The Use Of Videotape Feedback In Physical Education

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This paper was completed and submitted in partial fulfillment of the Master Teacher Program, a 2-year faculty professional development program conducted by the Center for Teaching Excellence, United States Military Academy, West Point, NY, 2009.

Key Issues/History of Practice: Videotape feedback (VTFB) in the educational classroom has been a widely used and accepted technique of teaching and assessment since the invention of the video camera in the early 1960’s. Early video making, like most newly introduced inventions, was anything but consumer-friendly. Long gone are the days of transporting hundreds of pounds of equipment in vehicles from one location to the next. The overall weight of the machinery as well as purchase price has dropped considerably in the last four decades, making this technology available to a larger population of consumer. Technological advances in this area continue to become more economical, portable, and increasingly detailed in the amount of information that can be generated from each video session. Today, there are over 50 manufacturers of computer software dedicated to video based assessment methods. Dartfish©, a video based movement analysis package, is one of many software programs targeted specifically towards physical education programs. Using this type of software as an additional method of assessment can only enhance the learning process. It’s not as simple as it sounds though. Purchasing a video camera and software is the easiest part. Learning how to apply each method of VTFB and spending time utilizing the camera and software will be the keys to its overall effectiveness in the learning environment.

Practice variations: Videotape feedback has been packaged in many shapes and forms over the past four decades. Medical schools have been using VTFB as a viable feedback method to students when learning how to conduct a proper history and perform appropriate physical exams skills on patients. The field of coaching has been utilizing VTFB for years to analyze opponents’ playing styles and tendencies as well as their own teams’. Today’s physical educators are taking what was so obvious for these teams and utilizing VTFB within their own teaching arenas, both indoor and outdoor, in order to improve learning and assessment of psychomotor skills relative physical education activity coursework.

VTFB, most recently in the field of education has been utilized as a form of video self-modeling (VSM) in order to learn a desired skill. Video self-modeling is defined as a procedure in which people see themselves on videotapes that, through careful planning and editing, show only adaptive or desired behaviors. Two methods of VSM currently being utilized in education include “feed-forward” and “positive self-review”. Feed-forward is a method that utilizes video recordings of a desired behavior that is not yet learned by the individual. For example, a gymnast has decided she would like to incorporate a double back layout into her floor routine. She has yet to perform this skill, but is able to watch past videos of others who have successfully completed this skill. This process of seeing what “right” looks like has traditionally been called mental imagery or mental rehearsal. Retired physical educator, Ned Crossley, who taught at the
United States Military Academy for over thirty years used to call this the “record and copy” method.

Positive self-review is a method that utilizes video recordings of the individual’s past performances at attempting a newly learned skill. Commonly used when a person wants to improve on a skill and/or become more consistent with performing the skill, this method is best utilized as an adjunct tool in the learning process. Not all people are visual learners, but when one is exposed to videotape review of themselves, they are naturally quick to point out flaws in themselves. For this reason, it’s important that when this method is utilized in education, it contains a majority of the best performances of that individual. Both of these methods of video self-modeling can aid in the learning model by providing positive reinforcement and a visual picture of what is actually occurring during a skill sequence. Using earlier footage of learning process through positive self-review, after the skill has been mastered, can be helpful in keeping the individual motivated to continue performing the skill correctly and consistently.

Beneficial attributes: Some say there’s no better way to understand what you’re doing wrong until you see yourself on video. VTFB in the teaching and assessment of psychomotor skills has proven efficacy in the literature today. Jambor (1995) saw an improvement in swimming skills for two ‘college age’ beginners who used the Interpersonal Process Recall method, which used both visual and verbal cues, twice a week for 14 weeks. Hume (NUMBER OF ARTICLE) reviewed twenty-three studies looking at the impact of visual feedback on changing rowing technique. She concluded that although vision provides a major input for developing coordination skills, multimedia instruction should be used more as a supplement to traditional instruction instead of simply replacing it. Darden (2000) summarized great deal of research and empirical evidence involving VTFB in instructional settings that have shown positive outcomes on performance. According to Darden, VTFB has many benefits, including:

- Isolating the most difficult aspects of specific movement patterns
- Introducing associated cognitive processes (e.g. self-talk, anxiety) that influence performance
- Serving as an effective modeling condition to provide visual images and increase observational learning
- Promoting valuable “cognitive effort” in the learning process. Basically, thinking before you act. Eventually, through repetition and positive self-review, the correct sequence of events can be performed with little cognitive effort.
- Increasing motivation, enthusiasm, and effort in learning by the simple documentation of progress, albeit in small increments at times.
- Assisting in changing ingrained negative behaviors. Looking in a mirror, like we do with VTFB exposes flaws. Using self-modeling techniques effectively can help assist with changing a desired behavior.

