Employing Video Modeling Strategy for Teaching Clothing Skills for Students with Multiple Disabilities

Nabil Sharaf Almalki

Department of Special Education, College of Education, King Saud University, Riyadh, Saudi Arabia.

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Corresponding author: Nabil Sharaf Almalki, Department of Special Education, College of Education, King Saud University, Riyadh, Saudi Arabia.

Email: nalmarki@ksu.edu.sa

Abstract

This paper seeks to examine the influence of self-development programs as well as training by the use of VM on improving clothing skills in students with multiple disabilities. Forty-four students with multiple disabilities were classified into an experimental group that contained twenty-two learners and a control group that contained twenty-two learners who participated in this study. A pre-and post-tests were adopted in the current study. Training by the use of video modeling was given to the experimental group during five sessions, as well as a self-development program during five sessions. Each session of the training and the self-development program lasted fifty minutes. The findings after the intervention revealed a considerable difference between both groups. Ten items of clothing increased after the intervention, while only four items remained the same. The study concludes that self-development programs and training employing VM might enhance clothing skills among students with multiple disabilities.

Keywords

Video modeling (VM), clothing skills, multiple disabilities, self-development program, training

1. Introduction

Video modeling (VM) is regarded as one of the effective techniques that facilitate observational learning (Dorwick, 1991). It entails watching the video of the task completely before seeking to accomplish the task independently (Domire & Wolfe, 2014). Several studies (Nikopoulos & Keenan, 2003; Taylor, Levine, & Jasper, 1999) indicate that VM entails producing the observed behavior by practice. VM is considered as “a mode of teaching that uses video recording and display equipment to provide a visual model of the targeted behavior or skill” (Franzone & Collet-Klingenberg, 2008, p. 1). On the other hand, Dowrick (1999) argues that VM is a process that seeks either to alter current behavior or to teach new behavior by using a videotaped performance of a behavior or skill.

Le Grice and Blampied (1994) point out that the targeted individual watches a video in every training session in which she or he is required to imitate such a skill. Corbett (2003) maintains that the targeted individual is asked to watch the video. Moreover, if the individual remains seated while watching the video, she or he will be rewarded. In the present study, multiple disabilities are defined as a person with various disabilities, such as autistic spectrum disorders, emotional or behavior disorders, developmental disabilities, and intellectual disabilities. Accordingly, children with

multiple disabilities might need multiple special education services to satisfy their educational requirements (Belkin et al., 2013).

Inclusive education that enhances and welcomes all learners regarding their intellectual abilities (UNESCO, 2009) is considered one of the modern international trends for educating impaired and intellectual children. Saudi Arabia applies an inclusion policy in which children with severe intellectual disabilities receive their education in separate institutions (The Ministry of Education in Saudi Arabia, 2008).

Life skills are the required skills for daily life in society. To have an independent life, an individual should have suitable life skills that are summarized into five aspects, namely, social interaction, community participation, recreation and leisure, employment, self-care, and domestic living (Chiang et al. 2017). There is no doubt that life skills are of great importance for people with intellectual disabilities. As Bouck (2010) puts it forward, life skills are of paramount importance for people, particularly people with disabilities. The purpose of highlighting life skills for people with special needs lies in ensuring a successful transition into adulthood and maintaining an occupation (Chiang et al., 2017). However, the majority of people with multiple disabilities experience difficulties in performing daily living skills independently, such as cleaning, cooking, self-care, and managing personal finances, that hinder their ability to live without getting support from others (Bridges et al., 2019). To address this problem, several studies (Wynkoop et al., 2017; AL-Salahat, 2016) indicated that teaching independent life skills, such as cleaning, preparing food, laundering clothes, and preparing sandwiches, to students with multiple disabilities enhances their autonomy, self-reliance, and reduces some of the required time and effort for providing direct care for them.

According to Friend (2008), daily living skills are considered essential for people to deal with the present demands of daily life and the future independently. These skills are represented by dressing and taking clothes off, time management, personal hygiene skills, money, entertainment, food preparation and eating, and work skills.

