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교육학석사 학위논문

An Analysis of Perception on  
Lifelong Education for Persons  
with Developmental Disabilities  
using Semantic Network

언어 네트워크를 활용한  
발달장애인 평생교육에 대한 인식 분석

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## Abstract

# An Analysis of Perception on Lifelong Education for Persons with Developmental Disabilities using Semantic Network

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Inclusion and participation in all areas of community life, including independent living, form the critical objective of successful adult life. However, achieving this goal meaningfully and effectively for persons with developmental disabilities (DD) often remains elusive for the reason that they encounter various obstacles due to their intellectual characteristics and limitations and lack of adaptive behavior. Thus, the importance of continuous and systematic support through lifelong education is widely encouraged. In Korea, the government-led top-down policy unfortunately does not seem to fully reflect the

needs of individuals with DD.

This study aims to provide implications for policymakers by objectively visualizing the perceptions on lifelong education for persons with DD using semantic network analysis (SNA). The results are expected to reflect bottom-up perspective by portraying the other direction for better insight and meaning.

A total of sixty interviews were conducted among experts, teachers, adults with DD, and their parents. These data were analyzed using NetMiner 4.4. In particular, the top 110 keywords were extracted by analyzing the frequency of noun words in the entire interview data, and then the semantic network, degree·closeness·betweenness centralities, modularity cohesion analysis were conducted. To identify differences in perception, word frequency and centralities by groups were also analyzed.

The results were as follows. A total of 110 keywords represented a variety of issues, with 'job', 'demand', and 'program' being the most representative terms. The centrality analysis confirmed that 'friend', 'teacher', and 'parent' are potential factors affecting the operation of lifelong education. Besides, through modularity cohesion analysis, 4 communities, including daily life (G1), system (G2), operator (G3), and priority support area (G4), were clustered.

Analysis by groups showed differences in the critical issues of lifelong education recognized by each group. Experts asserted the need for a national-level curriculum or program for improvement. They suggested college or university as a lifelong education operator and pointed out that the legal and institutional foundations should be consolidated to better accommodate .the needs of such population. Special education teachers insisted on the development and application of programs considering the learner's adequate level, but they had

conflicting opinions on reviewing the same educational content of school education. Further, they argued the necessity of managing the quality of the centers for the DD. There was a mixture of positive and negative views about friends and parents in the interviews of adults with DD. These differences have also led to preferences for small classes or self-reliance preparation education. In addition, the areas of lifelong education programs required varied widely, including literacy, computers, leisure, job preparation, and driving. Further requirements for lifelong education programs were found to be a demand for more qualified teachers and accessibility or building nearby facilities. The perceptions of parents did not differ compared to other groups. Parents' perceptions showed the need for independence and vocational education, social adaptation, and improvement in social perception. Based on the results of the study and the previous literature review, implications and limitations were discussed.

**keywords : persons with developmental disabilities, lifelong education, perception, semantic network analysis**

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# I . Introduction

## A. Purpose of the Study

Inclusion and participation in all areas of community life, including living independently and having a relationship with others, form the critical objective of successful adult life. However, achieving this meaningfully and effectively for persons with developmental disabilities (DD) remains elusive (Carnaby, Roberts, Lang, & Nielsen, 2011). Because they encounter various obstacles due to their intellectual characteristics and lack of adaptive behavior (Kim et al., 2019), the importance of continuous and systematic support for adults with DD is widely recognized (Associate Ministries and Agencies, 2019).

Lifelong education, which develops the functional abilities after graduation to lead an independent life, has emerged as an essential topic of special education. Lifelong education for persons with DD includes all forms of education that happens in adult life (Kim, 2016). It can be seen as a second chance of all sorts allowing opportunities to develop oneself (Johnson, 2014).

Just like everyone else, lifelong education for persons with DD is not an alternative to other activities, but rather an activity of its purpose (Kim, Lee, Park, Huh, & Jeon, 2016). In that the majority of persons with DD are socially isolated and demand various educational supports after graduation (Lee & Huh, 2017), lifelong education also has great significance for improving the quality of life.

Recently, the government of the Republic of Korea also emphasized

lifelong education for persons with DD, which can be easily identified through the legislation and revision of statutes. Article 5, 33, and 34 of the 「Special Education Law」 stipulates that: “National Lifelong Education Promotion Center for Persons with Disabilities shall devise a plan for lifelong education, establish and operate a lifelong education curriculum, and develop a lifelong education program for persons with disabilities.” (Ministry of Education, 2016). In practice, the National Lifelong Education Promotion Center for Persons with Disabilities is conducting various research in an attempt to develop lifelong education curriculums and programs for persons with DD (Kim et al., 2019; Kim, Hong, Lee, Park, & Park, 2018a and 2018b).

Article 26 of 「Act on the Rights Security and Support for Persons with Developmental Disabilities」 also states that the government and local public organizations should designate lifelong education institutions to properly operate curriculums for the persons with DD (Ministry of Health and Welfare, 2017a). In short, policies and systems related to lifelong education for the persons with DD are receiving much attention, and there are attempts to derive practical directions.

In a similar vein, support plans at a national and local level are also establishing. According to 「2018 Lifelong Education Support Plan for Persons with Disabilities」, the Seoul metropolitan city will improve the quality of life for persons with disabilities through collecting primary data and connecting network (Seoul Metropolitan Government, 2018). Also, the government stated that it would establish an inclusive society in which persons with DD participate in the community by announcing 「Comprehensive Measures by Life Cycle for Persons with Developmental Disabilities」 (Associate Ministries and Agencies, 2019).

These social changes show that the current issue of lifelong education for persons with DD has gone beyond the stage of discussing appropriateness. Instead, it is time to establish and operate support strategies. What is noteworthy is that despite the enactment of laws and ongoing research, lifelong education for persons with DD is still relatively insufficient compared to other areas of disability in terms of quantity and quality.

According to a questionnaire survey conducted by Cho and Kim (2016), 44.8 percent of parents said their adult child with DD had no experience of lifelong education programs. Even if they experienced the program, it was challenging to find the spot because most of the existing programs were only allowing students under 18 years old (Kang, 2013; Kim & Na, 2015). Furthermore, lifelong education for adult were only short-term training or lectures (Yoon, Yang, Won, Kang, & Jung, 2010).

The contents of the program are also inadequate to deal with the abilities, interests, aptitude, and needs of persons with DD (Lee & Yoo, 2009). In summary, the current lifelong education does not reflect the needs of the persons with DD or their parents. It is only a government-led, top-down change that does not consider the resources or operational environment of the operating institutions, such as welfare centers and lifelong education centers.

As above, policy legislation that does not take into account the opinions of consumers and institutions can not have a positive impact on the participation of persons with DD in lifelong education. Daytime activities of adults with DD are being marginalized (Associate Ministries and Agencies, 2019), not meeting the objectives of special education, such as community adaptation and improvement of quality of life, suggesting that further improvement is needed. It would be

possible to come up with a practical alternative only when the bottom-up changes that reflect the needs of the various person in concern are harmonized.

Lifelong education for persons with DD is an important research topic that has recently attracted the attention of scholars. Among 25 research, 44 percent were questionnaire surveys, 36 percent were literature reviews, and 14 percent were qualitative surveys (Jin, 2018). However, the preceding research had limitations in understanding the perception of various subjects because of their research method or sampling of participants.

As is well known, a structured questionnaire is, no doubt, a powerful tool in research, but gathering quality responses were always a challenge (Dasgupta & Sengupta, 2016; Pattern, 2016). Although some studies attempted to understand the perceptions through the interview vividly, the qualitative research method inevitably leads to the involvement of the researcher's personal opinion (Veludo-de-Oliveira, Ikeda, & Campomar, 2006).

In terms of participants, previous questionnaire surveys or interview studies only recruited parents or employees of the institutes. Even if persons with DD were included, only a small number of them were selected, about one or two (Cho, 2018b; Lee, 2016; Lim & Choi, 2013). Much interest has been aroused in research targeting various parties since the results of previous studies could only indicate the perceptions of particular subjects.

In exploring the questions of lifelong education for persons with DD, this research focused on semantic network analysis (SNA). This technique is widely used recently to extract and analyze the frequency and distribution of words by separating large amounts of text data into morphemes (Jung, Lee, & Choi, 2018). Then, SNA goes

through the process of text extraction, text clearing, corpus formation, text analysis, and visualization (Silge & Robinson, 2017). Therefore, it is different from other methods in that large quantities of qualitative data can be analyzed more objectively.

This allows us to analyze the meaning of network and interpret phenomena through interaction relationships in language structure beyond simple keyword frequency analysis (Lee et al., 2017). In particular, SNA serves to collect and present public views from various backgrounds to be easy to understand (Song, 2017). As such, SNA can draw implications for government policymaking.

This research aims to take a bottom-up approach to analyze the perceptions of various subjects after conducting interviews on lifelong education for persons with DD. In that human converts concepts into semantic-based networks and stores them in memory (Eggen & Kauchack, 2007), SNA method is useful in identifying the relationships between keywords, while simultaneously examining the whole framework of lifelong education for persons with DD from a macro perspective. This study might propose plausible suggestions for further policy establishment and revision.

## B. Research Questions

This study addresses the following research questions:

**Question 1.** What are the most frequently used words and their frequency regarding perceptions on lifelong education for persons with DD?

**Question 2.** How is the semantic network and its cohesion of perception on lifelong education for persons with DD?

**Question 3.** What are the aspects of the semantic network by group?

## **C. Definition of Terms**

### **1. Persons with developmental disabilities**

According to Article 2, subsection 1 of the 「Disability Welfare Act」, persons with DD refer to people who have intellectual disabilities, autism spectrum disorder, or others who are significantly delayed in their daily lives or social life (Ministry of Health and Welfare, 2017b). In this study, people diagnosed with intellectual disabilities or autistic spectrum disorder based on the 「Disability Welfare Act」 are defined as persons with DD.

### **2. Lifelong education**

Lifelong education is defined as the vertical integration of an individual from birth to death, and the horizontal integration of all living spaces, including homes and schools (Cha, 2014). In other words, it refers to the formal, informal, and intangible educational activities that can satisfy a person's desire to learn according to their needs without being constrained by time and place.

Lifelong education, as defined in this study, is vertically limited to

adult education that takes place after the school year, and horizontally refers to all educational activities that take place across the board, including schools and communities.

### **3. Semantic network analysis**

SNA is a technique that measures the relational characteristics of different terms that make up the individual text, using text as the subject of analysis (Lee, 2014). Extraction of entities and their relations from text can reveal more valid semantic information and is generally needed to support inferences about perception buried in text data (Aggarwal & Zhai, 2012). The SNA used in this study refers to the selection of 110 keywords, the highest frequency, from interview data to form a semantic network, and identify clusters. These processes include comparisons among groups.

## II. Literature Review

The purpose of this study was to provide necessary data for policy-making by analyzing the perceptions of lifelong education for persons with DD using a semantic network. To this end, this study first took a theoretical review.

### A. Lifelong Education for Persons with DD

#### 1. Concept of lifelong education

With the advent of a knowledge-based information society, everyone can only interact in the community only if they continue to learn after the school year. In this vein, lifelong education is becoming more critical in terms of "education for all (EFA)" and the right to learn for entire life must be guaranteed.

Lifelong education began in 1965 when the UNESCO International Committee for the Advancement of Adult Education held, Lengrand suggested to approve the curriculum throughout their lives, from birth to death (Lengrand, 1965, quoted from Kim, 2019). In 1972, the concept and principle of lifelong education were adopted at the Third World Conference on Adult Education held in Tokyo, Japan, and it began to spread rapidly, and it was introduced in Korea in 1973 when UNESCO held a seminar for the development of lifelong education (Kim, 2019; Park, 2010). In 1980, the promotion of lifelong

education was presented in the Constitution as the primary duty of the State. As a result, Korea has become the first country to have a lifetime education-related decree as stipulated in the Constitution (Cha, 2014). As such, lifelong education was recognized for its legitimacy and importance within a short period and has become an indispensable part of today's society.

There have also been many changes and developments in the concept of lifelong education. The concept of lifelong education is not immutable because it develops dynamically according to the social environment and the times (Kim, 2018). Among other things, the widely used definition in Korea is based on the statute.

Lifelong education refers to all forms of systematic educational activities, including academic education, adult literacy education, vocational education, humanities education, education for culture and arts, and civic participation, excluding regular education courses in schools based on 「Lifelong Education Act」 (Ministry of Education, 2019b). In other words, it can be said to refer to all education for adults except for school-age education. However, according to Cha (2014), lifelong education is defined as the formal, informal, and intangible educational activities of 'lifelong' vertical integration and the 'life-wide' horizontal integration that can satisfy a person's desire.

Recently, there have been calls for the use of the term 'lifelong learning' should be used instead of 'lifelong education' (Tuijnman & Bostrom, 2002). Lifelong learning is often seen as a personal process. Conversely, lifelong education is an institutional fact, arising from and enacted by the social world, usually in the form of the provision of particular kinds of experiences (Billett, 2018). Nevertheless, these two terms are often seen as being synonymous, and lifelong education generally refers to adult education in the narrow sense.

## 2. The role of lifelong education for persons with DD

Since persons with DD are accessing not only adult education but social welfare centers as part of government policies toward greater inclusion, it should be in the interest of educators and policymakers to understand more about the role of lifelong education for persons with DD. Like the people without disabilities, they require lifelong educational support throughout their lives to successfully participate in community activities and improve the quality of life (Park, 2018). In particular, lifelong education for persons with DD can be interpreted as active support for education for marginalities.

Above all, lifelong education is significant in the extension of job development in adulthood. In particular, persons with DD have many difficulties in leading successful social life after graduation through regular education alone (Kim et al., 2019). Since they are not affiliated with a particular group of people or have unstable careers in adulthood (Kim & Hong, 2016), the need for lifelong education can be seen as more significant. Thus, more and more attempts have been made to lay the legal ground to ensure lifetime education opportunities for adults with DD.

The Korean legal basis is as shown in Table 1. There are five related laws with ten articles.

Table 1. Legal basis of lifelong education for persons with disabilities

legislation	article	legal basis
Constitution	Article 31	① Every citizen has the right to an equal education according to his or her abilities.
		⑤ The nation should promote lifelong education.

Table 1. Legal basis of lifelong education for persons with disabilities (continue)

legislation	article	legal basis
Basic Law of Education	Article 3	All people have the right to learn and be educated throughout their lifetime according to their ability and aptitude.
	Article 4	① All citizens are not discriminated against in education for reasons of gender, religion, belief, race, social status, economic status, or physical condition.
Lifelong Education Act	Article 19-2	① The nation has a National Center for the Promotion of Lifelong Education for the Persons with Disabilities in order to support tasks related to the promotion of lifelong education.
		② National Center for the Promotion of Lifelong Education for the Persons with Disabilities shall carry out the following tasks: <ol style="list-style-type: none"> <li>1. Support and survey for the promotion of lifelong education for persons with disabilities</li> <li>2. Tasks on the promotion of lifelong education for the persons with disabilities among the basic plans reviewed by the promotion committee</li> <li>3. Support for the development of lifelong education programs by disability type</li> <li>4. Training on employers working for lifelong education for persons with disabilities, Communication education for the public officers</li> <li>5. Construction of network among institutions regarding lifelong education for persons with disabilities</li> <li>6. Development of lifelong education curriculum for the persons with DD</li> <li>7. Development and dissemination of communication tools for the persons with DD</li> <li>8. Support for the development of schools and institutions that operate lifelong education programs for persons with disabilities</li> <li>9. Development and dissemination of lifelong education textbooks and materials by disability type</li> <li>10. other projects necessary for the performance of the purpose</li> </ol>

Table 1. Legal basis of lifelong education for persons with disabilities (continue)

legislation	article	legal basis
Lifelong Education Act	Article 20-1	<p>① The national, local governments and education superintendents may set up, designate, and operate life education facilities for persons with disabilities in order to provide them with opportunities for lifelong education programs.</p> <p>② If a person other than the state, local autonomous government, or education superintendent wants to set up a lifelong education facility for the persons with disabilities, he/she shall register with the superintendent with facilities and facilities prescribed under the Presidential Decree.</p> <p>③ The state and local governments can support the expenses needed to operate the facilities for persons with disabilities in the budget.</p>
	Article 21-2	<p>① The head of kindergartens and schools may set up and operate a lifelong education course for children or students with disabilities for continuing education in consideration of the educational environment of the schools concerned.</p> <p>② Lifelong education institutions can set up and operate additional courses for persons with disabilities in order to expand opportunities.</p> <p>③ The Center for Promotion should develop strategies to expand the lifetime education opportunities for persons with disabilities and programs for them.</p> <p>④ The Institute for Lifelong Education Promotion shall support lifelong education institutions to set up and operate lifelong education courses for persons with disabilities.</p>
	Article 26-3	<p>③ Lifelong educator shall be assigned to the Institute for Lifelong Education under Article 20, the facilities for lifelong education for persons with disabilities, and the lifelong learning facilities.</p>

Table 1. Legal basis of lifelong education for persons with disabilities (continue)

legislation	article	legal basis
		② Minister of Education shall develop communication tools necessary for learning so that persons with DD can express their opinions smoothly and train communication support professionals to provide necessary education through schools and lifelong education institutions to help the persons with DD
Act on the Rights Security and Support for Persons with DD	Article 26	<p>① The state and local governments should designate lifelong education institutions in each region to properly operate education courses for the persons with DD so that they can be given sufficient opportunities for lifelong education.</p> <p>② The criteria and procedures for designation of lifelong education institutions, standards for curriculum for persons with DD, and requirements for education service personnel shall be established by the Minister of Education in consultation with the Minister of Health and Welfare.</p> <p>③ The state and local governments may provide all or part of the expenses necessary for the operation of the curriculum for persons with DD within the scope of the budget for lifelong education institutions.</p>
Welfare Act for Persons with Disabilities	Article 20-1	① The state and local governments should devise necessary policies, such as improving the contents and methods of education, so that persons with disabilities can be fully educated according to their age, ability and type and degree of disability, according to the ideology of social integration.

