Video Modelling:
An Intervention for Autism

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Abstract

Video modelling (VM) is an effective intervention used to teach target skills to students with autism. This type of intervention involves videotaping a target skill, which is modelled by self, peer, or adult in an environment similar to the environment in which the target skills is required. Video-self modelling, point-of-view modelling, and video prompting are three types of VM strategies currently being used as educational tools. Numerous research studies outline several benefits and advantages to using VM as an intervention within an educational setting.

Video Modelling (VM) is an evidence-based intervention that promotes the development of target skills – modelled by either self, peer, or an adult – presented through a video medium; this strategy is often implemented to assist students with autism in acquiring new skills. VM is used to target skills comprised of the following four domains: language, social behaviours, play-skills, and functional adaptive skills (Acar & Diken, 2012; Corbett & Abdullah, 2005; Marcus & Wilder, 2009). Three types of VM strategies include video-self modelling, point-of-view modelling, and video prompting. There are a number of benefits and advantages to using VM as an educational tool, more specifically the advantage of using a video model in place of an in-vivo (live) model. When implementing a VM intervention, it is important to identify each student's strengths before designing the VM intervention. Overall, VM is an effective strategy to facilitate students with autism in acquiring new skills.

Background

The idea of modelling as an intervention strategy was first introduced by Albert Bandura 40 years ago (Schmidt & Bonds-Raacke, 2013). Modelling is defined as an individual observing another person engaging in a target behaviour, which is subsequently imitated by the observer (Charlop-Christy, Le, & Freeman, 2000). Observational learning is learning that takes place by watching a model complete a task. Modelling has a tremendous effect on children because they will often imitate behaviours without reinforcement and they will then generalize these behaviours within different settings (Schmidt & Bonds-Raacke, 2013). The behaviour that is being modelled can be introduced in-vivo or by means of a video (Corbett & Abdullah, 2005).

Autism and Video Modelling Intervention

Of the many characteristics that describe autism, the following four are the most common characteristics that require educational support: language, social interaction, play skills, and functional skills (Brook, 2009; Corbett & Abdullah, 2005). Research supports the use of VM as an intervention strategy to facilitate the development of language, social interaction, play skills, and functional skills in children with autism. For example, three children with autism were successful in developing sociodramatic play skills by means of the VM intervention used in Ozen, Batu & Birkan's (2012) study. Individuals with autism process information better when it is presented in a visual format rather than an auditory format (Smith, Ayres, Mechling, & Smith, 2013). Visual representations do not impose social attention such as face-to-face interactions (Corbett, 2003; Corbett & Adbullah, 2005). Therefore, the presence of visually cued information makes VM an ideal medium for students with autism to learn new skills. Echolalia and excellent memory are both traits of a typical autistic student; VM is an excellent intervention because these characteristics promote exact replication of instruction (Brook, 2009). Thus, the presence

of visual stimuli in VM promotes students with autism to acquire skills in communication, social interaction, play skills, and functional skills.

VM is only one facet of the overall modelling paradigm; it is simply a technological extension of in-vivo modelling, wherein the model no longer needs to be in the same physical space as the observer. Both VM and in-vivo modelling are effective in acquiring new skills (Charlop-Christy et al., 2000). However, in-vivo modelling requires the model to be present during each intervention session (Lee, Anderson, & Moore, 2014). In fact, the cost for an in-vivo modelling intervention is greater than the cost of video modelling, because of the extra time and resources needed for the in-vivo modelling condition (Charlop-Christy et al., 2000). Additionally, VM is more effective because skills modelled in VM are formatted and presented in a standardized way, whereas with in-vivo the model might not present the target skill in the same way each time (Marcus & Wilder, 2009). Students with autism acquire and generalize skills quicker with VM than with in-vivo modelling (Charlop-Christy et al., 2000). Therefore, video modelling is superior to in-vivo modelling as an intervention for students with autism.

