



Development of Competency-based Horticulture Rehabilitation Assistant Curriculum for Disability University Students

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Abstract

This study aimed to design for curriculum and criteria for education model of the horticulture rehabilitation assistant for disability university students. In this study, a DACUM (Development A curriculum) method job analysis such as task range, eligibility, core competency, index of capacity, etc. was done by an job analysis committee composed of 12 specialists in the industry and academia. The first step, this report presents task analysis models by procedures for disability university student. The second step is preparation for task analysis by data research, interviews and selection of experts. The third step is the establishment of core competency by the expert council and site study. The fourth step is the drawn-out of index of capacity by the expert council and site study. The fourth step is the selection of curriculum and non curriculum subject, The last step is the establishment of guidelines for horticulture rehabilitation assistant.

Key words: *capacity, developing a curriculum, disability, task analysis*

I. Introduction

As the “Act on Guarantee of Rights of and Support for Developmentally Disabled Persons” was enacted (on November, 2015), the social atmosphere for the higher education and social engagement of the developmentally disabled has changed in a positive direction, and thus the college entrance rate of the developmentally disabled is also expected to rise. However, since specialized educational curricula for them have not been sufficiently implemented, it became necessary to conduct studies on college educational curricula for the developmentally disabled. Horticultural areas have been recently reported to have a comparative advantage from this perspective (Lee et al., 2012), and several studies have attempted to integrate horticulture and rehabilitation in college educational curricula not just for emotional effects but also for vocational rehabilitation. According to a report on specialized educational curriculum in K university—a target college of this study—as of 2016, educational curricula for developmentally disabled students have been

developed based on the multidimensional framework for human functioning that was suggested by the AAIDD (American Association on Intellectual and Developmental Disabilities). The multidimensional framework to understand and educate developmentally disabled students is comprised of intellectual ability, adaptive behavior, health, participation, and context. Adaptive behaviors are divided into perceptual skills, social skills and practical skills, and perceptual skills, in turn, include communication and self-direction; social skills include interpersonal relationships, rule compliance, emotional expression, and self-esteem. Meanwhile, competency means internal characteristics, required to effectively and excellently handle certain circumstances and tasks, such as knowledge, skills and attitudes, and it also covers a dynamic ability to handle different environmental contexts. Thus, a competency-based college educational curriculum can reflect an ability to confront challenges that developmentally disabled students may face in society from perspectives of knowledge, skills and attitudes. It is also very suitable to manage the quality of education, and focuses on vocational-oriented education, not on academic-based education (Kim et al., 2014). Since vocational-oriented education can contribute to the realization of the ultimate goal of vocational rehabilitation—employment, the development of a horticultural curriculum for the developmentally disabled based on the

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multidimensional framework mentioned above can be recognized as a practical attempt to research. In this regard, this study aimed to set core competencies that must be prioritized, to suggest learning standards, and to provide ways to manage the quality of education. Horticultural tasks that can be performed by the developmentally disabled were selected by analyzing earlier studies including a study on the background of competency-based education from a pedagogical perspective (Kouwenhoven, 2005; OECD, 2001); a study on the definition of competency (McCillend, 1973); a study on competency-based plant protection engineers (Kim and Kim, 2010); a study on curricula for horticultural therapists (Kim et al., 2014); a study on the standards of floral decoration tasks (Park et al., 2014); and a study on landscape tasks (Back et al., 2012). Meanwhile, in the project that was commissioned to K University by the Department of Preschool Special Welfare of the Chungnam Office of Education in 2015, it was found that education for basic abilities should be offered in advance to provide a curriculum suitable for developmentally disabled students. In a study that analyzed the tasks and performance of horticultural therapists (Kim et al., 2014), a task analysis technique using a DACUM (Development A curriculum) method was verified to be effective in this kind of studies (Kim et al., 2015). In addition, in a study on employment evaluation conducted in the United States, tasks such as raking leaves and shoveling were 100% done by the developmentally disabled, and tasks such as handicraft, snow shoveling, paper folding and garden cleaning were 80% done by them compared to normal persons and they received fair grades and above from supervisors (Relf, 1992). Comprehensively considering the results and the levels of difficulty of horticultural tasks in the Dynamics of Horticulture, horticultural tasks can be applied to the developmentally disabled when horticultural curricula for them are divided into pre-vocational basic education and education for task skills. It is also possible to achieve the well-rounded rehabilitation of disabled persons themselves, and to improve their competency as a horticultural rehabilitation assistant. Therefore, this study aimed to suggest competency indices and a standard model that can be used in implementing a curriculum for horticultural rehabilitation assistants in college; to contribute to the establishment of the qualitative management and application standards of horticultural curricula for the developmental