As presented in Table 1, the Constitution of Korea and the Basic Law on Education specify that all citizens should be educated without discrimination by age or circumstances. Furthermore, the Welfare Act for Persons with Disabilities includes the need to receive sufficient education, and the revised Lifelong Education Act also emphasizes

continuing education and lifelong education for persons with disabilities. In the Act on the Rights Security and Support for Persons with DD, which clearly defines lifetime education for persons with DD, the need for communication education and the establishment and operation of institutions are mainly concerned.

It should be noted that developmental disabilities are the only of various types of disability to reveal the importance of lifelong support through separate legislation (Ministry of Health and Welfare, 2017). This shows that persons with DD, who are limited in collecting and deciding information on their own, should be supported through systematic legislation and institutions. However, the government-led top-down changes made in a short period are facing practical challenges. There is a lack of operating institutions and a lack of program diversity and accessibility (Yoon, Kim, & Kim, 2016). Therefore, it can be inferred that lifelong education for the persons with DD needs a differentiated approach in selecting topics or teaching methods, unlike previous courses centered on persons without disabilities, which was also pointed out by Kim (2018b).

As a result, through continuous research, status, recognition, and demands experienced by persons with DD, parents, experts, and others should be suggested as a policy proposal. Based on this need, the number of studies related to lifelong education for persons with DD is rapidly increasing, and the implications of the previous studies conducted in Korea are outlined in Table 2.

Thirty-eight studies were categorized according to the purpose of the study. There were 21 studies which surveyed perceptions and needs (70%), seven literature review studies (23.3%), four studies analyzed current status (13.3%), two studies developed curriculum or program (6.7%), two studies developed a model (6.7%) and two case studies (6.7%).

Table 2. Implications from preceding research

research purpose	author (year)	subjects (n)	research method	implications <sup>1)</sup>									
				ST	GA	IE	CR	NS	SS	PF	IV	CC	PD
curriculum or program development	Kang (2016)	persons with DD (20)	FGI, delphi, program effectiveness analysis				○	○	○				
	Kim (2016)	report (1), research (1), parents (307)	literature review, questionnaire survey	○	○	○		○				○	
model development	Kim & Kim (2015)	parents (3), employers (9), experts (3)	FGI			○	○	○					
	Kim et al. (2019)	parents, employer etc. (19)	FGI etc.	○				○		○		○	
literature review	Kim & Park (2010)	researches (32), programs (23)	literature and program review		○	○	○	○	○	○	○	○	○
	Kim & Lee (2011)	programs (14)	program review			○		○					
	Kim & Kang (2012)	literature, program	literature and program review	○		○		○	○	○			○
	Jung (2012)	legislation (3) website, research	literature review			○	○	○					

1) Sub-titles of Implications are given in abbreviations: (1) ST = specialist training, (2) GA = guarantee of accessibility, (3) IE = inclusive environment, (4) CR = continuous research, (5) NS = national support, (6) SS = support system, (6) PF = people first, (7) IV = independence and vocational education, (8) CC = consideration on personal characteristics, (9) PD = program development

Table 2. Implications from preceding research (continue)

research purpose	author (year)	subjects (n)	research method	implications									
				ST	GA	IE	CR	NS	SS	PF	IV	CC	PD
literature review	Cho (2014)	legislation	legislation review		○	○						○	○
	Jin (2018)	researches (25)	literature review	○	○		○	○	○	○			○
	Hong & Cho (2018)	researches (39)	literature review		○							○	○
case study	Park (2004)	parents (15), persons with DD (15), employer (1)	evaluation				○	○	○				
	Jung (2017)	parents (21)	questionnaire survey, in-depth interview	○			○	○		○		○	
status analysis	Kim (2011)	parents (300)	questionnaire survey		○		○						
	Shin (2015)	employers (3), parents (5)	in-depth interview				○	○				○	○
	Na & Kim (2017)	employers (3), parents (3)	questionnaire survey, in-depth interview	○	○						○		○
	Cho (2018a)	persons with DD (241)	questionnaire survey				○				○		○
survey on needs of persons with DD	Park et al. (2018)	persons with DD (10)	in-depth interview	○	○	○	○				○		○

Table 2. Implications from preceding research (continue)

research purpose	author (year)	subjects (n)	research method	implications										
				ST	GA	IE	CR	NS	SS	PF	IV	CC	PD	
survey on perception and needs of parents	Lee & Yu (2009)	parents (152)	questionnaire survey			○	○	○	○					
	Lee (2014)	parents (10)	in-depth interview	○	○		○	○				○	○	○
	Kim & Na (2015)	parents (500)	questionnaire survey		○	○	○				○	○		○
	Baek (2015)	parents (205)	questionnaire survey	○						○		○		○
	Kim et al. (2016)	parents (607)	questionnaire survey	○	○		○	○			○			○
	Son et al. (2016)	parents (5)	in-depth interview	○	○		○			○	○	○	○	○
	Cho & Kim (2016)	parents (607)	questionnaire survey				○			○				○
	Lee et al. (2017)	parents (158)	questionnaire survey	○	○	○		○	○			○		○
	Kwon & Kwak (2018)	parents (5)	in-depth interview	○				○	○	○	○	○	○	
	Jeon (2018)	parents (222)	questionnaire survey					○	○			○	○	
survey on perception and needs of experts	Kim (2015)	experts (7)	in-depth interview		○		○	○	○					○
	Kim (2018)	experts (30)	Delphi	○	○		○	○	○			○	○	

Table 2. Implications from preceding research (continue)

research purpose	author (year)	subjects (n)	research method	implications										
				ST	GA	IE	CR	NS	SS	PF	IV	CC	PD	
survey on perception and needs of employers	Jung & Lee (2016)	employers (5)	in-depth interview					○	○	○				○
	Kim (2017)	employers (30)	Q method							○				
	Cha & Hwang (2017)	employer (1)	autoethnography	○							○	○		
	Kim (2018)	employers (5)	in-depth interview				○					○	○	
	Yu & Han (2019)	employers (9)	FGI	○						○		○	○	○
survey on perception and needs of various relevant parties	Lim & Choi (2013)	persons with DD (2), parent (1), employers (6), experts (2)	in-depth interview			○	○	○				○	○	
	Lee (2016)	persons with DD (2), parents (273), employers (8)	questionnaire survey, interview	○	○	○		○			○	○	○	○
	Cho (2018b)	report (1), persons with DD (1), parent (1), expert (1), employers (2)	literature review, FGI		○			○						○
total		38		17	17	16	21	22	16	15	18	16	18	

Survey on perception and needs were again classified by research subjects. Ten studies were conducted by parents (47.6%) and five by employers (23.8%). There were two studies by persons with DD and experts (9.5%), one study on persons with DD (4.7%). Furthermore, three studies surveyed various relevant parties (14.3%).

The implications of preceding researches were followed. First, the importance of active policy support has been proposed in general. Specifically, financial support and legislation enactment are needed at government level (Cho, 2018b; Jin, 2018; Kim, 2015; Kim & Kang, 2012; Kim, Park, Park, Yoon, & Cho, 2016; Lee, 2016; Lee & Yoo, 2009). In making policies, it was recommended to take into account the conditions of the operating institutions (Jung & Lee, 2016; Kim, 2016) and to support education expenses by introducing a lifelong education voucher system (Lee, 2016).

Second, it was pointed out in several preceding studies that research should continue in various fields, and specifically, there was an urgent need to collect opinions from various subjects, including the adults with DD and experts (Kim & Na, 2015; Kim et al., 2016; Lee & Yoo, 2009). Through this analysis of needs, more diverse programs have to be developed, and it has also been suggested that independence and employment required in adulthood to be an essential part of the program (Baek, 2015; Son, Kang & Lee, 2016; Kwon & Kwak, 2018; Lee, 2014; Yoo & Han, 2019). In particular, some studies found that most centers only open during the daytime (Cho & Kim, 2016; Kim et al., 2016).

Third, the accessibility of lifelong education institutions should be increased, with professionals residing to understand the characteristics of persons with DD and to adjust the curriculum. Especially for professional personnel, national-level qualification management is

required, and the number of assistant staff should be increased, depending on the circumstances (Kim, 2018; Na & Kim, 2017; Park et al., 2018). It is also possible to actively utilize resources in the region as well as the establishment of specialized institutions. Cho (2018b) even advocated home visiting education.

Fourth, Lifelong education for persons with DD should be operated in an inclusive environment, including universities, and this requires the establishment of an integrated support system. Similarly, personal factors, including the degree of disability and characteristics, should be reflected in the program, and individual approaches should be ensured for this purpose (Lee, 2016; Son et al., 2016). It was also proposed that a control tower or a dedicated department should be established to create an integrated support system (Kim et al., 2016).

Finally, there was a discussion that opinions of persons with DD should be prioritized and that the government should provide opportunities for education to improve social awareness for all citizens including parents (Kim, 2018; Kim & Kang, 2012; Park et al., 2018; Jung, 2012). As mentioned, studies in this area have continued and provided critical implications. However, researches should be continued, given that research subjects are still limited, and those research methods were limited to questionnaire surveys, interviews, and literature reviews.

## **B. Semantic Network Analysis**

Originated from social science research, SNA is a set of analytical tools that can be used to identify networks of relationships or words (Cross, Parker, & Sasson, 2003), and provides an essential means of

assessing and implementing changes to improve the overall networks. It has gained widespread interest due to tremendous amount of textual data available in various format. It is popularly used to extract specific information from a large amount of textural data (Ando, Morita, & O'Connor, 2007). It is considered as a navigation aid to explicit and tacit perception throughout the persons concerned by providing an essential means of analyzing unstructured text systematically (Chan & Liebowitz, 2006). SNA also enables the quantification and graphing of the relationship among words within the network (Perra & Fortunato, 2008). It makes the hidden network of relationships among the text seem visible and thus gives valuable inputs.

Theories about cognitive processes, such as the construction of meaning, mental models, and knowledge representation, are the theoretical foundation of SNA (Carley, 1993). Terms which occur frequently in a document may reflect its meaning more strongly than other terms that occur less frequently (Jurafsky & Martin, 2000). The co-occurrence of certain words makes it possible to infer the subject of a text (Upshall, 2014). Specifically, SNA is gaining more importance in analyzing unstructured textual data to retrieve critical information about a particular subject. It has made significant contributions to a variety of fields, including social psychology, sociology, anthropology, epidemiology, management studies (Cross, 2004), and network studies (Kleiner, 2002, as cited in Chan & Liebowitz, 2006).

The five advantages of network analysis are as follows. First, large amounts of data can be analyzed efficiently and results are produced based on statistical calculations (Kim, Kang, & Byun, 2015). Second, there is the potential to visually understand and interpret the

relationship between the keywords and other words. Third The frequency and role of the keywords and the structure of a particular meaning can be identified (Paranyushkin, 2012). Fourth, quantitative and qualitative methods may be applied simultaneously (Park & Jung, 2013). Fifth, cohesion analysis allows the identification and interpretation of statistically significant clusters.

By visualizing the links of the entities in the form of network, SNA expresses each entity constituting social phenomena as a node and identifies the relationship between the most important nodes (Scott, 1988). Since meaning can be understood as relations among words with multiple dimensions, words can be understood as nodes linked in relationships of facilitated and inhibited association (Rice & Danowski, 1993). It is the use of network analytic techniques on paired associations based on shared meaning as opposed to paired associations of behavioral or perceived communication links (Doerfel, 1998). In other words, SNA maps concepts with one another and hence enables visualization of the web of meaning contained within a text (Carley, 1993).

Generally, it is possible to determine centrality according to the level of analysis, which includes degree centrality, closeness centrality, and betweenness centrality. These indicators can be used to rank the size of the influence of keywords and the major issues in the overall perception network (Lee, Yoon, & Lee, 2018).

Perceptions within a particular context have previously been represented as semantic networks where the relations, or links, between concepts relevant for the context, nodes, form cognitive patterns (Bodin, 2012; Carely & Palmquist, 1992). Given these features of SNA, this method is especially suited to finding out perceptions.

### III. Method

#### A. Participants

This study recruited a total of 60 participants, including 15 experts, 15 special teachers, 15 adults with DD, and 15 parents. Participants in this study had extensive experience in lifelong education of adults with DD and described precise needs or perceptions. The criteria for recruiting participants is shown in Table 3.

Table 3. Criteria for selecting participants

<b>participants</b>	<b>n</b>	<b>criteria</b>
expert	15	<ul style="list-style-type: none"><li>- A person with a master's degree or higher in related major</li><li>- A person who conducts related research</li><li>* related major: special education, social welfare, lifelong education, vocational rehabilitation, etc.</li></ul>
special teacher	15	<ul style="list-style-type: none"><li>- A person with a certificate of secondary special teacher</li><li>- A person who teaches adolescents with DD at a special class or school</li></ul>
adult with DD	15	<ul style="list-style-type: none"><li>- A person diagnosed with DD (ID or ASD)</li><li>- A person over 18 years old</li></ul>
parent	15	<ul style="list-style-type: none"><li>- A parent of an adult with DD</li></ul>
total	60	

The reasons for dividing participants into four groups are as follows: Persons with DD and their parents are the prospective consumer of the lifelong education program. Experts can be seen as

suppliers who enrich the substance of lifelong education and design programs. By interviewing both sides, this study could reflect both the position of the consumer and the supplier, and to make group comparisons. Besides, there has been a constant need to link schools to lifelong education (Baek, 2015; Kim, 2016; Kim & Kim, 2015), and lifelong education is gradually developing into a broad concept that encompasses the whole life (Field, 2001). For this reason, special teachers were included. Table 4 presents the general background of the participants.

Table 4. General background of participants

<b>group(n)</b>	<b>background</b>	<b>n(%)</b>	<b>group(n)</b>	<b>background</b>	<b>n(%)</b>				
experts (15)	gender	male	8(53.3)	adults with DD (15)	gender	male	8(53.3)		
		female	7(46.7)		female	7(46.7)			
	age	30-39	5(33.3)		age	20-29	8(53.3)		
		40-49	2(13.3)		30-39	7(46.7)			
		50-59	8(53.3)		disability type	ID	14(93.3)		
	area	special education	7(46.7)		ASD	1(6.7)			
		social welfare	5(33.3)		gender	male	2(13.3)		
	lifelong education	3(20.0)	female			13(86.7)			
	special teachers (15)	gender	male		5(33.3)	parents (15)	age	40-49	3(20.0)
			female		10(66.7)			50-59	9(60.0)
age		20-29	2(13.3)	60-69	2(13.3)				
		30-39	5(33.3)	70-79	1(6.7)				
		40-49	7(46.7)	disability type of adult child	ID			12(80.0)	
		50-59	1(6.7)	ASD	3(20.0)				
		total						60	

Interview data from a total of 60 participants in the study were first analyzed. Then, group-by-group differences were identified. Because Lim and Lee (2013) clarified that the SNA study showed more than 90 percent stability when there were at least 11 interviewers, 15 people were recruited for each group. They were selected by convenience sampling.

## B. Data Collection

This study conducted a face-to-face interview to collect interview data to be used in SNA. The place and time of the interview were determined at the request or convenience of the participants. Specific procedures that have been taken in are as follows.

First, participants were initially informed about the purpose and process of the study. After receiving consent, the focus question was sent by e-mail a week before the interview, and it was noticed that they could contact the researcher whenever they had questions. The focus question of this study was developed under the review of two special teachers and one master's degree student in special education.

Second, the interview was conducted in a quiet place to obtain a more vibrant story in a stable atmosphere as much as possible. Rapport formation time was allocated separately. The researcher also informed in advance that there is no fixed answer to the questions.

Third, the interviews lasted about 50 to 60 minutes. The focus question was, 'What should lifelong education be for persons with DD?'. For most participants with DD, this focus question was too difficult to understand. In that case, the researcher gave easy

definitions and examples. If participants with DD still have difficulty in understanding the focus question, the researcher provided the more straightforward question: “What kind of activities or classes do you wish to participate in?”

Fourth, after the interview, the existence of other opinions or questions were checked to obtain more information. The researcher asked for consent to contact them if there are any questions about the contents of the interview.

### **C. Data Analysis**

This study aimed to provide in-depth and filtered objective data by analyzing interview data on lifelong education for persons with DD via SNA. To fulfill the aim of this study, the following process of data analysis was conducted.

Data analysis involves three major processes: (1) text selection, (2) data cleaning, and (3) semantic network analysis. First, the interview recording file was transformed into transcripts using the Hangul program. Answers unrelated to the topic have been removed, and the meaningful text was extracted. Second, data cleaning was performed. The researcher made and revised the list of the thesaurus, defined words, and exception words by continually reviewing the results. Third, keyword frequency analysis, SNA, and cluster analysis were performed. The detailed data analysis process is described below.

