on Mondays between October and December, 2015 were observed. The SNEAT questionnaires were

distributed to homeroom teachers after classes. The survey was conducted three times in the beginning, midterm and final stages during the period of such survey. The SNEAT questionnaires were filled and evaluated anonymously. The study plan was explained to all the homeroom teachers through the school officials prior to the observance of classes.

3. Items of Questionnaire

The SNEAT, which was developed by Han, Kohara, Yano (2014), enables to objectively evaluate the educational performance in the aspects of independent activities and the quality of life of students. The reliability and validity of the SNEAT have been verified (Kohara, Han, Kwon, et al., 2015). The SNEAT is composed of a face sheet (age, gender, period of teaching, special teaching certificate) and 11 items of three domains such as physical functioning, mental health and social functioning (Table 1).

The homeroom teachers evaluate the performance of students during classes with five-level scale for 11 items. The SNEAT can be used for every student who satisfies following two conditions regardless of the types of disabilities; 1) the students who can express their thoughts or feelings with non-verbal or verbal communication; and 2) ones who have the possibility that their posture or movements may be improved.

The perfect score of the SNEAT is 100, which was made to be easily used in the education field. The scores of all questions except the scores of Q1 and Q2 of the domain of physical functioning were doubled, so the scores of five become to be ten, four to eight, three to six, two to four and one to two except the scores of Q1 and Q2. The items of each domain were lined in the order of the level of difficulty to accomplish the class goals of each domain. To make the perfect score become 100, the lower weights were added to Q1 of physical functioning and Q5 of mental health that showed the lowest level of achievement.

<Table 1> The SNEAT

Special Needs Education Assessment Tool (SNEAT)

① Physical Functioning

Q1. Were the activities during the class appropriate for the physical conditions of the student?

Q2. Have the posture, motor ability and motions of student been improved?

Q3. Has the ability of student to independently manage daily living been improved?

Q4. Has the degree of student's understanding his/her condition of diseases (disabilities) been improved?

② Mental Health

Q5. Has the feelings of student changed positively?

Q6. Did the student participate in class (learning/activities) in concentration?

Q7. Has the will of student to learn been improved?

Q8. Could the student respond to the changes of place and situation (the changes of environment) during class?

③ Social Functioning

Q9. Could the student form a relationship with others during class (interactions)?

Q10. Could the student express him/herself by choosing appropriate communication ways?

Q11. Did the student participate in the class activities with understanding class rules and controlling his/her behaviors?

III. Results

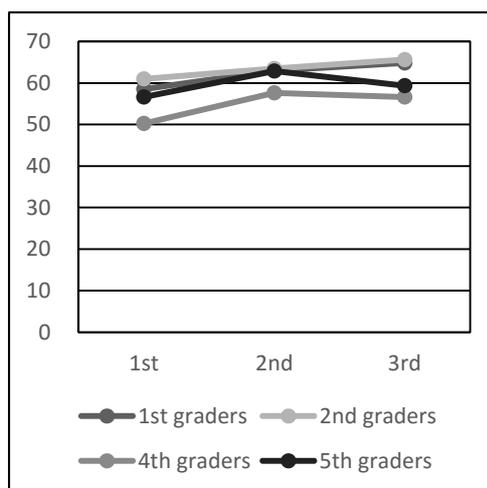
1. Basic Information

The collection rate of questionnaires was 100 percent (20 out of 20 teachers). The average period of teaching experience of the evaluators was 18.6 years. Only one (5.0%) out of 20 teachers had the license for teaching English.

2. The Changes of Average Scores

1) Changes of the Average of Total Scores

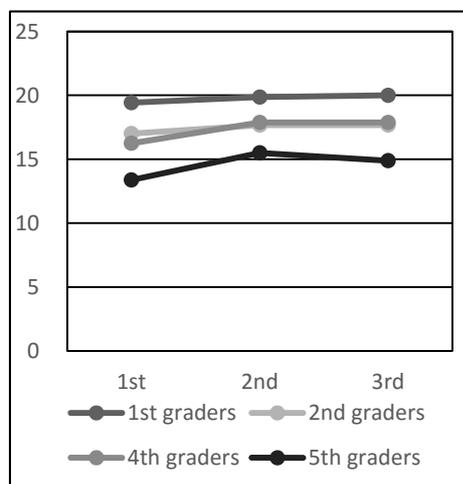
The scores of 1st and 2nd graders had ascended from 1st evaluation to 3rd evaluation. The scores of 4th and 5th graders had greatly increased in the 2nd evaluation and their scores in the 3rd evaluation decreased to the lower scores than 2nd evaluation. However, the scores in the 3rd evaluation were higher than those in the 1st one (Figure 1).



<Figure 1> Changes of Total Scores

2) Changes of the Scores of the Domain of Physical Functioning

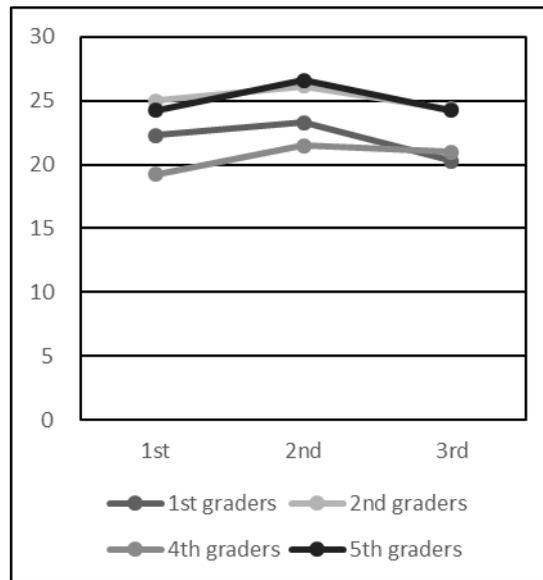
In all the grades, the scores had increased from 1st to 3rd evaluation. The scores of 1st and 4th graders had increased from 1st to 3rd evaluation little by little. The scores of 2nd graders had increased from 1st to 2nd evaluation, but there was no change in the 3rd evaluation. The scores of the 5th graders had greatly increased in the 2nd evaluation, but their scores decreased in the 3rd evaluation (Figure 2).



<Figure 2> Changes of the Scores of the Domain of Physical Functioning

3) Changes of the Scores of the Domain of Mental Health

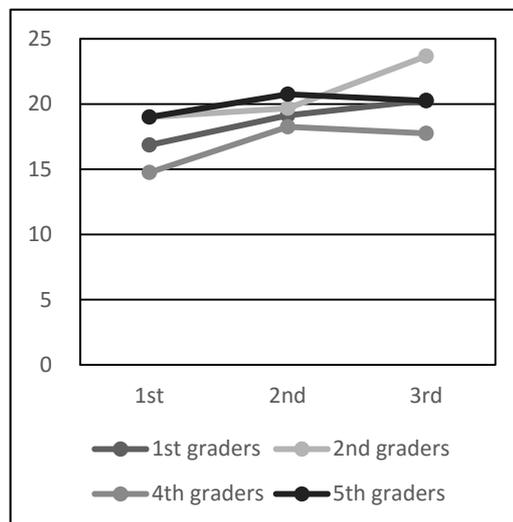
The scores of the 1st and 4th graders had increased from 1st to 3rd evaluation. The scores of the 2nd graders had increased from 1st to 2nd evaluation, but decreased in the 3rd evaluation. The scores of the 5th graders had also increased in the 2nd evaluation, but decreased to the almost same score with 1st ones in the 3rd evaluation (Figure 3).



