

European Journal of Special Education Research

ISSN: 2501 - 2428 ISSN-L: 2501 - 2428 Available on-line at: <u>www.oapub.org/edu</u>

doi: 10.5281/zenodo.3229861

Volume 4 | Issue 2 | 2019

EFFECTIVENESS OF VIDEO PROMPTING METHOD IN TEACHING CLOTH FOLDING SKILL TO INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS

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Abstract:

In this study, the effectiveness of the video prompting method and its maintenance and social validity were investigated in cloth folding skill teaching for individuals with autism spectrum disorder. Three male individuals with autism spectrum disorder were included in the study. In the research, inter-observer multiple-probe with a single-subject research model was used. As a result of the research, 3 participants achieved the target behavior successfully. It was observed that the maintenance of the behaviors acquired in both participants continued as 10, 20, 30. In a participant, the data of maintenance was collected for 10, 20 days and it was observed that the behavior was preserved, yet on the 30th day, the maintenance data could not be collected. For social validation, families reported positive opinions.

Keywords: autism spectrum disorder, video modeling, video feedback, video prompting

1. Introduction

Daily life skills are among the functional skills required for success in people for their present and future life (Volkmar and Wiesner, 2009). The majority of individuals with autism spectrum disorder (ASD) experience significant problems in learning daily life skills (Kraijer, 2000), and the majority are not able to learn these skills until their old age (Liss et al., 2001). Learning daily life skills is very important for individuals and has many benefits. Learning daily life skills will enable individuals to live independently in society, without trouble and to be accepted by the society (Enç, 2005; Tuncer, 2013). In addition, learning the daily life skills is necessary for the individual to live independently indoors and outdoors, to maintain personal care and appearance (Varol, 2005). In addition to these, learning the daily life skills will make it easier for the

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individual to find more places in social and professional environments in future (Pierce and Schreibman, 1994), and for families it will provide time and energy needed to perform these tasks (Shipley-Benamou, Lutzker and Taubman, 2002) and will reduce a part of the burden on families (Pierce and Schreibman, 1994; Shipley-Benamou, Lutzker and Taubman, 2002). For these reasons, it is necessary for individuals with ASD to learn the daily life skills to live independently (Ergenekon, 2012). The families of individuals with ASD also state that their children's learning the daily life skills is their most important wish for their children (Heiman, 2002).

It is not easy to educate the children with ASD because of important behavioral problems and lack of learning in. In addition, traditional education methods may not be effective for children with ASD. Therefore, it should be noted that the methods to be used when teaching children with ASD should be proven methods (Scheuermann, Webber, Boutot and Goodwin, 2003). So, it is necessary to use scientific-based practices while teaching daily life skills to individuals with ASD. In the literature, scientific-based applications are defined as applications and programs which show experimentally valid, positive and significant effects on children (Cook, Tankersley and Landrum, 2013; Kurt, 2012). Scientific-based practices help families and other people working in the field to choose appropriate intervention methods to meet the needs of children with ASD (Naoi, 2009).

One of the scientific-based practices used in individuals with ASD is the teaching with video-technology (National Autism Center, NAC 2015). The method of teaching with video technology is based on the social learning theory of Bandura. This method of teaching eliminates unnecessary visual stimuli and provides only the necessary information to individuals with ASD (Bellini and Akullian, 2007). As one of the strongest aspects of the individuals with ASD is the visual processing area (Bellini and Akullian, 2007; Quill, 1997; Wong et al., 2014), it will be more effective to use teaching programs which include visual stimuli such as video-technology teaching method (Nikipoulos and Keenan, 2006). Video modeling is implemented in three different ways: a) video modeling, b) video prompting, c) video feedback (Mechling, 2005).

Video Modeling: In the video modeling, the behavior desired to be exhibited from the individuals is shown in a video and then the individual is expected to exhibit the behavior which he/she has watched (Delano, 2007). In other words, we have the individual watch the video from the beginning to the end to make him exhibit the desired behavior. Then the individual is asked to show the behavior as a whole (Cannella-Malone, Sigafoos, O-Reilly, de la Cruz, Edrisinha and Lancioni, 2006).

