

**Video in Theory and Practice:
Issues for Classroom Use and Teacher Video Evaluation**

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Introduction:

Remember the times when film and video were considered frivolous “extras” in the classroom, reserved for Friday afternoons or substitute teachers? Attitudes about teaching with media have changed. Video is now recognized by most educators as a powerful communications medium which, in combination with other learning resources and instructional strategies, can perform a vital role in modern education. This paper discusses some strategies to take advantage of video’s strengths or to extend the educational effectiveness of video in the classroom or lecture theatre. A second portion of the paper discusses video evaluation guidelines and some features of video productions to watch for when evaluating video for instruction.

The following discussion uses the term video, but most of the discussion applies equally to both film and video releases.

Are videos inherently more effective than other types of learning resources?

Research on cognitive learning and media technologies has shown that no specific educational media is inherently more effective than another (Clark, 1983). Essentially, a video by itself is unlikely to be more effective for teaching information than a book or programmed learning device on the topic. Rather, the viewing context for the message and the instructional strategies found within the presentation are critical factors in how learning is fostered by a particular instructional presentation. In other words, what teacher and learners do with the media presentation and its message are much better predictors of educational effectiveness than whether the presentation is a video, lecture, reading, or CD-ROM presented “multimedia”.

On the other hand, affective learning and motivation may be influenced strongly by the choice of media. This in turn, may influence how enthusiastically and successfully students engage in learning activities. Thus, video can be an important media for motivation. It can also help to promote discussion and reflection about personal values, or personal connections to the topic under consideration.

Strengths of video:

Video can present visual information that is difficult to convey in other ways. One of the appeals of video is that it provides a sense of ‘being there’. Students can ‘walk on the moon’, or ‘visit an erupting volcano’ without ever leaving the classroom. A student who sees and hears the suffering of African famine victims will likely be more affected than one who reads simple textual information about it. However, video, like television, may condition viewers to be insensitive or to feel helpless in the context of such events. Video viewing without proper instructional

context and planning can have all of the potential weaknesses or deleterious effects of television.

Not only do videos allow students to 'travel' to different places, they permit travel through time as well. Events of the past or great works of literature can be brought to life when characters, costumes and customs of the times and events (historical or fictitious) are portrayed on the screen.

Videos can be used to demonstrate specific manual skills or physical processes, either at normal speed, in slow motion, or speeded up to reveal relationships, principles, or practices. Videos can provide visual access to situations or experiments that would otherwise be too dangerous or expensive for students to experience personally. They can be used to simplify complex ideas, using media-specific techniques such as animation, computer graphics or clay-mation. Video can reveal "hidden worlds" through photomicrography, astronomical photography, night photography and time-lapse photography.

Videos can be used to model positive behaviour and to motivate students. They are particularly useful for introducing a topic, or reviewing material already studied when motivation is a key to student involvement in a learning sequence.

Videos can provide messages about issues critical to the lives of learners, or to the topic under consideration. Videos can be designed to have strong emotional appeal, thus they can tap into emotional and values involvement with specific issues. With a careful concern about critical analysis of message design, information sources, and the power of video to elicit emotional responses, videos can be effective for examining many different types of controversial issues and promoting class discussions about them.

Video may help to promote learning in students with high visual orientation in their learning styles. Video can also provide visually-compelling access to information for many learners with reading difficulties who might miss learning opportunities provided solely by print-based materials. In this respect, videos provide important learning opportunities to students working in a second language.

Instructional design in video - what research says:

Research has shown that instructional strategies and cognitive modeling traits embedded in specific media are related to both how well and how quickly learning is fostered (Clark & Salomon, 1988). Zooming in to details can help students learn discrimination skills. Providing arrows, circles, and titles can often promote other types of discrimination skills. Animations, time-lapse or stop frame sequences, perspective changes and a number of other techniques may help students develop analytical skills relative to the topic.

