

The Effects of Online Home Learning in Connection with Extracurricular Activities for Lifelong Education for the Disabled at University on Cafeterias Cooking Assistance Skills of Job Search Persons with Developmental Disabilities

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Abstract

The purpose of this study is to analyze the effects of online home learning in connection with extracurricular activities for lifelong education for the disabled in university on the cooking aids skills of cafeterias for the job search persons with developmental disabilities. Three people with job search developmental disabilities who have been in a state of unemployment for three years after graduating from a special high school course participated in the experiment. In order to verify the meaningful functional relationship between independent variables and dependent variables, multiple probe design across subjects, one of the main techniques of a single object study, was used. The experimental conditions according to the research design consisted of the steps of baseline, intervention, maintenance, and generalization. The dependent variable of this study is the restaurant cooking aid skills in the cafeteria, and three subskills such as side dish arrangement, sink arrangement, and dish washing were combined by task analysis. And the independent variable of this study was composed of procedures and methods to teach the environment, tools and materials related to the performance of dependent variables to the developmental disabled people at home by using real-time image technique through zoom service, and the contents of the performance by stages of task analysis. In addition, independent variables were applied to the subjects in the course of the extracurricular activities with the theme and contents of lifelong education for the disabled at university. Students who completed the above extracurricular activities practiced the intervention scene of the researcher through the screen sharing of zoom service. As a result, the subjects with developmental disabilities effectively acquired and maintained the positive response performance of dependent variables through independent variables. The subjects also showed high positive responses to generalization tests conducted in kitchens in cafeterias located elsewhere in the same university.

Keywords: University, Extracurricular Activities for Lifelong Education for the Disabled at University, Online Home Learning, Cafeterias Cooking Assistance Skills, Developmental Disability

1. INTRODUCTION

The function and role of the university is equally important to the national level in academically establishing the theory and practice of lifelong education for the disabled. Although the department that is currently

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establishing lifelong education for the disabled as a unique major in universities is not established, the importance of the department is repeatedly emphasized, and a support system is being established for university learners to learn lifelong education for the disabled in various forms[1]. A typical example is extracurricular activities that can be linked to major subjects of universities[2]. In fact, the lifelong education field for the disabled has the characteristics that can be linked to various academic fields such as special education, social welfare, rehabilitation counseling, etc. in the aspect of the specificity of the disabled, so that the advantage of learning in the unit of extracurricular activities is improved in the university[3].

Although there are various types of extracurricular activities, service learning can be suggested as a representative example[4]. Considering the reality that disabled people in adulthood are not guaranteed various opportunities for lifelong education, it is encouraging to guarantee opportunities for lifelong education through extracurricular activities of universities. This suggests that the necessity of being more urgently guaranteed to the developmental disabled who are isolated from their homes or facilities after graduation from school and maintain their dependent lives for a long time is emphasized[5, 6]. Therefore, efforts to achieve educational cases that can improve self-reliance living ability as part of lifelong education for persons with developmental disabilities through extracurricular activities in terms of volunteer activities at universities should be activated nationally and locally.

When extracurricular activities on the subject of lifelong education for the disabled are actually applied to the persons with developmental disabilities in the area, the professor becomes a student belonging to the relevant department[7]. Accordingly, in the current research trends, the case study applying the self-reliance ability for the persons with developmental disabilities in the dimension of lifelong education is active, but the case study in which the university students actually guided the autistic disabled through extracurricular activities is very insufficient[8]. For this trend, the main reason for the activation of lifelong education programs for the developmental disabled through extracurricular activities of universities is to train the qualification of professional manpower who can properly realize the right to study from the viewpoint of the developmental disabled[9].

Specifically, the extracurricular education program on the subject of lifelong education for the disabled in the university field is not concluded with a fragmentary volunteer activity of a one-time nature, but can be linked to deepening activities that can learn the professional theory and practice of lifelong education for the disabled in terms of practical training[10]. For example, it includes contexts and plans that can be developed as a methodology for lifelong education for the disabled or a convergence of practical theory. In fact, lifelong education methodology or practice for people with developmental disabilities includes teaching and learning procedures and methods for people with developmental disabilities to learn lifelong education knowledge and skills. This can be linked to various teaching and learning methods that are constructed at the actual level of the basis based on the special education field centered on school age, and can be applied in depth from the perspective of adult life of the developmental disabled[1][3, 4][8]. The adult life perspective of the developmental disabled should be flexed relatively differently in the context and procedure of application even if the same teaching and learning method is applied to the special education field in school age. Especially, the relativity is required because the generalization effect such as job search, employment linkage, and residential self-reliance adaptation is not a compulsory education support system but a acceptable infrastructure.

