Using of Video Modeling in Teaching a Simple Meal Preparation Skill for Pupils of Down Syndrome

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Abstract

The current study aimed to identify the impact of video modeling upon teaching three pupils with Down syndrome the skill of preparing a simple meal (sandwich), where the training was conducted in a separate classroom in schools of normal students. The training consisted of (i) watching the video of an intellectually disabled pupil, who is preparing a sandwich of cream cheese; (ii) receiving verbal praise for each step of the training that was performed correctly. The results showed that the pupils mastered the skill of preparing sandwich independently, the skill generalization has been verified and the pupils demonstrated maintenance of the skill 14 days following mastery.

Keywords: Dawn syndrome, video modeling, daily living skills

1.   Introduction

Children learn a lot of skills through what they see, where the information gained through the sense of sight are registered and explained, then processed and integrated to get the full picture of the thing we're trying to learn. The sense of sight is the main pillar in the process of imitation, and the child learns from imitating things, family members, through TV or peers or others.

Video modeling is one of the effective strategies emerging from Applied Behavior Analysis (ABA therapy) (Woods, 2007), based on teaching modules of behavior that can be measured in a systematic manner. Every skill, not demonstrated by the child, is partitioned into small steps, and providing the child with a former stimulus, then effectively offering every step of the program. At the beginning, a motivation is utilized so that the child begins to do a certain behavior; and when the targeted responses occur, promotions are variously provided and learning opportunities repeat until the child responds with no reinforcement (Richman, 2001: 23; Green, 2001).

Modeling adopts many forms including: Exact and behavior-feature imitation, Generalized imitation, Peer modeling, Self-modeling, and Video modeling (Weiss & Harris, 2001), which is defined as a well-validated behavioral intervention well documented in the behavioral sciences that has been developed to facilitate observational learning, where the simulator model is to be filmed with a video camera in an attempt to change the behaviors that already exist or learn new behaviors (Dowrick, 1991). There are key factors that enable the pupil to learn through the model: attracting the pupil's attention before presenting the video and verifying the motivation of the pupil towards the model presented, reducing the time periods of the training sessions, the use of effective reinforcements, the model is imitable, based on the personality traits of the pupil himself, and it should be attractive (Rachel, 2009).

Video modeling is used as a therapeutic or training method, where the pupil watches a video displaying individuals performing positive behaviors that are free of mistakes as a way to modify the bad behaviors to positive ones (Rachel, 2009), where re-watching the videos of the targeted behavior many times leads pupils to properly increase self-efficacy and the formation of the targeted behavior (Bellini & Akullian, 2007; lantz, 2005); moreover, this behavior acquired through video modeling lasts and stays for long periods (Saleem et al., 2012).

Video modeling is one of the most modeling patterns in terms of adjusting stimuli of one's performance (Heflin & Alberto, 2001), it is considered an entire indoctrination that helps the individual to perform a new behavior as

it provides the learner with information on how to perform the behavior correctly, the time for its performance and its consequences (Sarafino , 2001) in addition to being a remarkable stimulus that has an effect on the subsequent responses of the individual (Masia & Chase, 1997).

Intellectual disability is considered one of the main categories in special education, where it is located to the far right of the normal distribution curve of mental ability with two standard deviations below the arithmetic mean (Al-Rawssan, 2005).

The children with Down syndrome are suffering from intellectual disability, motor and physical disorders and their motor development delayed making their training to use the bathroom delayed for many years, and due to their personality traits, some of them can learn to read and write and learn the proper profession (Mange & Mange, 2000). The vast majority of those with Down syndrome are able to do simple mental processes in case of being combined with a continuous and appropriate training to their abilities (Capone, 2004).

Based on the importance of the training of people with Down syndrome on various academic and social skills and daily living skills, Morsi (2000) indicated that mainstreaming is one of the new roles to educate children with special needs. Modern international trends in developed countries apply inclusion policies to schools that aim to have students with disabilities in the same separate classrooms alongside their typically developing peers, where this mainstreaming represents an appropriate environment to learn, and a key principle in Special Education. Saudi Arabia applies the policy of mainstreaming many children with various disabilities in schools for normal pupils. Intellectual disability is one of those disabilities, where children with Down syndrome are mainstreamed in special classes in schools of normal pupils to provide them with great opportunities to learn a lot of skills through integrating with their normal peers.

