How First-Time Viewers Comprehend Editing Conventions

by Renée Hobbs, Richard Frost,
Arthur Davis, and John Stauffer

African tribal villagers having little familiarity with any mass media were able to comprehend a filmed narrative, even when it utilized a variety of "point of view" editing techniques.

Tens of thousands of traditional people—Africans, South Americans, and Asians—have not yet encountered film or televised images. How they react to these images and how they make sense of them concerns both communication scholars and those involved in national development efforts using mass media.

For viewers, the task of decoding filmed or televised messages consists of two critical processes. First, the visual and auditory information presented must be recognized as representational. But when rapid pacing or unusual lighting and camera angles are used, even this can require complex perceptual skills, which are not well developed in young children (9, 21). Second, the viewer must decode two kinds of symbolic codes. These are familiar symbolic codes—gestures, speech, facial expressions, graphic-pictorial messages (23)—and the media-specific codes of film and television, or their "formal features" (13, 22, 23). Media-specific codes include the full range of editing techniques for com-bining sounds and images, such as the capacity to change perspective, the use of camera movement (including cuts, zooms, pans, and dissolves), and more complex combinations that result from the timing of the editing, including action, pace, and rhythm.

Understanding how people from diverse cultural backgrounds interpret and use communication technology is important to the study of "media literacy." Media literacy research in recent years has primarily focused on chil-dren's comprehension of television, film theory and criticism, and instructional media development. Once used to encompass a wide range of definitions, including familiarity with the economic structure of broadcasting, common plot formats, and persuasive techniques used in advertising (16), the concept of media literacy is used here more narrowly to include those perceptual and cog-nitive skills necessary to understand the symbolic codes of film or television.

Renée Hobbs is Assistant Professor and John Stauffer is Associate Professor, both in the Depart-ment of Communication, and Richard Frost is Associate Professor in the Department of Sociology, all at Babson College, Wellesley, Massachusetts. Arthur Davis is a missionary with the Africa Inland Mission in Kenya.

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Producers of instructional television for people in rural villages of Africa, South America, and Asia are working with audiences who may have little or no experience with photographs, film, or television (14, 24). Do narrative or documentary formats work best? Should rapid editing be used? Should close-ups, unusual camera angles, or other kinds of spatial manipulation be used?

Although provocative and amusing, anecdotal evidence provides little insight into the process by which individuals with no prior experience with television come to understand what they see.[1] If broadcasting is to be used to communicate information about nutrition, health care, sanitation, and agriculture, systematic efforts to examine the comprehension skills of television-naive viewers are essential.

A diverse range of populations have been examined as they receive television signals for the first time, including the Inuit (3, 8) and people in Great Britain (10), Japan (6), Canada (27), Australia (20), and Scotland (2). Generally conducted as panel surveys, these studies examine differences in behavior patterns and attitudes—such as aggressiveness, reading skills, sex-role socialization, and leisure habits—before, during, and after the introduction of television into the community. In these studies, it is assumed that first-time viewers will have little difficulty in decoding the messages, because they have already been exposed to motion pictures, photography, and other forms of mass communication, including newspapers and magazines.

When he taught groups of Navajo Indians how to make films, Worth (29, 30) found that they "discovered" the editing process within a few days, recognizing, for example, that close-ups of a horse could be combined with images of a whole horse. In addition, the Navajos used many editing techniques that are unfamiliar or "wrong" to viewers used to Western models of film production and editing, including jump cuts and unusual camera movement.

Is experience necessary to understand the symbolic codes of television or film? Most of the evidence is developmental, focusing on the broad and important cognitive changes that take place in children as a result of age and viewing experience (1, 4, 13, 23, 26). Extensive research showing that children frequently miscomprehend television suggests that the naive viewer is not "media literate" but that specific experience with the medium plus a certain stage of cognitive development are both necessary for effective comprehension of the formal features of television and film. Because researchers do not have easy access to adult populations with no experience with the medium, it has not been possible to examine independently the variables of age and experience with the medium.

Analogies have frequently been made between media literacy and print literacy: "Learning to decode the symbols of film or television is something like learning to read" (9, p. 10). The representational codes of television are fre-

[1] For example, making a film about the control of disease to be shown to viewers who had never seen motion pictures, John Humphrey found that "if you showed a fly. . .in close-up, and it filled the screen. . .[the audience's comment was] 'We don't have flies that big' " (quoted in 5, p. 612).

quently compared to syntax in language, because of the way in which editing conventions like cuts, fades, and dissolves are used to structure the content, make shifts in time, place, or action, and separate programs from commercial messages (22). Since it is only through rigorous and demanding experience with the medium that individuals acquire the skills to decode print, many scholars assume that children gradually learn to comprehend the formal structure of television as a result of the time they spend with it (1, 4, 9, 13, 22).