Extracurricular activities on lifelong education for the disabled in universities can be conducted in universities, so teaching and learning methods for lifelong education for the developmental disabled can be flexibly used[11]. In addition, it is easy to have expected effects such as employment linkage and preparation through related infrastructures. And it is easy to guarantee individual learning dimensions that should be considered in particular from the perspective of customized for adult life and daily routine of the developmental disabled[12]. If the lifelong education support system for the developmental disabled in the region is stable and long-term activation, it can also enhance the advantage that the developmental disabled can accumulate the overall educational performance in the context of the school type institution[13].

In conclusion, the efforts to prepare the case of lifelong education teaching and learning methods for the developmental disabled in adulthood through extracurricular activities in the university field where the research of lifelong education for the disabled and the training of professional manpower should be solved as the main tasks are worth trying in connection with the existing precedent studies. In addition, it will be an opportunity to check the ways in which the developmental disabled can learn various independent living skills that have been learned in terms of lifelong education to the developmental disabled in relatively different teaching and learning methods and procedures.

Therefore, this study aims to investigate the effects of online home learning linked to comparative activities for lifelong education for the disabled in universities on cooking aids skills for cafeterias for the job search persons with developmental disabilities. The results of this study can be used as basic data to develop a curriculum that can train professionals for lifelong education for the disabled at the frontline university site or to activate extracurricular education programs in related departments.

2. RESEARCH METHOD

2.1 Research Subject

The subjects of this study were three people with developmental disabilities who stayed at home with parents' help for three years after graduating from a high school course in a special school. They stay at home except for short-term education at facilities such as welfare centers for the disabled and other health promotion centers, and have basic information such as Table 1.

Table 1. Basic information by research subjects

Item	Subject A	Subject B	Subject C
Age	24	23	23
Gender	Man	Man	Man
Disability type	Intellectual disability level 2	Intellectual disability level 2	Intellectual disability level 2
Sociality index	41	42	39
Secondary Disabilities	Cerebral palsy	Autistic disorder	Cerebral palsy
Basic learning ability	Basic learning skills such as reading and writing are relatively freely used, but it is difficult to calculate such as money calculation	If the contents of sentences are difficult, reading and writing are difficult, and meaning interpretation is made through the help of teachers and surroundings	The contents of the textbook can be read and written, and the calculation of money is relatively well performed
Housing independence status	Basic life is independent, but parents are doing meals and clothes instead	Many people stay alone at home and play computer games	Repeated routine of following mother to market amid being isolated at home
Linguistic communication ability	Communication with the other party is possible through expressive language and receptive language, but it is difficult to understand when the other party speaks difficult words	There is a habit of forcing others to express themselves, and it is often difficult to communicate with others. But he has a good listening attitude toward his preferred others	When others speak quickly, they may not respond properly and show the characteristics of repeatedly asking others' words, which may lead to the disconnection of communication scenes
Precedence experiences in restaurant cooking assistance	He has no prior experience and is not aware of the contents and methods of the performance related to it	He does not have prior experience, but he tends to be interested in restaurant scenes in favor of visiting restaurants with his family	He has no prior experience and is not aware of the contents and methods of the performance related to it

The subjects of this study were recommended by experts from the welfare center for the disabled in the area where the university where the researcher is working. Finally, this study was able to proceed with the consent of the subjects and their parents. For reference, mothers of the subjects of the study provided cooperation to direct and control their behavior so that they could stay in the subjects and at home and focus on the online-based intervention program of the study. The subjects of this study had no prior experience of independent variables and dependent variables, so there was no difficulty in participating.

In addition, the instructor who led the research subjects is the researcher who planned and supervised extracurricular activities for lifelong education for the disabled at the university. The researcher is an expert who majored in lifelong education for the disabled.

2.2 Research Design

This study was conducted for a total of 7 months, and a research design was constructed by a single subject research. The main technique for designing a single object study was the multiple probe design across subjects. The experimental conditions according to the research design consisted of four steps: baseline, intervention, maintenance, and generalization.

▪ **Baseline.** In the baseline stage, the researcher did not provide any help or promotion for the performance of the target behaviors of the subjects. Accordingly, the focus was on accurately identifying the current level of the subjects' target behaviors. And also, the focus was on whether the subjects consistently maintained the current level of tendency.