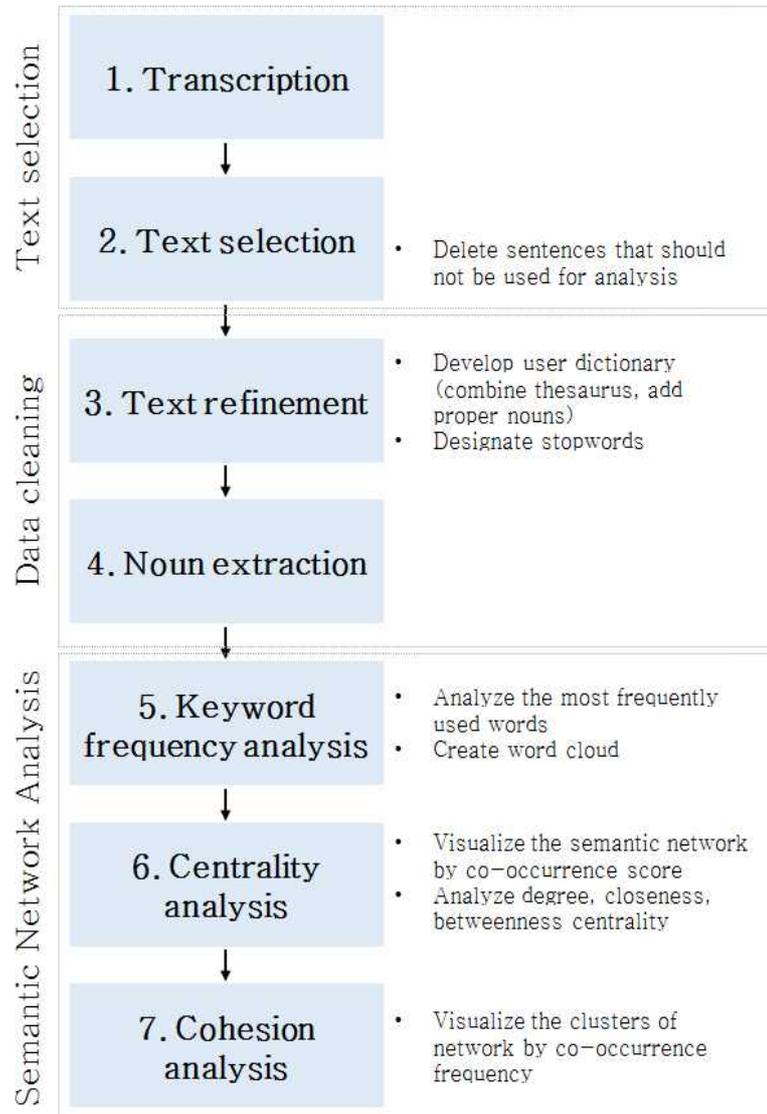


Figure 1. Process of data analysis

## 1. Transcription and selection of text

The first step in selecting the text involved the transcription of interview data using the Hangul, and the compilation of statements to exclude interview content not required for analysis.

### 1) Transcription

The interview data collected was documented manually. The statements were spelled correctly according to the rules of orthography for further analysis. The recordings were checked more than once to ensure the accuracy of the contents of the transcription. Additional information was obtained from participants regarding ambiguous answers. All transcriptions consisted of 363,171 Korean characters, 90,031 words, and 234 pages.

### 2) Selection of Text

Sentences that should not be used for analysis were excluded. The Rapport formation section, interviewer's questions or statements, the personal information of the participants, and personal stories unrelated to the questions were deleted.

## **2. Data cleaning**

Text analysis is a relatively new area of research. One of the essential tasks in SNA is to convert the unstructured text into a structured form. Therefore, data cleaning was conducted using NetMiner 4.4 (Cyram, 2018). The steps of text refinement and noun extraction were conducted repeatedly until no errors were found.

### 1) Text refinement

Unrelated terms that did not function as the core concept of the study were excluded. Nouns, such as '발달장애' (developmental

disabilities),’ ‘평생교육 (lifelong education),’ were excluded because they could not convey useful information even with high frequency. Thesaurus, including similar keywords, abbreviations, and foreign words, were combined as synonyms. Examples of text refinement are shown in Table 5.

Table 5. Examples of text refinement

criteria	examples
unrelated words	결국 (finally), 그동안 (meanwhile), 글썄 (well), 지난번 (last time), 며칠 (few days), 무언가 (something), geographical nouns indicating gu(borough) or dong (i.e. 강서구 (Gangseo-gu), 남구 (Nam-gu)), personal names (i.e. 박원순 (Park Won-soon), 방탄소년단 (BTS), 안철수 (Ahn, Cheol-soo)) etc.
topic words	발달장애 (developmental disabilities), 아스퍼거 증후군 (Asperger syndrome), 지적장애 (intellectual disabilities), 정신지체 (mental retardation), 자폐성장애 (autism spectrum disorder), 장애 (disability), 평생교육 (lifelong education)
thesaurus	근처 (nearby, 인근, 부근, 근거리), 국공립 (national, 국립, 공립), 가난 (poverty, 궁핍, 빈곤), 걱정 (concern, 고민, 고민거리, 염려, 우려), 계획 (plan, 플랜), IEP (개별화교육계획), ITP (개별화전환계획), 나이 (age, 연령), 다양 (variety, 버라이어티), 대학 (college, 대학교, 캠퍼스), 시스템 (system, 체계, 체제), 수업료 (tuition, 수강료, 교육비), 인프라 (resource, 자원, 소스), 절차 (procedure, 과정, 프로세스), 학습 (learning, 공부, 스터디) etc.

Besides, paragraphs have been organized for co-occurrence analysis. The answer to the same question was determined as a paragraph.

## 2) Noun extraction

All nouns presented in the data were extracted. Proper nouns that were not recognized by the NetMiner 4.4 (Cyram, 2018) were then registered in the user dictionary. For instance, ‘보건복지부 (Ministry of Health and Welfare)’, ‘평생교육사 (lifelong educator)’, ‘도전적 행동 (challenging behavior)’ and ‘국가장애인평생교육센터 (National Lifelong Education Center for Persons with Disabilities)’ were defined as proper nouns. This process was conducted repeatedly until no errors were found. As a result, 2,405 nouns were extracted.

## 3. Semantic network analysis

SNA measures the network of concepts in a body of text through the analysis of word frequency and centrality, which shows the position and significance of a word in relation to other words in the network (Freeman, 1978; Wasserman & Faust, 1994). It also depicts concept associations by distinguishing clusters within each semantic network (Diesner, Aleyasen, Kim, Mishra, & Soltani, 2013). SNA is therefore used in this study to trace subtle patterns in communication texts and to explore the relationships between the different values. Through network analysis, we can read the trends with its temporal changes, and understand the similarities of perceptions between interviewers by measuring the relationship between words shown in the text (Cyram, 2018).

In this study, keyword frequency analysis and semantic network analysis were applied to examine the frequency and centrality of words. NetMiner 4.4 (Cyram, 2018) visualized an interconnection

between keywords and investigated their frequency to construe the perceptions. The following is a more detailed description of each procedure.

#### 1) Keyword frequency analysis

Saiz and Simonsohn (2008) gave substantial evidence that the frequency occurrence of words represents the actual likelihood of the phenomenon (as cited in Dasgupta & Sengupta, 2016). Hence, keyword frequency analysis was taken into consideration. After arranging nouns in order of their frequency of appearance, the top 110 words were presented as a result. Word cloud was created using the top 500 words by frequency.

#### 2) Semantic network analysis

Keyword frequency might be limited in explaining the context between the keywords; further analysis of networks was conducted to focus on the relationship between the keywords based on the co-occurrence. Instead of paying attention to each word, it is to explore which 'location' the keyword is in, and which 'structure' is forming the entire data (Wasserman & Faust, 1994).

SNA is an analytical method to understand hidden structure by analyzing the connective structure of core language visibly and quantitatively (Kwon, 2016). Their chance of co-occurrence rises when there is an active link among words (Rice & Danowski, 1993).

As the number of nodes and their links can be excessively large and complex when all keywords are included (Jang, Chang, & Lee, 2011), visualizing the results can be difficult. Therefore, based on the

Zipf's law, which states that words that appear more frequently are of higher importance (Zipf, 2013), 110 keywords that were appeared more than 50 times were selected for the network analysis.

To figure out how close a word is to the center of the issue in a network, centralities were measured. There are three fundamental approaches to check centrality: degree, closeness, and betweenness. First, degree measuring of the words in the network is the simplest and most straight-forward way to determine centrality (Chan & Liebowitz, 2006). Words which have high degree are more powerful and influential, in that degree is the number of direct links a word has. Since the extracted keywords from interview data are un-directed, the in-degree and out-degree centralities were exactly the same.

Second, closeness focuses on how close a word is to all the other words in the network (Freeman, 1978). It is widely accepted that a word is central if it can access all other words more instantly (Chan & Liebowitz, 2006). Unlike degree centralities, closeness centralities even indicates the distances among indirect words as well as direct words, researchers concede that closeness centralities may compensate degree centralities (Jang & Kang, 2018).

Third, betweenness is the extent to which a particular word lies between the various other words in the network (Freeman, 1978). In other words, when a word is in geodesic, the score of betweenness centrality become the highest. The word with high betweenness plays an important gatekeeper role with a potential for control over others, and it has great influence over the network (Hanneman & Riddle, 2005). The removal of a keyword with high betweenness centrality can cause difficulties in communication (Park, Kim, & Park, 2013).

### 3) Cohesion analysis

This study also conducted a cohesive analysis using the top 110 keywords with high frequency. CNM (Clauset–Newman–Moore) algorithm of modularity suitable for extensive data was applied. Modularity is widely used as an indicator to measure whether clustering has been successful, and it can be calculated by ‘links in the current group’ minus ‘the random network links within the group expected from’ (Clauset, Newman, & Moore, 2004). As the NetMiner 4.4 (Cyram, 2018) combines keywords, it selects the combination that increases modularity the most at each step to obtain the number and size of the cluster.



Table 6. Result of word frequency analysis (appeared more than 50 times)

rank	word	fre	rank	word	fre	rank	word	fre	rank	word	fre	rank	word	fre
1	직업 (job)	578	12	지속 (continuance)	214	23	내용 (content)	155	34	걱정 (concern)	115	45	영역 (area)	95
2	요구 (demand)	494	13	사회 (society)	209	24	집 (house)	153	34	이용 (usage)	115	46	국가 (nation)	94
3	프로그램 (program)	425	14	당사자 (the person in concern)	204	25	운영 (operation)	148	36	법 (law)	114	47	지역사회 (community)	91
4	친구 (friend)	365	15	부모 (parent)	184	26	생활 (living)	143	36	수준 (level)	114	48	장애인 (persons with disabilities)	89
5	교사 (teacher)	331	16	대학 (college)	179	26	중요 (importance)	143	38	시스템 (system)	111	49	성인기 (adulthood)	87
6	교육과정 (curriculum)	330	16	학습자 (learner)	179	28	절차 (procedure)	133	38	대상 (subject)	107	49	졸업 (graduation)	87
7	지원 (support)	285	18	센터 (Center)	178	29	복지관 (welfare center)	129	40	수업 (class)	105	51	개발 (development)	86
8	어머니 (mother)	274	19	정도 (degree)	173	29	삶 (life)	129	41	중도 (severe)	103	52	다양 (variety)	85
9	기관 (institute)	271	20	성인 (adult)	171	31	시설 (facility)	127	42	개념 (concept)	101	52	참여 (participation)	85
10	학교 (school)	238	21	학습 (learning)	169	31	평생교육센터 (lifelong education center)	127	43	개인 (individual)	100	54	경도 (mild)	84
11	돈 (money)	233	22	문제 (problem)	162	33	시간 (time)	125	43	일반 (general)	100	54	노래 (song)	84

Table 6. Result of word frequency analysis (appeared more than 50 times) (continue)

rank	word	fre	rank	word	fre	rank	word	fre	rank	word	fre	rank	word	fre
54	서비스 (service)	84	67	연구 (research)	78	78	상황 (situation)	69	89	전문가 (expert)	64	99	역할 (role)	55
54	이해 (understanding)	84	67	지역 (local)	78	78	현장 (on-the-spot)	69	90	마음 (mind)	62	99	컴퓨터 (computer)	55
58	복지 (welfare)	83	69	접근 (access)	76	80	그림 (drawing)	68	90	비장애인 (people without disabilities)	62	102	감정 (feeling)	54
58	집단 (group)	83	70	역량 (ability)	75	80	서울특별시 (Seoul)	68	92	가족 (family)	60	102	진행 (progression)	54
60	특수 (special)	82	71	나이 (age)	74	80	여자 (female)	68	92	시작 (start)	60	102	통합 (inclusion)	54
61	학령기 (school age)	81	71	선택 (choice)	74	80	훈련 (training)	68	94	제공 (provision)	59	105	기준 (standard)	53
61	활동 (activity)	81	71	자립 (independence)	74	84	보호 (care)	67	94	중심 (center)	59	105	평생교육사 (lifelong educator)	53
63	대중교통 (public transport)	80	74	계획 (plan)	72	84	운동 (sports)	67	96	특수교사 (special teacher)	58	107	경험 (experience)	51
63	연계 (connection)	80	74	방법 (method)	72	86	가능 (possibility)	66	97	방향 (direction)	57	107	아들 (son)	51
63	취직 (employed)	80	76	욕구 (desire)	71	86	고등학교 (high school)	66	98	전문 (professional)	56	107	여가 (leisure)	51
66	의미 (meaning)	79	76	혼자 (alone)	71	86	특성 (characteristics)	66	99	사업 (project)	55	110	관리 (management)	50

A keyword with the highest frequency was ‘직업 (job, 578)’, followed by ‘요구 (demand, 494)’, ‘프로그램 (program, 425)’, ‘친구 (friend, 365)’, ‘교사 (teacher, 331)’, and ‘교육과정 (curriculum, 330)’. The interesting point was that along with ‘직업 (job)’, ‘취직 (employed, 80)’, and ‘자립 (independence, 74)’ was also actively mentioned. It can be seen that the main issue of adults with DD is self-reliance through employment, and the educational demand for lifelong education is not much different. Statements related to these keywords were as follows.

“성인 발달장애인이라고 하면 자립생활이 제일 클 것이고. 이제 혼자 살아나가는 법을 배워야죠. 평생 부모의 도움을 받을 수는 없으니까. 이제 혼자서 살아 나가려면 돈이 필요하겠죠? 그러니까 그 다음은 직업생활이지. 무슨 일을 하고 싶고 할 수 있는지. 일자리는 어떻게 구하는지.” (전문가 6, p.34)

*“Self-reliance is the most important thing if you’re an adult with DD. Now they should learn to live alone. They can’t get lifelong parental help. They need money to live alone. So then they need a career. They need to know what they want to do, what they can do, and how to get a job.” (expert 6, p.34)*

“결국 직업적 자립을 가져야지 사회적인 자립이 이루어진다는데... (중략) 평생교육에서도 일상생활로 초점이 바뀌고 자립으로 목적이 바뀌어야 하는데 지금은 일반 교육하고 크게 차이가 없는 것 같아요.” (특수교사 12, p.114)

*“And finally, it’s possible to be self-reliant through vocational independence. (interruption) Even in lifelong education, the focus should be changed to daily life, and the purpose should be changed to self-reliance, but I don’t think it’s much different from general education now.” (special teacher 12, p.114)*

There were also many comments on the program’s contents. In addition to ‘프로그램 (program)’, ‘내용 (content, 155)’, ‘영역 (area, 95)’, and ‘활동 (activity, 81)’ were appeared. Detailed needs for activities,

such as ‘학습 (learning, 169)’, ‘노래 (song, 84)’, ‘그림 (drawing, 68)’, ‘운동 (sports, 67)’, ‘컴퓨터 (computer, 55)’, and ‘여가 (leisure, 51)’ were mentioned.

“그러니까 글을 읽고 쓰는 공부나 아니면 수학 연산을 하는 것처럼 교육다운 교육이 필요하다는 거죠” (특수교사 12, p.118)

“So you need a decent education, like reading and writing, or calculating” (special teacher 12, p.118)

“이 아이는 그냥 일반인들을 위한 평생교육에서 교육을 받다가 지금은 나가 지 않고 그냥 집에서 자기 혼자 그림을 그리고 있는 현실이에요. 이런 아이가 가야할 곳이 필요하다고 생각을 해요.” (부모 6, p.140)

“She took a lifelong education class for general people, and now she doesn’t go. She’s just painting by herself at home. I think she needs a place to go.” (parent 6, p.140)

Keywords related to top-down strategies like ‘교육과정 (curriculum)’ were presented as well. For instance, ‘법 (law, 114)’, ‘시스템 (system, 111)’, ‘국가 (nation, 98)’, and ‘기준 (standard, 53)’ were appeared a lot.

“우리나라는 시스템이 그게 안 되잖아요. 이 분이 뭘 하고 싶은지 어떤 삶을 살고 싶은지에 대한 고민이 충분히 이루어지지 않다 보니까... (중략) 과연 맞는 방향성대로 가고 있는지는 되게 의문이에요.” (전문가 7, p.40)

“That’s not how the system works in Korea. There was not much concern about what they want to do and what kind of life they want to live. (interruption) I’m not sure if we’re going in the right direction.” (expert 7, p.40)

“우리 부모가 아닌 국가에서 진짜 이런 것들을 욕구 반영을 해가지고 지원을 해줘야 되겠죠.” (부모 9, p.151)

“The country, not us parents, really needs to support reflecting our needs.” (parent 9, p.151)

Although the researcher limited the scope of lifelong education to adulthood, the words related to school age, such as ‘학교 (school, 238)’, ‘졸업 (graduation, 87)’, ‘학령기 (school age, 81)’, and ‘고등학교 (high school, 66)’ were frequent. ‘일반 (general, 100)’, ‘특수 (special, 82)’, ‘장애인 (persons with disabilities, 89)’, ‘비장애인 (people without disabilities, 62)’, and ‘통합 (inclusion, 54)’ were the keywords that reflect the issues related to inclusion.

