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ABSTRACT

Children with intellectual disabilities experience difficulties in understanding academics, adapting to their environment, and taking care of themselves. The ability to take care of oneself, which is also called adaptive life skills, is a top priority in an effort to teach children to achieve independence in taking care of themselves. It is hoped that children will be able to take care of themselves until they are completely independent without the help of others. One of the adaptive life skills that need to be trained in students with a diagnosis of intellectual disability is wearing all the clothes they need for school, starting from buttoning their clothes, fastening the buttons on their trousers and skirts, tying their shoelaces, and wearing socks. This research aims to evaluate the effectiveness of the chaining technique in improving the ability to wear socks in a student with mild intellectual disability. This research was conducted on KN, a 12-year-old student diagnosed with mild intellectual disability who was not yet fully able to put on socks which made her was still helped by her mother every day. This research design used a single-subject experimental design with 8 intervention sessions using chaining and prompting-type behavior modification techniques. Analysis was carried out by comparing the ability to put on socks before and after the intervention. The research results showed that the chaining and prompting techniques were successful in improving the adaptive life skills of putting on socks in a child diagnosed with mild intellectual disability.

Keyword: Adaptive Skill, Intellectual Disability, Chaining, Prompting

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Email: isnaenimarhani@umpr.ac.id**INTRODUCTION**

Intellectual disability is described in the American Psychiatric Association (2013), as a disorder that occurs during the developmental period and is characterized by limitations or inhibition of intellectual and adaptive functions including aspects of self-development skills, social behavior, communication skills, academic abilities, and behavior at work that develop lower than with children his age. Kauffman, Hallahan, and Pullen (2017) also state that intellectual disability is characterized by significant limitations that have an impact on intellectual function and adaptive behavior which is demonstrated in aspects of social, conceptual, and practical adaptive skills and appears before the age of 18 years. In the American Psychiatric Association (2013), it is classified into mild, moderate, and severe, and the classification or severity of intellectual disability is determined more by adaptive function than by IQ score.

Adaptive function is an individual's ability to carry out basic activities to make adjustments in daily life, which is also known as self-development skills. Basic activities generally consist of the need to eat and wear clothes without the help of people around them (Wick Nelson & Israel, 2015). In line with this, Akhmetzyanova (2014) explains that among the types of self-development skills are the skills of dressing, using the toilet, eating alone, and washing hands.

For school-age children, one of the dressing skills is wearing a school uniform and its attributes, from hats, ties, belts, tying shoes, to wearing socks. As for activities like this, apart from requiring adequate cognitive capacity, various abilities are also needed that children must master, such as gross motor and fine motor coordination, body awareness, right and left discrimination, body posture stability, and motor planning (Weichman, 2012). Children with these limitations will experience difficulty in choosing, using, and arranging their clothes. This includes difficulty in determining left and right, front and back. Children with limited cognitive abilities will also have difficulty mastering the sequence of how to wear clothes properly and correctly (Lee, Muccio & Osborne, 2009).

One way that can be conducted to train independence in children with intellectual disabilities is behavior modification. According to Martin and Pear (2015), behavior modification is a technique for changing behavior, such as changing the response to a stimulus through reinforcement or eliminating an undesirable behavior and maintaining the expected behavior. Meanwhile, according to Purwanta (2012), behavior modification is any action aimed at changing behavior. There are a number of techniques that can be used in behavior modification, including chaining and prompting. These two techniques will be used to provide intervention for children with intellectual disabilities who still have difficulty putting on socks.

Martin and Joseph (2015) state that chaining is an orderly and consistent sequence of stimuli and responses that appear close to each other and are usually followed by a reinforcer when the last response appears. Chaining is divided into three methods: a) total-task presentation, b) backward chaining, and c) forward chaining (Martin & Pear, 2015). These three behavior chain methods have different functions and applications. In the total-task presentation, the subject tries all stages of the behavioral chain from the beginning to the end of the chain on each trial and continues with the whole trial until the subject is able to master each stage of the task chain. The backward chaining method teaches subjects to carry out tasks starting from the last stage, while previous stages require accompanying guidance. In the forward chaining method, subjects are asked to complete each chain of behavior sequentially and will receive reinforcement after completing one stage of the behavior chain (Martin & Pear, 2015).

Meanwhile, prompting techniques are also often used to teach children new behavior. Prompting functions to produce a desired behavior using appropriate examples so that children are able to achieve the target behavior (Miltenberger, 2012). The types of prompts from highest to lowest order are physical, modeling, gesture, and verbal (Miltenberger, 2012). The emphasis in behavior modification is on the specific behavior that is becoming the focus of change. Kazdin (2013) states this behavior must be clear (overt) and measurable. Regarding that, this research will be carried out to improve one of the adaptive skills, which is wearing socks for students diagnosed with intellectual disability at SLB X. The selection of sock activities is based on the Activity Daily Living Skills Observation checklist for children with Mental Impairment compiled by Delphie (2012).