▪ **Intervention.** In the intervention stage, the procedure of evaluating the performance of the target behaviors of the subjects was formed after the researcher applied the intervention to the subjects. First, intervention was applied when the study subject A showed stable tendency of performance result of target behaviors at the baseline stage. Then, when the subject A improved the performance result of the target behaviors stably and consistently after the intervention application, the intervention was applied to the subject B. The study subjects C were applied to the intervention when the results of the intervention application of the study subjects B were stable. The intervention was terminated when the subjects showed more than 90% positive responses for the performance of the target behaviors for three consecutive sessions.

▪ **Maintenance.** The maintenance phase was implemented three weeks after the intervention was completed, and the implementation method is the same as the baseline stage.

▪ **Generalization.** After the end of the maintenance phase, the generalization phase was immediately implemented. The generalization phase was conducted in different environments from the environments where the subjects were evaluated in baseline, intervention, and maintenance. And at the generalization stage, the researcher did not provide any help or promotion for the target behaviors of the subjects.

2.3 Research Environment

▪ **Home environment for intervention.** The home environment was used for intervention of the subjects, and kitchen was used in the home environment. The kitchen in the home was not reconfigured separately due to the nature of the intervention of the subjects on the performance of the target behavior, and the tools and materials used by the subjects were used as they were. In addition, the subjects were mediated by the researchers through zoom service, so real-time video service facilities were installed in the kitchen.

▪ **Kitchen A environment for evaluation of baseline, intervention, and maintenance stages.** The kitchen in the dining room was used. It is a cafeteria in the university, and because the subjects perform the duties usually performed by the employees as a target behavior, there is no separate environmental reconstruction procedure. The subjects used gas facilities, pots, side dishes, and sink facilities when performing the target behaviors.

▪ **Kitchen B environment for evaluation of generalization.** There were three cafeterias in the university, so the generalization was conducted by distinguishing the kitchen environment in the restaurant of the research subjects. The restaurant in the university was different in location and the food menu and facility structure were similar, so it was suitable for the generalization measurement of the subjects.

2.4 Dependent Variable

The dependent variable of this study was the behavioral skills that the subjects of the study assisted in cooking at the cafeteria of the university. The researcher and the staff of the cafeteria cooperated to form a task analysis such as Table 2. The subjects of the study conducted task analysis to make the contents and procedures of the dependent variables more structural and easy to recognize, and the purpose of the study was to clarify the dependent variables in which various behaviors were sequentially organized through task analysis. The dependent variables were composed of three behaviors, such as side dish arrangement, sink arrangement, and dish washing.

Table 2. Task analysis composition of dependent variables

Stage	Specific performance content
1	I pick up the side dish and walk to the side dish.
2	The side dish of 5 kinds is put into the side dish container in order.
3	The side dish cask is displayed on the order stand in order.
4	Return to the sink facility and put the stew pot on one side.
5	The side dish bowl is collected in the other one side of sink.
6	Put chopsticks and spoons in a basket on the sink.
7	The drain lid of sink is on turned and the hot water is received.
8	Two spoons of the washing material is released in sink.
9	Wipe the pot, bowl, spoon and chopsticks with a loofah.
10	It rinses with the water and it desiccates in drier.

On the other hand, the subjects are scheduled to work part-time in the cafeteria where the study was conducted after acquiring the dependent variables. This study reflects generalization as a major experimental condition in cafeterias located elsewhere in universities, considering the learning motivation of dependent variables of the subjects.

2.5 Independent Variable

▪ Pre-orientation

This study conducted pre-orientation before applying the intervention program consisting of independent variables to the subjects. The subjects were subjected to intervention from the researcher through real-time

image called zoom service, so orientation related to this was required before the application of intervention. The subjects were informed about how to participate in zoom service for 12 days in total so that they could participate in the intervention easily because they participated in zoom service through small notebooks in the kitchen.

In the guide method, the researcher formed human relations by intimately communicating with the subjects of the study and preferred topics. Above all, orientation was conducted with an emphasis on making the subjects of the study aware of the communication of the researcher. In addition, the researcher promoted general knowledge and skills related to restaurants by talking to the subjects, although not directly related to the dependent variables of this study. For example, when boiling ramen noodles, it provided verbal promotions about how much water should be put in the pot and what to pay attention to when using gas facilities. And it also provided a promotion on whether the subjects of the study can imitate well through the pilot of the researcher. As a result, the researcher judged whether the subjects could recognize the intervention of the researcher through the live-action image through the zoom service and applied the intervention after the final 12 days.