“비장애인이 장애 감수성을 높이고 보편적인 접근가능성을 높이는데 기여할 수 있도록 여론을 만들어야 합니다.” (전문가 10, p.57)

“We have to create public opinion to enhance the disability sensitivity of people without disabilities and to improve universal accessibility.” (expert 10, p.57)

The perception regarding the location and operation of lifelong education was identified. Judging from the fact that there were many stories about ‘기관 (institute, 271)’, ‘대학 (college, 179)’, ‘센터 (Center, 178)’, ‘복지관 (welfare center, 129)’, ‘평생교육센터 (lifelong education center, 127)’, we can assume the demands of a place of education. ‘친구 (friend, 365)’, ‘집단 (group, 83)’, and ‘혼자 (alone, 71)’ were the words related to the operation of education. As ‘역량 (ability, 75)’, ‘전문가 (expert, 64)’, ‘전문 (profession, 56)’, and ‘평생교육사 (lifelong educator, 53)’ mentioned, the need for educator’s competence can be seen as well.

“이화여자대학교에서는 대학을 다니는 것처럼 사회통합 프로그램을 하고 있다고 하더라고요. 그래서 거기를 롤모델로 해서 대학에 있는 기관을 이용하는 것이 좋을 것 같아요.” (특수교사 11, p.105)

“I heard that Ewha Womans University is operating social inclusion programs as if they were going to college. So I think it’s a good idea

*to use the institution in college.” (special teacher 11, p.105)*

Words related to the individual needs and characteristics of persons with DD were also frequent. For example, ‘정도 (degree, 173)’, ‘수준 (level, 114)’, ‘중도 (severe, 103)’, ‘경도 (mild, 84)’, and ‘특성 (characteristics, 66)’ represents the particular needs.

*“저는 분명히 이야기를 하고 싶은 게 우리 아이는 장애 정도별로 구분해서 평생교육을 받아야 해요. (중략) 같은 공간에만 있을 뿐이지 들 중 한 집단은 아무것도 얻을 수가 없지 않을까요?” (부모 4, p.131)*

*“I want to make my point that my child should be taught separately by their degree of disabilities. (interruption) They will be placed in the same place, but wouldn't one of them get nothing?” (parent 4, p.131)*

As mentioned above, the result of word frequency analysis showed diverse and sporadic keywords related to lifelong education for persons with DD. However, by categorizing them into a similar context, the core issues were highlighted.

## **B. Result of SNA**

To better understand the perceptions, SNA was created using the top 110 nouns by frequency. The nodes in the network were the words spoken by interview participants, and the links between the nodes reflected the semantic relations in the interview data. The thicker the line, the higher the weight calculated by co-occurrence.

Figure 3 shows the semantic network of this study. It shows keywords that mentioned frequently and indicates whether the words are associated with each other.

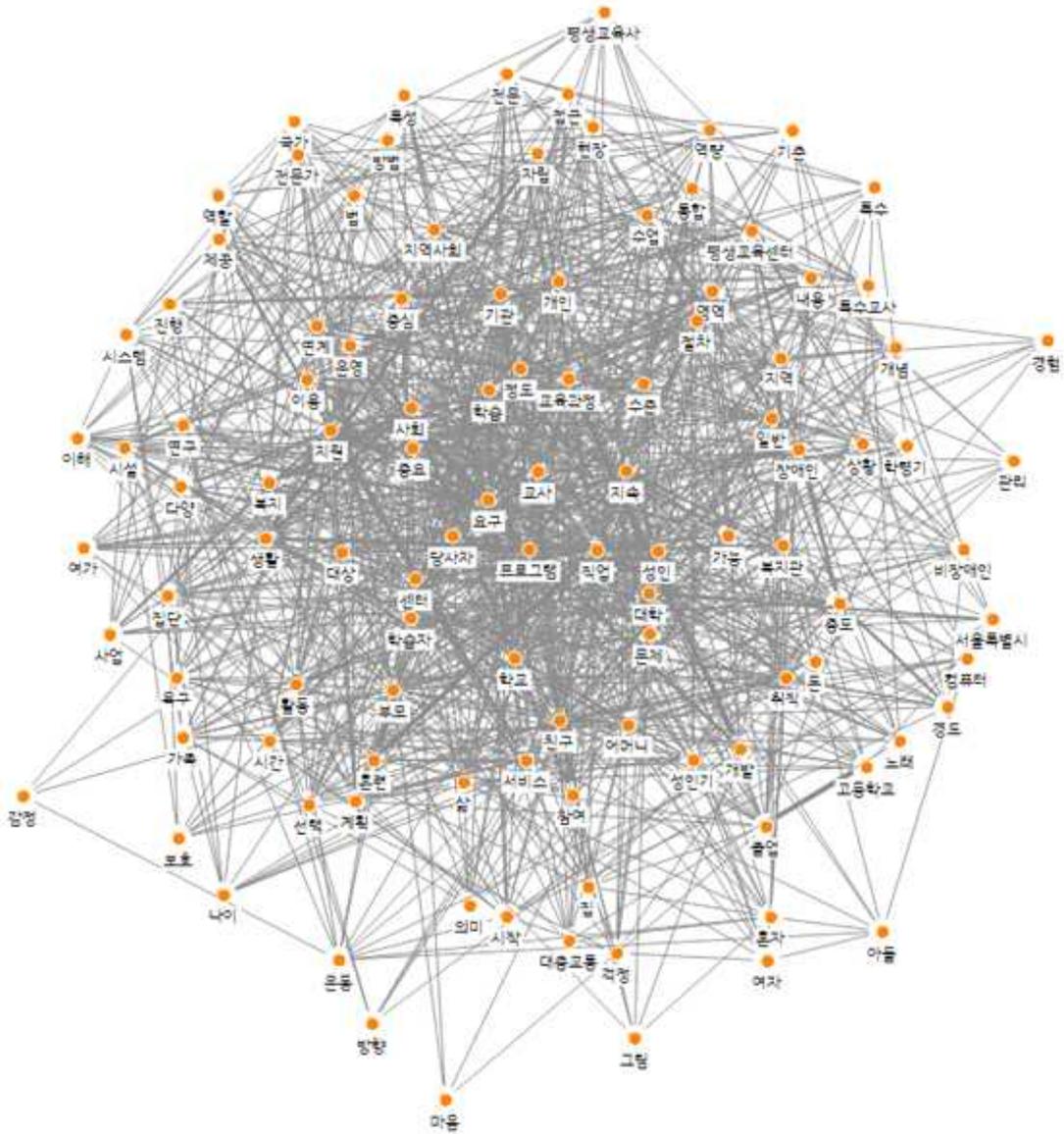


Figure 3. SNA result of top 110 words by frequency

This study also analyzed centrality in understanding the relation of nodes deeply. Result of degree centralities, closeness centralities, betweenness centralities are presented in Table 7 and Figure 4, 5, and 6.

Table 7. Centrality scores of keywords

rank	degree centrality (M=.431, SD=.331)	closeness centrality (M=.551, SD=.044)	betweenness centrality (M=.008, SD=.01)
1	요구 (demand) 1.844	요구 (demand) 0.727	요구 (demand) 0.066
2	직업 (job) 1.651	직업 (job) 0.673	친구 (friend) 0.043
3	프로그램 (program) 1.624	프로그램 (program) 0.649	직업 (job) 0.042
4	지원 (support) 1.358	친구 (friend) 0.645	프로그램 (program) 0.030
5	교육과정 (curriculum) 1.220	교사 (teacher) 0.634	교사 (teacher) 0.029
6	생활 (living) 1.073	지원 (support) 0.630	부모 (parent) 0.028
7	사회 (society) 1.046	교육과정 (curriculum) 0.626	대학 (college) 0.028
8	친구 (friend) 1.037	당사자 (the person in concern) 0.619	어머니 (mother) 0.025
9	교사 (teacher) 1.009	대학 (college) 0.619	지원 (support) 0.025
10	센터 (Center) 0.862	지속 (continuance) 0.619	교육과정 (curriculum) 0.025
11	대학 (college) 0.844	기관 (institute) 0.609	당사자 (the person in concern) 0.024
12	기관 (institute) 0.835	센터 (Center) 0.609	센터 (Center) 0.021
13	운영 (operation) 0.826	부모 (parent) 0.606	지속 (continuance) 0.019
14	당사자 (the person in concern) 0.706	학교 (school) 0.602	문제 (problem) 0.016
15	부모 (parent) 0.688	어머니 (mother) 0.599	학교 (school) 0.014
16	학교 (school) 0.688	성인 (adult) 0.596	성인 (adult) 0.013
17	지속 (continuance) 0.679	사회 (society) 0.592	사회 (society) 0.013
18	학습자 (learner) 0.679	학습자 (learner) 0.592	중요 (importance) 0.013
19	복지 (welfare) 0.615	정도 (degree) 0.586	정도 (degree) 0.012
20	복지관 (welfare center) 0.578	중요 (importance) 0.586	기관 (institute) 0.012
21	정도 (degree) 0.578	학습 (learning) 0.583	장애인 (persons with disabilities) 0.012

Table 7. Centrality scores of keywords (continue)

rank	degree centrality		closeness centrality		betweenness centrality	
	(M=.431, SD=.331)		(M=.551, SD=.044)		(M=.008, SD=.01)	
22	어머니 (mother)	0.569	운영 (operation)	0.580	복지관 (welfare center)	0.010
23	성인 (adult)	0.560	장애인 (persons with disabilities)	0.580	절차 (procedure)	0.010
24	장애인 (persons with disabilities)	0.550	수준 (level)	0.577	학습 (learning)	0.010
25	개인 (individual)	0.541	문제 (problem)	0.574	학습자 (learner)	0.010
26	수준 (level)	0.541	복지관 (welfare center)	0.574	영역 (area)	0.010
27	이용 (usage)	0.541	일반 (general)	0.574	개인 (individual)	0.009
28	졸업 (graduation)	0.532	절차 (procedure)	0.574	일반 (general)	0.009
29	절차 (procedure)	0.523	생활 (living)	0.571	활동 (activity)	0.009
30	중도 (severe)	0.514	영역 (area)	0.571	운영 (operation)	0.009
31	서비스 (service)	0.495	중심 (center)	0.571	중심 (center)	0.008
32	내용 (content)	0.468	연계 (connection)	0.568	수준 (level)	0.008
33	학습 (learning)	0.459	지역사회 (community)	0.568	삶 (life)	0.008
34	훈련 (training)	0.450	개인 (individual)	0.565	서비스 (service)	0.007
35	삶 (life)	0.440	삶 (life)	0.565	취직 (employed)	0.007
36	참여 (participation)	0.440	활동 (activity)	0.565	다양 (variety)	0.007
37	문제 (problem)	0.431	내용 (content)	0.562	내용 (content)	0.007
38	지역사회 (community)	0.431	다양 (variety)	0.562	생활 (living)	0.007
39	평생교육센터 (lifelong education center)	0.431	대상 (subject)	0.562	평생교육센터 (lifelong education center)	0.007
40	개발 (development)	0.422	평생교육센터 (lifelong education center)	0.562	집단 (group)	0.006
41	대상 (subject)	0.422	집단 (group)	0.559	지역 (local)	0.006
42	영역 (area)	0.413	가능 (possibility)	0.556	지역사회 (community)	0.006

Table 7. Centrality scores of keywords (continue)

<b>rank</b>	<b>degree centrality</b> (M=.431, SD=.331)	<b>closeness centrality</b> (M=.551, SD=.044)	<b>betweenness centrality</b> (M=.008, SD=.01)
43	자립 (independence) 0.413	서비스 (service) 0.556	졸업 (graduation) 0.006
44	중요 (importance) 0.413	수업 (class) 0.556	시설 (facility) 0.005
45	활동 (activity) 0.413	이용 (usage) 0.556	이용 (usage) 0.005
46	성인기 (adulthood) 0.404	졸업 (graduation) 0.556	복지 (welfare) 0.005
47	중심 (center) 0.404	취직 (employed) 0.556	수업 (class) 0.005
48	일반 (general) 0.394	계획 (plan) 0.553	계획 (plan) 0.005
49	연계 (connection) 0.376	성인기 (adulthood) 0.553	시작 (start) 0.005
50	돈 (money) 0.367	시설 (facility) 0.553	가능 (possibility) 0.005

First, degree centralities were calculated in order to examine the concrete picture of the network (Freeman, 1978). It measures the number of the node's direct connections with others in the networks. A word with high degree centrality is often a connector or hub in the network and is generally takes an active role.

Second, to measure how close the words are, closeness centrality was analyzed. Words with a high score are close to other words; that is, they have quick access to other words. It is based on the hypothesis that the more important the word, the shorter the path.

Third, the betweenness centrality was measured. Betweenness centrality identifies word's position within a network in terms of its ability to make connections. A word with a high betweenness centrality generally holds a dominant position in the network, and it has a more significant amount of influence over semantic relations.

By comparing the centralities, it was possible to figure out the role of each word. Words including '요구 (demand)', '직업 (job)', and '프로

그램 (program)' were ranked high in all three centralities. This shows that they were keywords not only in structure but also in location. In other words, these words acts as central keyword which actively connects with other words, and they can also meaningfully mediate other words.

Despite that they were all keywords, but some words differed in the centrality rankings. '지원 (support)', '교육과정 (curriculum)', '생활 (living)', '사회 (society)', and '기관 (institute)' were ranked higher in degree centrality than other centralities. In particular, '생활 (living)' showed a gap in its centrality scores. It was ranked sixth in degree centrality, but was ranked 29th and 38th in closeness and betweenness centrality, separately. Such words were related to national and policy level supports and were focused on living and society. From this, we can speculate that words representing national support, society, or living were more directly linked with keywords, but they do not convey a central meaning than other keywords.

On the other side, some words, such as '친구 (friend)', '교사 (teacher)', '대학 (college)', '부모 (parent)', and '어머니 (mother)' were ranked higher in closeness centrality and betweenness centralities than degree centrality. '어머니 (mother)' and '문제 (problem)' had a dynamic centrality scores. These words were representing people related to adults with DD, like friend, teacher, parent, and mother, or conveying distinctive ideas such as college, continuance, and problem. This means that these words may not be directly connected to other words, they play a central role in leading the center of context.

From this result we can confirm that while words stand for issues on national level support or society, living has been used a lot, it was actually related people and some unique demands that are central to perception.