Life skills are one of the most important skills that achieve quality of life for people with special needs. Life skills that are required for the child to cohabit are formed in a society in light of the nature of the interaction between the child and society inside and outside the family, and the degree of influence upon each other, so the life skills needed for the child vary depending on the surrounding community and age stages, where each period or stage is characterized by a type of skills; and these skills include all physical and moral requirements associated with the interaction of the child with daily life (Schneider, 2004). Rehfeldt et al., (2003) and Shipley-Benamou et al., (2002) added that teaching the independent skills, such as preparing a sandwitch, and procedures of daily hygiene skills and entertainment for individuals with developmental disabilities enhance the autonomy they have and reduce some of the time and effort required to provide direct care for those individuals.

Daily living skills are identified as the skills necessary for individuals to independently deal with the current demands of everyday life and future, and these skills are personal hygiene skills, dressing and taking them off, food preparation and eating, money, transportation, work skills, time management, and entertainment (Friend, 2008).

Honeycutt et al., (2004) reveals that long-term care requires high cost for children with intellectual disabilities. Due to this increase, government and private institutions should direct researchers' efforts towards the least expensive and more effective methods and techniques to acquire generalize and maintain various skills. One of the most important of these methods used in teaching daily living skills for individuals with developmental disabilities is video modeling (Bidwell & Rehfeldt, 2004; Murzynski & Bourret, 2007; Shipley-Benamou, Lutzker, & Taubman, 2002).

Many studies conducted that aimed to educate the children with disabilities various types of daily living skills using video modeling, such as teaching individuals with intellectual disabilities: Recreation and leisure skills (Sherrow, Spriggs, Knight,2015), first Aid Skill (Ozkan.,2013), daily living skills (Öncül & Özkan Yücesoy, 2010; Norman, Collins & Schuster 2001; Cannella-Malone, O'Reilly, Cruz, Edrisinha, Sigafoos, Lancioni, 2006; Cannella Malone, Fleming, Chung, Wheeler, Basbagill & Singh, 2011), pastry cooking skills (Halisküçü, 2007), food preparation (Graves, Collins, Schuster, & Kleinert, 2005), ordering at fast food restaurants (Mechling, Pridgen, & Cronin, 2005), meal preparation skill (Charlop-Christy et al., 2000 ; Palechka and MacDonald ,2010

;Sancho, Sidener, Reeve and Sidener, 2010), self-care (Norman, Collins, & Schuster, 2001), social skills (AVCIOĞLUa,2013; Bidwell, Rehfeldt, 2004; Ayres and Langone, 2002), purchasing skills(Gena, Couloura and Kymissis, 2005), self-help Skills (Rai, 2008) and fine and gross motor skills (Mechling, Ayres, Purrazzella & Purrazzella, 2012)

2. **Method**

2.1. *Participants and Setting*

Three male pupils with Down syndrome participated in the current study; they were receiving special education services in ad hoc classes in schools of normal students within the program of intellectual disabilities in the city of Najran in Saudi Arabia in order to achieve the study objectives "independently preparing and eating sandwiches" as one of the objectives of everyday life skills.

To depict the participants in the study, the researcher met the teacher of intellectual disabilities in addition to referring to the records of the three participants as shown below:

Abdul Aziz: He is 15 years and 10 months old, with moderate disability based on (IQ) scores (52). Abdul Aziz was able to use the bathroom and put on his clothes and wash his hands with water and liquid soap, and the teacher showed that his receptive language has been well and he responds to two tasks independently, and reads and writes some simple words. He also has good motor skills, and sometimes needs verbal guidance in the performance of some of the fine motor skills.