disabled; and ultimately to suggest a research model for the convergence of horticulture and rehabilitation.

II. Research method

1. Research scope

In this study, relevant terms were defined and theoretical backgrounds were researched to analyze the characteristics of the task performance of the developmentally disabled. A focus group comprised of experts and specialists in horticulture and rehabilitation for the developmentally disabled was formed to review the current status of horticultural rehabilitation for them and to select horticultural tasks. Based on the selected tasks, core competencies were selected and competency indices were suggested. The selected competencies and indices were divided into curricular and non-curricular subjects, and based on them, a curriculum was designed. Finally, desired knowledge, skills and attitudes were defined by subject, and standards for a competency-based curriculum for horticultural rehabilitation assistants were suggested.

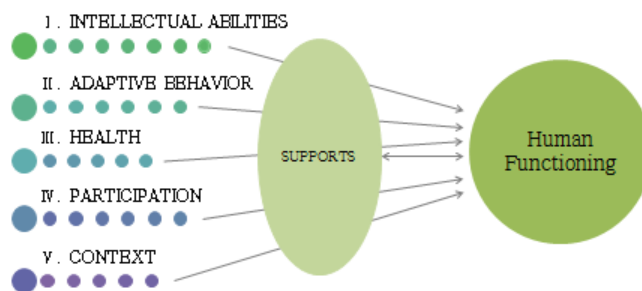


Fig. 1. Principle of a curriculum for disabled was suggested by American Association on Intellectual and Developmental Disabilities

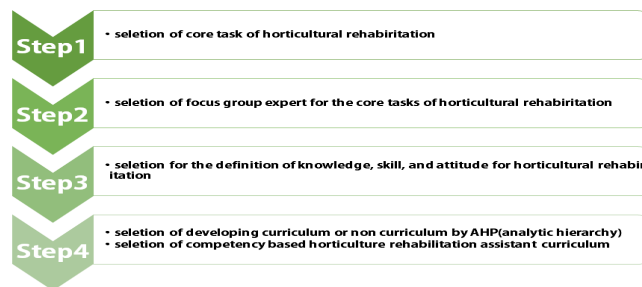


Fig. 2. Process of Research.

2. Research steps

Step 1. Definition of terms

In this study, a curriculum for horticultural rehabilitation assistants is defined as a curriculum for intellectually, autistically and mentally disabled persons who are interested in horticulture to play an assistant role in horticultural rehabilitation while simultaneously realizing their rehabilitation and providing rehabilitation therapy services to others (www.kswi.or.kr). Developmentally disabled persons are intellectually and autistically disabled persons among those defined in paragraph 1 of Article 2 of the Act on Welfare of Persons with Disability (Act on Guarantee of Rights of and Support for Developmentally Disabled Persons), and developmentally disabled college students are those who have intellectual or autistic disorders and who are enrolled college students after having graduated and passed a certain college entrance exam.

Step 2. Theoretical analysis of the behaviors of developmentally disabled students

Through the theoretical analysis of the characteristics of vocational skills of developmentally disabled persons, it was found that curricula for them should comprehensively handle not only vocational skills, but also other basic attitudes associated with such vocational skills including safety rules, manners in daily life, problem solving and interpersonal relationships (Oh, 2003). The developmentally disabled feel a difficulty in learning complex skills and need to repeatedly practice to acquire skills, but they rapidly forget the acquired skills and feel a difficulty in comprehensively processing the skills (Song, 2003). In addition, it is difficult for them to maintain relationships with colleagues and socialize themselves, and they are so easily distracted that they may disturb others to

perform their tasks (Kang, 2006). These characteristics should be taken into account when selecting the core competencies of the developmentally disabled for horticultural rehabilitation. The competencies need to be divided into pre-vocational competencies and competencies to develop task skills, and they should be included in the curriculum.