▪ Intervention application

The intervention of this study was conducted for a total of 2.5 months. The intervention program, which consists of independent variables of this study, was applied in connection with the extracurricular activities of universities, and the above extracurricular activities were conducted for 6 months. And the intervention program consisting of independent variables of this study was conducted for 2.5 months, and the session was about 11 sessions. Finally, the extracurricular activities of the university for the lifelong education of the disabled, which reflected the intervention program of this study, were composed like Table 3, and the intervention program was applied at the second half of the extracurricular activities.

Table 3. The contents of extracurricular activities on lifelong education for the disabled in university

Session	Specific learning content	Operation frequency
1	Understanding the concept and definition of developmental disorders, history	3
2	Learning the actual conditions of life and post-management of the developmental disabled after school	3
3	The definition and necessity of lifelong education for the developmental disabled	3
4	A system of lifelong education curriculum for the developmental disabled	3
5	Types and cases of social service and rehabilitation for the developmental disabled	3
6	A seminar on lifelong education methods for the developmental disabled	3
7~10	Lifelong education method practice for the developmental disabled	11

The extracurricular activities presented in Table 3 were conducted by 15 students in the 3rd and 4th grades who completed the teaching curriculum of the introduction of special education in college. The intervention program of this study was applied to the subject of lifelong education method practice of the developmental disabled in 7~10 sessions presented in Table 3 for 10 sessions. Students who participated in extracurricular activities in the above practice performed the practice at the level of observation based on online through real-time video called zoom service. Through this observation, the program was planned to direct the developmental

disabled person in the extracurricular activities for lifelong education for the disabled to be intensified in the next semester. Therefore, the intervention program of this study was conducted by the researcher who supervised and operated the extracurricular activities as a professor on the subjects of the study, and the students who participated in the extracurricular activities attended the intervention scene of the researcher through the zoom service, which is a real-time image form.

In the basis of such extracurricular activities, the procedures and methods of the intervention program that the researcher actually applied to the subjects of the study are like Figure 1.

The intervention scene was performed in the kitchen of the home where the subjects reside, and some tools used in the cafeteria of the university, which is the actual performance environment for the target behaviors, were provided to the home so that the subjects could use them in the intervention scene. The researcher guided the subjects to perform the target behaviors in accordance with the step-by-step order of task analysis through the zoom service of real-time image through verbal response promotion and demonstration. In the intervention scene, the study asked the mother who lives with the subjects to control the behavior with simple instructions so that the subjects could pay attention to the real-time image instruction through zoom service.