METHOD

This research involved KN, a 12-year-old girl who was diagnosed with mild intellectual disability based on a psychological examination (IQ 55: Wechsler Scale). The mother understands KN's limitations in academics but continues to try to teach her numerous adaptive skills, especially those she does everyday related school activities. Among the adaptive skills that KN found difficulty to deal with independently is wearing socks and lace-up shoes. This skill is deemed necessary considering that KN, who is a student, will often be faced with wearing socks and shoes before going to school. This often becomes an obstacle, especially because KN uses her left hand more dominantly in most of her activities which made her sometimes has difficulty coordinating the tasks that must be carried out on the right and left sides of the body. Her mother conveyed this to the researcher with the aim of finding out the best teaching method to enable KN to wear both socks independently.

The initial screening related to adaptive skills in this study used the Daily Living Skills Activity Observation Checklist for children with Mental Impairment compiled by Delphie (2012). This checklist was filled in by KN's mother a single parent who accompanies and cares for KN. After filling in the observation checklist, it was discovered that overall KN had good abilities in terms of movement and balance function. In terms of her ability to eat and drink, KN still needs a little help to use a spoon, especially for soupy foods, and to pour water from a teapot. In terms of dressing skills, KN still needs a little help to button her shirt, put on her belt, wear a bra, jacket, and raincoat. Apart from that, KN also needs help as necessary to put on socks and is not able to tie her shoes at all. In terms of personal health, KN still needs a little help to blow his nose, clean herself after defecating, and cut her fingernails. Meanwhile, in terms of general

communication skills, KN still needs a little help to read special symbols and is not yet able to do typing (on a computer/laptop). The target behavior in this research based on KN's mother's wish is to increase the ability to wear socks on KN.

The design of this research was a single-subject experimental design with three initial baseline sessions, five intervention sessions using forward chaining and prompting-type behavior modification techniques, and a final baseline of three sessions. The evaluation of behavior improvement was analyzed by comparing the ability to wear socks before and after the intervention.

RESULTS AND DISCUSSION

Results

Based on the results of three early baseline observations in Table I, it can be seen that among 2 of the 12 stages, KN was able to differentiate, take the right sock, and take the left sock without any prompts. Meanwhile, for the rest 10 behaviors, she needed physical prompts which were carried out fully by her mother, beginning from rolling up her socks to straightening them on each right and left foot. The obstacles experienced by KN are in accordance with the opinion of Lee, et. al (2009) that children with limited cognitive abilities will have difficulty mastering the sequence of how to wear clothes properly and correctly.

Table I. Early Baseline

Task Analysis (behavior)	Prompt and Meeting														
	No prompt			Verbal			Gesture			Modelling			Physical		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Picking up the right sock	√	√	√												
Rolling the right sock													√	√	√
Setting the right sock to toes													√	√	√
Pulling the right sock to ankle													√	√	√
Pulling the right sock to calf													√	√	√
Tidying the right sock													√	√	√
Pick up the left sock	√	√	√												
Rolling the left sock													√	√	√
Setting the left sock to toes													√	√	√
Pulling the left sock to ankle													√	√	√
Pulling the left sock to calf													√	√	√
Tidying the left sock													√	√	√

Meanwhile, during the five intervention sessions, it was discovered that KN had increased her independence from previously receiving physical prompts, to modelling, gesture, and verbal until she acted without any prompts as the details in table below

Table II. Intervention

Task Analysis (behavior)	Prompt and Sessions																								
	No Prompt					Verbal					Gesture					Modelling					Physical				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Picking up the right sock	√	√	√	√	√																				
Rolling the right sock					√				√				√	√		√	√								
Setting the right sock to toes					√				√				√	√			√	√			√	√			
Pulling the right sock to ankle					√				√				√	√			√	√			√	√			
Pulling the right sock to calf					√			√	√				√	√	√		√	√			√	√			
Tidying the right sock					√			√	√				√	√			√	√			√	√			
Pick up the left sock	√	√	√	√	√																				
Rolling the left sock					√				√				√			√	√								
Setting the left sock to toes					√				√				√	√			√	√			√				
Pulling the left sock to ankle					√				√				√	√			√	√			√	√			
Pulling the left sock to calf					√				√				√	√			√	√			√	√			
Tidying the left sock					√			√	√				√	√			√	√			√	√			

Based on the intervention session, KN needed physical and modeling prompts at the first session. Found eight tasks that require physical prompts, which are setting the right sock to the toes; pulling the right sock to the ankle; pulling the right sock to the calf; tidying the right sock; and on the left sock, she needs prompts on the tasks of rolling the left sock; setting the left sock to toes; pulling the left sock to the ankle; pulling the left sock to the calf; and tidying the left sock. As for the modeling prompt, it requires the task of rolling both socks alternately. In the second session, physical prompt assistance began to be reduced, but she needed modeling prompts on 10 tasks that she had not been able to achieve from the start. Apart from that, when wearing the right sock, she also needs additional gesture prompts for the tasks of pulling the right sock to the calf and tidying the right sock.