Step 3. Forming a focus group (committee)

A focus group (committee) was formed with experts and specialists who had long experiences in contacting developmentally disabled persons and handling associated vocational rehabilitation, and in horticultural fields. Horticultural specialists selected herein include those who majored in horticultural therapy or floral decoration, and who had experiences of running botanical gardens. Rehabilitation specialists selected herein include professors of special education and vocational rehabilitation, and therapists who had also a least 5 years of experiences in utilizing horticultural rehabilitation programs in rehabilitation centers for the disabled. Since it was at an early stage of the employment of the developmentally disabled in horticultural areas, it was difficult to form the committee with specialists with relevant experiences. However, by utilizing the network of K University that had a specialized department of rehabilitation welfare, and that of the Korea Employment Agency for the Disabled, the list of specialists who had a profound understanding of and interest in the convergence of horticulture and rehabilitation was acquired. Among them, 12 people were selected as shown in Table 2: 2 specialists in horticulture, 1 specialist in special education, 1 professor in vocational rehabilitation, 7 field specialists and 1 facilitator.

Step 4. Task analysis (DACUM)

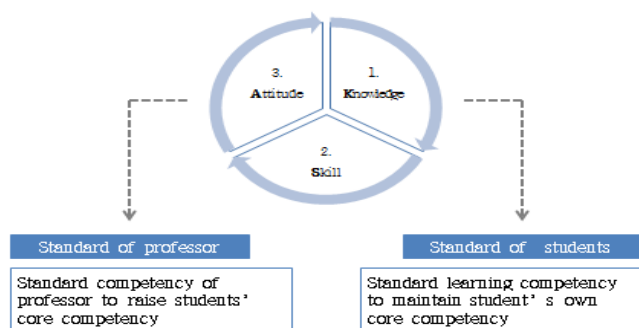
Using a DACUM technique, it is possible to improve field

Table 1. The steps of the meetings of the focus group.

Step	Procedure	Method
Step1	Preparing of task analysis	Requirements analysis research & discussion
Step2	Defining of core competency	The primary focus group interview
Step3	Defining of competence indices	Secondary focus group interview
Step4	Distinguishing of curriculum or non curriculum	Third focus group interview & AHP analysis
Step4	Developing of curriculum and standard of knowing skill and attitude	Forth focus group interview & discussion

Table 2. Positions of the members of the focus group.

Name	Career (yr)	Position (Major)
Kim00	20	Professor of horticulture rehabilitation
Yoo00	20	Professor of special education
Kim00	20	Professor of floriculture
Kim00	20	Professor of rehabilitation
Min00	5	Specialist of rehabilitation
Park00	5	Specialist of horticulture
Oh00	5	Specialist of horticulture
Hwang00	5	Specialist of horticulture
Gook00	5	Specialist of rehabilitation
Kim00	5	Specialist of rehabilitation
Park00	5	Specialist of horticulture
Park00	5	Specialist of horticulture

**Fig. 3.** Standard competency model

applicability by analyzing tasks through 2–3 times of workshops of the committee comprised of experts, and identifying duties and tasks highly related to fields (Park, 2014). Based on the results, tasks suitable for the developmentally disabled as horticultural rehabilitation assistants were selected. Although new tasks can be added upon the development of new employment areas going forward using a field-oriented approach, tasks and core competencies were selected and defined based on the current status, and competency indices were selected based on them. On the selected core competencies, a validity survey was conducted among 40 field teachers of horticulture and rehabilitation using a 5-point Likert scale. They were divided into curricular and non-curricular items, and a curriculum was developed accordingly. Table 1 shows the process of proposing the learning standards of competency indices separately by knowledge, skill and attitude. The process was performed through 4 times of meetings.

Step 5. Proposing a competency-based curriculum model

The relative priority of tasks was analyzed using an AHP (Analytic Hierarchy Process) technique in the meetings, and based on the analyzed results, core competencies and competency indices were classified into curricular and non-curricular subjects. The three key factors in a competency-based curriculum—knowledge, skill and attitude—were defined, and a standard competency-based curriculum model was proposed.