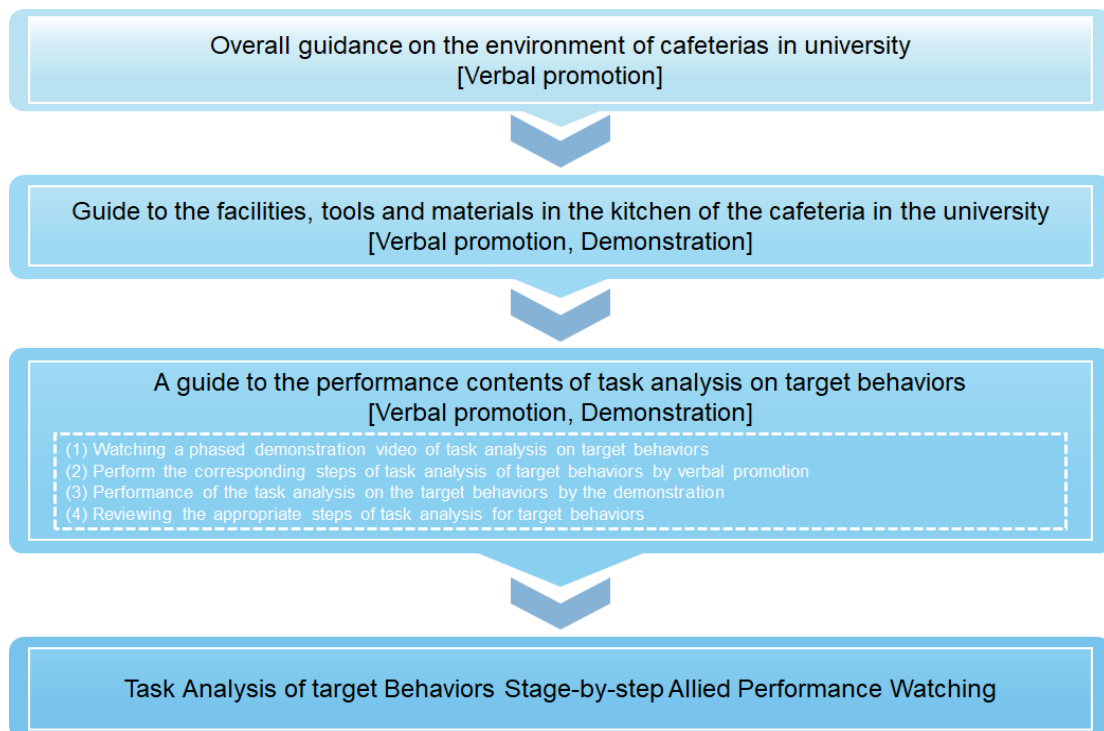


Figure 1. Procedures and methods of intervention programs consisting of independent variables

Each intervention session was allocated about 1 hour and 30 minutes, and students who participated in extracurricular activities in real-time video also watched the intervention scene of the researcher. Individual intervention procedures were conducted in the form of 1:1 with the researcher, and students participating in the extracurricular activities observed real-time images of the intervention scenes for one study subject in consideration of the intervention schedule among the three subjects. The researcher applied the intervention procedure of Figure 1 to the subjects and provided verbal promotion in the context of intimate conversation with the subjects. In addition, the teaching method was used to wait for the subjects to demonstrate the behavior after imitation considering the level of imitation of the researcher in the real-time image scene. In general, the researcher focused on the purpose of the intervention to enable the subjects to repeatedly recognize the step-

by-step performance method of the task analysis on the target behaviors and achieve the generalization of the behavior demonstration.

2.6 Data Measurement

The data were measured by the researcher by different visiting schedules for cafeterias in universities. COVID-19 prevented the subjects from gathering together to participate in the data measurement process. Data were measured by observing the scene where the researcher maintained the distance between the subject and the target, and the subjects performed the target behaviors. And for data measurement, positive and misresponsive responses to performance of target behaviors were defined.

The criteria for distinguishing positive and false reactions are the cases where the research subjects are performed accurately according to the step-by-step contents of the task analysis of the target behaviors without receiving the help or promotion of the researcher. And the subjects started to respond by correct method within 5 seconds for each step of task analysis on the target behaviors. For the calculation of data, the formula was used by dividing the number of steps performed by the subjects in a positive response among the number of steps of the overall task analysis and converting them into percentages.

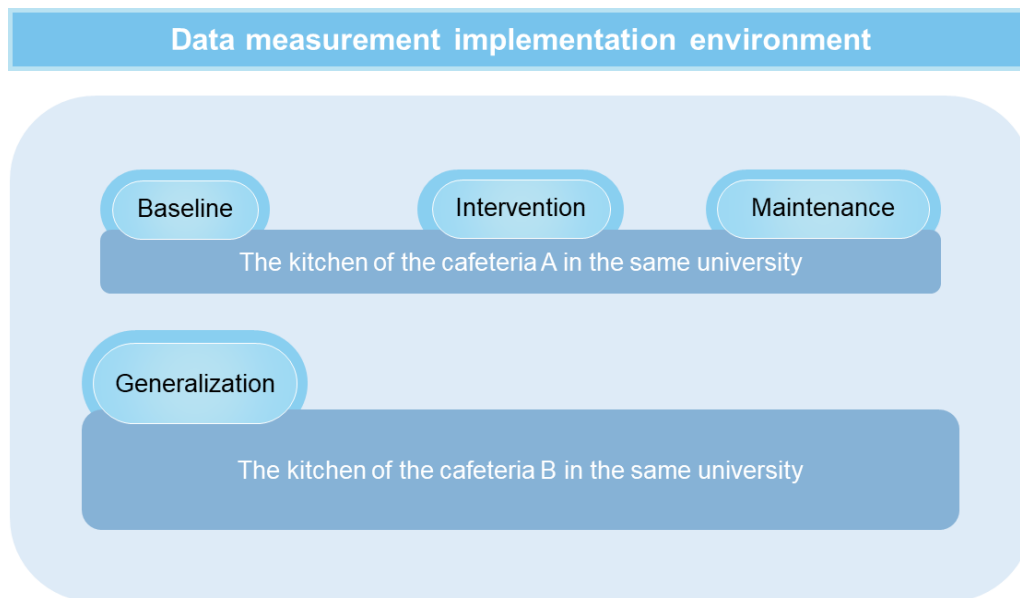


Figure 2. Configuration of the implementation environment of data measurement for each experimental condition