Effective sound and titling can provide a multimodal learning experience suitable to the learning styles of many students. Instructional design can take advantage of sound to provide attention-getting, emotional or affective involvement with a topic or issue. The content of a video can be designed appropriate to the learner's level of cognitive or affective development. Videos can present actions and information contradictory to a viewer's prior conceptions. This may induce cognitive conflict that will challenge the learner to use conflict resolution processes. During conflict resolution learners develop hypotheses that promote learning by eventually allowing them to accommodate new information and understandings (Fosnot, 1984).

In short, videos can be designed with embedded instructional strategies and pedagogy to help activate thoughtful engagement with the topic.

Background to video utilization techniques - Active Learning.

Because today's students have spent many hours being entertained by television and video movies, teachers face the challenge of breaking students' passive viewing habits. When videos are properly integrated into instruction, they do not function merely to provide diversion — they promote learning through active engagement of students' mental processes.

Active learning is one of the foundation pedagogical approaches of modern learning theory and educational change initiatives. Students learn best when they are actively (physically and/or intellectually) engaged in the learning activity. The following principles of active learning are useful guidelines for examining strategies for video in an educational context:

- encourage group activity and learning through talk;
- allow for curiosity and speculation;
- allow learners to make their own input and demonstrate autonomy;
- allow learners to utilize the knowledge they already have;
- emphasize the process of learning, and;
- allow learners to use higher order cognitive skills such as evaluation, synthesis, hypothesis, pattern-making, problem recognition and solving.

General Principles of Video Use in the classroom:

Modern understandings of the learning process recognize that isolated viewings of videos, no matter how 'good' the video, fall far short of video's potential to promote effective learning experiences. Because videos have a huge range of topics, styles, and instructional design qualities, it is inappropriate to suggest a specific formula for classroom video viewing. However, a general approach is applicable to most videos. By previewing the video, the educator can determine how best to modify this general approach, and how to arrange a sequence of learning strategies appropriate to the video.

Essentially, a video viewing experience can be seen as a one portion of a three-part approach to instruction. In this model, the video viewing is seen as the 'activity' portion of a sequence: **pre-activity / activity / post-activity**.

Pre-Activity: Preparing for the viewing experience.

For effective learning, learners need to have a sense of ownership and value for a learning activity. They need to have a sense of how the viewing activity relates to the work they are doing, to their own lives, and to the knowledge they have already gained. Pre-activities can be very directive, or they can involve more open-ended activities. Frequently, they will involve a variety of cooperative or learner-centered activities to attain the goals of orientation to the video. The following list of suggestions outlines some possible approaches:

- Discuss with students why they are going to view the program, and provide an opportunity for a discussion of the video's educational ideas.
- Relate the video viewing to the topic being studied. Have students brainstorm

or summarize their understandings of the topic in preparation for the viewing. Use word webs, concept maps or other diagrammatic approaches to visualize relationships between concepts (Hassard, 1992). Word webs can be developed with the entire class or in small groups. Briefly, word webs involve displaying each key word and concept in the topic spread over a chalk board or sheet of paper. Words and concepts are connected with lines labeled with modifying clauses to show significant relationships between various words or concepts.

- Focus attention to the relevance of the video topic to the viewer's lives, both through discussions and activities that will help to give a firm context to the video viewing.
- Have students choose the videos they will watch from an annotated list of recommended, available videos. Have them state or write about their reasons for choosing the video.
- Give students a broad overview of the video content. Have them discuss their ideas about how the topic might be treated in video format, and what key concepts should be conveyed. Have students formulate a 'treatment' for a video to cover the topic as they understand it, and then compare their treatment to how the topic was actually presented.
- Explain unfamiliar vocabulary. Have students prepare a glossary of the terms required for viewing the video. Have students develop word webs other word study strategies to show the relationships of the words.
- Engage in a hands-on activity to provide background for the viewing such as a research activity, dramatic production, art activity, writing activity, science experiment, or field trip.

The Activity: General aspects of viewing the video:

The 'television response' is one of the deadliest learned behaviours influencing modern education. Ironically, most educational video programming is designed as a single linear message, the hobgoblin of the television response. Teachers who venture into new terrain by halting a video mid-program may at first find students up in arms. (One way to ameliorate this response might be to say: "Okay class, commercial break.") Ultimately however, effective instructional strategies will occasionally or often require thoughtful modification of the continuous viewing approach to videos.