III. Results and discussion

1. Analysis results of tasks of horticultural rehabilitation assistants

Representative tasks of horticultural rehabilitation assistants that could be performed by the developmentally disabled, were selected by the focus group as shown in Table 3: making and delivering standardized products at a flower shop; taking care of and moving plants at a botanical garden or horticultural farm; and packing products and providing services at a horticultural product manufacturing company. Horticultural rehabilitation assistants play a role to provide assistance in fields associated with horticulture, but the role has not been fully utilized currently. Therefore, experts and specialists in horticulture and vocational rehabilitation discussed in depth the topic based on their expertise and experiences. They considered the characteristics of the developmentally disabled including their cognitive, physical and social functions that were affected by cognitive and sensory disorders, and other learning disorders caused by congenital or acquired damage in the cerebrum. Through the discussion, several tasks that could be applied from cognitive, physical and mental aspects were selected among existing tasks of horticultural therapists and

Table 3. Definition of tasks of horticultural rehabilitation assistants were selected by the focus group.

Task	Definition of task
Making	Making horticultural products according to field manual
Delivery	Delivering horticultural products according to field situation
Packing	Packing horticultural products according to field requirement
Caring	Taking care of plants according to field situation
Service	Providing service for others with horticulture programs

plant protection engineers. Table 4 shows pre-vocational competences and vocational competences. Selected pre-vocational competences include competencies to calculate, understand sentences, use a computer, communicate, and manage personal hygiene and safety. Vocational competences were divided into physical, cognitive and social abilities. Physical abilities include moving objects with gross motor skills, using horticultural tools such as cutting out, pressing and watering activities using muscular strength. They also include competences to perform fine-controlling manual tasks using local muscles of the arms and body, and physical flexibility, and competences to use five senses. The focus group seemed to find that fine-controlling senses utilizing fine motor skills were the most essential in horticultural activities. It also found that cognitive abilities were the most important among others, and they include a competence to recognize tasks through five senses; orientation abilities to recognize spatial, temporal and seasonal changes;

short-term and long-term memory; a competence to imitate and create tasks; and a competence to distinguish the sizes, forms and textures of plants through observation. Selected social abilities include a competence to be considerate of others; a competence to cooperate with others; and a competence to respect others. The selected competences are consistent with the horticultural tasks that the developmentally disabled are currently engaged in, such as delivering flowers at B social enterprise; managing plants at C botanical garden; packing horticultural experience materials at F laboratory; and selling horticultural items and flower teas at A cafe.

2. Verification results of validity of core competences

Since there was no earlier study on the development of tasks of horticultural rehabilitation assistants, relevant studies were reviewed first. Kim et al. (2014) selected 8 duties and 45 tasks for horticultural therapists, and Park et al. (2014) suggested

Table 4. Name and definition of core competencies and competence indices.

Core competency	Index of competence
Pre-vocational basic ability	competency to calculate
	competency to understand sentence
	competency to ask and answer questions
	competency to use computers
	competency to manage personal hygiene
Physical ability	competency to manage safety
	competency to perform works using fine muscles of arms and entire body with flexibility
	competency to use horticultural tools
	competency to sense of sight, hearing, smell, touch, pain
	competency to perform works finely with hands
Cognitive ability	competency to deliver container
	competency to memorize short term or long term memory
	competency to observe
	competency to concentrate on work continuously
	competency to distinguish plants
Social ability	competency to imitate and create expression
	competency to space design
	competency to recognize space, time, person, season
	competency to cooperate with others
	competency to take etiquette others
	competency to share one's emotions
	competency to take care of others

assistant tasks for floral designers. Bak et al. (2008) suggested 46 tasks for landscape architectures, and Kim & Kim (2012) described tasks of engineers to nurture and protect indoor and outdoor plants. Based on the reviewed literature, the validity of selected competences in Table 4 was verified through a survey among 20 field specialists in rehabilitation centers for the disabled, and 20 horticultural field specialists. Except one disqualified respondent, the results of 39 respondents were analyzed for descriptive statistics, and the results were over 3.6 on average on the 5-point scale, showing a relatively high validity (Table 5). This can be attributable to the fact that pre-vocational competences associated with safety, communication, calculation, self-management and interaction were selected based on the principles suggested by the AAIDD (American Association on Intellectual and Developmental

Disabilities) and the multidimensional framework for human functioning. Another reason behind the high validity of the selected competences evaluated by field specialists is that physical, cognitive and social competences for vocational skills were selected based on the opinions of experts by converging the understanding of experts in horticulture and rehabilitation.