<Figure 3> Changes of the Scores of the Domain of Mental Health

4) Changes of the Scores of the Domain of Social Functioning

In all the grades, the scores had increased from 1st to 3rd evaluation. The scores of 1st and 2nd graders had continually increased to 3rd evaluation. The scores of 4th and 5th graders had increased in the 2nd evaluation, but slightly decreased in the 3rd evaluation (Figure 4).



<Figure 4> Changes of the Scores of the Domain of Social Functioning

3. Total Scores, Variance analysis and multiple comparison of Each Domain

1) Average Scores of All the Subjects

There were significant differences by main effects in the total scores. There were significant changes between 1st and 2nd evaluation and between 1st and 3rd evaluation.

There were significant changes by main effects in the total scores of the domain of physical functioning. There were significant changes between 1st and 2nd evaluation and between 1st and 3rd evaluation. There were significant changes by main effects in the scores of the domain of mental health. There was also a significant change between 1st and 2nd evaluation.

There were significant changes by main effects in the scores of social functioning. There was a significant change between 1st and 3rd evaluations (Table 2).

<Table 2> Results of Variance Analysis (Average Total Score of All the Subjects)

	1st evaluation n = (29)	2nd evaluation n = (29)	3rd evaluation n = (29)	<i>P-value</i>	Significance
Physical Functioning	16.51 ± 2.49	17.72 ± 1.78	17.60 ± 2.10	0.01	*
Mental Health	22.69 ± 2.43	24.39 ± 2.43	22.46 ± 2.12	0.03	*
Social Functioning	17.40 ± 2.03	19.45 ± 1.04	20.49 ± 2.43	0.02	*
Total Scores	56.61 ± 4.63	61.75 ± 2.76	61.63 ± 4.35	0.005	**

** $P < 0.01$ * $P < 0.05$ † $P < 0.1$

2) SNEAT— Scores of 1st and 2nd Graders

There were significant changes by main effects in the total scores. In the results of multiple comparisons, there was a significant change between 1st and 3rd evaluation.

There were significant changes by main effects in the scores of the domain of physical functioning. In the results of multiple comparisons, there was a greatly significant change between 1st and 3rd evaluation.

There were significant changes by main effects in the scores of the domain of social functioning. In the results of multiple comparisons, there was a significant change between 1st and 3rd evaluations (Table 3).

<Table 3> Results of Variance Analysis (The 1st and 2nd Graders)

	1st evaluation n = (13)	2nd evaluation n = (13)	3rd evaluation n = (13)	<i>P-value</i>	Significance
Physical Functioning	18.31 ± 2.89	18.85 ± 3.07	18.92 ± 2.98	0.02	*
Mental Health	23.53 ± 4.17	24.61 ± 4.51	24.46 ± 4.37	0.43	<i>n.s.</i>
Social Functioning	17.84 ± 5.19	19.38 ± 4.11	21.84 ± 4.86	0.0005	**
Total Scores	59.69 ± 9.45	63.23 ± 8.98	65.23 ± 8.39	0.005	**

** $P < 0.01$ * $P < 0.05$ † $P < 0.1$

3) SNEAT— Scores of 4th and 5th Graders

There were significant changes by main effects in the total scores. In the results of multiple comparisons, there were significant changes between 1st and 2nd evaluations and between 1st and 3rd evaluations.

There were significant changes by main effects in the scores of the domain of physical functioning. In the results of multiple comparisons, there were significant changes between 1st and 2nd evaluations and between 1st and 3rd evaluations.

There were significant changes by main effects in the scores of the domain of mental health. In the results of multiple comparisons, there was a significant change between 1st and 2nd evaluations.

There were significant changes by main effects in the scores of the domain of social functioning. In the results of multiple comparisons, there were significant changes between 1st and 2nd evaluation and between 1st and 3rd evaluations (Table 4).

<Table 4> Results of Variance Analysis (4th and 5th graders)

	1st evaluation n = (16)	2nd evaluation n = (16)	3rd evaluation n = (16)	<i>P-value</i>	Significance
Physical Functioning	14.81 ± 4.03	16.68 ± 3.30	16.43 ± 3.68	0.008	**
Mental Health	21.75 ± 5.33	24.06 ± 5.14	23.25 ± 4.97	0.07	†
Social Functioning	16.87 ± 4.95	19.50 ± 3.22	19.00 ± 4.32	0.006	**
Total Scores	53.43 ± 11.89	60.25 ± 8.99	58.00 ± 10.98	0.001	**

** $P < 0.01$ * $P < 0.05$ † $P < 0.1$

4. Self-observance

In the SNEAT questionnaire, there was the section where the evaluators can freely write how they felt, what they thought and what they observed after finishing the classes.

1) The 1st Evaluation with the SNEAT

There were three opinions in the 2nd grade and two opinions in the 4th grade (Table 5).

2) The 2nd Evaluation with SNEAT

There were two opinions in the 1st grade, five in the 2nd grade and three in the 5th grade (Table 6).

<Table 5> Self-observance (1st Evaluation)

【2nd grade】

- In the beginning of the class, the student showed the mental fluctuation and some unpleasant feelings, but smiled when English song started and showed the interest in the songs.
- The student showed the interest in English songs and could follow the motions.
- Even though the student had difficulty in understanding English, the student enjoyed singing songs and following the motions.

【4th grade】

- Even though the student seemed to be nervous, the student could focus on the TV.
- While the student participated in the class together with other students, the student could calmly did to the end.

<Table 6> Self-observance (2nd evaluation)

【1st grade】

- During the morning assembly, the student say hello looking at the English play cards.
- When the student saw the English play cards during the morning assembly, the student smiled pronouncing 'angry' and mimicking the motions.

【2nd grade】

- When comparing with the participation in other classes, the student tended to participate in the English class much more calmly.
- The students can be interested in the videos and music.
- The student became to use the words or motions that the student had learned during the class, for example, Pick-a-boo!, etc.
- The student occasionally seemed to be overwhelmed, but in the later part of the class, the mood of the student seemed to be changed positively when all the students stood up and moved their bodies.
- The student could freely move his/her hands while following the movements of ALT teacher's hands and could focus on watching TV.

【4th grade】

- The student became to be familiar with ALT teacher and participated in the class calmly.
- Because the student liked music, the student could finish the class sitting down together with other classmates.
- Even though the student participated in the middle of class, the student answered the questions of the ALT teacher with a big voice and mimicked the gestures smiling.
- The student was amused at singing songs together with teachers with dancing.
- The student enjoyed singing songs while mimicking ALT teacher who moved like the animals, e.g., penguin.

3) The 3rd Evaluation with SNEAT

There were four opinions in the 1st grade, six in the 2nd grade and two in the 4th grade (Table 7).