VM is an effective method for teaching various target skills to students with autism. VM involves a student watching a video recording of a model highlighting a target behaviour in a clear and concise manner (Lee et al., 2014). This method of intervention enables students to recognize both the target skill and the steps need to imitate this skill. Implementing a VM intervention involves the following 6 steps: (1) define the target behaviour, (2) construct a task analysis of the target behaviour, (3) determine the ideal location of the camera to ensure that the target behaviour is captured, (4) demonstrate the target behaviour with the videotaping model at a slow place, (5) monitor the student's reaction to VM, and (6) plan ahead (Brook, 2009; Wilson, 2013). Target skills can be presented to students through the use of TVs, video games, computer programs, and hand-held devices such as iPads (Mechling & Gustafson, 2009; Smith et al., 2013). The use of iPads within the classroom is perceived a leisure activity, therefore motivating students to participate more readily within the classroom. VM is an effective intervention that promotes students to use technology to acquire new target skills. Technologies are rapidly changing and becoming more pervasive within the educational system, enabling educators to use mobile devices to produce VM opportunities for students with autism.

Types of Video Modelling

Three types of VM strategies include video-self modelling, point-of-view modelling, and video prompting. Video-self modelling (VSM) involves filming the target skill being modelled by the target individual (Corbett & Abdullah, 2005); whereas VM involves a peer or adult modelling the target skill. During filming for VSM, the individual is provided prompts to assist in completing the target skill. Later, the segments that contain the prompts are removed to display the student performing the skill at a mastery level (Gelbar, Anderson, McCarthy, & Buggy, 2012). The main advantage of using VSM is that the individual enjoys seeing him/herself successfully perform a skill that he/she would normally do not perform, which motivates and encourages him/her to practise the target skills (Brook, 2009). Research studies have compared the effectiveness of using self-modelling to either peer or adult modelling, resulting in each method being equally effective (Cihak & Schrader, 2009). However, in one study children requested the use of VSM over VM because they enjoyed seeing themselves on the screen (Marcus & Wilder, 2009). Therefore, it is important to ascertain each individual's preferences before determining which type of VM intervention to implement.

Point-of-view modelling (POVM) involves focusing on the target skill from the perspective of the target individual. More specifically, the video presents the target skill as if the observer were completing the skill him/herself (Shrestha, Anderson, & Moore, 2013). The video for POVM can be filmed with either the model or the target individual performing the task. A blend of VSM with POVM shows promise; one research study reported students displaying independence while completing the target skill (Gelbar et al., 2012). POVM Video prompting (VP) is a type of VM

that involves videotaping a multistep target skill, with each distinct step recorded separately. During intervention, the video is paused after each step, giving the observer the chance to attempt one step at a time (Shrestha et al., 2013). One disadvantage to using VP as an intervention is that students can become dependent on the prompts presented; they may be unable to generalize the skills learned into new environments. It is important to fade the prompts during a VP intervention, in order to avoid prompt dependence. VSM, POVM, and VP are popular types of VM, with each one taking advantage of using video as a medium to model target skills to children with autism.

Advantages and Disadvantages of Using Video Modelling

The delivery of visual supports through the use of technology creates advantageous educational opportunities for students with disabilities (Acar & Diken, 2012). The following are advantages of using VM within an educational setting: it is both a time-efficient and cost-effective intervention, potential for systematic repetition, presence of a variety of examples, use of models in more than one intervention, and flexibility of video editing (Corbett, 2003; Mechling & Gustafson, 2009). The development of videos used in VM is both cost and time effective because models need to be present only once during the filming of the target skill. Once videos are created, they can be presented countless times to a specific student until he/she establishes the target skill. Videos can also be reused in different interventions, provided the target skills presented within the video are the desired skills to be established in each intervention. Also, a model can film more than one example during a videotaping session to promote generalization of the target skill. Zoom features of video cameras allow the recorder to zoom in on key aspects of the model, which removes any distracting visual stimuli. Similarity, editing features within video programs enable the creator to accentuate certain features and remove any distracting features, which prevents stimulus over selectivity (LeBlanc et al., 2003). These advantages are reasons for technologies becoming a popular method for educators to use as an intervention strategy within their classrooms.