Video feedback: In the video feedback, the individual is recorded while the individual exhibits the behavior, then the recorded video is watched together with the individual to evaluate whether the behavior is exhibited correctly (Mechling, 2005). The individual evaluates himself by seeing his mistakes on the behavior he has seen in the video. According to the results of this evaluation, he tries to show the behavior correctly in the later trials (Embregts, 2002).

Video prompting: A chained behavior is recorded as a whole in the video prompting. Then, depending on the characteristics of the individual the video is separated into small video steps. Afterwards, the video is not shown to the individual as a whole. Only a step of the video is shown and the individual is asked to exhibit this step. If the individual exhibits this step correctly, the other step is taken (Shipley-Benamou, Lutzker and Taubman, 2002).

Video prompting is a more efficient and fruitful method than video modeling. The justification for this is that the shorter videos are watched by the learner and it is easier for him/her to concentrate on the short videos and to keep in mind (Cannella-Malone et al., 2006; Cannella-Malone et al., 2011; Yavuz, 2016).

When we consider the literature, we find a number of studies using video prompting in teaching daily life skills to individuals with ASD. It is observed that Sigafoos et al., (2005) have studied on popping in the microwave, Horn (2008) washing clothes in the washing machine, Bereznak et al., (2012) using the washing machine, making noodles, using the copier, Laarhoven et al., (2010) pasta cooking, Folding clothes, Cannella-Malone et al., (2012) sweeping by hand and table washing, Johnson et al., (2013) preparing meal, Mechling et al., (2013) cooking and Kaya (2015) popping corn and squeezing fruit Yavuz (2016) has studied on preparing toast with kashar cheese and teabag skill. The aim of this study is to present new evidences on the effectiveness of the video prompting method in teaching daily life skills and to expand the effectiveness of the effectiveness, persistence, generalization and social validity of video prompting method in the for cloth folding skill in individuals with ASD.

2. Material and Methods

2.1 Research Design

In this study, an inter-observer multiple probe model was used. In the study, baseline level and generalization data were gathered simultaneously in all equivalents. After the stable data was collected in the first subject, teaching sessions were started. After the criteria were met in the first subject, simultaneous probe phase was performed in all subjects. Then, after reaching the stable data in the second subject, the teaching sessions were started. After obtaining the stable data which met the criterion in the second subject, probe phase was performed simultaneously in all subjects. After the probe phase, the stable data was obtained in the third subject and then the third subject was transferred to teaching sessions. After obtaining the stable data that met the criterion in the third subject, all the subjects were simultaneously performed with final probe phase. The experimental control of the study was established with the increase in the performance of the subjects who were not received any training, and then with the increase in the performances after the teaching in other subjects (Tekin and Kırcaali-İftar, 2001).

2.2 Dependent and Independent Variables

The dependent variable of this research is the level of cloth folding. The independent variable is the video prompting teaching method.

2.3 Participants

The study included three individuals aged between 14 and 15 years who were diagnosed with ASD. Ali is a 14-year-old boy who goes to a state institution where the individuals with ASD continue and also goes to a private special training institution. Ali can perform three or four directive instructions, start social interaction with his peers, focus on an activity for five minutes, and can independently tell the text he has reads. Metin is 15 years old, goes to a state institution and at the same time continues to a private special training institution. Metin can fulfill three directives, concentrates on an activity for five minutes with and answer the questions about the text he has read. Kemal whose fine motor skills have been developed, can concentrate on an activity for 6 minutes and can perform four-directive instructions.

2.4 Peer Model

The participant who has acted as a model in the video is 15 years old. The shoots with the model participant were performed in the practice setting.

2.5 Practitioner and Observer

The practitioner has 19 years of experience in special education, has a doctorate in special education and has experience in video prompting teaching method. Three people with a single-subject research experience and with a doctorate in special education were included for inter-observer reliability data and treatment reliability data.