<Table 7> Self-observance (3rd evaluation)

【1st grade】
<ul style="list-style-type: none"> • The student showed the interests in the Santa and snowman in the Christmas season. • The student could become to show some interests in the class activities. • The student became to calmly sit down and to focus on the activities more. • The student asked for the first time, "'A' teacher is coming?"
【2nd grade】
<ul style="list-style-type: none"> • The student became to be interested in the English songs and hummed the songs frequently. • Since the class activities that made the student use his/her hands were related with the Christmas that the student liked, the student focused on them. • It seemed that the student couldn't keep up with the song, because its tempo was too fast for the student to follow, but the student could sing the funny parts (e.g., the part like doing a lip trill). • 'M' enjoyed the songs with fast tempo. The song might be difficult for the student to sing and the student just smiled while listening to music. • Because the activity that was conducted in English was long, the student didn't show the great interests (The student seemed that he or she could not follow the activity). When the activity that was conducted with sitting down, the student could make something and seemed to enjoy it. • The student enjoyed the activities following the hand movement of ALT teacher and looking at the face of the homeroom teacher.
【4th grade】
<ul style="list-style-type: none"> • The song was difficult, which made the student hard to sing, but the student danced with smiling, clapping his or her hands and marching in place. • The student felt the delight mood and stamped his or her foot with clapping his or her hands.

IV. Considerations

This study aimed to verify the effects of TPR method on the foreign language activity for the students with intellectual disabilities via the SNEAT. In results of the study, it was concluded that the foreign language activity using the TPR is effective for the students with intellectual disabilities.

Given the results that there were significant changes in all the scores of the items of the SNEAT in all the four grades (1st, 2nd, 4th and 5th grades), it can be said that foreign language activity using TPR heightens the quality of life of children.

Considering the results that there was a significant change between 1st and 3rd evaluation, it is expected that the effects of the TPR method would increase in the process of repeating the activities. However, it may be right to conduct the foreign language activity using the TPR method in the medium or long-term, because its effects do not tend to appear quickly.

Since there were significant changes in the scores of the 4th and 5th graders between 1st and 2nd evaluations and between 1st and 3rd evaluations, it is assumed that the effects of the TPR method appeared more quickly than in that of the 1st and 2nd graders.

As for the scores of each domain, even though it is assumed that the relevance to the TPR method was not found in the physical functioning, it can be said that the contents of the classes with more active motions more positively affected the students.

There were significant changes among the total scores of the 4th and 5th graders in the domain of mental health. According to the self-observance of evaluators, "the student felt the delight mood and stamped his or her foot with clapping his or her hands" and "in the beginning of the class, the student showed the mental fluctuation and some unpleasant feelings, but smiled when English song started and showed the interest in the songs." The positive responses of the students from the self-observance of evaluators may be derived from the active and various activities such as saying hello in English, chatting with ALT, watching video, following motions, sitting down and standing up and expressing oneself freely following music, which made the student motivated and maintain the concentration. The opportunity with one to one talk with ALT was given to the student without exception in the end of the class. Furthermore, when the student completed the assigned tasks, the ALT gave the student stamps that could be added to the student's card. The opportunities that the student enjoy the sense of accomplishment were provided, which would lead the student to repeat the activities.

There were significant changes among the average total scores of all the graders in the domain of social functioning. There were several elements that were effective to enable the students to express themselves and to build the relationship with others; a) the foreign language activity using the TPR have the teachers, ALT and classmates become together; b) it makes the students take advantage of their whole body actions, which was different from the existing lecture-style classes; and c) the students could respond using body actions freely in the class mood without stress that would be derived from the activities that require the verbal responses.

There were several students whose average SNEAT scores were low. It was found that they could not regain the rhythm at the school since their foreign language activity was scheduled on Monday; they were late for classes or they couldn't attend the class because they didn't feel good. It is assumed that those factors affected the low scores. If the foreign language activity had been scheduled in the second period of other days, not in the second period of the Mondays, the scores would have been different. The scores in the domain of mental health increased from 1st to 2nd evaluations, but decreased in the 3rd evaluation.

According to the self-observance, "because the activity that was conducted in English

was long, the student didn't show the great interests (The student seemed that he or she could not follow the activity)" and "it seemed that the student couldn't keep up with the song, because its tempo was too fast for the student to follow." The high level of class contents on December 21 would demotivate the students and eventually their SNEAT scores stagnated.

According to the self-observance, "in the beginning of the class, the student showed the mental fluctuation and some unpleasant feelings, but smiled when English song started and showed the interest in the songs", "the student enjoyed singing songs while mimicking ALT teacher who moved like the animals, e.g., penguin", and "since the class activities that made the student use his/her hands were related with the Christmas that the student liked, the student focused on them." This study as well as the studies of Masaki (2013) and Kashiwagi (2007) suggested that the combination TPR with songs, animation and videos had created the synergy effect on the foreign language activity.

In the meantime, according to the self-observance, which is different from the study of Yashima (2003), "while the student participated in the class together with other students, the student could calmly participate in the class to the end" and, "even though the student participated in the middle of class, the student answered the questions of the ALT teacher with a big voice and mimicked the gestures smiling." Senda (2012) had pointed out that the students with low level of English speaking skill would be afraid to be asked to speak out in English. But, it was useful that the stress from it would be decreased by the TPR method. Conclusively the foreign language activity using the TPR method rather than the foreign language activity not using it may decrease the burden of students from foreign language activity or get rid of the anxiety from it.

Conclusively this study confirmed the effects of the TPR methods on the elementary students and needs to be expanded to the middle and high school students. Currently there is no study with scientific proof about the foreign language activity in special needs education and there are no clear teaching methods or teaching guidance for it, which may be considered as the tasks to be explored. Therefore, the guide book with specific guidance that enables the TPR method to be immediately used for the foreign language activity in the schools should be prepared. In the near future, it is expected that the foreign language activity using the TPR method in the special support schools will be an excellent teaching method.

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ORIGINAL ARTICLE

Comparing Employment Quota Systems for Disabled People Between Korea and Japan

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ABSTRACT

Mandatory employment quota system is a policy that obligates employers to have a workforce with a certain percentage of individuals with disabilities. This study compared the Korean mandatory quota scheme with the Japanese one. They have very similar features even though some differences still exist in details; similar levels of mandatory quotas, similar covered employers, similar sanctions and incentives, and even similar outcomes.

The results of this study show that the mandatory quota schemes have a limited effect in enhancing employment rates of disabled people in Korea or in Japan. Unlike Japan, Korea has enforced the Anti-Discrimination Act against Disabled Persons since 2008 though its effect on employment rates of disabled people has not been materialized yet. Anti-discrimination acts against disabled persons are generally considered to be ineffective for increasing employment rates of disabled people.

Employment services for disabled persons may be more helpful to increase employment rates of disabled people. A type of delivery system for employment services for disabled persons may be an important factor for employment rates of disabled people. Delivery system for employment services for disabled persons should be closely connected with the labor market as well as the mandatory quota system.

The delivery systems for employment services for disabled persons are mostly managed by non-profit organizations in Korea. However, their outcomes are less than expected due to the lack of economic incentives and autonomy. Thus, governments should expand their roles in employment services for disabled persons in order to increase employment rates of disabled people.

<Key-words>

mandatory quotas, employment for disabled persons, covered employers, sanctions, employment rates

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I . Background

Mandatory employment quota system is a policy that obligates employers to have a workforce with a certain percentage of individuals with disabilities. It represents “a deeply embedded policy approach, developed originally in a European context, and based on long-standing acceptance of a social obligation to employ individuals with disabilities” (Thornton, 1998).