There are problems, however, with the analogy between print-based codes, which are digital, and graphic-pictorial codes, which are analog in nature (7, 11, 12, 15). Digital codes, composed of precise units that are combined into patterns, are abstract and arbitrary markers, while analog codes bear some relationship in form to the things for which they stand. The two-dimensional image depicted on the screen is an analog representation of the actual objects being photographed (17).

Comprehension of the media-specific codes of film and television thus may not require extensive experience and familiarity with the medium if the symbolic code is in some way similar to ordinary perceptual experience. Some (but not all) editing conventions do seem to bear an analogical relationship to perceptual skills. At the turn of the century, for example, Munsterberg (19) noted that the close-up visually externalized the mental act of paying attention.

Messaris (17, 18) suggests that editing techniques be organized along a continuum. Some editing conventions are used to display different images within a single scene; frequently, shifts in camera position or magnification are used to achieve the visual effect of bringing the viewer into the scene instead of relying on a fixed camera position. Such *point-of-view* editing conventions may be comprehensible to naive viewers because they represent an element of ordinary visual experience. When the camera shifts position within a scene, the visual effect resembles the act of moving to get a different view. When the camera shifts to enlarge or magnify something within a scene, the visual effect resembles the process of paying attention.

Other editing conventions include the range of visual techniques that are used to move the viewer forward (or backward) in time or shift from one location to another. Film and television editing techniques also are frequently used to imply causality. Such *transitional* editing "presents the spectator with time and space juxtapositions that could almost never be encountered in reality" (17). Because they demand an integration of actions across time and space, a complex cognitive activity not grounded in pure perceptual experience, transitional editing conventions may be more difficult for viewers to comprehend than point-of-view techniques.

According to Messaris, "the extent to which the interpretation of any particular kind of editing requires a special set of skills. . .must depend on how much that kind of editing departs from everyday visual experience" (17). For a better understanding of how viewers comprehend film and television, we must systematically examine how people with no familiarity or experience with the media make sense of the range of editing conventions employed in film and television.

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Access to the Pokot tribe of Kenya provided an opportunity to examine the media literacy skills of naive viewers. Approximately 220,000 Pokot live in the northwestern section of Kenya. About three-quarters of the population are seminomadic pastoralists, selected for this study because of their lack of experience with modern visual media. Although an orthography has been developed for the highly complex Pokot language, virtually all Pokot living in a tribal setting are nonliterate.

Because various family groups may move two to three times a year—depending on the availability of water and grass for their cattle—there is little time or resources for investment in elaborate shelter, and aesthetic expression is concentrated in personal adornment and performance arts.

The typical Pokot hut is a circular windowless structure made from a frame of tightly woven sticks. This frame is often covered with a combination of sand, mud, and cow dung to keep out wind and rain. The roof is made of grass thatching. The undivided interior is used for cooking, sleeping, and the protection of young animals, such as goats, at night. Pokot shelters are undecorated inside and outside. However, when asked to use a sharp stick and sand on the ground to make a two-dimensional representation of an animal, Pokot men in our study were able to draw simple pictures.

Outside the hut a circular enclosure made of branches from thorn trees keeps the livestock in and opportunistic hyenas, leopards, and lions out. This structure is also undecorated.

Pokot men and women do engage in ornamentation of the body and dress. Women decorate themselves with large brass earrings, brightly colored necklaces (indicating marital status and clan), multiple bracelets and anklets of brass or iron, and often a scarred midriff. Men wear smaller earrings and necklaces and may wear metal armbands. Lip plugs and nose ornaments are also worn by the older generation. Pokot men use a decorative mudpack on the back of the head, painted a specific color to indicate age-grade and clan affiliation. Men may also have scarified shoulders that display their prowess in intertribal conflicts, usually involving stock theft.

The Pokot, like most tribes in sub-Saharan Africa, engage in dancing. Most dances are related to events in the life of the tribe: birth of a first child, circumcision, marriage, war, and the coming of the rainy season. Unlike some tribes in West and Southern Africa, the Pokot use little in the way of additional ceremonial attire and wear no elaborate masks, headdresses, or costumes to personify animals or other spirits. In the area where this study was conducted, song and dance are unaccompanied by musical instruments.

