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Watch This! A Guide to Implementing Video Modeling in the Classroom

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Abstract
The video modeling (VM) teaching strategy is one in which a student watches a video of someone performing a specific behavior, skill, or task and is then expected to complete the behavior, skill, or task. This column discusses the variety of ways in which VM has been documented within the literature and supports teacher interest in the strategy by providing a step-by-step guide to implementing the intervention. Video modeling may have great promise for teaching students with disabilities, particularly those with autism, to acquire new skills across a wide range of skill areas.

Keywords
video modeling, implementation guide, autism

Video modeling (VM) is a teaching strategy in which a student watches a video of someone performing a specific behavior and then the student engages in the same behavior (Rosenberg, Schwartz, & Davis, 2010). With the prevalence of technology in the world today, opportunities to partake in experiences similar to the VM teaching strategy frequently occur. For example, many people learn from and copy what they view on cooking, home improvement, and exercise shows on television. Others search the web for videos to learn how to perform a variety of skills, from making homemade Play-Doh to learning the how to do the latest dance craze. With the abundance of technology immersed into daily life, one might think that similar strategies would be used in schools to teach children with disabilities. Surprisingly, this is not always the case (Rosenberg et al., 2010).

The interest in VM is growing within educational research, and some estimate that over 200 investigations of the effects of VM are available in print (Bellini & Akullian, 2007). However, some researchers report minimal use of the strategy in schools (Rosenberg et al., 2010), perhaps due to technical challenges some teachers expect when using VM in the classroom (Ayres & Langone, 2007).

Video Modeling: An Overview

Many definitions of VM exist but LeBlanc et al. (2003) succinctly described the process: "Video modeling involves showing a videotape of a person providing an exact version of a behavior for a child to imitate" (p. 253). Regardless of the definition one uses, two common threads appear when defining VM: (a) The child must view and pay attention to a video model, and (b) the child must imitate the model's behavior.

By law (Individuals With Disabilities Education Improvement Act, 2004) teachers are required to use evidence-based practices (EBP), or practices that have been proven to be effective, to reduce expending unnecessary costs and resources on interventions that are not supported by research (Banda, Matuszny, & Turkan, 2007; Simpson, 2005). According to repeated findings, VM can be an effective strategy when it comes to improving skills across multiple areas, including communication, socialization, academics, daily living, and behavior (Ayres & Langone, 2007; Bellini & Akullian, 2007). Bellini and Akullian (2007) also reported that VM promotes skills acquisition, generalization, and maintenance and qualifies as an EBP using the quality indicators developed by Horner et al. (2005).

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Not only is VM considered to be an EBP, but research on the effects of VM suggests the strategy may have potential advantages over other teaching strategies (Charlop-Christy, Le, & Freeman, 2000; Rosenberg et al., 2010). Some advantages include decreased skills acquisition time, cost-effectiveness, and increased student motivation. For example, Charlop-Christy et al. (2000) compared the amount of time it took students to acquire skills via VM versus in vivo modeling (i.e., the student views a live model) and found that students needed less time to acquire the skill when using VM. The researchers also monitored the amount of time, money, and resources it took to implement VM compared to in vivo modeling. They found that VM took less time, money, and resources to implement (Charlop-Christy et al., 2000). Moreover, many children simply enjoy using and are highly motivated by technology, such as iPads, computers, and videos (Hendricks, Smith, & Wehman, 2009).

Some researchers suggest that VM may be particularly effective for students with autism. Watching videos is often an enjoyable and preferred activity for many children with autism (Charlop-Christy & Daneshvar, 2003). In such cases, VM combines instruction with a preferred activity, which may increase the child's motivation to perform a target skill (Hendricks et al., 2009). Additionally, many children with autism respond favorably to the use of visual supports, and VM capitalizes on the visual strength of many children with autism. VM requires the child to watch a visual representation, a video, of a target skill being performed (Bellini & Akullian, 2007). Also, by eliminating potential distractors from typical teaching situations (i.e., extra materials, noisy students), VM may help children with autism focus on the most important aspects of learning a new skill. Finally, using VM may help students compensate for any deficits in social skills, as they are not typically required to interact with another person during VM (Charlop-Christy et al., 2000).