“By the end of 1923, Germany, Austria, Italy, Poland and France had adopted a quota system, under which employers were obliged to employ disabled war veterans” (O’Reilly, 2003: 56). Many other European countries and several countries in Asia, Africa, the Middle East, and Latin America have introduced quota systems after the Second World War. All systems, though some systems were originally applied to disabled veterans, were eventually extended to cover disabled civilians. The quota systems are based upon the logic of compensation, which may lead to avoid social responsibility for disability problems.

The quota systems may be divided into two groups: quota systems with sanction and quota systems without sanction. The former, usually called quota-levy system, takes a form of levy system: it sets a quota and requires “that all covered employers who do not meet their obligation pay a fine or levy which usually goes into a fund to support the employment of disabled people” (Waddington, 1996). The quota-levy system has been adapted mostly by countries which have introduced quota systems since the 1980s. The latter has no sanction or no effective sanction against the employers who do not meet their obligation even though legislative recommendation or legislative obligation are present. It has been adapted by Netherlands and Belgium.

The quota systems may be divided according to the types and effectiveness of sanctions. The sanctions may be different in terms of coverages and levels of employers’ responsibility. “...two policy elements are relevant in determining the real level of obligations on employers: whether there are proper sanctions on employers who do not fulfil their obligations, and whether there are adequate instruments to enforce these sanctions. It is the existence of these two elements that guarantees that ... mandatory employment quotas will compel employers to take on responsibilities”. “For quota schemes, enforcement is a function of the levels of the quota and ... the extent of sanctions on the employer” (OECD, 2003: 107).

Both Korea and Japan have very similar quota-levy systems since Korea borrowed the main frame of the quota system from the Japanese system when Korea introduced it. Nonetheless, two systems have differences also. This study explores the similarities and differences of the two systems. It also compares the outcomes of the two systems in terms of employment rates of disabled people. In addition, it tries to suggest how employment problems of disabled persons may be reduced.

II. Framework of Analysis

A framework of analysis is important in comparative studies. This study tries to compare a Korean mandatory quota scheme in order to employ disabled persons with a Japanese mandatory quota scheme. For the comparison, three aspects will be used as a framework of analysis: level of mandatory quota, covered employers, and sanctions and incentives.

1. Level of Mandatory Employment Quota

Different levels of mandatory employment quota, which all covered employers have to meet, reflect different reasons to introduce regulations for mandatory quota. The British mandatory quota scheme was introduced to supplement labor which was short of due to World War II. Its introduction was rationalized from the economic needs, which resulted in a lower level of quota at 3% and symbolic enforcement. On the contrary, Germany introduced the quota scheme in terms of human rights of disabled people rather than economic needs, which resulted in higher levels of quota at 5~6% and strong enforcement (Lim, 2013). In regard of setting levels of quota, Germany and France considered equal employment from a human rights perspective rather than labor market circumstances of disabled people. These two countries adopted a guideline for a mandatory quota from European Economic Community, which advises an agreement among representatives of stakeholders including disabled people, corporates, and governments. On the other hand, Korea and Japan adjust mandatory quotas considering employment rates of disabled people and proportions of unemployed disabled people (Shim et al., 2012).

The regulations for mandatory quota schemes usually require that employers are obliged to have a certain proportion of disabled people among their staff: 7% of the workforce in Italy, 5% in Germany, 3% in Korea, and 2.1% in Japan (OECD, 2003). It is a strong and practical tool in order to achieve equal employment opportunities among disabled workers. The level of quota has to be accompanied with social agreement on reasons for equal employment.

Another aspect should be considered for the level of mandatory quotas: disability prevalence rate. Both Korea and Japan show very low disability prevalence rates compared to other OECD countries (See Table 1). Germany and Netherlands show the highest disability prevalence rates in 2011 with 32.3% and 27.2%, respectively. The United States show the lowest disability prevalence rate with 12.1% among OECD countries except Korea and Japan.

<Table 1> Disability Prevalence Rates among 10 OECD countries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean
Japan	4.8	-	-	-	5.2	5.0	5.2	5.6	5.7	5.7	5.8	5.8	5.4
France	-	-	24.6	-	-	-	-	-	23.3	24.1	25.2	24.9	24.4
Belgium	-	-	-	18.4	-	-	-	-	22.7	23.1	23.3	23.7	22.2
UK	-	-	-	12.0	-	-	17.6	-	19.5	20.3	20.8	21.5	18.6
Australia	-	-	-	19.8	-	-	-	-	-	17.7	-	17.4 ¹⁾	18.3
Netherlands	-	-	25.6	-	-	-	-	-	26.9	27.4	27.5	27.2	26.9
US	-	-	-	-	12.1	-	-	12.8	12.1	12.0	11.9	12.1	12.2
Canada	-	12.4	-	-	-	-	14.3	-	-	-	-	13.7 ¹⁾	13.5
Germany	-	-	11.2	17.5	-	-	-	-	32.9	32.2	31.8	32.3	26.3
Korea	2.0	2.4	2.7	3.0	3.3	3.7	4.0	4.3	4.5	4.9	5.0	5.0	3.7

¹⁾ For 2012

Source: Lee SK (2016) A Study on the Effects of Policy of Employment for the Disabled on Employment Rates.

There are wide disparities in disability prevalence rates among different countries, which reflecting different definitions of disability. Countries which have the higher disability prevalence rates usually have the wider definition of disability. Thus, we could say that Korea and Japan have relatively narrow definitions of disability. For example, Korea has not included dementia in disability categories yet, while mental disability was included only in 2005 in the Japanese quota scheme.

2. Covered Employers

Mandatory employment quota systems have different covered employers among different countries. German, French, Korean, and Japanese quota systems have covered employers both in public and private sectors, while the Belgian system covers only employers in public sector.

In addition, mandatory employment quota systems usually only apply to employers with a certain number of employees; the minimum being 20 employees in France and Germany, 50 employees in Korea, 56 employees in Japan. It is expected that the smaller the covered employers are, the more effective the quota schemes are.

3. Sanctions and incentives

Sanctions on employers who do not fulfil their obligations are different among different countries. They are typically payments or fines. If there are no sanctions on employers who do not fulfil their obligations, the quota schemes are very likely to be ineffective. Corporate social responsibility alone is not usually enough for employing disabled workers who tend to have lower productivities.

Incentives are used for employers who fulfil their obligations and hire more disabled workers. Incentives may raise equity between employers who hire disabled workers and employers who do not hire since the former have to take financial burden to hire disabled workers.

III. Comparison of Quota Systems between Korea and Japan

Korea introduced the mandatory employment quota system for disabled workers in 1990, while Japan did in 1976. Both of them use levy systems with different mandatory quotas and different coverages.

1. Levels of Mandatory Quota

Korean quota system began at 2.0% for both public and private sectors in 1990, while Japanese quota system began at 1.8~1.9% for public sector and 1.5~1.8% for private sector in 1976 when the quota system became mandatory. Both countries have raised their employment quotas; to 3.0% for public sector and 2.7% for private sector in Korea, and to 2.0~2.3% for public sector and 1.8~2.1% for private sector in Japan. Korea has raised its quota more quickly than Japan (See Table 2). Nevertheless, their levels of mandatory quotas are still lower than those of European countries. Especially, employment opportunities for disabled workers remain low compared to those for non-disabled workers in Korea (Kim et al., 2013).