It is commonly known that the majority of intellectually disabled people are unable to perform daily life tasks. Therefore, VM is considered one of the effective methods that deliver great benefits by increasing independent correct responses, improving students' performance, increasing the rates of skill acquisition, and generalizing as well as maintaining the learned skills over time (Domire & Wolfe, 2014). Consequently, the current paper is designed to answer the following research questions:

1-What is the influence of VM on acquiring daily living skills (clothing skills) for students with multiple disabilities?

2-After the students have learned clothing skills through the use of VM in one scenario, are they able to generalize and maintain them over time without the use of VM?

By addressing these questions in this study, I hope to contribute to a fuller understanding of the use of VM in teaching clothing skills for students with multiple disabilities.

2. Review of Literature

Anderson (2020) carried out a contrastive study on the use of VM and task analysis for teaching independent living skills to students with developmental cognitive disabilities. Two participants were taught daily living skills, such as brushing their teeth, cleaning a table, washing their faces, loading and unloading the dishwasher, and sweeping. The first participant was taught by the use of VM, while the second participant was taught by the use of task analysis. The study used a five-point scale to rate the students' performance, along with the Hierarchy of Prompts to rate the level of promotion required by the participants to complete the task. The study concluded that the first participant was more independent and performed better than the second participant. Another interesting finding is that the first participant who was exposed to VM needed fewer intrusive prompts to perform the majority of daily living tasks than the second student.

DeRecat (2019) investigated the impact of using life skills for a six-week intervention on improving intellectual students. Seven students with varying behavioral challenges as well as disabilities participated in this study. Three skills were highlighted, namely, money skills (collecting money), hygiene (handwashing), and social skills (appropriate greetings). For this objective, a mixed-method approach containing classroom observation and interviews with parents and teachers was used to elicit data from the respondents. The study found that the lack of curriculum and life skills standards constituted challenges for special education teachers in executing life skills-based programs.

Park et al. (2018) examined the impact of VM and/or in conjunction with the least prompt system. The sample consisted of intellectually disabled adults, who were asked to perform three social skills, such as asking for an explanation regarding unclear instructions, responding appropriately to feedback, and offering assistance. The results indicated that all the participants exhibited improvement in acquiring the targeted skills from the baseline to intervention, which confirmed the effectiveness of VM for teaching social skills for students with intellectual disabilities. However, the whole participants experienced difficulties with response generalization.

Susilowati et al. (2018) found that the use of VM, self-development programs, and training are effective for improv-

ing dressing skills among students with intellectual disabilities. Wynkoop et al. (2017), moreover, investigated the impact of two video modeling interventions and a third non-video-based intervention on enabling four autistic and students with intellectual disabilities to practice their living skills, such as cleaning, preparing food, and laundering clothes independently. To this end, an adapted alternating treatment design was used to investigate the comparative impacts of video modeling, along with promoting and reinforcement, continuous video modeling, along with prompting and reinforcement, and prompting and reinforcement. The results showed that two participants responded well to video modeling, along with promoting and reinforcement. Surprisingly, continuous video modeling along with promoting and reinforcement was extremely effective for one participant only. With regard to the last participant, the whole intervention had little impact on the performance of the target skill.

AL-Salahat (2016) conducted a study on the impact of VM on teaching the method of preparing sandwiches for students with Down Syndrome. The training session included watching a video of an intellectually challenged student who was preparing a cream cheese sandwich. After performing each step of the training correctly, the students received verbal praise to motivate them. The findings indicated that the participants mastered the skill of sandwich preparation independently. The study verified the skill generalization and the students exhibited maintenance of the skill for 14 days, leading to proficiency.

A variety of previous studies that sought to teach daily living skills by the use of VM for students with intellectual disabilities boil down to first aid skill (Ozkan, 2013), food preparation (Graves et al., 2005), cleaning, washing, and food preparation (Wynkoop et al., 2017), social skills (Ayres & Langone, 2002; Bidwell & Rehfeldt, 2004; Avcioglu, 2013), sandwich preparation (AL-Salahat, 2016), ordering food from a restaurant (Mechling et al., 2005), Recreation and leisure skills (Sherrow et al., 2015), purchasing skills (Gena et al., 2005), social skills, such as asking for explanation regarding unclear instructions, responding appropriately to feedback, and offering assistance (Park et al., 2018), daily living skills (Norman et al., 2001; Öncül & Özkan, 2010; Cannella-Malone et al., 2006), tooth brushing, face washing, sweeping, table cleaning, loading and unloading the dishwasher (Anderson, 2020), fine and gross motor skills (Mechling et al., 2012), meal preparation skill (Palechka & MacDonald, 2010; Charlop-Christy et al., 2000), self-help Skills (Rai, 2008), self-care (Norman et al., 2001), money skills, hygiene, social skills (DeRecat, 2019).