Also, it is not necessary for students to view the entire program at one time, nor is it always necessary to view more than certain short segments. This approach may allow the use of several relevant programs during one class.

Locating specific segments of a tape may seem like a tedious exercise for the teacher, but this can be minimized if the VCR's counter is used to identify the desired segments at the time that the video is previewed. Some video programs have an on-screen display of elapsed time to further facilitate the location of particular segments. This feature may also assist students working independently using a prepared viewing guide. Some VCRs have features for 'marking' certain sections of the video. The tape may be rapidly shuttled forward from one viewing section to the next.

Modern VCRs also make video editing relatively convenient. With little loss of quality, it is possible to edit a precise sequence of video 'clips' from several videos to exactly meet the needs of a presentation without having to change video cassettes.

It is also possible to simply end the video before its conclusion. Students may

then discuss how the program will end, either as a large group, or in smaller groups, before the concluding portion is actually viewed.

Sometimes it is useful for the students to view a program once in its entirety, then view portions again to focus in on particular points. Multiple viewings are especially beneficial for documentaries with a high information load or those that explain key concepts.

The Activity: Using video to promote active learning:

A variety of approaches can be used to promote active learning during a video viewing experience (National Film Board, 1992; Plowman, 1988). Viewing strategies will vary from video to video, and will be specific to the learning objectives desired. The following list of strategies are among those possible:

Focus questions:

Focus questions can be used to improve viewers' attention to details or larger concepts of a program. A single question or set of questions can be given to an entire class, or a number of questions can be distributed around the class. In one approach, groups of three students get together after the video to 'check' each other's answers to three different questions. Valuable discussion on the video concepts and topics can be fostered in these small groups.

In another approach where several viewing stations are available in a class, small groups of students can view the program with focus questions they might discuss in detail. Cooperative learning may be used as a model for these groups. Later, groups can report back to the main group on their findings.

Viewing worksheets

Viewing worksheets can take a variety of forms. Perhaps least effective, although they have a place, are fill-in-the-blank viewing sheets. When used, these viewing sheets should focus on the critical vocabulary and concepts of the video topic, to avoid being mere busywork.

Viewing worksheets requiring higher order thinking skills can be effective. Tables and other exercises are possible, where students compare and contrast information in the video, or synthesize information and relationships from different parts of the video. It is critical to allow sufficient time for the students to complete the work. This may involve stops during the viewing, or a second viewing with stops.

Students can be asked to diagram the relationship between the concepts or ideas they are viewing in the video. Ven diagrams (diagrams with concepts outlined by geometric shapes arranged in such a way as to show relationships such as 'is contained within' or 'is part of' or 'is separate from'), word webs, and graphical analyses (comparison/differences tables, for example) are among the techniques possible in this approach.

For videos involving dramatic performance, role playing, or simulation, students can be asked to provide a series of descriptive words about characters, or they can be asked to describe actions or thoughts of characters as the drama unfolds.

View with stops

Viewing a video with carefully-chosen stop points can greatly enhance attention and engagement with the topic. Teachers can use large-group or small-group questioning strategies or discussion strategies that:

- allow learners to predict following action
- allow learners to make inferences or formulate hypotheses
- allow learners to make discriminations regarding important detail
- allow students to creatively formulate an ending to a video they have not previously seen.

View without the sound track

Certain videos, in certain instructional situations, will lend themselves well to second viewing where the sound track is not played. Occasionally, even a first viewing without soundtrack may be appropriate. During silent viewings, students will frequently be asked to provide a narration. Teachers can 'pass the narration' around from one student to the next in a more-or-less random manner. This approach may help to keep students attentive. Alternatively, the entire class can provide narration in a more spontaneous manner. When viewing videos without the soundtrack, teachers and students will quickly notice that the emotional aspects of the program are often conveyed by music and sound. Viewing without this emotional influence often helps the audience to take a more objective look at the issues or information provided.

Viewing 'without visuals'.

Although seldom used, this technique can occasionally be applied where student visualization of the content will enhance learning. Visuals may be described, discussed, or even sketched by learners as they hear words of the narration. In many video programs, as much as 90% of the message is actually contained in the narrated soundtrack.