The levels of the mandatory quotas in Korea and Japan seem to reflect similar factors; employment rates of disabled persons at corporates and the number of unemployed disabled persons. The level of employment quotas reflects also disability prevalence in Korea, which has increased very quickly in 10 years. The disability prevalence in Korea increased from 2.0% in 2000 to 5.0% in 2012, while it has been stable from 4.8% in 2000 to 5.8% in 2011 in Japan. Though Japan has been a leader in the world economy for a long time, its disability prevalence rate shows that its government has been very conservative in expanding disability definition.

2. Covered Employers

The sizes of covered employers have been expanded also in both the Korean and the Japanese mandatory employment quota systems. The expansion of the former has been more remarkable than that of the latter. Korea has expanded its coverage from

companies with 300 or more employees to companies with 50 or more employees, while Japan has expanded from companies with 63 or more employees to companies with 56 or more employees. But, both countries still have narrower coverages than France and Germany, which shows that the Asian regimes are more market-oriented than the European regimes.

One of the reasons that Korea has expanded its coverage more quickly than Japan seems to be that the disability movement has been very strong recently in Korea. Nonetheless, the outcome of the Korean employment quota system seems to be relatively lower than that of the Japanese quota system in its quality. The rates of employment of disabled workers for large companies were lower than medium and small companies in Korea, while those for large companies were higher than medium and small companies in Japan (Kim MJ et al., 2012). Apparently, large Japanese companies were more socially responsible than Korean ones in hiring disabled workers.

<Table 2> Comparison of Quota Systems in Korean and Japan

	Korea	Japan
Year of Legislature	1990	1976
Quota for Early Stage		
Public Sector	2.0	1.8~1.9
Private Sector	2.0	1.5~1.8
Quota for the Present		
Public Sector	3.0	2.0~2.3
Private Sector	2.7	1.8~2.1
Covered Employers		
Early Stage	300 or more employees	63 or more employees
The Present	50 or more employees	56 or more employees
Decisive Factors of Quotas	-Disability Prevalence - Employment Rates of Disabled Persons for Corporates -Number of Unemployed Disabled Persons	-Employment Rates of Disabled Persons for Corporates -Unemployment Rates for Disabled Persons
How to calculate quotas	-Equivalent Unemployment rates of disabled persons and non-disabled persons	(Disabled Workers+Disabled Unemployed)/(Total regular employees – Exempted workers +Total unemployed)

3. Sanctions and incentives

Korea uses both sanctions and incentives. Employers with 100 employees or more, are charged with contributory payment of 670 thousand Won (US \$585) per disabled employee in 2014 if they fail to fulfil their quotas. Contributory payment per employee is

set to be 60% or higher than the minimum wage. Employers get paid subsidies if they hire more disabled workers than their quotas; up to 500 thousand Won (US \$437) per disabled employee, depending on gender and disability grade of disabled employees. Owing to the quota scheme, ratios of disabled workers among all workers in Korea have been increased from less than 1% to 2.41% (for private sector) ~ 2.63% (for public sector). Nonetheless, employers who do not fulfil their obligatory quotas are almost one-third of all covered employers (KEAD, 2011).

Japan uses both sanctions and incentives, also. Employers with 201 employees or more, are charged with contributory payment of 50 thousand Yen (US \$462) per disabled employee in 2015 if they fail to fulfil their quotas. Contributory payment will be reduced to 40 thousand Yen for employers with 201~300 employees. Subsidies are given to employers who hire more disabled workers than their quotas or who do not have quotas to fulfil (Kim YT et al., 2013).

4. Outcomes of Mandatory Employment Quota Schemes

Mandatory employment quota schemes have an obvious objective; increasing the numbers of disabled workers on jobs. Thus, the employment rate of disabled persons may be a best indicator to examine whether employment quota schemes are working or not.

Employment rates of Disabled Persons in Korea have not changed much from 34.2% in 2000 to 35.5% in 2012, while those in Japan have been almost doubled from 22.7% in 2003 to 41.9% in 2011 (See Table 3). However, both countries look like a long way to go, compared to France (56.0%) or Germany (56.9%). Especially, the employment rates of disabled persons in Korea have been disappointing in that it has introduced the Anti-Discrimination against Disabled Persons Act as well as the levy-quota system. Though the Anti-Discrimination against Disabled Persons Act was enacted in 2008, it has not been paid off yet.

On the contrary, the employment rates of disabled people in Japan have been doubled between 2003 and 2004. It is not very clear what happened in 2004 in the Japanese labor market for disabled people. After that year, the employment rates of disabled people in Japan have been in a standstill.

It could be regarded as a better outcome considering that the Japanese economy has been in a constant crisis. In the US, another super power in the world economy, employment rates of disabled people have been plunging; it was the highest at 38.5% in 2005, and fell to the lowest at 27.0% in 2011.

It is not clear whether a mandatory quota is working or not. Countries with strong mandatory quota schemes such as Germany or France show the highest employment rates of disabled people. However, some countries without mandatory quota schemes such as Australia or the UK show almost as good outcomes as Germany or France.

<Table 3> Employment Rates of Disabled Persons in 10 OECD countries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean
Japan	-	-	-	22.7	42.0	-	40.3	-	-	-	-	41.9	36.7
France	49.1	-	-	47.9	-	39.8	-	-	-	49.8	-	56.0	48.5
Belgium	43.9	-	-	33.5	-	34.4	36.0	-	38.8	42.6	40.7	38.4	38.5
UK	42.1	-	44.5	45.4	46.8	47.0	47.4	47.3	48.3	47.4	48.4	48.7	46.7
Australia	-	-	-	48.7	-	-	-	-	-	50.0	-	52.8 ¹⁾	50.5
Netherlands	48.5	-	48.1	46.9	45.9	44.4	44.5	44.0	53.1	54.0	51.6	51.1	48.4
US	35.1	-	-	37.9	37.5	38.5	37.2	36.9	-	35.3	33.4	27.0	35.4
Canada	43.8	41.8	41.5	-	-	46.9	-	53.5	-	-	-	-	45.5
Germany	60.4	-	-	46.1	-	50.4	-	-	54.2	53.9	54.4	56.9	53.8
Korea	34.2	-	-	-	-	34.1	-	-	37.7	36.0	35.5	35.5 ²⁾	35.5

¹⁾ 2013; ²⁾ 2012

Source: Lee SK (2016) A Study on the Effects of Policy of Employment for the Disabled on Employment Rates.

IV. Conclusions and Implications

This study compared the Korean mandatory employment quota scheme with the Japanese scheme. They have very similar features even though some differences still exist in details; similar levels of mandatory quotas, similar covered employers, similar sanctions and incentives, and even similar outcomes.

First, the Korean employment quota scheme has mandatory quotas of 2.7%~3.0%, while the Japanese has mandatory quotas of 1.8%~2.3%. The former has slightly higher quotas than the latter, but the differences are not significant, especially compared to European quota schemes.

Second, employers with 50 or more employees are covered in the Korean quota scheme, while employers with 63 or more employees are covered in the Japanese quota scheme. Though their sizes are slightly different, they are clearly bigger employers than covered employers in German or French schemes.

Third, both the Korean and the Japanese mandatory employment quota schemes use contributory payments or levies as a sanction, and subsidies as an incentive. The levies of the Korean scheme are slightly higher than those of the Japanese scheme.

Fourth, they have similar employment rates of disabled people; Korea at 35.5%, Japan at 41.9%. The difference is only 6.4% point in 2011. The employment rates of disabled people are likely to reflect disability prevalence rates, which are very similar 5.0% in Korea, 5.3% in Japan, respectively.