Research on VM and students with autism has shed light not only on potential advantages of the strategy but also on the variety of skills that can be addressed through VM. Researchers have used VM to target academic, communication, daily living, behavior, play, and social interaction skills of students with autism (Banda et al., 2007). VM has also been implemented with an extensive amount of variation with children with autism. Researchers have used different video types, model types, and points of view. For example, Bainbridge and Myles (1994) used a commercially made video, while Shrestha, Anderson, and Moore (2013) created a custom-made video. Murzynki and Bourret (2007) used adult models; Haring, Kennedy, Adams, and Pitts-Conway (1987) used peer models; Hagiwara and Myles (1999) used self-models; and Keen, Brannigan, and Cuskelly (2007) used cartoon models. Finally, Shipley-Benamou, Lutzker, and Taubman (2002) showed videos from the first-person point of view, while Rosenberg et al. (2010) showed videos from the third-person perspective.

With the increased attention placed on the VM strategy (Bellini & Akullian, 2007), many teachers may be interested in using the intervention in their classroom. However, some researchers note that VM procedures may be resource- and time-intensive for teachers who are creating custom-made videos (Keen et al., 2007; Rosenberg et al., 2010). To provide interested teachers with a helpful tool when incorporating VM into their classroom, a step-by-step guide to implementation is outlined in the following sections.

Video Modeling: A Step-by-Step Guide

Step 1: Select Students

It is important to carefully consider whether VM would be an appropriate instructional strategy for a particular student. Some researchers report that the strategy may be effective for a wide range of students with disabilities who are in need of making improvements in various skill areas (Bellini & Akullian, 2007; Mechling, 2005). It may be particularly effective for students with autism because of the strong visual component (Bellini & Akullian, 2007), the elimination of environmental distractors, and the limited amount of social engagement required of the student (Charlop-Christy et al., 2000). VM may also be successful with students with autism who enjoy watching videos, as VM would combine instruction with a preferred activity (Hendricks et al., 2009).

Step 2: Select and Define Target Skills/Behaviors

When selecting target skills or behaviors, the vast array of skills addressed via VM in the literature may provide a teacher with examples of skills on which to focus. However, behaviors selected must be appropriate for the student. Data from assessments, such as the *Vineland Adaptive Behavior Scales, Second Edition*; classroom progress monitoring assessments; or other curriculum-based assessments, may be a helpful starting point when deciding which skills to target for individual students.

After selection of target behaviors, definitions must be applied to each behavior. Clearly defined behaviors allow the teacher to determine when the specific behavior is and is not occurring, enabling the teacher to consistently implement the procedures associated with VM. Additionally, well-defined behaviors allow the teacher to accurately measure a student's progress and to evaluate the effects of VM on a student's behavior (Cooper, Heron, & Heward, 2007). For example, Moore et al. (2013) measured name writing of a young child with autism. Rather than simply giving the student a score of *yes* or *no* when writing her name, the authors used a rubric with a clear definition of name writing: (a) Each letter must be recognizable, (b) the student must use correct execution when writing, (c) each letter must contain the proper components, (d) each letter component must be in

Student:		For each step, circle "I" if independent or "P" if prompt was needed				
Job: Water Plants		Date				
Task Analysis:		1-Jul	2-Jul	3-Jul	4-Jul	5-Jul
Step 1	Go to shelf with watering can.	I / P	I / P	I / P	I / P	I / P
Step 2	Go to plant area.	I / P	I / P	I / P	I / P	I / P
Step 3	Pour water on plant.	I / P	I / P	I / P	I / P	I / P
Step 4	Walk back to shelf.	I / P	I / P	I / P	I / P	I / P
Step 5	Place watering can on shelf.	I / P	I / P	I / P	I / P	I / P
Total	Total steps completed independently.					

Figure 1. A task analysis chart for a specific skill.

the proper place, and (e) each letter must be the proper size (Moore et al., 2013).

Step 3: Inform Parents

Letting parents know that VM will be incorporated into the classroom is simple yet vital. This provides parents with information about the activities their child participates in while in the classroom, keeps them abreast of the skills their child is working on, encourages them to reinforce skills in the home, and opens the door for communication with the teacher. Informing parents about VM is especially necessary in cases where a child will serve as a model. In such cases, parent permission will most likely be required (Banda et al., 2007).