Controversial aspects: There is a consistent theme throughout the literature that VTFB tends to disrupt a subject’s performance initially, much like that of verbal feedback. Reasons for this immediate disruption may be caused by a change in biomechanics or even the cognitive effort linked to these changes. When used consistently, especially coupled with verbal feedback, VTFB has demonstrated a net positive impact on overall performance for most subjects. Another controversial aspect of this learning and assessment method is that initial use may
increase anxiety because of the fact that self-images are naturally anxiety-provoking. Educating the subject beforehand regarding the possibility of anxiety is crucial and will enhance the learning process earlier. Finally, the use of VTFB alone is not widely accepted in the educational field. Only those subjects that have a thorough understanding of exactly what a desired outcome should look like seem to be successful when using only VTFB as an assessment method. In addition, there have been many ineffective uses of VTFB documented. Such variables include: the level of the performer, type of skill or movement, instructor-provided feedback, and frequency of viewing. Despite the many potential downsides associated with VTFB, research across the educational spectrum, from teaching autistic children emotional control to teaching a gymnast how to perform a new maneuver on the high bar, has concluded that VTFB coupled with verbal feedback produces the best outcomes in this type of learning and assessment.

References:


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Annotated readings:

This article was one of the first to report on the usefulness of digital video in physical education and athletics. Digital video has since overtaken the use of videotape feedback, as it yields greater quality of footage and is easily upload to a computer and saved as well as sends as a digital file. Ease of use with digital videoing has revolutionized the way video is utilized in the classroom environment. The authors focus primarily on the potential usage so f digital video in the classroom and athletics, including, but not limited to: recording student performance, recording teacher performance, using a digital recording of the class as a makeup class for absent students, coaches’ digital playbooks, and even as a highlight reel to wrap up the season in one video. Regardless of how digital video is used to enhance your classroom or team, the authors suggest starting with a small project first before progressing into more complex uses.


In this paper, the author explains the purpose of, instructional manual for creation of, and usage instructions for video self-modeling (VSM), an emerging technique of video review attempting to encourage certain behavioral changes in children and adults alike. VSM, since the 1970s, has been utilized in the public and private sectors as alternative means of modifying and training behaviors. This method of videotape feedback requires some knowledge of the examiner in the area of video editing. Through viewing edited versions of a subject’s behavior, focusing on the positive actions only, self efficacy is used to promote learning. Through this positive learning process, sometimes called visual imagery, it is hoped that the learned or modified behaviors become part of the subject’s memory. No direct reference to utilizing this technique in physical education is noted in this resource. It is heavily focused on classroom usage, but the techniques should be interchangeable.


This article examines digital video production as a means of providing feedback in physical education and athletics. The equipment needed in order to get started providing this type of feedback in the classroom is discussed in details through three sections: 1. Hardware you will need to capture digital video images, 2. Software you will need to edit these images, and 3. How to store digital video files.


This article was intended by the author to be a utilized as a guideline for setting up Videotape Feedback (VTFB) analysis. In this learning process, videotape analysis is provided to the student after a particular skill or task has been performed. Research involving VTFB is discussed in details, mostly supporting its use in learning and performance. The majority of the paper is dedicated to describing the learning stages associated with VTFB and the author’s recommendations for appropriate strategies to use for each stage. This was a very informative article and is one of the first ever to roadmap how VTFB can fit into each learning stage.

This book is designed as two separate parts, commingling the major uses of video in the behavioral sciences (part 1) and the applications across other fields of interest as discussed by leading experts in many fields of study (part 2). The topics of equipment selection, data gathering procedures, video feedback, and self-modeling round out part 1. Part 2 covers the use of interactive videos, audience monitoring feedback during classroom discussions, and inpatient educations tapes, along with other topics related to technology in the classroom. This book has been reviewed many times by various authors and tabbed as a “practitioner-oriented” text that provides insight into almost any topic related to video feedback in the behavioral sciences. It’s very comprehensive, including reviews of over 150 articles on video feedback.