Given all that has been mentioned so far, the findings of previous studies support the use of VM when teaching daily living skills for students with intellectual disabilities. Accordingly, the advantages of applying VM are summarized as promoting students' autonomy (Anderson, 2020), facilitating the process of acquiring the targeted skills from baseline to intervention (Park et al., 2018), and enabling students to master the target skills independently (AL-Salahat, 2016). Even though the majority of studies indicated that the participants were able to generalize and maintain the target skill for a long time, Park et al. (2018) pointed out that students face difficulties with response generalization. Therefore, the current study seeks to bridge the gap in this field by examining the use of the VM strategy for teaching independent living skills for students with multiple disabilities in Saudi Arabia.

3. Methodology

3.1. Participants

The sample was predominantly male aged between 8 to 13 years, after taking approval from their parents. They were recruited from the Institute for Special Education 'For Boys' in the city of Riyadh, Saudi Arabia. Forty-four (44) children with multiple disabilities were divided into (22) students in the control group and (22) students in the experimental group. The participants were recruited by employing purposive sampling and divided into two groups (the experimental group consisted of 22 participants, while the control group consisted of 22 participants). The study excluded children who were unable to follow the entire training session and those with physical disabilities. They were invited to watch a video about clothing skills to perform independent living skills.

3.2. Instrument

The study employs a pre-test to make sure that there are no significant differences in clothing skills between the experimental and control groups. Then a post-test is administered to the experimental group, while the control group is taught by using the traditional teaching method for daily living skills. The purpose of employing a pre-test lies in measuring the students' level and knowing their basic skills for performing daily living activities regarding clothing. The purpose of employing a post-test lies in examining the efficiency of video modeling and its role in improving clothing skills.

The study used the following items for clothing skills: picking out clothes, using fasteners, taking clothes from a cabinet, buttoning clothes, taking clothes from a cupboard, buttoning clothes, using a zipper, wearing upper clothes,

wearing lower clothes, wearing socks, tying shoes, taking off clothes from the upper body, and taking off clothes from the lower body. The higher scores of the students with multiple disabilities reflect the better skill level of their clothing skills. This study is given to a jury of experts including special educational needs (SEN) teachers and arbitrators to detect the accuracy, clarity, validity, and appropriateness of the instrument. Then the instrument was modified according to their recommendation.

3.3. Intervention

The teachers were informed about the study procedure; thus, consent was taken from them. A pre-test assessment of clothing skills was performed by a research assistant in which both control and experimental groups were observed before the intervention. Each respondent practiced clothing skills step by step, in turn, drawing upon the item of clothing skill assessment. Meanwhile, the research assistant assessed and observed the respondents' skills by the assessment rubric prepared by the researcher. A research assistant observed each student. Both pre and post-tests were carried out for 6 days, with a number of 7-8 respondents daily. Each respondent was given 10-15 minutes to practice clothing skills.

The intervention of the experimental group was given as self-care training by employing the VM method as well as the self-development program during 5 sessions. Each lasts fifty minutes. The required equipment for clothing practices was prepared by the researcher, including pants, socks, hangers, shoes, a wardrobe, belts, skirts, cabinets, and cloth buttons. Clothing equipment, such as skirts, pants, buttons, and T-shirts, is prepared by teachers. The scores and meanings of each clothing skill item were analyzed both before and after the intervention.