Step 4: Create a Task Analysis and Data Sheet for Each Skill/Behavior

Creating a task analysis not only may help the student learn a sequence of steps required to complete a skill but may also help the teacher pinpoint certain steps of a skill a student may be unable to perform. To create the task analysis, a walk-through can be conducted for each skill (Snell & Brown, 2006). The walk-through helps to ensure that the task analysis contains all of the necessary steps and should occur in the same setting and with the same materials the student will be using. The task analysis can also be used to create a data sheet to record student performance. In doing this, the teacher can easily collect data for each step of the skill (see Figure 1).

Step 5: Collect Baseline Data and Set Mastery Criteria

Baseline is the period of time prior to implementing VM when the instructional practices the student typically receives are in place (Johnston & Pennypacker, 2009). Collecting baseline data is an essential step when implementing any type of intervention. Baseline data give the teacher information about how a student performs a skill prior to implementing an intervention (Cooper et al., 2007).

Additionally, an appropriate mastery criterion may be selected at this time based on how the student performed during baseline. Sobsey and Ludlow (1984) explained that setting mastery criteria allows the teacher to evaluate student learning. The authors identified several points to keep in mind when setting mastery criteria levels. Criteria should be set high enough to allow the task to become functional for the student, lead to safe and socially acceptable outcomes, be appropriate for the natural environment, be set to a realistic level, and prepare the student to progress on to the next goal (Sobsey & Ludlow, 1984).

Some researchers studying VM have based mastery criteria on the number or percentage of correctly completed steps in a skill sequence (e.g., Murzynki & Bourret, 2007; Shrestha et al., 2013). For example, Shrestha et al. (2013) set the mastery criterion at three consecutive sessions with 100% of steps completed without prompting. According to Kubina and Morrison (2000), there is no set standard for determining an appropriate criterion for mastery. For some skills, such as academic-based skills, 80% to 90% accuracy may be acceptable. However, for skills such as street crossing, the student must be able to reliably perform at 100% accuracy (Kubina & Morrison, 2000). Ultimately, it is up to the teacher to decide on the appropriate mastery criterion based on the student and the skill.

Step 6: Create and Edit Videos

Teachers may decide to create custom-made videos rather than use commercial ones. To create custom-made videos, a model and videographer must be selected. Regardless of who is chosen to serve as the model, he or she must be able to perform the target skill(s) according to the task analysis with accuracy and fluency. In some cases, skills training may be necessary for the model. Additionally, the individual serving as the videographer must be trained to use the video camera or recording device. It may be helpful to

Creating a Video Using an iPad
1. Open iPad
2. Tap *camera* icon
3. Slide selection button from *still camera* to *video camera*
4. Give model a "3-2-1" countdown
5. Begin recoding by tapping red *record* button
6. Record model performing target skill(s)
7. Tap red *record* button again to stop recording *The video that has been captured will be saved on the iPad camera roll.

Figure 2. A step-by-step guide for creating videos on an iPad.

review the task analysis with the videographer prior to filming so that he or she can anticipate the behaviors of the model.

After the model has been filmed performing the target skill(s), the next step is to edit the video and prepare it for student viewing. Researchers often add various components to videos, including text and narration to provide additional explanation of the steps completed in the video. One set of tools that a teacher may use to capture, edit, and finalize videos is the iMovie application on an iPad. Figure 2 provides a step-by-step guide to creating videos using an iPad, and Figure 3 explains how to use iMovie to edit and finalize videos.

Step 7: Schedule VM Opportunities

The next step is to schedule time within the classroom routine for students to engage in VM. There are many ways to do so, especially considering the entire process can take only minutes to complete if short videos are used to target skills that can be completed relatively quickly. Some ways to incorporate VM into the schedule include morning or dismissal routines, transition times, center rotations, independent work times, or instructional sessions with a paraprofessional.