2.7 Interobserver Reliability

To ensure the reliability of data measurement, the reliability measurement between observers was conducted. One employee who works in the cafeteria of the university participated in the measurement of reliability among observers. The researcher guided the staff to measure the data, and the staff was aware of the advantage of knowing exactly because they usually perform task analysis on target behaviors. The interobserver reliability was conducted at each session under all experimental conditions of baseline, intervention, maintenance, and generalization. The researcher and staff verified whether the results of the data measured by each other were more than 98% before participating in the reliability measurement between observers. As a result of the verification, when more than 98% were matched, the actual interobserver reliability measurement procedure was participated.

The calculation for the reliability measurement between observers was made by dividing the number of matching numbers and the number of inconsistent numbers from the sum of the numbers and converting them into percentages. The results of the reliability measurement between observers measured by the subjects of the study are the same as Table 4.

Table 4. Reliability measurement results between observers by research subjects

Item	Subject A	Subject B	Subject C
Score (Range)	100%	99.5% (99~100)	100%

2.8 Intervention Fidelity

In this study, the intervention fidelity was measured to verify how faithfully independent variables are applied to the subjects. The fidelity of intervention was carried out in each session, and graduate students from the department of special education participated in the intervention scene of the researcher. The researcher made a pre-orientation of the procedures and methods of independent variables to graduate students, and the graduate students directly checked the application of intervention by observing all the scenes of the researcher teaching the subjects through real-time images according to zoom service. The measurement questions of the fidelity of intervention were used according to whether the elements of Figure 1 were applied before, and graduate students were checked in the form of application and non-application for each subject of study.

For the calculation for the measurement of the fidelity of the intervention, the formula was used, which was converted into a percentage by dividing the number of actual applications in the total intervention procedures and the number of methods applied. The results of the measurement of intervention fidelity were 100% for each subject.

2.9 Social Validity

In this study, the social validity was measured to verify how universally applicable independent and dependent variables applied to the subjects have expected effects in the field of lifelong education for the disabled. The measurement questions of social validity related to independent variables are whether the independent variables of this study are appropriate as teaching and learning activities for lifelong education of people with developmental disabilities. And the measurement question of social validity related to dependent variables is whether the developmental disabled people who are staying at home due to unemployment can be regarded as learning goals worth learning through lifelong education. In order to measure social validity, the researcher commissioned five professors who majored in lifelong education for the disabled, and guided the professors to the independent variables and dependent variables of this study as handouts. The researcher also presented the results of the study to five professors so that the professors could refer to them. The Likert 5-point scale was used, and the social validity was determined by calculating the results scored by five professors on average. Finally, the social validity was calculated as an average of 4.85 points.

3. RESULTS

The final result of independent variable on the performance of dependent variable of the subjects is the same as Figure 3. As a result, the subjects of the study did not recognize the contents of the procedures and methods of performing the target behaviors at the baseline stage, but since the intervention was applied, they recognized the contents of the task analysis of the target behaviors in stages B and increased the performance ratio of the

positive reaction with a relatively stable tendency. And the subjects of the study maintained the performance of the target behaviors in the maintenance stage as the final application effect of the intervention through the application of the intervention. In addition, the subjects of the study generalized the performance of target behaviors in the kitchen environment of other cafeterias as a relatively significant result after the maintenance stage was completed.

First, in the basic stage, the subjects showed careless behavior to touch the tools and materials necessary to perform the target behaviors or to explain them to the researchers or employees around them, even though they are in a situation where they have to perform the target behaviors. The subjects A seemed to recognize the method and procedure of performing the first step of task analysis on the target behaviors in a positive response, but the speed of the reaction was too delayed and often treated as a misreaction. As a result, the three subjects began to receive intervention by consistently showing 0% performance results at the baseline stage.