2.6 Setting

The research was carried out at a special private education and rehabilitation center in Istanbul. The study setting was approximately 20 square meters. There were a table, two chairs, two lockers, a 2x1 meter table and garbage bin. The video recordings, startup, teaching, probe and follow-up sessions of the study were conducted in this institution.

2.7 Materials

Pants, sweaters and a pair of socks were kept for the cloth folding skill. In addition, video images (video images consist of 7 steps), HP computer with a 15-inch display, a computer power cable, a tripod, a camera, and also a data recording form was used for the start, daily and follow-up sessions.

Table 1: Cloth Folding Skill (Pants, Sweaters, Socks)

Cloth Folding Skill

- 1. Takes the pants and lay on the table with the front facing up, Holds the right leg of the trousers and folds over the left leg.
- 2. Tidies by hands in two different directions on the trousers, Holds the trousers by the feet and folds towards the waist.
- 3. Holds the doubled trousers by the lower part, folds towards the waist again, Puts the pants near the table.
- 4. Takes the sweater and puts facing on the table with the back facing up, Takes the left arm and folds it over the shoulder and lays it on the sweater.
- 5. Takes the right arm and folds it over the shoulder and lays it on the sweater, Lays the skirt of the sweater over the shoulder parts
- 6. Takes the folded sweater and puts on the folded trousers, Takes one of socks and puts it on the table flat.
- 7. Takes the folded socks and puts them on the folded trousers and the sweater.

3. Experimental Procedure

3.1 Probe Sessions

Probe sessions were held as full probe sessions and daily probe sessions. Full probe sessions were performed at the baseline and in all subjects concurrently after completion of teaching in each subject. Daily probe sessions were carried out in teaching sessions, except for the first teaching session, and only for the instructed subject. The single opportunity method was used in the probe sessions and the following process was followed. A trial was performed in each session. Participants were taken to the setting individually. Pants, sweaters and a pair of socks were kept in the setting. In the sessions, first the attention of the participant was tried to be drawn. At this stage, the participant was asked 'Ali, we will fold the clothes and put them into the closet. Are you ready?' The probe session was started after the response 'I am ready' was received. Firstly, the tools used in the research were introduced. Then the directive 'Ali, fold the clothes' was used. The subject was given 5 seconds to initiate the behavior. The session was terminated by marking the steps as (-) which the subject did independently and (+) for the steps which he did wrong or which he did not initiate within 5 seconds. Daily probe sessions were held after the first teaching phase was carried out just after the teaching session No reinforcement was used in the full probe and daily probe sessions.

3.2 Teaching Sessions

In the teaching sessions, one session was held with each subject per day and three trials were carried out in each session. Teaching sessions were performed as follows. The subject was taken into the place where the study would be carried out. The subject was placed on a chair next to the desk where the laptop was located. Participants were taken to the setting where the practice would take place. Pants, sweaters and a pair of socks were kept in the setting. The subject was told as 'We are going to fold the clothes with you and then put the clothes in the closet. First, we are going to watch a video on the computer. After watching the video, you will do the same things which you have watched. If you work properly, I will give you......' The practitioner had the subject watch the first step of cloth folding video on computer. The video watching behavior of the subject was reinforced verbally. The subject was directed to watch the video verbally unless he/she watched the video. After having watched the first step of the video, the subject was told 'let us do the same'. If the subject exhibited the behavior correctly, it was reinforced and the next video step was taken. If the subject did not initiate the behavior within five seconds, or exhibit the wrong behavior, the subject was taken back to the computer setting. The subject watched the video step again. The repetitive behavior was directed as 'let us do the same.' If the subject exhibited the behavior correctly, it was reinforced. If he/she behaved incorrectly or did not behave within five seconds, this step was carried out by the practitioner and then the next step was taken.