3. Results of classification of curricular and non-curricular subjects

Horticultural activities involve elaboration, naturally requiring collaboration with others in moving objects, digging the soil and planting. This is why the experts in the focus group recognized social abilities to cooperate with others as key competences. Meanwhile, the employment rate of the developmentally disabled is low and their turnover rate is also about

Table 5. Summary of statistics of variables.

Index of capacity	N	Min	Max	Mean ^z	SD ^y
competency to manage safety	39	3.00	5.00	3.9231	0.62343
competency to understand sentence	39	2.00	5.00	3.8462	0.67037
competency to ask and answer questions	39	3.00	5.00	4.2308	0.70567
competency to use computers	39	2.00	5.00	3.3077	0.83205
competency to manage personal hygiene	39	2.00	4.00	3.2308	0.58316
competency to calculate	39	3.00	5.00	3.8462	0.67037
competency to perform works using fine muscles of arms and entire body with flexibility	39	2.00	5.00	3.3846	0.74747
competency to use horticultural tools	39	2.00	4.00	3.2308	0.58316
competency to perform works finely with hands	39	2.00	5.00	3.9231	1.01007
competency to sense of sight, hearing, smell, touch, pain	39	2.00	4.00	3.0000	0.88852
competency to delivery container	39	3.00	5.00	4.0000	0.68825
competency to memorize short term or long term memory	39	3.00	5.00	3.7692	0.70567
competency to observe	39	2.00	5.00	3.7692	0.80986
competency to concentrate on work continuously	39	2.00	5.00	3.6154	0.93514
competency to distinguish plants	39	2.00	4.00	3.1538	0.67037
competency to imitate and create expression	39	3.00	5.00	3.6154	0.63310
competency to space design	39	2.00	5.00	3.3077	0.83205
competency to recognize of space, time, person, season	39	2.00	5.00	3.6154	0.74747
competency to cooperate with others	39	2.00	5.00	3.9231	1.01007
competency to take etiquette others	39	2.00	5.00	3.6154	0.93514
competency to share one's emotions	39	2.00	5.00	3.8462	0.67037
competency to take care of others	39	2.00	5.00	3.9231	0.62343

^zMean: average score.

^ySD: standard deviation.

60% (Kim, 1996). The main reason behind the results is difficulties in interpersonal relations, rather than the lack of skills, and thus the focus group found that this should be sufficiently handled in the category of social abilities for the success of vocational rehabilitation. It is possible to improve the social abilities through an internship program which can be continuously operated as a non-curricular activity regardless of the schedule of semesters. Since several issues may arise in the case of a 15-week curriculum, the curriculum was designed by separating curricular and non-curricular subjects. Curricular activities have temporal limitations while non-curricular subjects can utilize time continuously. Considering their characteristics, curricular and non-curricular subjects were divided based on the number of hours, and core competencies were also divided accordingly. Those that were required for both curricular and non-curricular subjects were physical and cognitive competencies, and in forming the content of the curriculum, training activities to enhance both physical and cognitive abilities were simul-

taneously reflected. Meanwhile, non-curricular subjects include those to strengthen self-management abilities and fine motor skills and to produce “floral decorations” creatively. In addition, horticultural experience programs and field trips were included as non-curricular subjects in order to ensure developmentally disabled students have an active attitude to participate in vocational tasks. They can be operated both during semesters and vacations to ensure they can continue to participate in hands-on activities through “internship” programs such as visiting botanical gardens, horticultural experience centers and companies that manufacture horticultural products. Abilities to clean up fields and provide services with a positive attitude were also reflected as ability indices. Those among core competencies and ability indices that were included as curricular and non-curricular subjects respectively were selected through hierarchical analysis. This hierarchical analysis technique used in this study is a new method to make decisions to analyze the knowledge, experiences and intuition of respondents by

Table 6. Classified results of competencies for curricular and non-curricular activities.