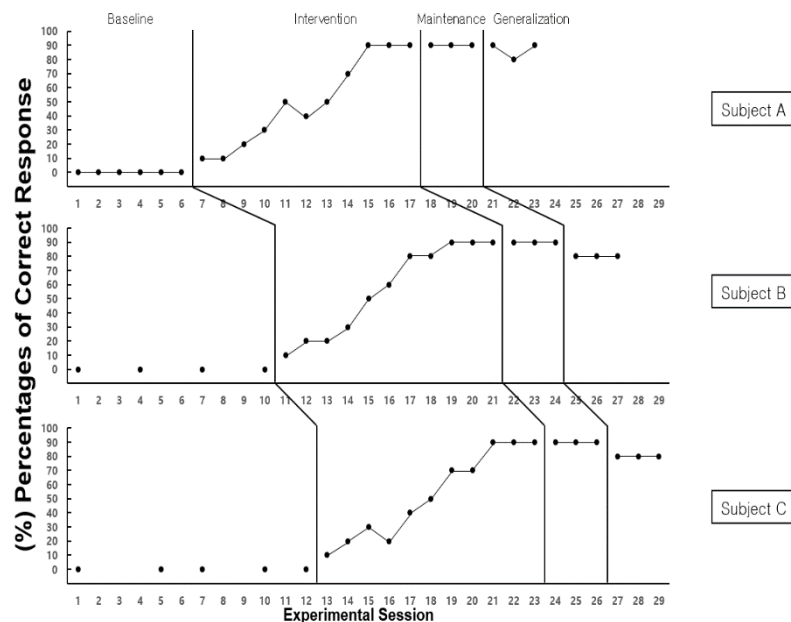


Figure 3. The results of the study subjects' performance on the target behaviors

After the application of intervention, the subjects of the study showed that the performance results of the positive response were improved with a relatively stable tendency according to the order of the task analysis of the target behaviors. During the intervention phase, the subjects frequently observed misresponse such as not putting all side dishes in the side dish container or delaying the time to contain side dishes for too long in performing the target behaviors. In the data measurement results of the intervention stage, the subjects often received too much water in the sink or put too much detergent to perform the dishes. However, the subjects of the study were found to recognize the performance contents of each step of the task analysis according to the application of the intervention for various misrepresentations of the performance of the target behaviors and to eliminate them stably. Finally, the subjects showed 90% of the results of the misreactions as the reaction start time was slower in some stages of task analysis on the target behaviors. The subjects were 90% of the results for three consecutive sessions, and the intervention was terminated.

In the maintenance stage, the subjects maintained the final application effect of the intervention in performing the target behaviors, and completely eliminated the misreactions shown in the intervention stage. The subjects showed 90% of the results of the misreactions as the reaction start time was somewhat slower in some stages of task analysis in performing the target behaviors in the maintenance stage as in the intervention stage. In particular, the subjects showed slow response start time and response time in performing the 9th step

of task analysis on target behaviors. For example, the subjects showed misrepresentation in their hands after wiping or washing the spoon over and over with the loofah. In the generalization stage, the subjects showed 80~90% of the results, which are similar to the effect of the final maintenance stage or have a low 10% ratio. The subjects were found to maintain the generalization effect of target behaviors with a relatively stable and consistent tendency. In the generalization stage, the subjects were often treated as misresponsive because the reaction start time was slow at some stage of task analysis on target behaviors. As a result, the subjects did not show any special misreaction except for the reaction start time or the reaction time of these target behaviors.

4. DISCUSSION AND CONCLUSION

4.1 Discussion

The results of this study are to discuss and propose similarities and discrimination points compared to previous studies. Through this, the results of this study are to enhance the functional value of lifelong education for the disabled.

First, this study dealt with the themes and contents of lifelong education for the disabled through extracurricular activities of universities, and organized independent variables for the subjects in the process of providing extracurricular activities to students in related departments. Even if the lifelong education for the disabled is dealt with at the level of extracurricular activities, not only theoretical but also practical dimensions are dealt with, so the methods and procedures for lifelong education support for the developmental disabled in the region have to be considered. Accordingly, this study was primarily required to conduct observation-level practice on how and how the experts who majored in lifelong education for the disabled actually mediate the developmental disabilities in the region. From this point of view, the independent variable of this study is meaningful as a basic case that suggests the practice and ability to train related professionals in the dimension of lifelong education methodology for the disabled[1][3, 4][5-7][9]. In the current university field, special education departments and other cases are not actively opened in regular subjects or extracurricular activities related to lifelong education for the disabled, so the contents and results of this study are thought to give motivation to improve the above limitations. Subsequently, the subject and contents of lifelong education for the disabled should be dealt with through extracurricular activities of universities, and cases of extrinsic expansion should be activated to provide opportunities for lifelong education for the developmental disabled in the region.