3.4. Procedures of the Study

A quasi-experimental method with a pre and post-test design was used. The independent variables were both self-care training and self-development programs by the use of the VM method, while the dependent variables were the clothing skills of students with multiple disabilities. The test was adopted from the National Professional Development Center on Autism Spectrum Disorders, which consists of several steps. First, choose a behavior to target by clarifying the skill with all its parts. Second, gather the equipment employed for recording videos. Third, collect the baseline data by observing the students' behavior and ability to perform the task perfectly after the intervention. Fourth, recording the video. Fifth, collecting data to assess students' performance and progress after the intervention. Sixth, observe the students' ability to maintain and generalize the target skills over time (Bogin, 2008). The participants' performance of the target skill was evaluated depending on their ability to follow the sequence of steps in the task analysis. According to Szidon and Franzone (2009), task analysis means the process of dividing the skill into sub-categories by using either words or pictures. Table 1 shows the task analysis of clothing skills.

Table 1. Task analysis of clothing skills

1-Opening the cabinet and taking clothes from it.
2-Choosing clothes that you want to wear, such as skirts, pants, buttons, and T-shirts.
3-Put clothes on the upper part of the body.
4-Buttoning clothes by connecting the button on one side of the shirt with the hole on the other side of the shirt.
5-Put clothes on the lower part of the body.
6-Using fasteners by holding two pieces of clothing together.
7-Using zippers for fastening clothes by pulling them upward.
8-Wearing socks by scrunching the socks up and keeping them pulled up over the heels.
9-Opening the wardrobe and taking a pair of shoes.
10-Wearing your shoes by inserting your feet into the shoes.
11-Tie your shoelace by placing your feet on the ground, making a loop with one of the laces, then using one of your hands to wrap the shoelace around the hole, pulling the shoelace through the hole to form another loop, holding both loops and pulling them tight.
12-Remove clothes from the upper part of the body.
13-Remove clothes from the lower part of the body.
14-Sort and hang your clothes in the cabinet.

For the purpose of observing the effectiveness of VM in improving clothing skills among students with multiple disabilities. The following datasheet adopted from the National Professional Development Center on Autism Spectrum Disorders was used to test students with multiple disabilities' performance and improvement as illustrated in Table 2.

Table 2. The assessment for testing the performance and improvement from National Professional Development Center

Data	Observers' Initial	Target Skill/Behavior, Comments, and Plans for the next step
20/5/2021	Students with multiple disabilities.	The target skill is clothing skills. I noted significant improvement in students' ability to perform clothing skills individually. The study plan is for enabling students with multiple disabilities to maintain and generalize clothing skills independently without the assistance of VM.

Using VM in each training session falls into the following steps. First, the whole participants in the experimental group (22 students) sat in the same room that displayed the video. Second, a clothing skills video was shown for eight minutes. Third, the respondents were divided into small groups. Fourth, the procedure for clothing skills procedure was clarified and demonstrated gradually for fifteen minutes. Fifth, the respondents were given twenty minutes to practice clothing skills procedures. Sixth, the respondents were observed for seven minutes by the trainer to evaluate the clothing skills of each one of them.

Turning now to unraveling the procedures concerning the self-development program. First, the equipment and clothing were introduced by the teacher through concrete objects or images for five minutes. Second, the procedure for clothing skills was explained by the teacher for ten minutes. Third, the procedure for clothing skills was demonstrated by the teacher for fifteen minutes. Fourth, the procedure for clothing skills was practiced by the students for fifteen minutes. Fifth, the clothing skills of participants were evaluated by the teacher for five minutes. Both the Wilcoxon test and Mann-Whitney were used to analyze the data. The present study followed the ethical guidelines described in the Helsinki Declaration.

4. Results

4.1. Describing clothing skills among students with multiple disabilities

The pre-test and post-test scores mean, and standard deviations are shown in Table 3.