Core competency	Curriculum	Index of competency	Non curriculum
Pre-vocational basic ability		competency to manage safety	0
		competency to understand sentence	0
		competency to ask and answer questions	0
		competency to use computers	0
		competency to manage personal cleanliness	0
		competency to calculate	0
		competency to perform works using fine muscles of arms and entire body with flexibility	0
Physical ability	0	competency to use horticultural tools	0
	0	competency to perform works finely with hands	0
		competency to sense of sight, hearing, smell, touch, pain	0
		competency to delivery container	0
Cognitive ability	0	competency to memorize short term or long term memory	
	0	competency to observe	0
	0	competency to concentrate on work continuously	
	0	competency to distinguish plants	
	0	competency to imitate and create expression	0
Social ability	0	competency to recognize of space, time, person, season	
		competency to cooperate with others	0
	0	competency to take etiquette others	0
		competency to share one’s emotions	0
	competency to take care of others	0	

Table 7. The competency-based curriculum model and subjects.

Subject	Core competency	Competency indices	Standard of student	
N ^z	Internship-Horticultural field	Social competency	competency to calculate	(K) I can understand and utilize basic calculation method. (S) I have a skill of calculation (A) I always calculate time and money
			competency to understand sentence	(K) I can read articles and understand (S) I have a skill of reading articles and understanding (A) I always read articles about task
			competency to ask and answer questions.	(K) I can cooperate with others (S) I have a skill of cooperating with others (A) I always cooperate with others
			competency to use computers	(K) I can conduct tasks using computer. (S) I have a skill of using computer (A) I always uses computer
			competency to manage personal cleanliness	(K) I can manage personal cleanliness (S) I have a skill of cleaning (A) I always clean my body and space
			competency to manage safety	(K) I can manage safety (S) I have a skill of managing safety (A) I do everything carefully
			competency to cooperate with others	(K) I work for the others (S) I have a skill of service with others (A) I always serve for others
N	Service activity	Social competency		
N	Garden drawing	Cognitive competency	competency to coordination of eye and hand	(K) I can drawing garden (S) I have a skill of drawing garden (A) I always draw garden
N	Horticultural decoration	Physical competency	competency to use horticultural tools	(K) I can use horticultural tools, (S) I have skill of horticultural tools, (A) I use horticultural tools,
			competency to perform works finely with hands	(K) I can work finely detail with hands (S) I have a skill of finely detail with hands (A) I use finely detail with hands
C	Horticulture & life	Cognitive competency	competency to delivery container	(K) I can delivery container (S) I have a skill of delivering container (A) I always delivery container
			competency to recognize of space, time, person, season	(K) I can recognize of space time person season (S) I have a skill of recognizing space, time, person, season (A) I always recognize space, time, person, season
			competency to concentrate on work continuously	(K) I can concentrate on work continuously (S) I have a skill of concentrating on work (A) I always concentrate on work.
C	Basic horticulture	Cognitive competency	competency to distinguish plants	(K) I can distinguish plants (S) I have a skill of distinguishing plants (A) I always distinguish plants
			competency to observe	(K) I can observe the plants (S) I have a skill of observing the plants (A) I always observe the plants
C ^y	Horticultural rehabilitation	Social competency	competency to take etiquette others	(K) I can take etiquette others (S) I have a skill of etiquette others (A) I always keep etiquette
			competency to share one's emotions	(K) I can share one's emotions (S) I have a skill of sharing one's emotions (A) I always share one's emotions
			competency to take care of others	(K) I can take care others (S) I have a skill of taking care others (A) I always take care others

^zN: non curriculum.^yC: curriculum.

comparing elements that compose a hierarchical structure (Han et al., 2015). Table 6 shows the results of hierarchical analysis on the competences of horticultural rehabilitation assistants, and the share of non-curricular subjects (73%) was higher than that of curricular subjects (27%). This can be used as a ground to assign those that need to be continuously trained as non-curricular activities depending on the individual characteristics of students of special education—a key aspect in education for the disabled—and to allocate more hours to them than curricular activities.