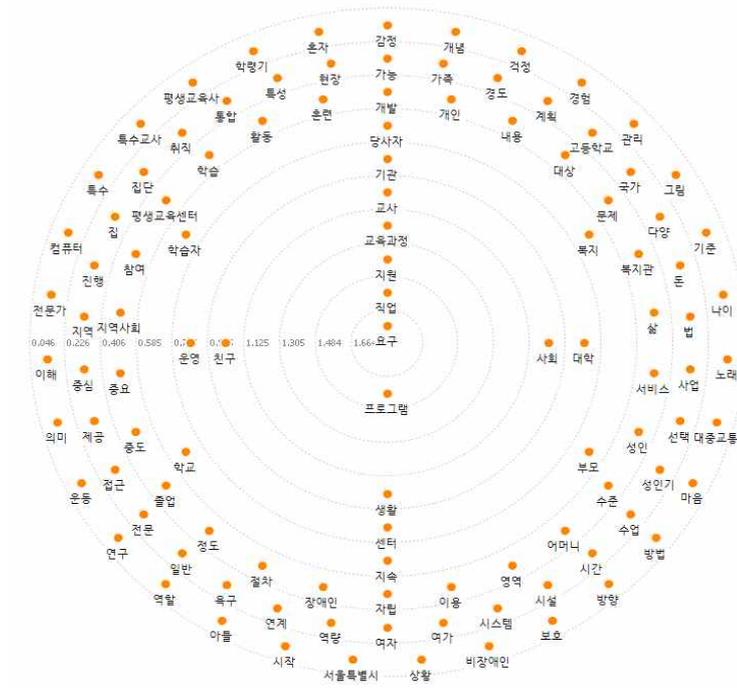


Figure 4. Result of degree centrality

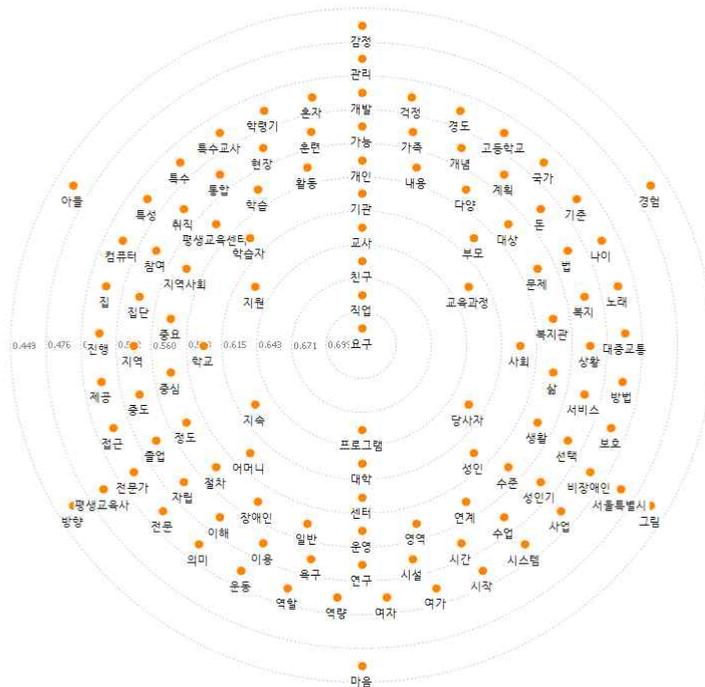


Figure 5. Result of closeness centrality



Table 8. Result of cohesion analysis

rank	daily life (G1)		system (G2)		operator (G3)		priority support area(G4)	
	word	score	word	score	word	score	word	score
1	직업 (job)	56	요구 (demand)	68	대학 (college)	42	지원 (support)	45
2	친구 (friend)	49	프로그램 (program)	50	학교 (school)	37	성인 (adult)	36
3	교사 (teacher)	46	교육과정 (curriculum)	44	사회 (society)	34	학습 (learning)	31
4	당사자 (the person in concern)	42	기관 (institute)	39	학습자 (learner)	34	중심 (center)	29
5	지속 (continuance)	42	중요 (importance)	34	장애인 (persons with disabilities)	31	개인 (individual)	28
6	센터 (Center)	39	정도 (degree)	33	문제 (problem)	30	생활 (living)	28
7	부모 (parent)	38	절차 (procedure)	31	일반 (general)	28	삶 (life)	26
8	어머니 (mother)	36	영역 (area)	30	평생교육 센터 (lifelong education center)	25	활동 (activity)	26
9	복지관 (welfare center)	30	운영 (operation)	30	가능 (possibility)	24	대상 (subject)	24
10	취직 (employed)	24	수준 (level)	29	서비스 (service)	23	계획 (plan)	21
11	졸업 (graduation)	23	지역사회 (community)	28	집단 (group)	23	선택 (choice)	20
12	성인기 (adulthood)	21	내용 (content)	26	지역 (local)	22	통합 (inclusion)	19
13	복지 (welfare)	20	연계 (connection)	26	중도 (severe)	20	현장 (on-the-spot)	19
14	시간 (time)	19	다양 (variety)	25	참여 (participation)	19	가족 (family)	18
15	훈련 (training)	19	수업 (class)	23	자립 (independence)	18	시작 (start)	17
16	돈 (money)	18	이용 (usage)	23	개념 (concept)	17	욕구 (desire)	17
17	상황 (situation)	17	시설 (facility)	22	접근 (access)	16	연구 (research)	16

Table 8. Result of cohesion analysis (continue)

rank	daily life (G1)		system (G2)		operator (G3)		priority support area(G4)	
	word	score	word	score	word	score	word	score
18	역량 (ability)	17	법 (law)	19	비장애인 (persons without disabilities)	15	학령기 (school-age)	16
19	특수교사 (special teacher)	17	제공 (provision)	18	경도 (mild)	13	사업 (project)	13
20	여가 (leisure)	15	시스템 (system)	17	의미 (meaning)	12	특수 (special)	11
21	집 (house)	15	방법 (method)	16	보호 (care)	10	나이 (age)	10
22	고등학교 (high school)	14	이해 (understanding)	16	서울특별시 (Seoul)	10	방향 (direction)	6
23	역할 (role)	14	전문 (professional)	16	경험 (experience)	6		
24	혼자 (alone)	14	국가 (nation)	15				
25	노래 (song)	13	개발 (development)	14				
26	운동 (sports)	13	특성 (characteristics)	14				
27	전문가 (expert)	12	진행 (progression)	13				
28	걱정 (concern)	11	기준 (standard)	12				
29	컴퓨터 (computer)	11	평생교육사 (lifelong educator)	12				
30	대중교통 (public transport)	10	그림 (drawing)	6				
31	여자 (female)	9						
32	관리 (management)	8						
33	아들 (son)	8						
34	감정 (feeling)	4						
35	마음 (mind)	4						

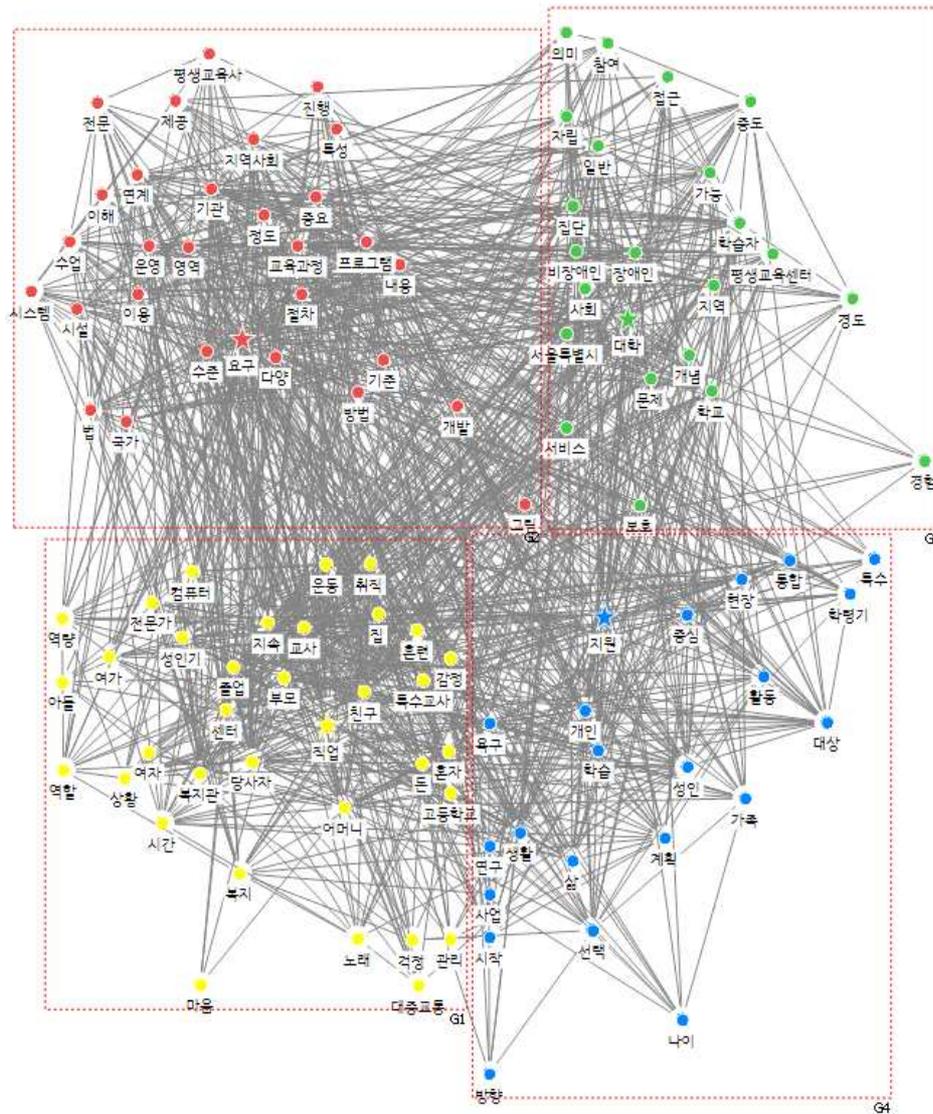


Figure 7. Result of cohesion analysis

The nodes included in G2 were colored with red, and ‘요구 (demand)’ marked with the star had the highest degree score. G2 was firmly related to system of lifelong education. ‘프로그램 (program)’, ‘교육과정 (curriculum)’, ‘기관 (institute)’, ‘운영 (operation)’, and ‘법 (law)’ were listed. As these words are more related to the systems at the national or regional level, it is understandable that interviewers expect the government to be more proactive. The density

was 1.000, and the E-I index was .426. SMI and Cohesion index were .379 and 1.11, respectively.

Regarding G3, colored with green, embodied words connected to the operator. ‘대학 (college)’ had the highest degree and administering institute, such as ‘학교 (school)’, ‘평생교육센터 (lifelong education center)’ and ‘서울특별시 (Seoul)’, were included. The density was .763, and the E-I index was .559. SMI and cohesion index were .383 and 1.119 each. From this result, it can be seen that interviewers expect the operating institute of lifelong education to become more diverse.

In G4, marked with blue nodes, the word with the highest degree score was ‘지원 (support)’. It represents priority support area such as ‘학습 (learning)’, ‘생활 (living)’, ‘활동 (activity)’, and ‘가족 (family)’. The density was .61, and the E-I index was .649. SMI and Cohesion index were .281 and 0.891 each. Although sporadic network limits the in-depth understanding of the perceptions, these keywords identified areas that should be supported first.

## C. Results per Groups

To find out the differences in perception by groups, word frequency analysis and SNA were conducted by each group. The word frequency analysis result is shown in Table 9.

The common keywords were ‘직업 (job)’, ‘학교 (school)’, ‘교사 (teacher)’, and ‘지속 (continuance)’ in boldface type. Among the top 20 words of frequency, keywords only addressed in one group were marked with ‘\*’. One of the impressive features is that perceived concepts for lifelong education can be different by groups.

Table 9. Result of word frequency analysis by each group  
(top 20 keywords)

rank	experts		special teachers		adults with DD		parents	
	words	fre	words	fre	words	fre	words	fre
1	요구 (demand)	214	요구 (demand)	151	직업 (job)	171	직업 (job)	178
2	프로그램 (program)	203	프로그램 (program)	135	친구 (friend)	145	친구 (friend)	142
3	기관 (institute)	193	교육과정 (curriculum)	84	돈 (money)	129	요구 (demand)	123
4	교육과정 (curriculum)	190	*내용 (content)	78	교사 (teacher)	118	어머니 (mother)	108
5	지원 (support)	163	교사 (teacher)	76	어머니 (mother)	108	*부모 (parent)	86
6	직업 (job)	156	당사자 (the person in concern)	74	*집 (house)	79	프로그램 (program)	82
7	*운영 (operation)	107	직업 (job)	73	학교 (school)	57	지원 (support)	81
8	대학 (college)	90	*이용 (usage)	69	*노래 (song)	47	교사 (teacher)	75
9	문제 (problem)	87	*수준 (level)	69	*혼자 (alone)	42	당사자 (the person in concern)	74
10	학습자 (learner)	86	사회 (society)	69	*대중교통 (public transport)	35	돈 (money)	71
11	*시설 (facility)	86	지속 (continuance)	65	*수업 (class)	34	사회 (society)	62
12	*법 (law)	84	*성인 (adult)	64	학습 (learning)	33	학교 (school)	60
13	*절차 (procedure)	80	센터 (Center)	63	*컴퓨터 (computer)	33	교육과정 (curriculum)	56
14	사회 (society)	78	기관 (institute)	63	*운동 (sports)	31	정도 (degree)	55
15	학교 (school)	75	학습자 (learner)	59	*게임 (game)	31	학습 (learning)	53
16	지속 (continuance)	74	친구 (friend)	59	*운전 (driving)	29	*생활 (living)	52
17	*시스템 (system)	68	*중요 (importance)	54	*옷 (clothes)	29	문제 (problem)	52
18	정도 (degree)	67	*복지관 (welfare center)	52	*여행 (travel)	26	대학 (college)	52
19	센터 (Center)	64	학교 (school)	46	*아버지 (father)	26	지속 (continuance)	51
20	교사 (teacher)	62	정도 (degree)	45	지속 (continuance)	24	*아들 (son)	51

Notably, keywords of adults with DD differed remarkably from those of other groups. Except for eight words, 12 other keywords such as ‘집 (house)’, ‘노래 (song)’, and ‘혼자 (alone)’ were unique.

The results of the network graph and centrality analysis per group are presented below. The bigger the nodes, the frequency rate was higher, and the thicker the links, the stronger the co-occurrence. In-depth study results per group were further mentioned with the actual statements from participants.

Figure 8 and Table 10 demonstrates the results of experts.

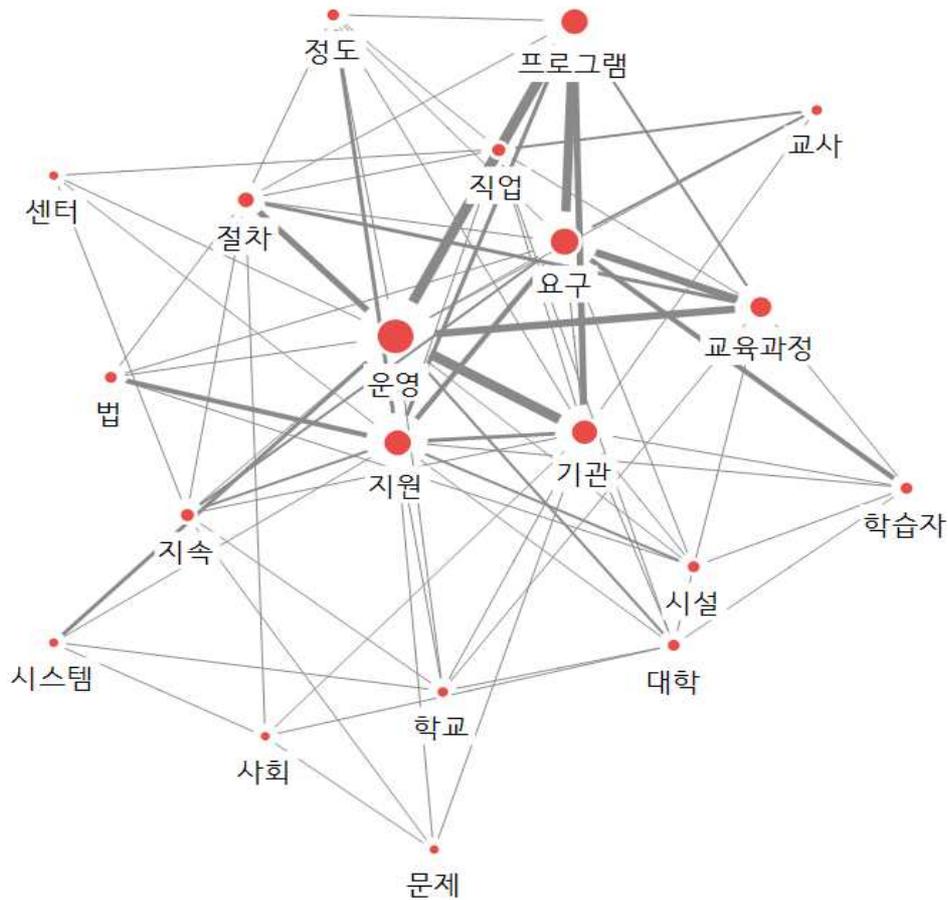


Figure 8. Semantic network of experts

Table 10. Centrality scores of experts

rank	degree centrality (M=.974, SD=.742)	closeness centrality (M=.634, SD=.079)	betweenness centrality (M=.033, SD=.043)
1	운영 (operation) 2.789	기관 (institute) 0.792	지원 (support) 0.144
2	요구 (demand) 2.105	운영 (operation) 0.792	운영 (operation) 0.125
3	프로그램 (program) 2.000	지원 (support) 0.792	기관 (institute) 0.119
4	지원 (support) 1.947	요구 (demand) 0.731	요구 (demand) 0.056
5	기관 (institute) 1.895	절차 (procedure) 0.655	절차 (procedure) 0.042
6	교육과정 (curriculum) 1.421	직업 (job) 0.655	직업 (job) 0.037
7	절차 (procedure) 0.947	대학 (college) 0.633	지속 (continuance) 0.028
8	지속 (continuance) 0.737	지속 (continuance) 0.633	대학 (college) 0.023
9	직업 (job) 0.737	프로그램 (program) 0.633	교육과정 (curriculum) 0.020
10	대학 (college) 0.579	교육과정 (curriculum) 0.613	사회 (society) 0.017
11	시설 (facility) 0.579	정도 (degree) 0.613	학교 (school) 0.014
12	정도 (degree) 0.579	학교 (school) 0.613	프로그램 (program) 0.008
13	학습자 (learner) 0.579	시설 (facility) 0.594	학습자 (learner) 0.007
14	법 (law) 0.526	학습자 (learner) 0.594	시스템 (system) 0.006
15	교사 (teacher) 0.474	법 (law) 0.576	시설 (facility) 0.005
16	학교 (school) 0.421	교사 (teacher) 0.559	문제 (problem) 0.004
17	시스템 (system) 0.368	사회 (society) 0.559	정도 (degree) 0.004
18	문제 (problem) 0.263	시스템 (system) 0.559	법 (law) 0.003
19	사회 (society) 0.263	문제 (problem) 0.543	센터 (Center) 0.003
20	센터 (Center) 0.263	센터 (Center) 0.543	교사 (teacher) 0.002

The words with high degree centrality representing the central perception of experts were ‘운영 (operation)’, ‘요구 (demand)’, ‘프로그램 (program)’, ‘지원 (support)’, and ‘기관 (institute)’. The degree centrality of ‘프로그램 (program)’ was ranked much higher compared with closeness and betweenness centrality. That is, it serves as the central word in the sub-network of this topic but relatively not meaningful.

Meanwhile, ‘직업 (job)’, ‘사회 (society)’ and ‘시스템 (system)’ had a higher betweenness centrality rank than degree centrality. It can be assumed that these words were not cored, but they served as intersections that actively mediate other keywords.