Zain: He is 17 years and 5 months old, with moderate disability due to (IQ) obtained = (50). The teacher told the researcher that Zain was able to independently do some skills, such as eating, using the bathroom and dressing his clothes; he was able to respond to receptive language skills, and sometimes needs verbal assist in the performance of some gross and fine motor skills.

Marzouk: 17 years and two months old, with moderate disability based on (IQ) that was (41). The teacher told the researcher that Marzouk had been able to fulfill some of self-care skills; sometimes he needs physical and verbal help in so doing. He sometimes needs verbal assist in the performance of some gross and fine motor skills.

2.2. *Tasks and Materials*

The researcher analyzed the short-term goal (Preparing a sandwich of cream cheese) to a set of tasks due to task analysis method, where Table (1) indicates the tasks and materials used in the preparation of the sandwich. The researcher made sure of the appropriateness of the materials for the purposes of the study through presenting the materials to a group of specialists; in the second phase one of the pupils was video filmed while performing the task and then the one the producers of educational films made a montage on the video clips. At last, the teacher displayed the tutorial video to pupils with Down syndrome using a computer and individually (teacher for each pupil) in order to teach the pupil the skill of the study. Table (1) illustrates task analysis for making sandwich.

Table (1): Task analysis for making a sandwich

Steps in the task analysis	Materials
1. Go to the refrigerator.	Pocket of cheese
2. Open the refrigerator and get the cheese pocket.	Spoon
3. Getting the bread bag from the refrigerator.	Plastic cutting board
4. Putting the cheese pocket and the bread on the table.	Bread
5. Bring the spoon and put it on the table.	
6. Bring the plastic cutting board.	
7. Getting out two bread slices from the bag.	
8. Placing the two bread slices upon the board.	
9. Opening the cheese pocket.	
10. Using the spoon to get the cheese out from the pocket.	
11. Spreading the cheese on one slice of the bread	
12. Put the two slices of the bread together.	

2.   Design

The current study used the multiple-design for pupils to evaluate the impact of video modeling. Data of the study collected in the baseline phase, the period of intervention (video modeling), generalization, in the same separate classroom at the Prep School of Auhud. The researcher verified the extent of maintaining the skill for pupils in one measure and after a period of 14 days from the end of the intervention period. The measurement process in the phase of maintaining has been similar to the process of measuring in the baseline phase.

3.   Procedures
3.1.   Baseline

Special education teacher measured the pupils' performance on the skill of preparing a sandwich by verbally giving them instructions without providing any assistance; and if the participant was unable to carry out the next step of the steps for preparing the sandwich, the teacher completes this task/step to proceed to the next step, and

so on until the completion of all the steps, and students have remained within the baseline phase until evaluating the stability of their own data.

3.2. Video Modeling Intervention

Intervention process is conducted through video modeling by directing the participant to watch the video, and then the participant is given an opportunity for exercising the task; if the participant does the task successfully, he will receive verbal promotion (for example: opening of cheese pocket), but if the participant has not been able to perform the step within two minutes, the trainer will take it over then ask him to complete the subsequent steps up to the completion of the full task (for example: making cheese sandwich). In case of all not doing all the steps properly, the participant is directed to watch the video again and is given the opportunity to do the task and receive verbal praise for correct steps again. Video modeling intervention was carried on for the participant till the tasks accomplished 100% properly through the steps three subsequent times, and these procedures were applied to all three participants in the study.

3.3. Generalization Probes

Generalization probes conducted in other separate classrooms extensional to the school on the same day when the study has already concluded and with the same procedure adopted in the baseline phase, and if the pupil does not have to do any step of the skill independently, the teacher performs that step instead of him.

3.4. Maintenance

The researcher verified the extent of maintaining the skill under study in one measure and after a period of 14 days from the end of the study period, where the participants were assigned to prepare the sandwich in the same measurement method used in the baseline phase, and the extent to maintain the skill, by the participants, is evaluated by the teacher of special education depending on a list of previous task analysis.