Step 8: Carry Out VM With Students

As with the schedule, there are multiple ways a teacher can implement VM. The following instructional sequence is one example of how a teacher may begin to implement VM with a student. First, ensure that all necessary materials are made available to the teacher/paraprofessional and the student. Next, tell the student, "You are going to watch a video before you [task/skill/behavior] today." Have the student watch the video. After watching the video, say to the student, "Okay, it is time to [task/skill/behavior], just like in the video." With fading prompts, assist the student to complete the task, skill, or behavior until each step is completed successfully. For each step, record whether the student was able to complete a step independently or if a prompt was needed. Finally, provide praise and reinforcement.

Step 9: Collect Data and Monitor Student Performance

One way to collect data is to record whether each step is completed independently or with prompting during VM sessions. Graph the number of steps completed independently and frequently evaluate the graph to determine if the number of independently completed steps is increasing or decreasing over time, depending on the desired direction of behavior change. If the graph displays the desired directional trend, the VM intervention can remain in place until the mastery criterion is reached. If, however, the graph displays a stable trend or one that demonstrates behavior is changing in a manner opposite to what is desired, a change is warranted. The teacher may decide to change the prompting system being used or may try increasing the rate of reinforcement provided. It is important to evaluate the effects of the intervention and make necessary changes.

Step 10: Set Up Opportunities for Generalization and Maintenance

According to Cooper et al. (2007), a student is said to have generalized a behavior if it "occurs at other times or in other places without it having to be retrained completely at those times or in those places" (p. 615). With regard to VM, generalization may occur when the student can perform a skill without needing to view the video prior to completing the skill and is able to perform the skill in a variety of new settings and situations. Additionally, if a student is able to perform a skill for an extended period of time after the VM intervention has ended, skill maintenance has been achieved. Facilitating generalization and maintenance of skills may be the most challenging, yet important, job of a teacher (Cooper et al., 2007).

Conclusion

Video modeling is an EBP that shows great promise as an effective strategy for teaching a variety of skills to a wide range of students across many different settings (Bellini & Akullian, 2007). It may be particularly effective for students with autism. The intervention allows for a great deal of flexibility for the teacher and individualization for the student, meeting the needs of the wide variety of types of classrooms that exist in schools today. Given access to the necessary equipment and a guide to implementation, such as the one presented in this column, any teacher can incorporate VM into his or her special education classroom. The strategy may not only lead to improved student performance; it is also a fun and interesting way to apply the endless possibilities of technology to learning.

Editing/Finalizing a Video using iMovie on an iPad

1. Go to App Store and download iMovie
2. Open iPad
3. Tap *iMovie* icon
4. Tap "New Project"
5. Tap desired video from camera roll displayed in top left corner
6. Tap blue down arrow to send video to video editor
7. Scroll video to right until beginning of video is displayed
   *Note: At the top of the screen, tap the question mark to see all the functions available within iMovie. Tap the back arrow to undo any action.
8. To mute unwanted background noise in video:
   a) Double tap video strip and box will pop up
   b) Slide volume button from *on* to *off*
9. To add text, video must be split according to each step in a task analysis
   a) Double tap video strip and box will pop up
   b) Tap "Title Style" and select desired style
   c) Tap inside "Title Text Here" box (each title will be a step from task analysis)
   d) Type Step 1 from task analysis and tap "Done"
   e) Scroll clip to left until model is about to begin Step 2
   f) Split clip between Steps 1 and 2 by tapping once on clip and swiping down along vertical line
   g) Double tap clip of model beginning Step 2
   h) Type Step 2 from task analysis and tap "Done"
   i) Continue this process until all steps have been split according to task analysis and all steps have been labeled
10. To add narration:
    a) Scroll back to start of video
    b) Tap *record* icon on the right side of the screen (microphone)
    c) Tap "Record" when ready (There will be a 3-2-1 countdown.)
    d) Starting from the beginning and going all the way through the video, record voice saying what is happening in each step of the task analysis. As the model completes each step and the text pops up on the screen, say what is happening.
    e) Tap "Stop" when done recording
    f) Tap "Review" to preview video
    g) Tap "Accept" to use recording
11. To save video to camera roll for student use:
    a) Tap *share* icon (forward arrow)
    b) Tap "Camera Roll"

Figure 3. Using iMovie video editing tools.

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