Entering the third session, she still needed two modelling prompts to set both side of socks to her toes. She also received gesture prompts on 10 tasks that she had not been able to achieve from the start, plus verbal prompts on pulling the right sock to her calf; tidying the right sock; and tidying the left sock. Furthermore, in the fourth intervention session, she still needed gesture prompts for all stages of the right sock, and one final stage for the left sock, namely tidying the left sock. Verbal prompts were given for 10 tasks that KN had not achieved from the start. In this session there were two types of prompts given for wearing the right-side sock. And as for the fifth session, KN was able to complete all the tasks independently even though several times she seemed to remember the order. She also looked at the researcher, but after being given a social reward in the form of a smile, she seemed enthusiastic and willing to continue the task of wearing socks independently until completion. The next stage is evaluating the late baseline to determine the effectiveness of the intervention and the persistence of forming a new behavior in KN which can be seen in the following table.

Table III. Late Baseline

Task Analysis (behavior)	Prompt and Meeting															
	No prompt			Verbal			Gesture			Modelling			Physical			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Picking up the right sock		√	√	√												
Rolling the right sock	√	√	√													
Setting the right sock to toes	√	√	√													
Pulling the right sock to ankle	√	√	√													
Pulling the right sock to calf	√	√	√													
Tidying the right sock		√	√	√												
Pick up the left sock		√	√	√												
Rolling the left sock	√	√	√													
Setting the left sock to toes	√	√	√													
Pulling the left sock to ankle	√	√	√													
Pulling the left sock to calf	√	√	√													
Tidying the left sock		√	√	√												

This research was completed by observing at the final baseline stage for three sessions. Based on the first late baseline, it is known that KN still needs verbal commands to differentiate and pick up the right side of the sock and to tidy up the right sock. The mutual thing happens when putting on the left sock. Meanwhile, in the second and third sessions, KN was able to carry out a series of activities to put on socks from start to finish independently. Information on the differences between early baseline and late baseline is attached in the following table.

Table IV. Comparing the Baseline

Task Analysis (behavior)	Baseline and Prompt																																			
	Early Baseline									Late Baseline																										
	No prompt			Verbal			Gesture			Modelling			Physical			No prompt			Verbal			Gesture			Modelling			Physical								
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3						
Picking up the right sock	√	√	√																																	
Rolling the right sock													√	√	√	√	√	√																		
Setting the right sock to toes													√	√	√	√	√	√																		
Pulling the right sock to ankle													√	√	√	√	√	√																		
Pulling the right sock to calf													√	√	√	√	√	√																		
Tidying the right sock													√	√	√				√	√	√															
Pick up the left sock	√	√	√																			√	√	√												
Rolling the left sock													√	√	√	√	√	√																		
Setting the left sock to toes													√	√	√	√	√	√																		
Pulling the left sock to ankle													√	√	√	√	√	√																		
Pulling the left sock to calf													√	√	√	√	√	√																		
Tidying the left sock													√	√	√				√	√	√															

Referring to the early baseline, it is known that KN is independent in the ability to differentiate and choose the right and left socks. Meanwhile, the rest 10 steps still require assistance in the form of physical prompts. All of these tasks appeared in three observation sessions. Meanwhile, KN experienced gradual progress after five intervention processes starting from giving less physical prompts, giving minimal verbal prompts to completing it independently. Then at late baseline, it was discovered that in the first session, she still needed verbal prompt assistance to distinguish and choose the right sock and when tidying it up. Verbal prompts were also given when she chose the left sock and tidied it up. Meanwhile, in the second and third sessions at late baseline, she was able to put on socks independently and showed that this behavior had persisted into a new behavior.

Discussion

This single-subject design research uses an experimental research method on a single subject which aims to improve one of the adaptive life skills related to dressing. In the screening based on the dressing skill aspect obtained from the Daily Living Skills Activity Observation Checklist for children with Mental Impairment compiled by Delphie (2012), it was discovered that KN still needed a little help to button her shirt, put on her belt, wear a bra, jacket, and raincoat. Apart from that, KN also needs help as necessary to put on socks and is not able to tie her shoes at all. The focus of intervention in this research is wearing socks because it is a daily activity that he does before going to school. As for tying shoelaces, this will be the next intervention on the agenda after ensuring that the behavior of putting on socks has been carried out by KN independently and will last for at least 3 months after the research.

CONCLUSION

Behavioral modification using chaining and prompting techniques has been proven to increase the adaptive abilities of children with intellectual disabilities related to dressing skills in students that is wearing socks as one of the daily activities they do before going to school. Before carrying out the intervention, an initial baseline was first carried out to observe the extent of KN's ability to wear socks, which apparently had been mostly helped by her mother. The intervention was then carried out in 5 sessions in the form of forward chaining by dividing the activity of putting on socks into 12 task analyses. It is then strengthened by giving 4 types of prompts, they are physical, modelling, gesture and verbal prompts in rows. Late baseline was carried out after the entire intervention process was completed to see the effectiveness of chaining and prompting in forming the ability to wear socks as the new behavior. Through this intervention, KN is not only able to wear socks correctly according to the order and sides, but by achieving this ability

she is able to leave for school earlier because the task of wearing socks is now becoming her responsibility. The main point is that KN can achieve independence in one of the dressing tasks in adaptive skills. Other research related to dressing skills is suggested to be carried out using the backward chaining technique with reinforcement of one type of prompt to see the effectiveness of each prompt specifically.

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