Table 3. Description of clothing skills in the experimental group

No.	Dressing and clothing skill items	The score of the pre-test Mean ($\pm$ SD)	The score of the post-test Mean ($\pm$ SD)
1-	Choosing clothes	3.52 ($\pm$ 1.1)	4.07 ($\pm$ 0.95)
2-	Taking clothes from the cabinet	3.45 ($\pm$ 1.2)	4.14 ($\pm$ 0.90)
3-	Taking clothes from the cupboard	3.48 ($\pm$ 1.2)	3.50 ($\pm$ 0.92)
4-	Put clothes on the upper part of the body	3.43 ($\pm$ 1.15)	3.99 ($\pm$ 0.99)
5-	Put clothes on the lower part of the body	3.41 ($\pm$ 1.21)	3.95 ($\pm$ 1.03)
6-	Wearing socks	2.88 ($\pm$ 1.14)	3.95($\pm$ 1.01)
7-	Wearing shoes	2.83 ($\pm$ 1.2)	3.89 ($\pm$ 0.98)
8-	Tying shoes	2.76 ($\pm$ 1.12)	3.88 ($\pm$ 1.01)
9-	Using zippers	3.66 ($\pm$ 0.96)	3.7 ($\pm$ 1.12)
10-	Using fasteners	2.70 ($\pm$ 1.02)	3.69 ($\pm$ 1.12)
11-	Taking clothes off the upper part of the body	2.71 ($\pm$ 1.13)	3.87 ($\pm$ 1)
12-	Taking clothes off the lower part of the body	3.76 ($\pm$ 0.85)	3.79 ($\pm$ 1.1)
13-	Buttoning clothes	3.74 ($\pm$ 1.02)	3.76 ($\pm$ 1.07)
14-	Sorting and hanging clothes in the wardrobe	3.00 ($\pm$ 0.99)	3.71 ($\pm$ 1.08)

It is apparent from Table 3, before the intervention, the mean scores for using fasteners had the lowest score (2.70%), whereas the mean scores for choosing clothes had the highest score (3.52%). After the intervention, the mean scores of

using zippers had the lowest score (3.7%), while the mean scores of taking clothes from the cabinet had the highest score (4.14%). Interestingly, the mean score for thirteen items of clothing skills increased among the experimental group after the intervention.

4.2. The impact of training as well as self-development programs on employing clothing skills in students with multiple disabilities

Table 4. The use of Mann-Whitney for comparing posttest clothing skill scores of both groups

Clothing skill score	Control group (n= 22)	Experimental group (n=22)	P-value
	Means	Means	
Post-test	1.00	4.50	0.011*

Statistically significant ($P < 0.011$)

A closer inspection of Table 4 shows that the clothing skill score was higher in the experimental group (4.50%) as opposed to the control group (1.00). Accordingly, there was a significant difference in the clothing skills scores of students with multiple disabilities in the post-test between both groups that were in favor of the experimental group.

4.3. Comparing clothing skills items scores in the experimental group before and after intervention

Table 5. The use of the Wilcoxon test for comparing clothing skills scores of the experimental group in pre and post-tests

Group	Pre-test	Post-test	P-value
	Means	Means	
Experimental	1.50	7.00	0.007*

Statistically significant ($P < 0.007$).

As indicated in Table 5, the Wilcoxon test was used to analyze the data and to compare the clothing skills of the experimental group in both tests. It is clearly obvious that there was a significant difference in the clothing skills scores in both tests. This finding entails that the posttest clothing skill score post-test score (7.00%) was higher than the pre-test score (1.50).

Table 6. Comparing clothing skills items scores in the experimental group before and after intervention

No.	Clothing skill	Experimental Group		P-value
		Means (Pre-test)	Means (Post-test)	
1-	Choosing clothes	1.00	6.00	0.002*
2-	Taking clothes from the cabinet	2.00	7.00	0.001*
3-	Taking clothes from the cupboard	1.50	6.00	0.003*
4-	Put clothes on the upper part of the body	1.00	5.00	0.007*
5-	Put clothes on the lower part of the body	1.50	4.50	0.011*
6-	Wearing socks	2.50	7.00	0.001*
7-	Wearing shoes	2.00	6.00	0.003*
8-	Tying shoes	1.50	2.00	0.501
9-	Using zippers	1.00	1.50	0.340
10-	Using fasteners	2.00	2.50	0.411
11-	Taking clothes off the upper part of the body	3.00	6.50	0.042*
12-	Taking clothes off the lower part of the body	2.50	4.00	0.009*
13-	Buttoning clothes	1.50	1.50	0.523
14-	Sorting and hanging clothes in the wardrobe	2.00	5.00	0.021*

Statistically significant ($P < 0.05$).