In addition, VM offers numerous benefits when it is used as an intervention strategy. First, VM provides the opportunity for students to watch the desired target skill being performed in the exact setting in which they are required to imitate the skill (Ayres & Langone, 2008). Modelling the target skill in the same setting increases the likelihood that students will be successful in attaining the target skill. Second, using VM increases the motivation of students and acts as a naturally reinforcing method of skill acquisition (Acar & Diken, 2012). Since motivation increases the desire to practise a skill, target behaviours are often rapidly achieved compared to other interventions. Third, VM offers the opportunity for educators to slowly remove the presence of the videos to promote independence in maintaining the desired target skill. Students only acquire and maintain target skills, but they learn to generalize these skills within other environments (Akmanoglu, Yanaradag, & Batu, 2014). By means of VM, students observe targets skills in required environments, gain motivations through the use of an appealing method of delivery, and gain independence by fading the presence of the video.

In contrast, there are potential problems in using VM as an intervention strategy for children with autism. More specifically, students with autism depend greatly on a structured learning environment, which promotes observational learning; however, providing frequent predictable demands can lead to rote responses or a lack of spontaneity in new situations (Corbett, 2003). Similarly, studies analysing role-playing skills suggest that these skills are difficult to maintain because situations are often unpredictable (Akmanoglu et al., 2014). VM is unsuitable for teaching sensitive target skills, such as personal self-care skills, because certain aspects of the target behaviour cannot be modelled (Lee, et al., 2014). Therefore, VM might not always be the most appropriate intervention to teach particular skills to students with autism. However, the advantages and benefits of using VM outweigh its disadvantages as an intervention to help students with autism acquire new target skills.

Video Modelling in Practice

VSM, POVM, and VP are three types of VM interventions that have been highlighted within recent research. VSM has been used to teach students with autism functional academic skills within the classroom. For example, four children with autism were successful in developing functional math skills by means of the VSM intervention used in Burton, Anderson, Prater, and Dyche's (2013) study. Similarly, two children with autism were successful in developing on-task behaviour within the classroom by means of the VSM intervention used in Schmidt and Bonds-Raacke's (2013) study. Results of these studies provide convincing evidence that VSM can be an effective method used to deliver educational content to students with disabilities.

POVM involves video taping the target skills from the perspective of the target individual. The following two research studies are examples of how POVM was used as an intervention: a four-year old boy with autism was taught how to prepare and eat an afternoon snack independently by means of the POVM intervention used in Shrestha, Anderson, and Moore's (2013) study; and two children with autism were taught toy-play skills through POVM in Hine and Wolery's (2006) study. Further research is needed, in order to expand the empirical evidence of the effectiveness of using POVM within a variety of educational settings.

The success using VP to teach multistep target skills has been demonstrated in several studies. For example, six students with autism were successful in developing cooking-related tasks by means of the VP intervention used in Mechling and Gustafson's (2009) study. Likewise, six students with autism were successful in developing skills associated with setting a table by means of the VP intervention used in Cannella-Malone et al.'s (2006) study. Therefore, VP is an excellent intervention for teaching students multistep self-help skills. VSM, POVM, and VP are examples of VM interventions used to teach target skills to students with autism.

Conclusion

As an evidence-based intervention, VM is effective in assisting students with autism in acquiring target skills in one of the four following domains: language, social behaviours, play-skills, and functional adaptive skills. VM interventions include VSM, POVM, and VP, each of which is a natural extension of in-vivo modelling. The efficacy of the discussed VM methods is evidenced by numerous research studies. As technology advances, modelling will expand into novel territories just as in-vivo modelling has expanded to include a wide variety of video-based techniques.

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