The results of this study show that the mandatory employment quota schemes have limited effects on enhancing employment rates of disabled people in Korea or in Japan. Unlike Japan, Korea has enforced the Anti-Discrimination Act against Disabled Persons since 2008. Of course, it is still too early to conclude whether the act is effective or ineffective for increasing employment rates of disabled people in Korea. However, large employers, especially conglomerates such as Samsung, SK, GS, and Hanjin, are still very reluctant to hire disabled workers even though the Act has been applied. Discrimination against disabled persons is still widespread. Moreover, anti-discrimination acts against disabled persons in countries such as the US and the UK are generally considered to be ineffective for increasing employment rates of disabled people. Thus, the hope is not high.

Instead, employment services for disabled persons (also known as occupational rehabilitation programs) may be more helpful to increase employment rates of disabled people. Lee (2016) suggests that a type of delivery system for employment services for disabled persons is an important factor on employment rates of disabled people. Nam (2008) also suggests that delivery system for employment services for disabled persons should be closely connected with the labor market as well as the mandatory quota system.

The delivery systems for employment services for disabled persons are mostly managed by non-profit organizations in Korea. However, their outcomes are less than expected due to the lack of economic incentives and autonomy. The sizes of sheltered workshops are very small; their average number of disabled employees is less than 30. Thus, their employment capacities are very limited.

Governments should expand their role in employment services for disabled persons in order to increase employment rates of disabled people. As Samhall in Sweden shows, the size of a workshop matters. Small workshops are hard to survive and provide disabled persons with a lot of jobs, especially decent jobs.

It is not possible to solve employment problems of disabled persons only with mandatory quota systems or with anti-discrimination laws. It is time for governments to combine different policy efforts in a well-coordinated way in order to increase the employment rate of disabled people.

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SHORT PAPER

A Study on the Standardization of the SNEAT :The Verification of Reliability and Validity of the SNEAT Based on the Data from Miyagi Prefecture

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ABSTRACT

The Special Needs Education Assessment Tool (SNEAT) were verified of reliability and validity. However, the reliability and validity has been verified is only Okinawa Prefecture, the national data has not been analyzed. Therefore, this study aimed to verify the reliability and construct validity of SNEAT in Miyagi Prefecture as part of the national survey. SNEAT using 55 children collected from the classes on independent activities of daily living for children with disabilities in Miyagi Prefecture between November and December 2015. Survey data were collected in a longitudinal prospective cohort study. The reliability of SNEAT was verified via the internal consistency method; the coefficient of Cronbach's α were over 0.7. The validity of SNEAT was also verified via the latent growth curve model. SNEAT is valid based on its goodness-of-fit values obtained using the latent growth curve model, where the values of comparative fit index (0.997), tucker-lewis index (0.996) and root mean square error of approximation (0.025) were within the goodness-of-fit range. These results indicate that SNEAT has high reliability and construct validity.

<Key-words>

Special Needs Education Assessment Tool (SNEAT), reliability, validity, latent growth curve model

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I . Introduction

The SNEAT (Special Needs Education Assessment Tool) is a tool to evaluate the performance of special needs education. The SNEAT was developed by Han, Kohara & Kohzuki (2015) and its reliability and validity were verified by Kohara, Han, Kwon, Kohzuki (2015). The SNEAT that combined HRQOL with Jiritsu-Katusdo (independent activity) that is the part of the special needs education has attracted the attention as the new tool that enables to evaluate the performance of special needs education.

However, the reliability and validity of the SNEAT have been verified with the data from Okinawa Prefecture, which have the necessity to collect and analyze the nationwide data for the standardization of the SNEAT brought up. Therefore, this study aimed to report the results of the research that was conducted for Miyagi Prefecture as the part of the standardization of SNEAT.

II . Subjects and Methods

1. Subjects and Procedures

The researchers met school officials to explain the purpose and research methods of this study. After obtaining the school officials' consent to participate in the research in the meeting, packages containing the official document to formally request the cooperation for this study and the SNEAT manual were sent to all the participating schools. The SNEAT questionnaire sets were distributed to the 60 classes on independent activities of daily living for children with disabilities in the 2 special needs schools in Miyagi Prefecture. The class on independent activities of daily living for children with disabilities was conducted once a week (four times) for one month, between November and December 2015, using SNEAT. The questionnaires were completed after the class on the independent activity; the four surveys were named as Time 1, Time 2, Time 3 and Time 4. The class participants (i.e., the teachers and students) and the class contents were the same for all the classes. The selection of the classes on independent activities of daily living for children with disabilities was implemented via the random sampling method.

2. Data Collection

SNEAT is a tool for evaluating the educational outcome of the classes on independent activities of daily living for children with disabilities (Han et al, 2015). The SNEAT questionnaire has a total of 11 items in three domains (bodily pain, mental health, and social functioning) and enables the teachers to evaluate the educational outcome of their students (Han et al, 2015).

For each item, the evaluators are asked to indicate the extent of their agreement or disagreement using a 5-point scale, where;1 = strongly disagree;2 = disagree;3 = neutral;

4 = agree; and 5 = strongly agree.

In addition, the face sheet was added to record the contents of the class and the information on the students, such as their grade level (elementary, middle, or high school), gender, and type of disability (intellectual disability, physical disability, health impairment, developmental disability, multiple disabilities). Items for recording the information on the teachers who are the evaluators of the classes were also added, such as their age, gender, length of teaching at a special support school, and possession of a special teaching certificate.

3. Statistics analysis

1) Changes and Comparisons of Total Score, Scores of Domains and Scores of Items

To analyze the obtained data, one-way repeated-measures ANOVA (matched design) was used. To analyze the changes of the scores, one one-way ANOVA with repeated-measures was conducted. One-way ANOVA was also conducted for the comparison of the scores of each domain.

The items in each domain of SNEAT are listed in descending order of difficulty, and as such, the scores of the items in each domain are ranked in the descending orders of Q1 to Q4, Q5 to Q8, and Q9 to Q11. SPSS ver.23.0 was used for statistical analysis.

2) Reliability of the SNEAT

Reliability of SNEAT was estimated using the internal consistency method. The internal consistency of SNEAT was assessed with Cronbach's α . A minimum Cronbach's α co-efficient of 0.7 was considered satisfactory for group-level comparisons (Cronbach, 1951).

3) Validity of the SNEAT

For this study, the latent growth curve model, and structural equation modeling (SEM), among the methods of construct validity, were utilized, and longitudinal data were employed to verify the validity of SNEAT. The latent growth curve model can be used to analyze the repeated-measures data, which is different from general path analysis (Kano & Miura, 2002). In the latent growth curve model, unlike in general path analysis, path coefficients are not the subjects of the data analysis because all the path coefficients from the observed to the latent variables are fixed parameters (Toyoda, 2007).

The model fitness was assessed with the following fit indices: comparative fit index (CFI) and root mean square error of approximation (RMSEA). When conducting analysis via structural equation modeling (SEM), the researchers themselves are to choose the fit index that they would use, based on their judgment. A model is considered acceptable, when two or more fit indices are met including RMSEA (Steiger, 1998). For adequately fitting models, these fit indices should meet the following criteria: CFI > 0.90 (Han et al., 2005) and RMSEA < 0.1 (Koshio, 2004). In this research, maximum likelihood estimation

was used for the parameter estimation. Amos ver.4.0 was employed for statistical analysis.