Next, this study could improve the aspect that the subjects can effectively acquire the target behaviors through real-time video technique through zoom service without demonstrating the target behaviors in the actual job site in verifying the effectiveness of the independent variables. This study reflected real-time video technique through zoom service as a main component of independent variable by paying attention to COVID-19 activated as a limiting factor for current face-to-face education-oriented cases. This is similar to the video modeling technique, which is one of the grounded practices applied to the subjects with developmental disabilities in the field of special education, and it can be said that it is the result of linking through the current educational engineering tool[14, 15]. The comprehensive value of the independent variable of this study is the generalization effect that can acquire related job skills by referring to and describing the kitchen scene of the cafeteria in the university in the virtual reality of the home. The subjects of this study were not able to actively secure opportunities to access the actual job site due to COVID-19, and the education method and procedure of improvement measures were required. In addition, this study did not neglect the overall response promotion at the direct teaching level while faithfully reflecting the procedures and methods of video modeling by real-time image technique through zoom service. Because the intervention effect is difficult to achieve just by watching the video scene of the research subjects. In this regard, this study systematized and applied the overall response promotion to the linguistic and pilot dimensions, and specifically structured the study subjects to easily recognize the learning contents by the stage of task analysis on the target behaviors. Therefore, the independent variable of this study should not end its effectiveness by the scene of the video itself referring to

the actual job site, and it should include a point of view that analyzes what elements should be accompanied for the application of the video viewing technique. Subsequently, the procedure to compare and verify the effectiveness of the developmental disability when only one thing such as video viewing technique is applied and the response promotion is accompanied in acquiring job skills should be developed. Through this, the social validity of this study can be greatly improved.

The more detailed aspect of the above discussion is that although video viewing and overall response promotion are effectively applied, there is a need for action demonstrations in the actual job site to be parallel. In Figure 3, which was presented in the previous study, it was difficult for the subjects to achieve 100% of the results of the positive response of the target behaviors[16]. In this study, the subjects recognized the performance contents of the task analysis of the target behaviors according to the application of the independent variables, but there was a limit in the level of proficiency that the reaction start time or reaction time is delayed. In fact, this mastery is considered as a limitation of this study because it is effective when the action demonstration in the actual job field is actively applied as an intervention procedure rather than increasing the number of repetitive applications of independent variables[17]. Therefore, it is necessary to consider the intervention procedure in which the virtual reality video viewing technique and the action demonstration in the actual job site are in parallel with each other in a certain part. This follow-up work will be actively attempted when COVID-19 is somewhat alleviated, and emphasizes the view that it can be solved through direct face-to-face reaction between the developmental disabled and the instructor.

The dependent variables applied in this study were composed of the level of employment linkage and preparation of the subjects with developmental disabilities, so if there is only employer's intention to hire, it has the effect of achieving employment. This study is because the employees of the cafeteria in the university participated in the task analysis of the dependent variables, and the effects of the intervention and maintenance stages were almost universalized in the generalization effect reflected as the experimental conditions. Therefore, follow-up work is needed to be cataloged in various ways by the application context and nature of independent variables of this study. The dependent variable of this study was reflected as part of vocational ability development education among lifelong education curriculum of the developmental disabled, but it can be reflected as residential self-reliance technology in actual home[1]. Considering this, the dependent variable of this study emphasizes the foundation for generalizing the residential self-reliance skills acquired by the developmental disabled in the home from the context of vocational life to the business. If the mother had worked with the researcher to teach the dependent variable performance of the developmental disabled people who participated in the study, the mastery of the subjects of the study on the cultivation of the dependent variable would have been higher. This is because the mother's participation as a professor is a direct factor that can increase the mastery of the target behaviors of the subjects. Subsequently, a list of target behaviors should be developed to promote the development of educational programs that can activate general case teaching in connection with the business site of the families with developmental disabilities. In this case, it is judged that not only the dependent variable of this study but also the expected effect of the independent variable can be balanced.

The limitation of this study is that the subjects of this study are composed of three people with developmental disabilities and it is difficult to generalize the contents and results of the study. The design and technique of the single subject study were appropriate due to the nature of the intervention of this study, but it is necessary to consider the procedure of the group experiment study in order to activate the application case of this study. It is expected that this study can be applied to the developmental disabled people who are isolated and dependent in the home from various educational institutions.

4.2 Conclusion

This study was conducted to verify the effects of online home learning linked to extracurricular activities for lifelong education for the disabled in university on cooking aids skills for cafeterias for the job search

persons with developmental disabilities. As a result of the study, it was concluded that there was a significant relationship between independent variables and dependent variables. In conclusion, this study will discuss and propose some points of view that have been applied to the subjects of the study, including some positions that the functional aspects of these conclusions are functional.

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