Experts agreed that national curriculum and program development is needed. It should consider the characteristics as well as the needs of learners. When a systematic national-level approach is assured, lifelong education can be continuously operated. Statements concerning this finding are as follows.

“어떤 프로그램이라도 단기적이고 일회적이어서는 안 될 것 같아요. (중략)  
당연히 국가수준의 교육과정은 필요할 것이구요, 운영 주체는 교육부가 좋을 것 같습니다.” (전문가 1, p.1)

*“I don't think any program should be short-term and one-off (interruption) Of course, a national-level curriculum is necessary, and I think the Ministry of Education should be an operator.” (expert 1, p.1)*

“맨 처음에는 국가가 씨드머니를 받아서 갈 수 밖에 없어요. 그래서 국가가 접근해서 프로그램을 보급해야지. 민간에서 하는 건 실질적으로 힘들다고 봐야 되고... 국가에서 책임져야 되는 게 맞다고 보거든요.” (전문가 2, p.9)

*“At first, the country has to take seed money. So the nation has to approach and distribute the programs. It's tough for the private sector to do this. I think it's right for the nation to take responsibility.” (expert 2, p.9)*

“복지관에서 하는 프로그램은 시작과 끝이 없는 주먹구구식인 경우가 있어서 진짜 체계화된 국가 수준의 교육과정이나 프로그램이 필요하다는 점을 절실히 느끼고 있어요.” (전문가 4, p.14)

*“Because the programs at the welfare center are often operated by rule-of-thumb, I feel the necessity of structured national-level curriculum or program keenly.” (expert 4, p.14)*

Many experts also suggested college or university for lifelong education operator, since higher education settings have abundant resources, such as qualified lecturer and accessible environment. Besides, it might boost the self-esteem of adults with DD.

“장애인 평생교육 전문기관을 2·3년제 대학에서 운영하여 개설하면 어떨까 싶습니다. 학생 수 감소 등으로 부실운동을 피할 수 없어 폐교 위기에 처한 대학에서 장애인 평생교육 프로그램을 운영할 수 있도록 정부 차원의 지원이 주어진다면 양가적 효과를 거둘 수도 있을 것 같습니다.” (전문가 1, p.2)

*“Why don't we open an institution that specializes in lifelong education for persons with disabilities at colleges? If the government supports to operate a lifelong education program for persons with disabilities at colleges on the verge of closure due to the decrease in the number of students, it could have a positive effect.” (expert 1, p.2)*

“고등학교를 졸업한 발달장애인도 대학을 가고 싶다는 욕구가 많아요. (중략) 대학에 다닌다는 프라이드를 갖게 하고 그로 인해서 굉장히 자기변화가 온다는 거죠.” (전문가 4, p.18)

*“Even those with DD who graduated from high school desire to go to college. (interruption) It makes them proud to go to college, and that's what makes them very self-changeable.” (expert 4, p.18)*

“4년 대학교육도 의무교육이 되었으면 좋겠다는 말이 사실 다른 사람에게는 적용이 안 될지 모르겠지만 발달장애인과 부모에게는 꼭 필요하다고 생각이 들어서... (중략) 대학이라는 기관이 모든 걸 다 가지고 있어요. 교양교육원의

문화 콘텐츠나 평생교육원의 문화 콘텐츠나... ” (전문가 9, p.47)

*“I hope the four-year college education will be compulsory. I don't know if it doesn't apply to other people, but I think it's necessary for people with developmental disabilities and their parents. (interruption) The university has everything. The cultural content of cultural education center or lifelong education center.” (expert 9, p.47)*

The result of experts also argued that a system of national level should be established first. Particularly, procedure and law should be revised.

“평생교육법에 실제 지원에 대한 절차라든가 그런 게 없기 때문에 지금 평생 교육시설들이 그 굉장히 운영하기가 어려워요.” (전문가 2, p.9)

*“Because there is no actual support procedure in the Lifelong Education Act, it is complicated for lifelong education facilities to operate at this time.” (expert 2, p.9)*

“사실 평생교육시설의 분류는 법적인 제재나 설치 요건 등을 위한 굉장히 행정적인 분류인거지... (중략) 실질적으로는 평생교육이란 게 그렇게 이루어지고 있지는 않기 때문에...” (전문가 3, p.13)

*“In fact, the classification of lifelong education facilities is a very administrative category for legal sanctions or installation requirements. (interruption) That's not how lifelong education works in real life.” (expert 3, p.13)*

“우리나라 법상 명확한 기준이 없어요. 그러다 보니까 장애인 평생교육 실태 조사 결과가 다 달라지는 거예요. 평생교육 기관을 어디까지 볼 것인가가 다르니까.” (전문가 6, p.33)

*“There is no clear standard in Korean law. That's why the results of the survey on lifelong education for persons with disabilities are all different. There are different standards for lifelong education institutions.” (expert 6, p.33)*

To sum up, experts who participated in this study highlighted the development of government-led strategies, including revision of system and law as well as the development of curriculum and program. They also suggested that higher education settings such as college and university should be the operator of lifelong education for persons with DD.

The semantic network and centrality scores of special teachers are described in Figure 9 and Table 11.

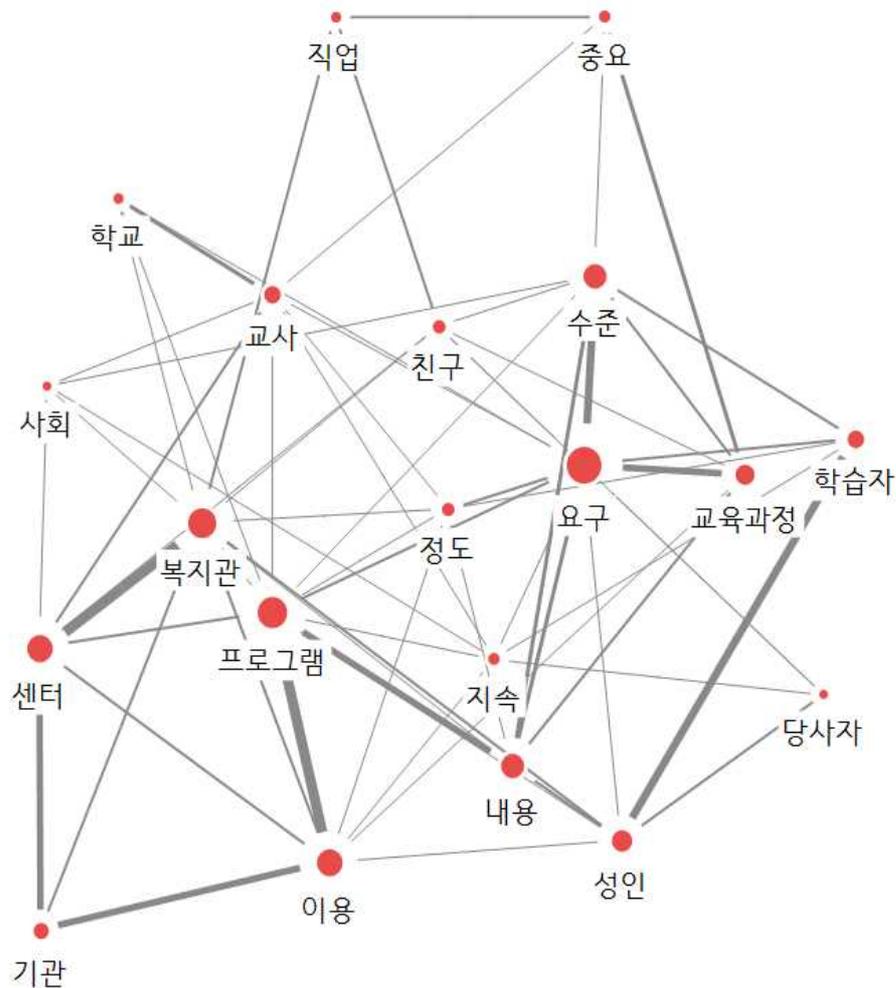


Figure 9. Semantic network of special teachers

Table 11. Centrality scores of special teachers

rank	degree centrality (M=.642, SD=.301)	closeness centrality (M=.595, SD=.062)	betweenness centrality (M=.039, SD=.036)
1	요구 (demand) 1.263	기관 (institute) 0.704	복지관 (welfare center) 0.144
2	프로그램 (program) 1.105	직업 (job) 0.704	요구 (demand) 0.112
3	복지관 (welfare center) 1.053	중요 (importance) 0.704	프로그램 (program) 0.063
4	센터 (Center) 0.947	학습자 (learner) 0.633	교사 (teacher) 0.059
5	이용 (usage) 0.947	당사자 (the person in concern) 0.633	친구 (friend) 0.058
6	내용 (content) 0.842	학교 (school) 0.613	이용 (usage) 0.057
7	수준 (level) 0.842	사회 (society) 0.613	수준 (level) 0.056
8	성인 (adult) 0.737	지속 (continuance) 0.613	지속 (continuance) 0.036
9	교육과정 (curriculum) 0.684	센터 (Center) 0.613	센터 (Center) 0.034
10	교사 (teacher) 0.579	성인 (adult) 0.594	성인 (adult) 0.031
11	학습자 (learner) 0.579	교육과정 (curriculum) 0.594	교육과정 (curriculum) 0.028
12	기관 (institute) 0.526	친구 (friend) 0.594	정도 (degree) 0.023
13	정도 (degree) 0.421	정도 (degree) 0.594	중요 (importance) 0.018
14	친구 (friend) 0.421	수준 (level) 0.576	내용 (content) 0.016
15	중요 (importance) 0.368	내용 (content) 0.559	사회 (society) 0.014
16	지속 (continuance) 0.368	이용 (usage) 0.528	직업 (job) 0.011
17	직업 (job) 0.316	교사 (teacher) 0.528	학습자 (learner) 0.008
18	학교 (school) 0.316	프로그램 (program) 0.514	당사자 (the person in concern) 0.007
19	당사자 (the person in concern) 0.263	요구 (demand) 0.514	학교 (school) 0.003
20	사회 (society) 0.263	복지관 (welfare center) 0.475	기관 (institute) 0.000

The outstanding feature shown by the results of special teachers was unexpected dynamics in centralities. Closeness centralities appeared to be very uniquely different compared to degree or betweenness centralities. For example, ‘요구 (demand)’, ‘프로그램 (program)’, and ‘복지관 (welfare center)’ were highly ranked in degree and betweenness centralities, but their closeness centralities were comparatively low. From this, it can be speculated that special teachers mentioned such words repeatedly, but their perceptions regarding those words were not closely connected to other words. Notwithstanding that, Their perceptions were not profound enough to elaborate these words referring other keywords. Hence, they were aware of the importance and potential of the demand, program, and welfare center, but failed to explain the details using various terms.

On the contrary, ‘기관 (institute)’, ‘직업 (job)’, ‘학습자 (learner)’, and ‘당사자 (the person in concern)’, were highly rated in closeness centrality than other centralities. High closeness centrality indicates words between network are at a close distance to one another. That is, words with high closeness centrality exists at the center of network and also the influence of the keyword within the network is high. It could be inferred that, although these words were not well connected to other keywords, they tend to play a central and important role within the network. Thus, special teachers emphasized the significance of ‘기관 (institute)’, ‘직업 (job)’, ‘학습자 (learner)’, and ‘당사자 (the person in concern)’ referring other keywords. This shows that special teachers recognize these words as a key part of promoting lifelong education in various ways.

The unique suggestion of special teachers was the importance of program content. Although their opinion differed on whether the content should be aligned with the school curriculum, but in common,

teachers were focusing on content elements than other groups. Regardless, it was also a common opinion that the age of adult learners should be considered.

“연령 차이에 따른 내용요소의 구분에 대해서도 협의가 필요할 것으로 보입니다. 아직은 구체적인 내용에 대해서는 연구가 많지 않은 것 같아요.” (특수교사 2, p.79)

“We will also need to discuss the classification of content elements according to age differences. I don't think there's much research on the specifics yet.” (teacher 2, p.79)

“내용은 일반 평생교육의 6대 영역을 유지하되 발달장애인이 가지고 있는 특성과 수준에 적합하게 교육이 이루어져야 할 것 같고요.” (특수교사 3, p.82)

“The content should be maintained in 6 areas of general lifelong education, but it should be taught to suit the characteristics and level of the persons with DD.” (teacher 3, p.82)

“전체적인 교육 내용의 기본적인 틀은 기존의 학령기의 기본교육과정에 기반해서 진행하는 것이 좋을 것 같긴 하거든요. (중략) 학창시절에 배우던 내용을 성인이 되어서도 계속 반복하고 잊어버리지 않는 것이 중요할 것 같다는 느낌이 있거든요.” (특수교사 4, p.83)

“The basic framework of the whole curriculum is probably better based on the basic curriculum of the school year. (interruption) I think it's important to keep repeating and not forgetting what you learned when they are an adult.” (teacher 4, p.83)

“학령기에 다뤘던 내용이 들어가면 발달장애인 평생교육이 학령기 교육의 연장이라고... 조심스러운 접근이 필요하고요.” (특수교사 10, p.101)

“If we include the content of the school year, it may seem that lifelong education for persons with DD is an extension of the school year. We need a careful approach.” (teacher 10, p.101)

Special teachers perceived the welfare center as the primary

operator. That's the reason why the word '복지관 (welfare center)' has frequently appeared in this group. According to their statements, however, welfare centers still have limitations.

*“장애인종합복지관에서 발달장애인만의 프로그램은 운영되고 있지 않아요. (중략) 전체 장애 유형을 합쳐서 하다 보니 발달장애인이 배제되는 경우가 많더라고요.” (특수교사 4, p.83)*

*“The welfare centers for persons with all types of disabilities don't have programs designed only for persons with DD. (interruption) Because they're running the entire disability type together, persons with DD are often excluded.” (teacher 4, p.83)*

*“장애인복지관 같은 경우 굉장히 단순한 교육을 하더라도 뭘 해야 될지 모르는 상태라고 전 많이 느꼈거든요. 그래서 차라리 콘텐츠 개발을 영역별로 많이 해서 프로그램 퀄리티 컨트롤을 해야 하지 않을까...” (특수교사 5, p.87)*

*“In the case of welfare centers for persons with disabilities, I felt a lot that even if they deliver an elementary educational program, they didn't know what to do. So, I think we should control the quality of the program by developing much content.” (teacher 5, p.87)*

*“장애인복지관에 특수교사가 일을 하나요? 거의 다 사회복지사가 계시더라고요. 실제 교육 쪽에서 봤을 때는 프로그램이 부족하고 디테일하지 않아서 기본 지침내용으로만 관리되고 있는 것 같더라고요.” (특수교사 14, p. 110)*

*“Does a special teacher work at the welfare centers for persons with disabilities? Most of them were social workers. From the actual point of view of education, it seemed that the programs are not enough, and the contents were not detailed, so it was managed only with basic guidelines.” (teacher 14, p.110)*

Special teachers insisted on the significance of programs for different levels, which was not a keyword in other groups. They thought a capable teacher could flexibly apply the developed program or curriculum. The perception that teacher competency is important is

in the same context as the betweenness centrality of ‘교사 (teacher)’ was higher than the degree centrality. Statements supporting this are as follows.

“만약 수준별로 수업을 나눈다면요. 생애주기별 나누어 교육 목표를 제시해주는 것이 적절한 것 같다는 생각도 듭니다.” (특수교사 4, p.83)

*“If we divide classes by level. I think it’s appropriate to provide life-cycle educational goals.” (special teacher 4, p.83)*

“수준에 대한 정의를 어떻게 할 것인가 고민을 조금 해봤는데... (중략) 연령대를 수준별로 정리를 하면 좋을 것 같고요.” (특수교사 5, p.86)

*“I’ve been thinking a little bit about how to define the level. (interruption) I think it would be nice to arrange the age groups as level.” (special teacher 5, p.86)*

“국가 수준의 양질의 교육과정을 운영하되 가르치는 사람이 유동적으로 사용해야할 것 같고요. 경도와 중도를 나누어 수준별로 교육과정을 다르게 하는 것이 좋을 것 같은데 두 가지로 나누기보다는 상, 중, 하로 가르쳐야할 것 같아요.” (특수교사 11, p.104)

*“National level curriculum with high quality should be operated, but I think the teacher can flexibly apply it. I think it’s better to change the curriculum by level, but rather than divide it into two categories of mild disabilities and severe disabilities, and I think we should teach them in upper, middle, and lower levels.” (special teacher 11, p.104)*

Still, one special teacher mentioned the ‘수준 (level)’, concerning that social workers’ special education skills might be inadequate.

“평생교육은 사실 누가 진행할지는 모르지만 아마도 복지사가 할 것 같으니까 너무 전문적인 특수교육적인 방향보다는 일반적인 범위 내에서 명시하고, 수준도 그에 맞추는 것이 중요할 것 같아요.” (특수교사 10, p.100)

*“I don’t really know who’s going to implement the lifelong education, but I think a social worker will do it. So, instead of being too professional,*

*it's important to specify the level within the general scope.” (special teacher 10, p.100)*

In short, special teachers asserted the importance of the development of educational content, considering the characteristics of the adult learner. Furthermore, to properly operate the program, personnel in the welfare center should be more qualified. The reason why ‘복지관 (welfare center)’ was frequently appeared can be understood that it is the most popular institute for lifelong education. Some insisted on the need for a training program for social workers.

Figure 10 and Table 12 depicts the SNA result of adults with DD.