III. Results

1. Subject Characteristics

A total of 55 analyzed questionnaires were collected among the 60 that had been distributed (91.7% response rate). As the classes on independent activities of daily living for children with disabilities are usually conducted on a one-to-one basis, 55 children and 55 teachers (evaluators) participated in such classes using SNEAT. The characteristics of the participants in the said classes using SNEAT are shown in Table 1. As for the types of disabilities, the number of children with multiple disabilities was the highest. The average length of teaching of the teachers (evaluators) was 18.3 years, and the average length of teaching special support classes was 11.1 years. In addition, 81.8% of the teachers had a special teaching certificate.

<Table 1> Characteristics of the participants in the class of students with disabilities that has used the SNEAT in Miyagi

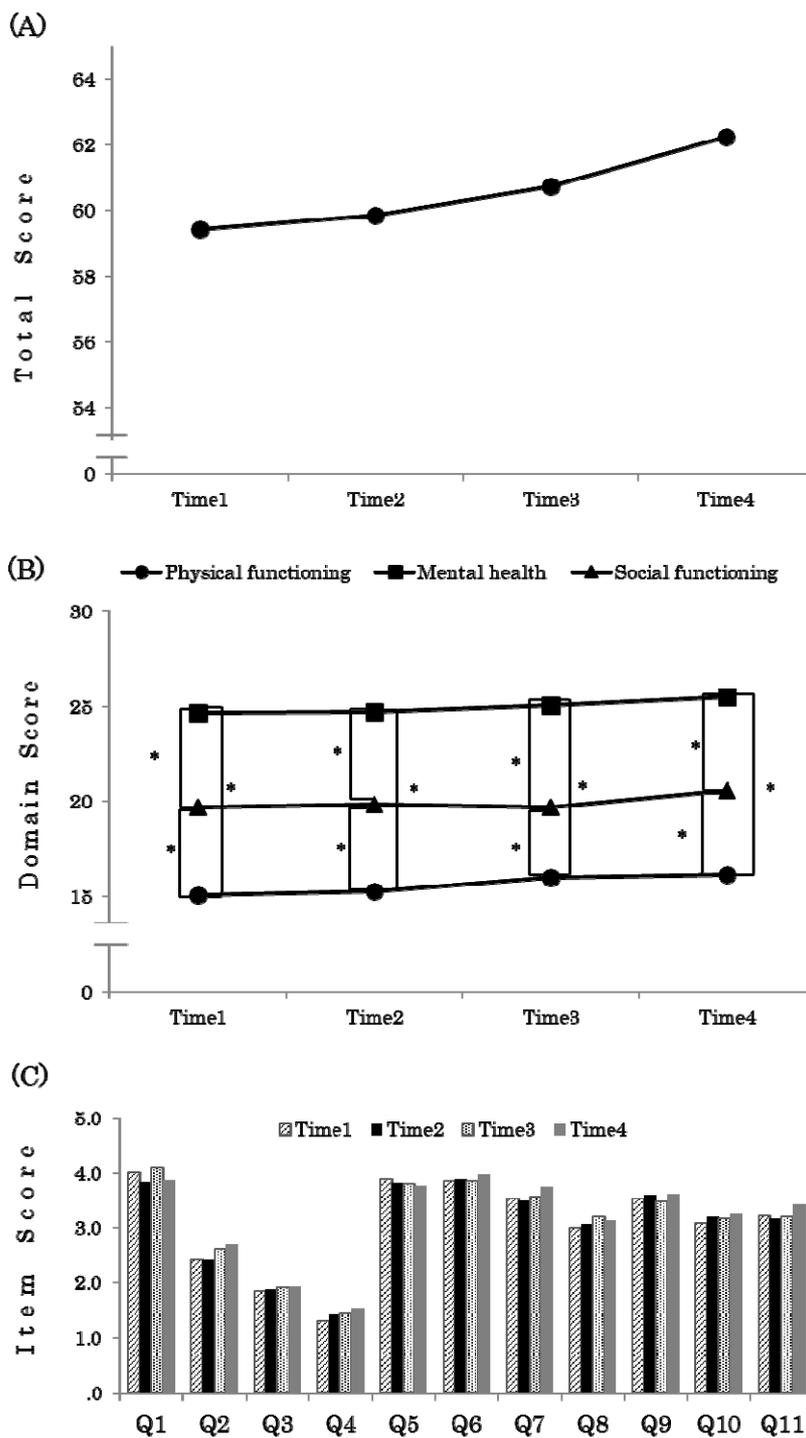
Characteristic		Mean±SD or n (%)	
Children n = 55	Grade	Elementary school	27 (49.1)
		Middle school	17 (30.9)
		High school	11 (20.0)
	Sex	Male	37 (67.3)
		Female	18 (32.7)
	Types of disabilities	Intellectual disability	26 (47.3)
		Physical disability	0 (0.0)
		Health impairment	0 (0.0)
Development disability		1 (1.8)	
	Multiple disabilities	28 (50.9)	
Teachers n = 55	Age	41.6±11.0	
	Average length of teaching	18.3±10.6	
	Average length of teaching for special needs education	11.1±9.1	
	Sex	Male	22 (40.0)
		Female	33 (60.0)
	Special teaching certificate	With the certificate	45 (81.8)
		Without the certificate	10 (18.2)

2. The Changes and Comparisons of Total Score, Scores of Domains and Scores of Items

The total scores changed from 59.42 in the Time1 to 59.85 in the Time2, 60.73 in the Time3, and 62.24 in the Time4. In the results of the analysis through one-way repeated-measures ANOVA, there were not significant differences among the first, second, third, and fourth classes (Figure 1-A).

The average scores of the domain of physical functioning were 15.09 in the Time1, 15.29 in the Time2, 16.02 in the Time3, and 16.16 in the Time4. The average scores of the domain of mental health were 24.65 in the Time1, 24.73 in the Time2, 25.04 in the Time3, and 25.49 in the Time4, and those of the domain of social functioning were 19.67 in the Time1, 19.84 in the Time2, 19.67 in the Time3, and 20.58 in the Time4. In the results of the analysis through one-way repeated-measures ANOVA, there were not significant differences among the Time1, Time2, Time3, and Time4. But in the results of the analysis of one-way ANOVA, there were significant differences ($p < 0.05$) among the domain of physical functioning, mental health and social functioning (Figure 1-B).

The scores of the items decreased, with the scores of the items within each domain decreasing from Q1 to Q4, from Q5 to Q8, and from Q9 to Q11. The items of each domain of SNEAT are listed in descending order of difficulty. As such, the hypothesis was verified because the scores of each domain were ranked in the descending orders of Q1 to Q4, Q5 to Q8, and Q9 to Q11 (Figure 1-C).



<Figure 1> Changes of the total scores, item scores and score of each domain in Miyagi.

(A) Changes of the total score, n = 55.

(B) Changes of the scores of each domain, one-way ANOVA was used, *p < 0.05, n = 55.

(C) Changes of the scores of each items, n = 55

3. Reliability of the SNEAT

The internal consistency reliability (Cronbach's α coefficient) ranged from 0.72 to 0.77 for all the domains, and the internal consistency reliability of all the items was 0.81 (Table 2).