Post-Activity: Activities to consolidate the video viewing experience:

It is imperative that students' experiences with a topic not stop immediately after viewing a video. Post-viewing, follow-up activities should encourage students to use the information they have gathered and to explore concepts or ideas contained in the video. Again, a large variety of strategies are available as post-viewing activities. These strategies can serve to consolidate learning, explore the implications of the video, and extend the learning to new understandings. Among the many possibilities for post-viewing are:

- hands on activities such as experiments, field trips, drama, art, poetry;
- research projects on ideas/topics brought up in the video;
- class or small group discussions on ideas or issues raised;
- students write about their response or compare their personal situation; to that of the video characters. This might involve 'journaling' - an ongoing personal journal kept by each student in virtually any course;
- activity sheets to analyze the issues or data from the video;
- small-group work on problems raised by, or related to, the video.

It is clear that post-viewing activities may be viewed as measures of the success of the video viewing. Are students motivated to seek further information? Are they

ready to take the ideas or concepts of the video and apply them in personally meaningful situations? Are they challenged or anxious to discuss the ideas brought up in the video? Consciously linking the segments of a pre-viewing/viewing/post-viewing learning sequence, to one another, and perhaps to previous and subsequent sequences, is a powerful way to enhance instruction involving video.

Naturally, the video itself is not usually the primary focus for a long term learning experience – it is part of a context of learning. In this sense, a video viewing might also be seen as a pre-activity or post-activity for a focus activity such as a laboratory experience, a class play, or an art project. It may be useful to go back and forth, considering the video as a centre for a three part learning sequence so as to get the most out of the video viewing, but then reconsidering the video as an appropriate pre-activity or post-activity to get the most out the hands-on focus activity.

Evaluating educational videos:

Effective use of videos in the classroom should start with teachers choosing effective videos. In these decisions, motivating and informing students is a primary concern. As much as possible, the video should be personally relevant to students and motivate them to want to learn more about a topic. To be educationally effective, the video must communicate effectively to students and help them to construct new knowledge, affirm knowledge structures already developed, or challenge their current understandings in a non-threatening manner. Providing a cost-effective and efficient method for teaching a topic is also usually a priority.

Teachers or resource centre personnel are often called upon to select a video collection for teaching. The following general principles may help to guide the evaluation of videos:

- Selection of video titles should usually involve groups, rather than individual decision-making. Group discussion about a video is often needed to go beyond the 'gut-level' response, to bring out the perspective of the student, or to broaden the experience base for determining effective educational video.
- As much as possible, view the video from the perspective of the student audience. A video that appeals to a knowledgeable teacher may not necessarily reach the uninformed, or partially informed, student.
- Have the criteria for evaluation in mind as you view the video. It is helpful to discuss evaluation criteria before undertaking a selection process, and to keep the evaluation criteria at hand during all viewing and discussions.
- Keep in mind that videos tend to elicit personal responses from all viewers. First responses or 'gut responses' derive both from personal preferences and educational judgments combined in varying proportions.
- Examine as much of the video as needed to gain a thorough picture of its contents. Examine the entire learning resource package. Teacher guides or student activity books sometimes considerably enhance educational value of a video.

In theory, video utilization techniques might have a strong impact on the evaluation of video. Even a 'poor' video in the hands of an experienced teacher comfortable with a diversity of strategies for video instruction, can be turned into a positive learning experience. For example, short segments of otherwise mediocre videos may successfully stimulate learning; or, viewing the video silently while 'filling in' the

narration as a group, can often make up for an exceedingly poor narration or even for a narration in an unfamiliar foreign language.

Positives to look for during video evaluation:

Variation in the presentation: It is often appropriate and effective to present a mix of pacing, presentation styles, and communication approaches consistent with the message. Presentation variation can maintain the attention of the audience, especially when it reinforces the need for viewers to renew their viewing attention.

Humour: Humour can be an engaging communication tactic. When used, it should be appropriate to the audience level and neither trivial nor contrived.