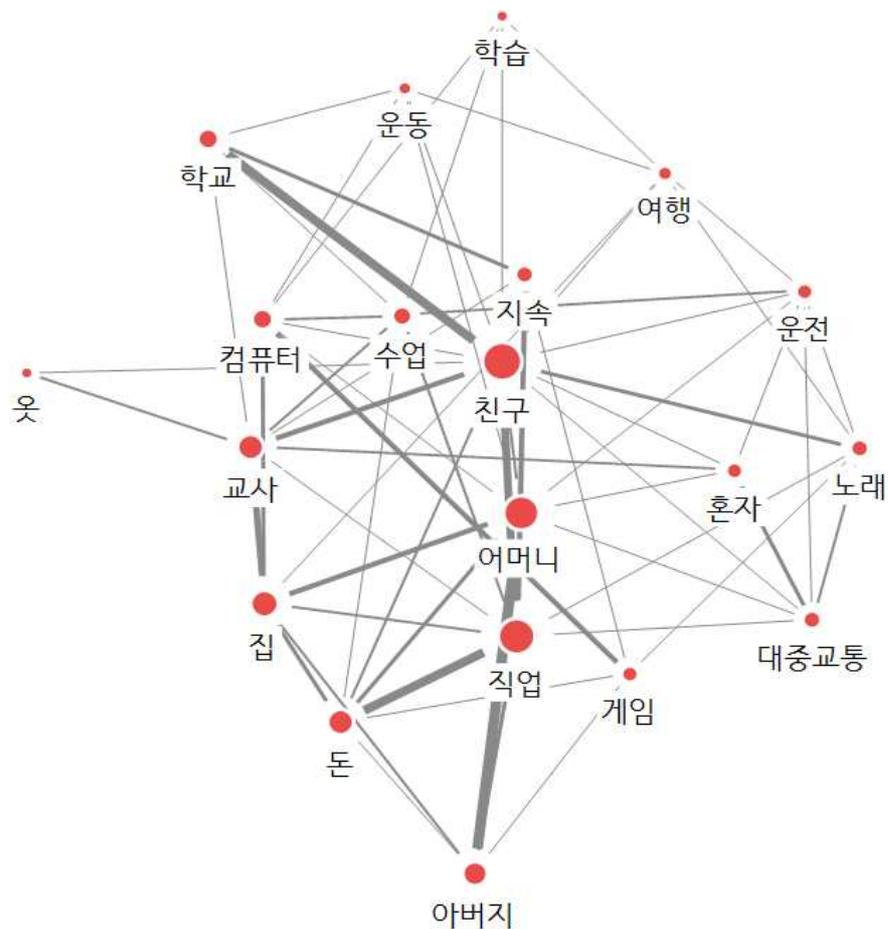


Figure 10. Semantic network of adults with DD

Table 12. Centrality scores of adults with DD

rank	degree centrality		closeness centrality		betweenness centrality	
		(M=.711, SD=.44)		(M=.598, SD=.066)		(M=.038, SD=.048)
1	친구 (friend)	1.684	친구 (friend)	0.792	친구 (friend)	0.216
2	직업 (job)	1.579	어머니 (mother)	0.704	어머니 (mother)	0.104
3	어머니 (mother)	1.474	직업 (job)	0.679	직업 (job)	0.067
4	집 (house)	1.053	교사 (teacher)	0.633	교사 (teacher)	0.063
5	교사 (teacher)	0.947	돈 (money)	0.613	컴퓨터 (computer)	0.043
6	돈 (money)	0.947	수업 (class)	0.613	수업 (class)	0.040
7	아버지 (father)	0.895	운전 (driving)	0.613	집 (house)	0.033
8	컴퓨터 (computer)	0.684	집 (house)	0.613	노래 (song)	0.030
9	학교 (school)	0.684	컴퓨터 (computer)	0.613	돈 (money)	0.026
10	수업 (class)	0.579	노래 (song)	0.594	운전 (driving)	0.025
11	지속 (continuance)	0.526	대중교통 (public transport)	0.594	여행 (travel)	0.024
12	노래 (song)	0.474	여행 (travel)	0.576	지속 (continuance)	0.023
13	대중교통 (public transport)	0.474	운동 (sports)	0.576	게임 (game)	0.023
14	게임 (game)	0.421	학교 (school)	0.559	학교 (school)	0.015
15	운전 (driving)	0.421	혼자 (alone)	0.559	운동 (sports)	0.011
16	혼자 (alone)	0.421	게임 (game)	0.543	대중교통 (public transport)	0.007
17	여행 (travel)	0.316	지속 (continuance)	0.543	아버지 (father)	0.005
18	운동 (sports)	0.263	아버지 (father)	0.528	학습 (learning)	0.005
19	학습 (learning)	0.211	학습 (learning)	0.528	혼자 (alone)	0.005
20	옷 (clothes)	0.158	옷 (clothes)	0.500	옷 (clothes)	0.000

The words with high degree centrality representing the foremost perception of adults with DD were ‘친구 (friend)’, ‘직업 (job)’, ‘어머니 (mother)’, ‘집 (house)’, and ‘교사 (teacher)’. Among these words, ‘친구 (friend)’, ‘직업 (job)’, ‘어머니 (mother)’ and ‘교사 (teacher)’ were ranked higher in all three centralities. They symbolize the critical issue constructs the perceptions of adults with DD, and they stimulate the connection with other words. On the contrary, the rank of ‘집 (house)’ was lower when it comes to betweenness centrality. It is reasonable to suppose that it represents the central theme but not the primary connector.

The keywords of adults with DD were considerably different from the keywords of others. Among them, ‘친구 (friend)’ held the dominant position.

“저는 친구랑 배드민턴도 배우고 싶은데. 배드민턴 예전에 학교에서 했는데  
요. 재미있었어요. 친구랑 하면 재밌을 거 같고. (중략) 저는 친구 없으면 혼  
자 안 가고 싶어요. 싫어요. 어색해요.” (당사자 4, p.200)

“I want to learn badminton with my friend. I used to play badminton at  
school. It was enjoyable. I think it'd be fun if I did it with my friend  
(interruption) I don't want to go alone without a friend. No, it's  
awkward.” (adult with DD 4, p.200)

“같이 놀고 싶어요. 친구랑 노래하고 춤추고 싶어요. 친구랑 같이 노는 거 너  
무 좋아.” (당사자 7, p.206)

“I want to play together. I want to sing and dance with my friend. I love  
hanging out with my friends.” (adult with DD 7, p.206)

However, there were conflicting opinions about ‘친구 (friend)’. It can be associated with the reason why the word ‘혼자 (alone)’ has appeared frequently.

“저는 혼자가 좋아요. 혼자 있어야 조용하니까. 여럿이 가면 싫어요. 친구 없어요.” (당사자 5, p. 202)

*“I like to be alone. It’s quiet when you’re alone. I don’t want to go with many people. I don’t have any friends.” (adult with DD 5, p.202)*

“저는 지금 혼자 사는 게 제일 딱 좋은데요. 나가서 친구 만나는 것도 관심 없어요.” (당사자 11, p.213)

*“I like living alone the most. I’m not interested in going out and meeting friends.” (adult with DD 11, p.213)*

‘어머니 (mother)’ and ‘아버지 (father)’ were both frequent, and they appeared together a lot. It shows that adults with DD are still relying heavily on their families.

“엄마랑 동생이랑 같이 여행 가려고 했는데요. 엄마가 아파 가지고. 동생은 아르바이트하느라고 바빠서 못 가고...” (당사자 1, p. 194)

*“I planned to go on a trip with my mom and brother, but my mom was sick, and my brother was busy working a part-time job.” (adult with DD 1, p.194)*

“요즘 어머니랑 매일 산책해요. 수변공원이랑 강이랑 걸어요. 2시간, 3시간. (중략) 그리고 집에 와서 아버지 집에 올 때까지 예배하고 찬송가 부르고.” (당사자 2, p.196)

*“I take a walk with my mother every day these days. I walk along the waterfront park and the river. Two hours, three hours. (interruption) And I come home and worship and sing hymns until my father comes home.” (adult with DD 2, p.196)*

Whereas they also mentioned independence from their family. Adults with DD wanted lifelong education, focusing on independence because of that.

“일해서 돈 많이 벌면 원룸 구해서 혼자서 살고 싶어요. 엄마랑 아빠랑 사는 거 답답해서요. (중략) 근데 혼자 살려면 마트도 혼자 가야하고 요리도 혼자 해야 하는데. 배우고 싶은 거 너무 많아요.” (당사자 5, p.201)

*“If I make a lot of money by working, I want to get a studio apartment and live alone. I’m frustrated about living with my mom and dad. (interruption) But if I want to live alone, I have to go to the mart alone and cook alone. There are so many things I want to learn.” (adult with DD 5, p.201)*

“이제 기숙사 나와야 하는데요. 대학교 계속 다니고 싶어요. 졸업하기 싫어요. 어머니랑 아버지 없이 혼자서 사는 거 좋았고...” (당사자 8, p.208)

*“I have to check out the dormitory now. I want to keep going to college. I don’t want to graduate. I loved living alone without my mom and dad.” (adult with DD 8, p.208)*

“자립 배우고 싶어요. 진짜 저는 다른 지역에서 혼자서 살고 싶어요. 아빠랑 한 집에 사는 것도 너무 싫고요.” (당사자 12, p.214)

*“I want to learn to live an independent life. I really want to live alone in another region. I hate living in the same house with my dad.” (adult with DD 12, p.214)*

In addition to independence training, demands for various educational content were drawn through interviews.

“저는 국어 배우고 싶어요. 저는 한글 너무 어려워서. 누나랑 카카오톡 보내는 것도 매일 틀려 가지고.” (당사자 1, p.194)

*“I want to learn Korean. Hangul is too difficult for me. I’m not good at texting using Kakao Talk.” (adult with DD 1, p.194)*

“컴퓨터도 배우고 싶은데요. (중략) 저는 살 빼고 싶어서 헬스 배우고 싶어요.” (당사자 8, p.209)

*“I want to learn how to use a computer. (interruption) I want to lose weight, so I want to learn how to work out” (adult with DD 8, p.209)*

“여행가고 노래하고 싶은데요. 그리고 컴퓨터로 게임하는 거랑요. 인터넷 어떻게 하는지도 알고 싶고요.” (당사자 9, p.210)

*“I’d like to go on a trip and sing. And I want to know how to play games on my computer and use the Internet.” (adult with DD 9, p.210)*

“저 이력서 쓰고 면접 보는 거 한 번도 안 해봐가지고 배우고 싶어요. 뭐 입어야 되는 지랑 어떻게 대답해야 하는지 잘 몰라서요.” (당사자 12, p.215)

*“I’ve never written a resume or done an interview before, so I want to learn. I don’t know what to wear or how to answer.” (adult with DD 12, p.215)*

“저는 운전 배우고 싶어요. 그리고 저는 차 운전해서 여행 다니고 싶어요.” (당사자 14, p. 218)

*“I want to learn how to drive. And I’d like to drive a car and travel.” (adult with DD 14, p.218)*

For adults with DD, the criteria for choosing a class are the teacher’s attitude and distance from their home. Accessibility is a critical issue, as many of them had difficulties using public transportation without additional help.

“(문화센터) 요리 수업은 솔직히 재미있기는 한데요. 선생님이 너무 별로예요. (중략) 제가 칼로 재료 자르고 하는 거 잘 못하니까 빨리 하라고 그러고. 그리고 어떤 선생님은요. 아예 다 못 자르게 하고 그냥 한 데까지만 하라고 그랬어요.” (당사자 4, p.200)

*“(Culture Center) Cooking classes are frankly fun. I don’t like the teacher there. (interruption) I’m not good at cutting ingredients with a knife, so she told me to hurry up. And some teachers didn’t let me cut them all. She told me to stop cutting ingredients” (adult with DD 4, p.200)*

“선생님이 착하면 배우고 싶어요. 무서운 선생님은 싫어요.” (당사자 6, p.205)

*“If the teacher is nice, I want to learn. I don’t like scary teachers.”*

(adult with DD 6, p.205)

“근데 저 혼자 버스 못 타가지고요. 멀면 안돼요.” (당사자 7, p.207)

“But I can't ride the bus alone. I can't go far.” (adult with DD 7, p.207)

Thus, adults with DD held opposite opinions to friends and parents. Some enjoyed hanging out with friends and parents, but the rest valued their time alone more. Participants who wanted independence from their parents claimed the need for self-reliance education. They also mentioned various educational content, such as computer, driving, and literacy. A qualified teacher should teach lifelong education in a nearby center or institute.

The result of the parents' are shown in Figure 11 and Table 13.

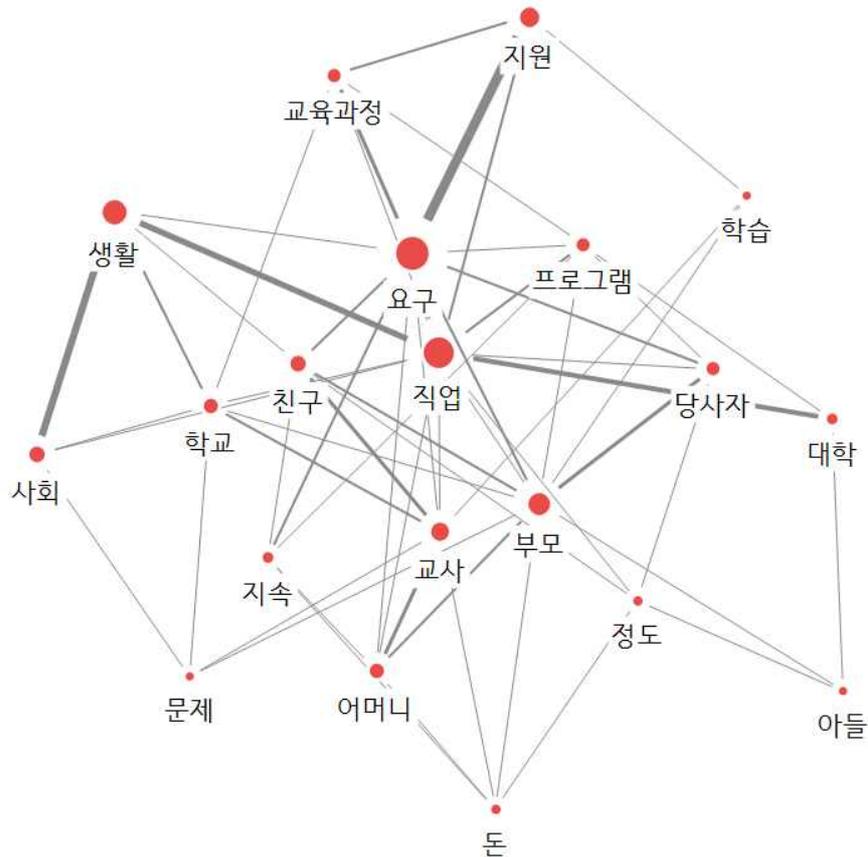


Figure 11. Semantic network of parents

Table 13. Centrality scores of parents

rank	degree centrality		closeness centrality		betweenness centrality	
		(M=.542, SD=.334)		(M=.564, SD=.08)		(M=.045, SD=.06)
1	요구 (demand)	1.368	직업 (job)	0.760	직업 (job)	0.228
2	직업 (job)	1.263	부모 (parent)	0.704	부모 (parent)	0.191
3	생활 (living)	0.947	요구 (demand)	0.704	요구 (demand)	0.105
4	부모 (parent)	0.842	교사 (teacher)	0.613	교사 (teacher)	0.074
5	지원 (support)	0.737	프로그램 (program)	0.613	프로그램 (program)	0.042
6	교사 (teacher)	0.684	어머니 (mother)	0.594	학교 (school)	0.038
7	사회 (society)	0.579	학교 (school)	0.594	친구 (friend)	0.034
8	친구 (friend)	0.526	당사자 (the person in concern)	0.576	정도 (degree)	0.033
9	어머니 (mother)	0.474	친구 (friend)	0.576	돈 (money)	0.020
10	학교 (school)	0.474	교육과정 (curriculum)	0.543	어머니 (mother)	0.019
11	교육과정 (curriculum)	0.421	정도 (degree)	0.543	생활 (living)	0.017
12	당사자 (the person in concern)	0.421	생활 (living)	0.528	지속 (continuance)	0.014
13	프로그램 (program)	0.421	지원 (support)	0.514	지원 (support)	0.014
14	대학 (college)	0.316	돈 (money)	0.500	아들 (son)	0.012
15	지속 (continuance)	0.316	문제 (problem)	0.500	대학 (college)	0.011
16	돈 (money)	0.263	사회 (society)	0.500	문제 (problem)	0.009
17	정도 (degree)	0.263	지속 (continuance)	0.500	교육과정 (curriculum)	0.009
18	문제 (problem)	0.211	대학 (college)	0.487	학습 (learning)	0.009
19	아들 (son)	0.158	학습 (learning)	0.475	당사자 (the person in concern)	0.007
20	학습 (learning)	0.158	아들 (son)	0.463	사회 (society)	0.007

The words with high degree centrality representing the main perception of parents were ‘요구 (demand)’, ‘직업 (job)’, ‘생활 (living)’, ‘부모 (parents)’, and ‘지원 (support)’. The degree centrality of ‘생활 (living)’ and ‘사회 (society)’ was ranked relatively higher compared with other centralities. They serve as hubs in the sub-network of this topic, as identified by the cohesion analysis.