3.3 Reliability

Inter-observer reliability and treatment reliability data were collected. Inter-observer reliability data was collected from 30% of the start-up, daily probe, and follow-up sessions through random method. For the analysis of the inter-observer reliability data; the formula 'Agreement /Agreement + Disagreement X 100' was used (Ayres and Gast, 2010). For treatment reliability; the formula 'Observed behavior by the practitioner / expected behavior by the practitioner X 100' was used (Ayres and Gast, 2010).

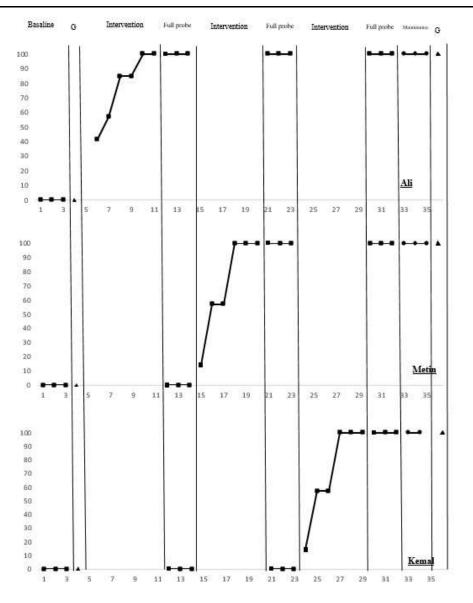
4. Findings

In this section, findings of effectiveness, monitoring, generalization and social validity of folding skill will be covered. In the graph of effectiveness, follow-up and generalization findings, the horizontal axis indicates the number of the sessions; the vertical axis shows the daily probe sessions, generalization, teaching sessions, and the correct response percentages in the maintenance sessions.

Ali's behavior percentages in probe, maintenance and generalization sessions in cloth folding skill with video prompting teaching method are shown in figure 1. Ali's baseline level in cloth folding skill was 0%. Ali showed 100% performance in three sessions successively at the end of six sessions in cloth folding skill by video prompting. It was observed in the follow-up data, which was performed10, 20, 30 days later, that Ali maintained cloth folding skill at 100% level.

Metin's behavior percentages in probe, maintenance and generalization sessions in cloth folding skill with video prompting teaching method are shown in figure 1. Metin's baseline level in cloth folding skill was 0%. Metin showed 100% performance in three sessions successively at the end of five sessions in cloth folding skill by video prompting. It was observed in the follow-up data, which was performed 10, 20, 30 days later, that Metin maintained cloth folding skill at 100% level.

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Note: B: Basaline, G: generalization, I: Intervention, F.P.: Full probe, M: Maintenance **Figure 1:** The correct response percentages of acquiring cloth folding skill, maintenance and generalization with video prompting

Kemal's behavior percentages in probe, maintenance and generalization sessions in cloth folding skill with video prompting teaching method are shown in figure 1. Kemal's baseline level in cloth folding skill was 0%. Kemal showed 100% performance in three sessions successively at the end of five sessions in cloth folding skill by video prompting. It was observed in the follow-up data, which was performed 10, 20, days later, that Kemal maintained cloth folding skill at 100% level. A follow-up session could not be held with Kemal after 30 days.

4.1 Generalization Findings

Generalization of the research was conducted interpersonally. Generalizations were collected before and after teaching. It was observed that the subjects performed the

skills they learned when instructions were given in different individuals. Generalization data are shown in Figure 1.

4.2 Social Validity Findings

The social validity data of the study have been obtained from the mothers of the participants. They have stated that the cloth folding skill is the primary skill for the subjects and indicated that the skills which have been gained will contribute to their daily living skills. In addition, they have expressed that these skills will help the individuals, who are around the children, behave positively towards them.