4. Results

Figure (1) indicates the performance of the three participants at baseline, intervention, generalization, and the extent of maintenance, where the average level of performance of the three participants within the baseline (Abdul Aziz, Zain and Marzouk) was (25%, 21% and 13%), respectively, and this illustrates the inability of the three participants to carry out the task before the intervention process, and as a result of video modeling intervention, Abdul Aziz has been able to do the task of preparing the sandwich after (10) training sessions independently, where the average of performance during the intervention period was (84%) and the extent of the response was (67% - 100%), and he was able to generalize the skill (100%) one day after the end of the intervention period, and he also maintained his skill after (14) days from the end of the study period with mastering rate (100%). The teacher conveyed that Abdul Aziz was able to control the amount of cream cheese needed to make the sandwich after six training sessions, while Zain has accomplished the task after (12) training sessions, where the average performance during the intervention period was (75%) and the extent of the response (50% - 100%). One day after the end of the intervention period Zein generalized the skill with a percentage of (100%). He maintained the skill after (14) days from the end of the study period, with mastering rated (100%). Although Zain mastered the skill, he sometimes, for example, needed a verbal guide in the amount of cream cheese in addition to the accuracy of putting the two slices of bread together during the period of intervention, but he mastered it after (8) training sessions. While Marzouk accomplished the task after (16) training sessions, where the average performance during the intervention period was (67%) and the extent of the response (33% - 100%), and he was able to generalize the skill with percentage of (100%) but he needed two training sessions for skill generalization, he also maintained the skill after (14) days from the end of the study period, with mastering rated (100%), but he sometimes needed a verbal help during the period of intervention, for example: getting the cheese out of the pocket and spread on a slice of bread and putting the two slices of bread together; and the mastery of putting the bread slices together accomplished by him after (10) training sessions.
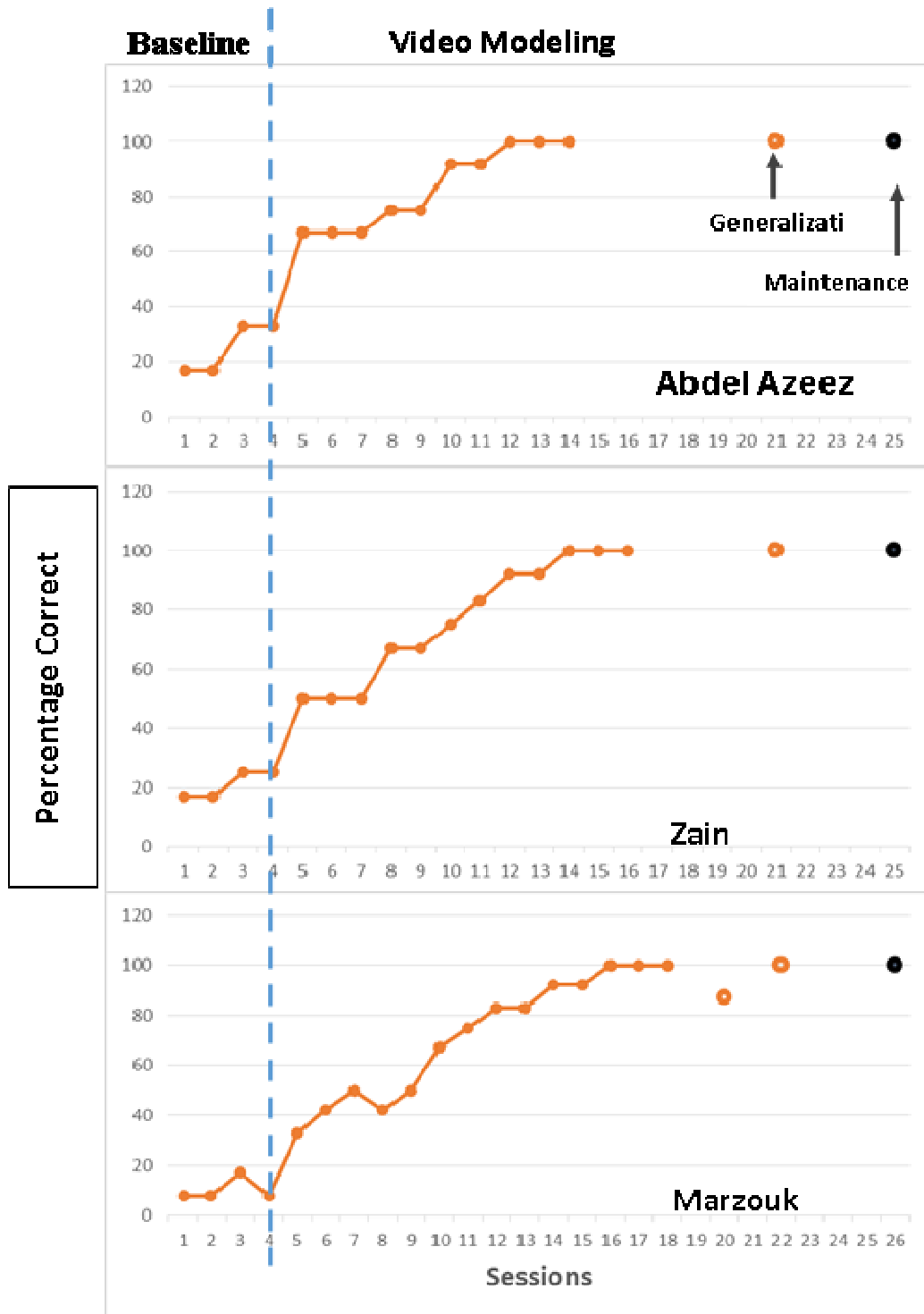
Figure (1): Percentage of success for the three participants at baseline, intervention, generalization and maintenance.