This article describes a totally different aspect of incorporating videotape feedback (VTFB) technology into the classroom learning environment. Through the use of pre-shot video of common sporting venues and common situations of sports (i.e. caught in a run-down between home and third base), students immerse themselves into a virtual world of activity. Images and videos are projected onto a screen or wall and the participants position themselves on the screen and react to a game-like situation. Six different sports, from soccer to wheelchair basketball, were utilized to help facilitate the learning of desired behaviors. The implementation of technology in today’s classroom motivates students, creates virtual situations for assessment of student learning, and helps teachers monitor progress towards a learned or set of learned motor skills. Overall, I think this article is a remarkable representation of how VTFB can be implemented as a substitute for real-time environmental learning arenas such as a ball diamond or volleyball court.


This study compared three different learning styles for the golf swing: video feedback, verbal feedback, and self-instruction. All three methods of learning produce positive results at some point of another with most populations, but in the long run, videotape feedback was shown in the study to show the most improvement in overall golf swings. Initially, the study showed that self-instruction showed the most immediate impact on performance. It is thought that this type of learning is less methodical and more spontaneous, whereas with verbal learning or videotape feedback, too much detail into each small mechanical insufficiency may make it difficult for one to focus in on one change at a time. As with any new learned technique, it takes time to become efficient and effective. Therefore, the results of this study show that in the long run, video feedback provided the greatest amount of improvement in the overall distance and accuracy of a golf swing.


This article examines Videotape Feedback (VTFB) as performance enhancing tool taught by students, not teachers. Interaction between the students and teacher is meant to facilitate interpersonal communication skills and classroom discussions to allow students to better comprehend the cognitive processes that influence their performances. The teacher is merely a facilitator, observing and asking questions, not commenting or correcting performance. By
questioning the student, the teacher allows the student to take accountability of finding and fixing the mistakes and eventually committing themselves to change. This method of VTFB analysis relies heavily on student involvement and a clear understanding of what “right” looks like for each particular skill evaluated. Although considered a non-traditional approach to learning a new physical behavior, this type of analysis can be very effective in the hands of a skilled facilitator, not a director.


This article reviewed videotape feedback (VTFB) usage as voluntary versus forced and how both methods studied affected the overall learning process. Ultimately it was the group that was allowed to control their own learning pace and strategies that outperformed all others. In second, the group receiving both verbal cues and VTFB performed much better than the other groups receiving no VTFB or verbal cues. Learning through self-controlled performance feedback seems to be most effective at learning new physical skills initially and also encourages the most retention of the skill in the long term.


This article begins by detailing the brief history of the usage of video (VSM) self-modeling in the physical domain. Dorwick’s “Practical Guide to Using Video in the Behavioral Sciences”, a review of over 150 studies of VSM, is discussed in detail. At the time this report was published, the effectiveness of VSM in changing or learning a new behavior in the physical domain was unclear. The study in this paper attempted primarily to test the effectiveness of self-modeling on the performance of a physical skill. Although the results of the study did not show a positive relationship between VSM and improved learning of a particular physical skill, the study does take the VSM model outside of the traditional laboratory or classroom and into the physical environment where the skills naturally occur. The protocol design and discussion section were both detailed clearly in this paper, which made for easy reading.


This article examines how overall performance is influenced by verbal feedback and video playback. In addition, how to incorporate video playback into a training protocol is also discussed. The authors provide a detailed plan on exactly how to set up video recording devices around athletes so as to mimic many vantage points or angles of observation. Recommendations on how to provide immediate feedback through video review are also discussed. Finally, the authors recommend a comprehensive list of suggestions in order to optimize the use of video feedback. Specific examples include: targeting specific athletes that require motivation, use video feedback as regular assessment tool and record each athlete on personal storage devices so as to keep a record of performances much like a diary, and use videotape feedback to compare performances of self against the desired behavior. Although this article was primarily related to outcome assessments in weight training, the concepts it contained related to video feedback could be applied to any given learned task or skill in any sport.