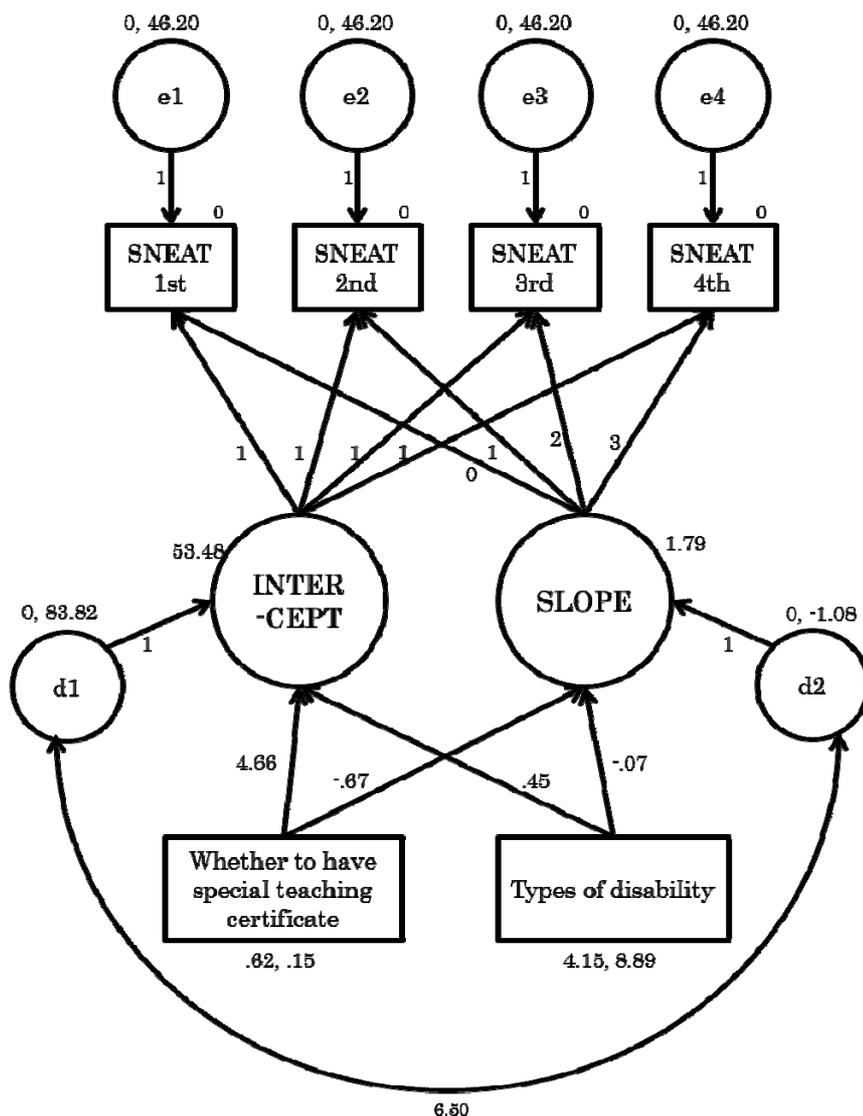
<Table 2> SNEAT scale scores and Reliability Score.

Constructs	Mean	SD	Cronbach's alpha if item deleted	Cronbach's alpha
Physical function				0.72
Q1	3.87	1.14	0.73	
Q2	2.69	1.25	0.63	
Q3	1.93	1.07	0.59	
Q4	1.53	0.88	0.65	
Mental health				0.77
Q5	3.76	1.00	0.76	
Q6	3.96	0.88	0.68	
Q7	3.75	1.11	0.63	
Q8	3.13	1.20	0.77	
Social functioning				0.75
Q9	3.62	1.03	0.75	
Q10	3.25	1.00	0.43	
Q11	3.42	1.17	0.78	
All item				0.81

Q1 - Q11, (1 = minimum, 5 = maximum) $\alpha > 0.70$, $n = 55$.

4. Validity of the SNEAT

As for the analysis via the latent growth curve model, SNEAT showed a high level of fitness: $\chi^2 = 13.422$; $DF = 13$; $P = 0.416$; $CFI = 0.997$; $TLI = 0.996$; and $RMSEA = 0.025$. The validity was verified because the values of CFI, TLI and RMSEA were within the goodness-of-fit range. As for the factors affecting the SNEAT scores, two factors were clearly identified: the teacher's possession of a special teaching certificate and the type of disability of the student. This means that these two variables affect the evaluation of the outcome of special needs education (Figure 2). Kohara, Han, Kwon, Kohzuki (2015) reported that the goodness-of-fit of model decreased when the four explanatory variables such as the period of teaching in special support schools, whether to have the special teaching certificate, school grades and the types of disabilities were included ($\chi^2 = 30.405$; $DF = 22$; $P = 0.109$; $CFI = 0.940$; $TLI = 0.924$; and $RMSEA = 0.084$).



<Figure 2> Latent curve analysis of SNEAT in Miyagi

χ^2 , DF, P, CFI; comparative fit index; RMSEA; root mean square error of approximation. $n = 55$, $\chi^2 = 13.422$, $DF = 13$, $P = 0.416$, $CFI = 0.997$, $TLI = 0.996$, $RMSEA = 0.025$.

IV. Discussion

In this study, the data from the research on Miyagi Prefecture were analyzed as the part of the nationwide research for the standardization of the SNEAT. This study was the first attempt to conduct the SNEAT in the Miyagi Prefecture and its reliability and validity were also verified.

As for the demographic information on the subjects of the research, the research was conducted for the similar number of students with that of the research on Okinawa Prefecture. As for the types of disabilities of the respondents, the proportion of students with multiple disabilities in the Miyagi Prefecture accounted for the biggest part of all

the respondents, which was the same state with the precedent study in Okinawa Prefecture. However, in the Miyagi Prefecture there was no student with physical disabilities or health impairments, but there were many students with intellectual disabilities. The average period of teaching of the evaluators of Miyagi Prefecture was longer than that of Okinawa Prefecture, but the average period of teaching in the field of special needs education was similar with that of Okinawa Prefecture. The proportion of evaluators with teaching license in Miyagi Prefecture was higher than that in Okinawa Prefecture. The total score and the scores of domains tended to be higher as the number of classes increased, the differences between classes were not significant. It was confirmed that the scores of items of each domains also tended to rank in the same order with the level of difficulty of items of each domain, which is the same results of precedent studies.

In the results of the validity via Latent growth curve modeling, it was confirmed that the two explanatory variables such as whether to have special teaching certificate and the types of disabilities affected the SNEAT scores. In the precedent study in Okinawa Prefecture, it was found that the four explanatory variables such as the period of teaching in special support schools, whether to have special teaching certificate, school grades and the types of disabilities affected the SNEAT scores and the goodness of fit of the model was excellent. However, in the study in Miyagi Prefecture, the goodness of fit of the model was not so good, when the four explanatory variables are included. In the Miyagi Prefecture, the period of teaching in special support schools or the grades that evaluators were in charge of didn't affect the scores. Since the results of this study were derived without considering the differences from the regions, the differences from the regions need to be studied more.

The results of the research in Miyagi Prefecture were reported through this article. For the standardization of the SNEAT, the collection and analysis of data need to be conducted via the nationwide research.

Acknowledgment

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(Kim, 2005)

Miyake, Friedman, Emerson, et al. (2000)

(Miyake, Friedman, Emerson, et al., 2000)

(Anderson, 2001; Anderson, 2002; Miyake, Friedman, Emerson, et al., 2000)

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