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5. Discussion

The findings of the current study indicated that video modeling is an effective strategy in educating the pupils with intellectual disabilities the skill to prepare a simple meal, and that the results of the study are significant especially since the three participants were able to generalize the results and maintain them, helping them continue to do the task in the future, in addition to the possibility of training them on other skills (e.g. making labaneh sandwich and making sandwitch of Sudanese peanut, etc.); this is consistent with the results of several studies in the field of educating the intellectually disabled daily living skills (Öncül & Özkan Yücesoy, 2010; Norman, Collins & Schuster 2001; Cannella-Malone, et al., 2006; Cannella-Malone et al., 2011).

The results of the current study are also consistent with many studies about meal preparation skill (Charlop-Christy et al., 2000; Palechka and MacDonald, 2010; Sancho, Sidener, Reeve and Sidener, 2010), which confirmed the effectiveness of video modeling in the preparation of simple meals in addition to the participant's ability to generalize and maintain the skill.

Limitations

The limitations of the study should be noted including: First, Measuring the level of performance of the participants (baseline) during the period of one week in four measurements respectively for each of the three participants. Secondly: video modeling intervention conducted with the three participants for the purpose of the study along with verbal promotion for each step done correctly by the participants during the training process, therefore it is difficult to identify whether the observed changes in the behavior of the participants because of video modeling, verbal promotion, or from both.

Video modeling is an effective measure in the training of the intellectually disabled. It was sometimes necessary to redirect participants to watch the video and then re-do the task/step; and when the pupil performs the targeted task, the trainer promotes him in various forms; and with the repetition of training opportunities, the pupil does the task in the absence of promotions (Richman, 2001: 23; Green , 2001; Dillnburger, 2002).

Video modeling is one of the strategies that do not require high financial cost, whether commercial or prepared by the teacher, regardless of whichever is more proactive and effective, its effectiveness is determined by its use with disabled pupils and this is in consistence with (Honeycutt et al., 2004) in directing researchers' efforts towards the less expensive and more effective ways and methods in acquiring people with various disabilities the various skills, generalization and maintenance.

In conclusion, the learning through video modeling provides students with training opportunities on many different skills before exposure to them during their lives, whether in the family, community or other, and the current study is consistent with (Ozkan, 2013) in teaching first aid skills, and Mechling, Ayres, Purrazzella & Purrazzella (2012) in teaching fine and gross motor skills.

Acknowledgements

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