Age appropriate narration and developmentally appropriate thinking skills: vocabulary, sentence structure and syntax may strongly influence the educational value of a video for a particular audience. As children develop they progress through developmental levels which allow them to perceive different levels and sophistications of problems.

Chunking, organization in sections: Videos covering a number of concepts require an organization that is logical to the viewer. Information provided in logical chunks helps the viewer to mentally organize the topic.

Provision of meaningful examples: Examples may stimulate the transfer of concepts or ideas from short-term memory into long-term memory.

Research has shown that, with many concepts, both examples and non-examples of the concept may be useful in helping students develop concept discrimination.

Poses open-ended questions: Carefully used, this approach respects the viewer as a thinker and learner, providing opportunities to apply personal knowledge and thinking skills to the topic under review.

Provides opportunities for students to carry out individual thinking: In addition to open-ended questions, other embedded strategies can invite the viewer to examine personal beliefs/knowledge and expand these with critical thinking.

Provides opportunities for extension: Viewers can be motivated directly by the video to engage in post-viewing activities.

Teacher guides outline possibilities for extension or pre-activities. Teacher or viewer guides may stimulate meaningful post-viewing activities including discussions and real-world activities relating to the concepts of the video.

Flags to look for during video evaluation:

Excessive use of talking heads: Documentary productions often involve interviews with people, but video is largely an inappropriate medium to provide a lecture format. The interviews recorded in documentary videos can add a personal element, or an element of 'expert knowledge'. It is a matter of careful interpretation to determine when interviews are over-emphasized to the point when they detract from the instructional purposes.

Illegible or poorly designed titles: transfers from film to video may lead to problems with titles due to the higher resolution and different proportions of the film format. Word messages on the video screen should be short and in large letters.

Outdated footage: Currency of visuals is often required for educational effective-

ness. Historical footage, “classics” and footage that does not date (e.g. many science topics, etc.) should be placed in an overall production that will promote interest with the modern audience.

Unnecessary recitation of facts: Facts without flavour, or facts not needed to communicate the educational message can detract from learning.

Overdramatization of music and sound track: Sound effects and music tracks can have large effects on emotional appeal. Education should not suffer at the expense of promoting emotional involvement.

Visual does not support narration, narration does not support visual: To cut cost corners, video producers often use poorly-related stock footage to provide a background for the narrated message. The best presentations use a bimodal presentation linking the visuals and sound.

Pacing issues: Students are familiar with fast paced TV productions. They are often skilled at processing large quantities of visual information. Pacing should be varied and appropriate to the educational purpose. Exceedingly fast pacing may detract from successful interpretation of the educational message, just as slow pacing may lose the audience.

Excessive use of still frames or slides: Where motion is not required, still frames from paintings or colour slides can often be incorporated into videos. Some videos tend toward the appearance of a slide show transferred to video. This production technique can be unique and educationally effective, but it is also easily overused.

Poor role-modeling: Students are subjected to a diversity of role models through television. There is a need in educational settings to focus on better role model examples.

Over-simplification: It is always difficult to treat complex topics with a linear visual medium. Excellent videos use creative approaches to overcome this restriction, and they avoid trying to do too much.

Lack of relevancy: Videos should have curriculum relevancy, and some relevancy to the lives of the audience.

Overuse of special video effects and transitions: Television watchers are accustomed to highly visual transitions and special effects, yet research has shown that fancy transitions have minimal educational value or may even detract from instruction. Videos are often produced with glitz and glamour to hide what is otherwise a weak educational message.

Discussion/Summary:

Video is an educational media with a foremost place in current and future education, even in the context of growing interest in ‘interactive multimedia’. Through thoughtful planning, video instruction can be used to promote ‘interactive’ learning, in the best sense of the word – the sense of active learning described in this article. Videos can be used to help promote student curiosity, speculation and intellectual engagement. They can help promote group learning discussions and activities allowing learners to use knowledge they already have and higher-order cognitive skills required to extend their knowledge. In combination with other instructional strategies, videos can allow learners to make their own input into learning experiences and to realize the personal importance of learning itself. It is up to the teacher to

develop processes and circumstances to get the most 'interactive learning' value from video and to help bring the video experience into the real world of the student as learner.

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