5. Discussion, Conclusion and Recommendations

According to the results of this research, it has been seen that the video prompting teaching method is effective in teaching the skill of folding clothes. In addition, it has been observed that the acquired behavior can be generalized to different people and teachers have positive opinions in terms of social validity. It has been observed that the behavior of the participants has been maintained after 10, 20 and 30 days. On the 30th day the maintenance data has not been collected only for Kemal. This research finding has shown parallelism with the findings of Laarhoven et al., (2010) in teaching the skill for cloth folding with a video prompting. Laarhoven et al., (2010) in their research have stated that the individuals with ASD have successfully achieved the behavior of folding clothes with video prompting method. In addition, it shows parallelism with different research findings in which the video prompting method is used and daily living skills is taught. Bereznak et al., (2012), Cannella-Malone et al., (2012), Horn (2008), Johnson et al., (2013), Kaya (2015) Mechling, et al., (2013), Sigafoos et al., (2005) and Yavuz (2016), have stated in their study that the individuals with ASD have been able to acquire their daily living skills successfully with video prompting method. According to the results of this research, it can be said that video prompting teaching method is an effective method in teaching daily living skills.

When we consider the maintenance findings of the research, it has been observed that the cloth folding skill acquired with video prompting is maintained after the teaching is completed. These findings are in line with the research findings of Laarhoven et al., (2010). Laarhoven et al., (2010) have observed in their study that the maintenance of the acquired behavior in the teaching of cloth folding skill continues after 6 weeks. In addition, it is observed that different daily living skills carried out with video prompting continue to persist after teaching is completed. It has been observed that the persistence is maintained; 1 month, 2,3 months in popping skill in the research by Sigafoos et al., (2005), 3 weeks in sweeping by hand and table washing skill by Cannella-Malone et al., (2012), 2 weeks in cloth washing in the washing-machine skill by Horn (2008), 1 week, 3,5 and 8 weeks in popping and squeezing fruit skill by Kaya (2015), 15,30 and 45 days in preparing toast with kashar cheese and preparing teabag

skill by Yavuz, (2016). According to the results of this research, it can be said that the persistence of acquired behaviors with video prompting method is high.

When the research is considered in terms of the social validity findings, teachers have expressed positive opinions about social validation. They have stated that the selected behavior is a priority behavior for the participants and that the video prompting is an effective method and that if they learn the video prompting method in the future, they can use it. Laarhoven et al., (2010) conducted a study and reported that the skill of folding clothes for students and teachers was the skills with priority in social validity data in teaching the skill of folding clothes. On the other hand, they have stated that they would prefer teaching with flashcards in the future instead of using the video prompting method. The reason why they have preferred the illustrated cards is that it is easier to prepare and they know the teaching method with picture cards better. When the literature is considered, we see that social validity data is collected in different studies. Mechling et al., (2013) have obtained the social validity data from the teachers in cooking skills teaching. The general majority of the teachers have stated that they think the video prompting has positivity. Kaya (2015) has obtained the social validity data from the students and their teachers who have participated in the study. Yavuz (2016) has obtained the social validity data from the teachers of the participants. Teachers have reported positive opinions about the video prompting.

When the generalization findings of the study were considered, it was observed that the acquired behaviors were exhibited when different individuals gave instructions to the participants. In the literature, Laarhoven et al., (2010) have carried out the generalization study of cloth folding skills with different materials. Laarhoven et al., (2010) have stated that despite the fact that the research findings are promising; the study is limited since it has been carried out with two participants. From this point of view, this study supports the research by Laarhoven et al., (2010) and it is important to expand their findings of the research.

It is observed that generalization study has been conducted in different researches in literature. Cannella-Malone et al., (2012) have carried out the generalization of sweeping by hand and table washing skills in different settings. Kaya (2015), in his research, has conducted the generalization study with different people, settings and tools. Yavuz (2016) has carried out an interpersonal generalization study in his research. When we consider the studies in general terms, it has been observed that the generalization study has not been carried out.

This research is restricted with three participants and the cloth folding skill. In addition, other limitations are that all of the participants are male, the study has been carried out only in school environment and that generalization study has been conducted interpersonally. In future research, the video prompting method can be performed with different disability groups with different skills. With the video prompting, the effectiveness and efficiency of different methods can be compared. In addition to these, generalization studies may be conducted with different video cues, individuals, environments, people and materials.

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