As with most cultures, the Pokot have a storytelling tradition that makes narrative a congenial form of presenting information. Nearly everyone participates in storytelling. Older children tell younger children fables that often involve animal protagonists. Around the campfire, grandfathers relate their adventures hunting rhino or encountering cattle-stealing Turkana tribesmen. Knowledgeable elders recount family histories before the marriage ceremony. But as vivid and ubiquitous as their storytelling is, it falls short of a dramatic presentation in which actors portray different personae.

To determine whether editing conventions that manipulate point of view would be as comprehensible to the Pokot as simpler presentations, we created two different videotaped versions of a culturally appropriate narrative. When Western researchers show television programs to naive viewers, these programs often include people, settings, activities, and technologies that are unfamiliar to them. In this study, the familiarity of the content enabled us to focus solely on viewers' ability to comprehend point-of-view editing. Moreover, since the Pokot do not have a strong visual expressive tradition beyond personal adornment, the videotaped content did not "compete" with alternative modes of expression.

Individuals from the tribe were participants in the story, which concerned a boy who falls asleep while tending the family's sheep and goats. A thief steals the goats while the boy sleeps, and he must return home to his father empty-handed.

In Version 1 of the narrative, the camera was stationary, and a fixed focal length was maintained throughout. The only camera movement was the limited use of panning to follow the actor's movement. The narrative was taped in one continuous shot. In Version 2, editing was used to make shifts in perspective and to enlarge details within the scene. Fourteen edit points were constructed with the frequent alteration of close-ups, medium shots, long shots, and zooms. Both videotapes were three and a half minutes long. Figure 1 provides a shot-by-shot graphic depiction of Version 2.

Twenty participants, selected from a pool of available men between the ages of 20 and 70, were randomly assigned to individually view either Version 1 or Version 2. The sample was limited to adult males to reduce the natural variation in communication skills. Because this population was new to the experience of viewing television or film, the experimenter prepared participants by describing what would follow as a way to act out stories. The men were asked to view the story and, afterward, to describe the events they had seen and to answer other questions about their reactions. Villagers used an earphone and viewed the videotape through the eyepiece of a black-and-white video camera.

The men were first asked, with no prompting, to describe what they had seen. They were then prompted with the phrase, "What did you see next?" to determine whether they recalled specific story elements. An expert translator who lives with the Pokot worked with them in their native language. Answers were recorded on audiotape in English (translating from Pokot to Swahili and then from Swahili to English).

The primary measure of comprehension was the correct identification of the eight most important critical features of the narrative, which included specific recognition of the events and actions within the story. When a villager recalled that he saw "goats being herded by a herdsboy," he accurately summarized the first of eight events; when he noted that "it looked like somebody came and took the goats away," he accurately summarized a subsequent event.

Two coders, working from the audiotapes of the interviews, noted the presence or absence of each of the eight critical features. The global comprehension score, ranging from 8 to 0, measured the ability to recall the eight critical