Meanwhile, ‘정도 (degree)’ and ‘돈 (money)’ had a higher betweenness centrality rank than degree centrality. It can be easily suggested that these words are intersections that connect networks.

Parents mentioned the need for lifelong education to support careers and the daily lives of adults with DD. Statements representing these needs are as follows.

“그리고 또 직업 준비를 해야 하는데 이 아이가 뭐 사무직에 취직하지는 못한다고 해도 청소하고 정리하고 이런 거는 잘 할 수 있는데 조금 더 그런 거를 배웠으면 좋겠어요. 다른 사람은 청소하고 정리하는데 교육이 왜 필요하냐고 할 수도 있는데 어머니까 전 알잖아요. 진짜 필요해요.” (부모 1, p.123)

“And he has to prepare for his job. Even if he doesn't get a job in the office, he can clean up things. I wish he could learn to do that. Others might ask why they need the education to clean up, but I know it because I'm a mom. He really needs it.” (parent 1, p.123)

“제가 죽고 나서도 우리 아이가 지금처럼 이런 삶을, 생활을 그대로 유지하려면 더없이 좋겠어요. 평생교육센터라는 그런 기관이 있으면 그런 낮활동을 일단은 책임을 지는 거잖아요.” (부모 10, p.155)

“I wish my child would live like this even after I die. If we have lifelong education centers, they are responsible for daytime activities.” (parent 10, p.155)

“평생교육은 직업 연계와도 관련이 있기 때문에 중요한 거죠. (중략) 앞으로

는 정도에 대한 평생교육 내용은 주거, 직업에 초점을 맞추어야 해요.” (부모 13, p.180)

*“Lifelong education is important because it's also related to job linkage. (interruption) From now on, the content of lifelong education for persons with mild DD should focus on housing and jobs.” (parent 13, p.180)*

The word '사회 (society)' was used a lot to describe social adaptation or the atmosphere of society.

“그래도 어디 가서 사회의 악이 되지는 말아야 된다는 생각은 항상 하죠. 요즘 특히 뭐 성적인 그런 문제 일으키는 사람이 많으니까...” (부모 1, p.123)

*“But I always think that my son should not go anywhere and become a social evil. Especially since many people are having sexual problems these days.” (parent 1, p.123)*

“진짜 OO이가 사회에 잘 살 수 있도록 엄마랑 아빠가 없어도 혼자서 살 수 있도록 그런 교육이...” (부모 2, p.127)

*“To help OO live well in society so that he can live alone without mom and dad.” (parent 2, p.127)*

“본인이 좋아하는 취미를 조금씩 인정해주는 그런 사회적 분위기가 마련되었으면 참 좋겠다고 생각을 했고요.” (부모 10, p.157)

*“I thought it would be nice to have a social atmosphere where other people recognize the favorite hobbies of persons with DD.” (parent 10, p.157)*

Not many words were chosen as the only keyword in the parent group. This shows that other groups have a common understanding of concepts that parents value. Still, the unique need for social adaptation education and a positive social environment were proposed.

## V. Conclusion

### A. Discussions

This study used a quantitative research method using the SNA to explore the perception of lifelong education for persons with DD. Specifically, this study helped raise the understanding of how experts, special teachers, adults with DD, and their parents perceive the lifelong education for persons with DD. Words obtained from a total of 60 interviews were analyzed by frequency, semantic network, and cohesion using NetMiner 4.4 (Cyram, 2018). A detailed examination of the results generated the ensuing discussion.

#### 1. Keywords and their implications

This study extracted 2,405 nouns from all interview data. From those, 500 keywords were used to create wordcloud and 110 keywords were presented. Following are the primary results of frequency analysis and their implications.

First, most of keywords were in relation with employment and independent life. This can be seen that lifelong education program should be designed to prepare jobs and independence in response to the needs of adults with DD and their parents. Although, the focus of lifelong education is self-improvement and learning achievement, a different perspective should be given to that of adults with DD. In similar vein, the teachers of night school for adults with disabilities indicated that educational purpose of lifelong education is increasing

capabilities or adults with DD to live independently in the community (Lim, Jung, & Ahn, 2016).

The reason why vocational education is emphasized is that it is essential to achieve a successful transition that contributes to the community as an independent member (Choi & Han, 2015). Thus, long-term and specific planning and education for job preparation, job adaptation, and job retention are recommended. Perhaps it would be informative to cite the comments of Kim (2002): “Work could be a source of joy, and the goal of career counseling should be expanded from adaptation to a job to the development of people’s potential and talent.” Vocational lifelong education for adults with DD should also be designed in consideration of the pleasure.

Second, the keyword ‘요구 (demand)’ ranked relatively higher than other keywords in all results. According to the Korean dictionary, ‘요구 (demand)’ means asking for what needs to be received by necessity (National Institute of Korean Language, 2019). It can be interpreted that participants in this study firmly perceive the gap between ‘what it is’ and ‘what it should be’. While it may take a myriad of efforts to get lifelong education for persons with DD into the right direction, it will be possible to seek direction through continued research and attention.

Third, keywords related to program content were also frequently used. However, in that lifelong education needs of adults with DD differ so much by their disability characteristics and type, a systematic analysis of the needs is necessary. When developing programs, the characteristics of persons with DD, such as their service demand level or disability type, and their demand for program content should be fully considered.

Hong and Jo (2018) offered useful insights into developing lifelong

education programs by suggesting the development of the vocational program. Even though persons with DD and their parents continuously demand programs for job preparation, lifelong education is being oriented toward leisure and cultural education (Hong & Jo, 2018). Organizing and guiding a curriculum or a program centering on the ‘core competencies’ preferentially required for adults with DD could be presented as one suggestion (Beak, 2015). Further research should be conducted focusing on the in-depth needs of adults with DD on lifelong educational needs.

Fourth, despite the hypothesis that people strongly criticise the top-down policy at the national-level, keywords regarding the national-level policy were appeared a lot. Therefore, a national-level curriculum or systematic programs reflecting the demand of adults with DD should be constructively developed. Lack of programs and a reduced participation rate lead us to consider new alternatives. However, according to Ji (2019), the top-down operational model of Korea may hinder program diversification and activation. Therefore, we need to understand the needs of persons with DD and other relative parties.

## **2. Semantic network and its implications**

The semantic network was identified along with the degree, closeness, betweenness centralities. Following are the critical results of semantic network analysis and their implications.

First, noun keywords, such as ‘직업 (job)’, ‘요구 (demand)’, and ‘프로그램 (program)’, represented the primary issue on lifelong education for persons with DD. As with frequency analysis results, this suggests that independent life through employment is important and

that there are many demands for the program.

Second, according to betweenness centrality scores attained by SNA, ‘친구 (friend)’, ‘교사 (teacher)’ and ‘부모 (parent)’ were the mediator which connects other keywords. Indeed, friends, teachers, and parents play an important role in the perception of lifelong education of persons with developmental disabilities. Personal relationships are one of the key issues requiring attention if persons with DD are to experience a quality life in the community (McVilly, Stancliffe, Parmenter & Burton-Smith, 2006; Reinders 2002; Wolfensberger 2000). This could be more effective if persons with DD had a greater opportunities of meeting others through lifelong education. Therefore, lifelong education programs should be able to contribute to the formation of relationships with people around them, such as family members, friends and teachers.

Third, there were four communities when modularity cohesion was measured: (1) daily life, (2) system, (3) operator, and (4) priority support area. This would mean that perception on lifelong education for DD is largely divided into four areas. In this study, the focus question was ‘What should lifelong education be for persons with DD?’. Still, most of the participants in the study started the interview with a description of the current situation. Through this, this study results were able to analyse both the stories about the current state of and the future directions. The first and fourth cluster can be seen as good example.

In addition, the fact that clusters of institutions and operating subjects were derived shows that respondents are highly aware of the importance of suppliers. As such, there is a strong need or awareness of the supplier, but little is known about what the supplier’s perception is. As Kim and Lee (2018) suggested, future

research focusing on workers in lifelong education centers for persons with disabilities should be able to identify their competence, interests, thinking processes, or beliefs, and collect opinions on operational difficulties or factors for activating lifelong education.

### **3. Aspects of semantic network by groups and their implications**

Keywords and their semantic networks were also measured by groups. Through this process, it was possible to examine the aspects of perception by groups in detail.

First, perceptions of experts were focused mainly on the curriculum and program management. Law and procedure can be also seen as their main interest. Teachers and parents also actively mentioned the need for curriculum and programs, but the words' connectivity were strongest in the expert group. Similarly, Kim (2015) denoted that experts participated in his study called for the government's policy and budget support and program development and management for successful lifelong education.

Considering the characteristics of experts who draw up policy proposals and conduct research, this might be a natural outcome. However, in order to communicate smoothly with other groups, experts will also have to think more broadly about how to support lifelong education for persons with DD.

Second, teachers mentioned most about welfare center, center, and institutions. The interesting point was that the closeness centrality of '기관 (institution)' were considerably high. In other words, teachers use the word '기관 (institution)' to explain many aspects of lifelong education, but they did not define or recognize '기관 (institution)'

clearly. High school special teachers play a key role in transition and career guidance for students with DD (Sitlington, Clark, & Neubert, 2010). Nevertheless, their perception on lifelong education for adults with DD identified in this study remained mainly on the role of centers and institutions. Thus, close cooperation among experts of special education, lifelong education, and social welfare is needed.

According to a previous study, lifelong education and social welfare experts were not much different. Despite significance of inclusion in community, social workers, who are in charge of lifelong education for general population, are less aware of the need to connect with lifelong education for persons with DD (Kim, Lee, Lee, & Cho, 2019). Rather than limiting lifelong education for adults with DD to a task of their parents, it is necessary to establish a more systematic and stable plan within the interdisciplinary framework.

Third, the quality of personnel and centers for lifelong education should be controlled according to teachers' semantic network. The quality of personnel determines the quality of lifelong education service for persons with disabilities (Cha & Hwang, 2017), and their awareness towards disability significantly affect the satisfaction of persons with DD (Baek & Ahn, 2017; Seo, Park, & Park, 2014). However, despite the fact that welfare centers for persons with disabilities are responsible for operating lifelong education programs, the expertise of the staff in charge is very insufficient (Kwon & Jung, 2017).

Clearly, the lecturer's specialized knowledge of lifelong education and DD guarantees the quality of education. That is why we need to manage the quality of personnel and to provide a training program regularly. In this context, a plan has been drawn up to run a lifelong educator qualification system. Unlike the preceding study, which

suggested that lifelong education methods are the most important (Hyun, Yang, & Bae, 2017), participants in this study strongly argued the importance of specialized knowledge on characteristics of persons with DD.

Fourth, adults with DD strongly demanded the facilities near their house and keywords related to social inclusion have actively appeared. Hence, lifelong institutions should be more established in the community. Learners with DD may find it difficult to fully demonstrate their potential abilities when educational conditions are arranged (Kim, 2018). There have been many calls for running public institutions in the national or local governments until lifelong education for persons with DD becomes stable.

However, the results of prior studies varied on inclusive lifelong education institutions. To lower costs and increase accessibility, some argued that lifelong education institutions, such as welfare centers for general people, should be shared (Cho & Kim, 2016; Cho, Jeong, & Kim, 2018). Nevertheless, others found it more efficient to separate from general education (Cho & Park, 2015; Son et al., 2016).

Many experts also suggested college or university as an alternative to the current lifelong education operator. The need for university-based lifelong education has been pointed out several times in prior studies (Kim, 2018; Kim & Kim, 2015; Lee, Jung, Kang, & Cho, 2017). However for now, resource constraints will only allow the development of a university-based lifelong education model if policy support is supported (Kim & Kim, 2015). As accessibility to smart devices is extended, educational technology experts generally agreed with the positive effects of smart education (Lim, Han, Jung, & Yunus, 2017). Perhaps it is time to consider the remote lifelong education using smart devices for people with DD.

Fifth, as adults with DD had conflicting opinions toward friends and group class, lifelong education should be delivered in various means of setting. For example, some of them should be taught in a large group, and some of them should be placed in a small group consisted of close friends. This result that adults with DD might not prefer group class refute the results of a previous study in which adults with disabilities prefer group class the most (Cho & Kim, 2018). Future research should be conducted to identify preferences for class formation because there is not much information.

Sixth, many parents said they should be wary of others when their adult child participates in activities. For this, a welcoming atmosphere towards persons with DD should be formed. Disability awareness education must be provided to community members and staffs working in lifelong education institute. Effective education for disability awareness improvement should be applied with various education methods and assessments for systematic change in the cognitive, emotional, and behavioral aspects of disability (Kim, Lee, Kim, Lee, Jang, Hwang, 2018).

In particular, teachers and staffs working in lifelong education institutions for persons with DD should have the sensitivity to disability to be aware of differences in educational needs or characteristics required by persons with DD (Kwon & Jung, 2016; Baek, 2015; Cho & Kim, 2016). However, previous study have shown that the level of staffs' disability awareness was still being insufficient (Kwon & Kwak, 2018). Further research on ways to improve disability awareness in lifelong education facilities will also need to be carried out.

## B. Limitations

The following are some of the limitations of this study.

First, this study is based on the data collected from a total of sixty interviews, and it cannot be generalized to all DD population. Although the current sample size is an acceptable one in SNA based on the criteria of Lim and Lee (2013).

Second, it might be difficult to further speculate in-depth perceptions because semantic network tends to show only the overall keywords and their connections. Despite that, this study also provided centrality scores and statements related to the keywords for further information.

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## 국 문 초 록

성공적인 성인기 삶은 자립과 사회적 통합, 지역사회 참여에서 완성된다고 해도 과언이 아니다. 그러나 지적 기능과 적응행동상의 결함으로 많은 어려움을 겪는다는 점에서 발달장애인에게 성인기 삶은 도전적인 과제가 될 수 있다. 따라서 지속적이고 체계적인 발달장애인 평생교육의 중요성이 널리 인식되고 있다. 그러나 한국형 발달장애인 평생교육은 정부주도의 하향식 정책으로 진행되어 왔다는 점에서 정작 당사자와 부모의 요구를 충분히 반영하지 못한다는 제한점이 있다.

이에 본 연구는 언어 네트워크 분석을 활용하여 발달장애인 평생교육에 대한 전문가, 교사, 당사자 및 부모의 인식을 객관적이고 시각적으로 제시하는데 목적이 있다. 본 연구의 결과는 상향식(bottom-up)의 정책적 함의를 이끌어낸다는 점에서 의의가 있다.

본 연구에서는 전문가, 교사, 당사자 및 부모 각 15인, 총 60인을 대상으로 인터뷰를 실시한 후, NetMiner 4.4를 활용하여 언어 네트워크 분석을 실시하였다. 구체적으로는 전체 인터뷰 자료의 명사 단어 빈도를 분석하여 상위 110개 단어를 추출한 후, 언어 네트워크 시각화, 연결·근접·사이중심성 분석, 모듈성 응집성 분석을 실시하였다. 각 집단별 인식의 차이를 확인하고자 집단별 단어 빈도와 중심성도 추가로 분석하였다.

연구 결과는 다음과 같다. 총 110개 상위 단어에는 다양한 핵심어가 포함되었으며, ‘직업’, ‘요구’, ‘프로그램’ 등이 가장 대표적이었다. 또한 중심성 분석을 통해 ‘친구’, ‘교사’, ‘부모’ 등이 평생교육 운영에 영향을 미치는 잠재적 요인임을 확인하였다. 모듈성 분석을 통해 4개의 군집을 도출하였으며, 각각 일상생활 (G1), 시스템 (G2), 운영주체 (G3), 우선지원영역 (G4)로 명명하였다.

집단별 단어 빈도 분석 결과, 각 집단에서 인식하는 평생교육의 핵심 쟁점에는 차이가 있는 것으로 나타났다. 전문가 집단은 국가수준의 교육과정이나 프로그램이 필요하며, 대학을 활용한 평생교육 운영을 제안하였다. 또한 법이나 제도적 기반을 공고히 해야 함을 지적하였다. 특수교사 집단은 학습자 수준을 고려한 프로그램 개발과 적용을 주장하였으며, 학령기 교육과의 연계 여부에 대해서는 의견 차이가 있었다. 또한 운영기관의 전문성과 질 관리가 반드시 필요하다고 하였다. 당사자의 인터뷰 내용에는 친구와 부모에 대해 긍정적인 입장과 부정적인 입장이 혼재되어 있었다. 인터뷰 진술문을 확인한 결과, 이러한 입장 차이는 소규모 수업이나 자립 준비 교육에 대한 선호로 이어지기도 하였다. 또한 당사자가 요구하는 평생교육 프로그램의 영역은 문해, 컴퓨터, 여가, 직업 준비, 운전 등 매우 다양하였다. 당사자의 평생교육 프로그램에 대한 추가 요구사항은 자격을 갖춘 교강사와 가까운 기관인 것으로 나타났다. 마지막으로 부모 집단의 의견은 다른 집단들과 크게 차이가 나지 않았다. 이를 통해 부모의 의견이 사회적으로 많이 반영되고 있으며 그 중요성을 공통적으로 인식하고 있는 것을 확인할 수 있다. 부모의 인식에 따르면 전반적으로 자립이나 직업교육의 확충, 자녀의 사회 적응이나 사회적 인식 개선이 필요함을 알 수 있었다. 연구결과와 선행연구를 바탕으로 시사점과 제한점을 논의하였다.

**주요어 :** 발달장애인, 평생교육, 인식, 언어 네트워크 분석

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