4. Suggestion of competency-based curriculum

Teaching-learning standards were divided into knowledge, skill and attitude, as shown in Table 7, to ensure the competence indices developed through the focus group can be applied to a competency-based curriculum, and to ensure colleges can effectively manage the quality of education. Here, curricular programs were assigned under the subject of “horticulture” to raise the cognitive ability of developmentally disabled students to understand basic principles to observe and classify plants and physiological phenomena. The subject of “horticulture and life” was to utilize physical, cognitive and social abilities altogether to integrate plants with their life. The subject of “horticultural rehabilitation” focused on communication skills and problem-solving abilities and this subject requires building pre-vocational and social competencies so as to improve a cognitive competency to listen to instructions carefully and follow them accordingly, and a social competency to comprehensively utilize communication skills and an ability to build interpersonal relationships. This reflects issues social relations that often arise due to the lack of insight and judgement caused by the intellectual disability of the developmentally disabled (Kang, 2005). This study suggested a learner-centered model based on ability indices to ensure they can have both self-esteem and adaptation skills by their characteristics such as short attention spans, difficulties in organizing information for memorizing and remembering, short-memory spans, and discouraged behaviors due to experiences of failure. In addition, the developmentally disabled show a high dependence on others, learned helplessness, and a low self-concept, which result in the lack of the understanding of instructions at work,

low productivity, and a low understanding of commuting and manners at work (Um, 1996). As an alternative to these weaknesses, “volunteer activities” and “internship” were included to improve their social ability, and “horticultural decoration” and “garden drawing” were also included to raise their creativity and manual ability. With these activities, the developmentally disabled can train eye-hand coordination, and continue to develop their potential. Teaching-learning standards were developed from three core competencies—knowledge (K), skill (S) and attitude (A), and they were presented in a form of sentences from a perspective of learners to ensure they can be flexibly applied to the planning, operation and evaluation of a horticultural rehabilitation curriculum depending on situations (Table 5).

IV. Conclusion

The final purpose of rehabilitation of the disabled is to maximize their physical, mental, social and economic ability and to guarantee the equal rights and duties of the disabled and the non-disabled (Kang, 2001). Based on the principle, this study aimed to suggest a competency-based curriculum for vocational rehabilitation. As the Act on Guarantee of Rights of and Support for Developmentally Disabled Persons was enacted recently, the number of the developmentally disabled in higher education organizations has been on the rise. Thus, it became necessary to develop curricula that realize vocational rehabilitation, meet the purposes of higher education organizations and also consider the characteristics of the developmentally disabled. Earlier studies on the effects of horticulture on emotional health and vocational rehabilitation have raised the expectation of horticulture for its role in vocational rehabilitation. Against this backdrop, this study attempted to present a standard model of horticultural rehabilitation education by integrating the knowledge and experiences of experts and specialists in rehabilitation and horticulture. To do so, the relevant literature and cases were reviewed, and a focus group was formed with experts and specialists in rehabilitation and horticulture. In Step 1, core competencies were developed using a DACUM technique and competency indices were presented accordingly. In Step 2, core competences were

categorized into curricular and non-curricular subjects using a hierarchical analysis technique. In Step 3, learning standards were presented in terms of knowledge (K), skill (S), and attitude (A). Core competencies were divided into pre-vocational, physical, cognitive and social competences, and competency indices that were developed accordingly include those to utilize horticultural tools and move objects using muscular strength; cognitive abilities such as abilities to observe and concentrate, short- and long-term memory spans, and creativity required in the process of producing horticultural products; and social abilities to cooperate with and take care of others. Based on the competencies, guidelines for a horticultural rehabilitation curriculum for developmentally disabled college students were suggested. The guidelines were comprised of learning standards in terms of knowledge (K), skill (S), and attitude (A), and they were presented in a form of basic sentences to increase the applicability of the guidelines. Although there were several limitations in the process of the development of a curriculum, the interdisciplinary attempt to converge horticulture and rehabilitation in this study is meaningful.

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