As indicated in Table 6, the researchers used the Wilcoxon test to compare the item scores of the clothing skills in the experimental group in the pretest and posttest. As indicated in Table 6 above, there is a statistically significant difference ($P < 0.05$) for 10 items of clothing skills after the intervention. Such items were summarized as: choosing clothes, putting clothes on the lower part of the body, taking clothes from the cupboard, putting clothes on the upper part of the body, taking clothes from the cabinet, wearing shoes, wearing socks, taking clothes off the upper part of the body, taking clothes off the lower part of the body, and sorting and hanging clothes in the wardrobe. However, there were no significant differences for 4 items of clothing skills, such as buttoning clothes, using fasteners, using zippers, and tying shoes.

5. Discussion

After a self-development program and training with the VM method, the participants observed a significant improvement in their clothing skills. Possibly, such students were given supplementary training by employing VM in the self-development program that lasted for 5 sessions. Moreover, some clothing skills have progressively increased consistent with further training sessions. Besides, students in an experimental group were given complete and sufficient equipment that included the whole dressing equipment for each clothing item. The findings lend tremendous support to the findings of a previous study that indicated the improvement of clothing skills in students with multiple disabilities and using less intrusive prompts to perform the majority of daily living tasks after the intervention (Anderson, 2020).

Another interesting finding showed the effectiveness of training intervention with prompting procedures in improving the clothing skills of students with intellectual disabilities (Susilowati et al., 2018). Possibly, the improvement in clothing skills in students with multiple disabilities refers to the use of VM and self-development programs. Students with multiple disabilities mastered clothing skills because they watched the video one time during five sessions and imitated the skill. Therefore, they were able to perform clothing skills. This finding is in line with (Le Grice & Blampied, 1994) concerning the ability of students with special education to practice targeted skills by watching and imitating. Not to mention that VM facilitates observational learning for students with multiple disabilities (Dorwick, 1991).

The participants benefited from using VM for learning clothing skills. The students' motivation was boosted, their performance increased, they became more independent and self-reliant, and the students spent less time learning the target skills after being exposed to VM. These findings concur with the findings of (Anderson, 2020; AL-Salahat, 2016) that the use of VM enables students to become more autonomous, Park et al. (2018) regarding the importance of VM in acquiring the target skill easily, and Domire and Wolfe (2014) concerning the advantages of VM in improving students' performance.

Most importantly, the participants exhibited the easy behavior of maintaining and generalizing the required skills after getting practiced over time without the use of VM. To put it differently, the respondents generalized the target behaviors across sessions. This finding is in good agreement with Domire and Wolfe (2014) in terms of the importance of VM in enabling students to maintain and generalize their acquired skills over time.

Students' scores in the experimental group after the intervention are higher and significantly different than in the control group, which supports Wynkoop et al. (2017) regarding the positive influence of VM intervention on fostering independent daily living skills of students with multiple disabilities. During the intervention, demonstration methods were given to the participants by employing concrete objects because it is extremely difficult for students with multiple disabilities to imagine something. Therefore, the use of concrete objects might overcome this limitation (Susilowati et al., 2018).

After the participants received the self-care program and VM, ten items were increased. Buttoning clothes in an experimental group did not increase after the intervention. Possibly, the students were demotivated; thus, they were unable to improve themselves on such an item. Furthermore, the participants experienced difficulty in practicing such a skill independently. This finding is commensurate with Bridges et al. (2019) regarding their inability to perform their daily living skills without support from others; thus, they become unmotivated.

The study is limited to the following points. (1) The researcher experienced difficulty in the assessment of clothing skills for some students because the psychological condition of the student was unstable. (2) The parents of the participants did not assist students with multiple disabilities with practicing their clothing skills. (3) Time constraints hindered the process of carrying out the assessments of both the pretest and posttest concurrently in both groups.

6. Conclusion

Training, as well as self-development programs by employing VM, could enhance clothing skills for students with multiple disabilities aged 8-13 years. The study concluded that 10 clothing items were improved among the participants after the intervention, such as: taking clothes off the lower part of the body, selecting clothes, removing clothes from the cupboard, removing clothes from the cabinet, putting clothes on the upper part of the body, wearing shoes, putting clothes on the lower part of the body, wearing socks, taking clothes off the upper part of the body, and sorting and hanging clothes in the wardrobe. The study recommends public special schools use VM in providing self-development programs.

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