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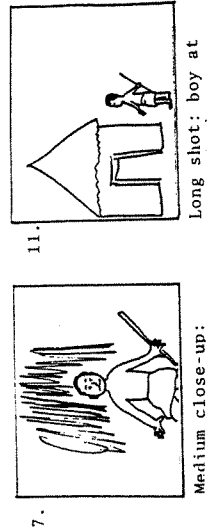
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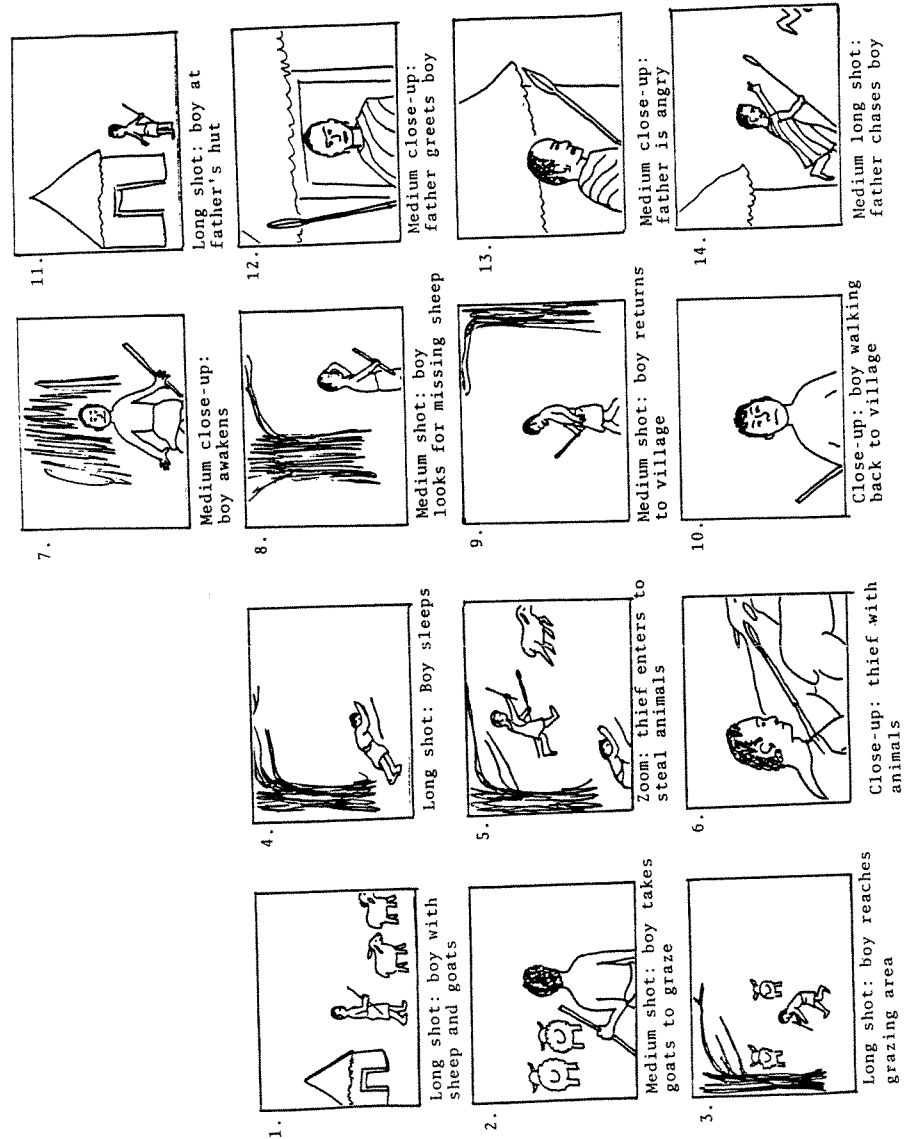iews, noted the pres-
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Figure 4: Storyboard of Version 2, utilizing point-of-view editing

features of the narrative through spontaneous or prompted recall. Only a few individuals in the sample seemed to require prompting as an aid to recall. One or two seemed not to understand the nature of the task at first, until prompting led them to appreciate the need to describe as many details as they could remember. The global comprehension score thus reflects memory skill for all the participants, regardless of their initial level of understanding of the task. Variables including the presence of visual details and number of visual or audio errors were also coded.

Participants ranged in age from 24 to 68, with a mean age of 34. Age was correlated with comprehension ($r = -.37$), since physical infirmity and problems with eyesight affect viewing skill.

Although the Pokot are among the most isolated and rural of African tribes, ninety percent of the sample had heard audiotape or radio during their lifetime. Only 40 percent had seen a film before (a single exposure to a government development film presented in a town ten miles away). Sixty percent had seen photographic images, and 35 percent had seen newspapers, magazines, or other printed matter. Exposure to communications media was correlated with age ($r = .22$ between age and radio/audiotape; $r = .28$ between age and film; $r = .24$ between age and print media). In all these cases, however, experience with these media had been very limited. For example, some participants reported that they had "heard" radio or audiotape, although it is unlikely that they understood the language.

These adult viewers with little prior experience with photographs, film, or television were able to recall the critical features of a narrative that used point-of-view editing. There were no significant differences between the villagers who viewed Version 1, the unedited tape, and those who viewed Version 2, which used point-of-view editing, in their ability to recall story events ($F = .72$, $t = .40$). However, the mean comprehension score of those who viewed Version 1 was slightly higher ($\bar{x} = 5.2$) than that of those who viewed Version 2 ($\bar{x} = 4.4$). Analysis of variance revealed no statistically significant differences between the groups, however. For viewers with no prior exposure to television, both versions were equally well understood. In neither group were there unusual variations in the recall scores (see Figure 2).

Comprehension was not related to the sample's limited experience with film, print media, or radio/audiotape. However, viewers who had seen photographs tended to have higher comprehension scores ($r = .32$). For the Pokot, who are much more likely to encounter photographs than to see films in their interactions with visiting Westerners, photographs may be a better reflection of media exposure.

In examining the pattern of errors made in recalling the narrative, we looked specifically at statements that claimed to see something in the videotape that did not exist. Forty-five percent of the sample made one error of this type, typically in describing seeing zebras or other animals. There were no differences in errors due to the version viewed. Some of these errors are no doubt attributable to the problem of looking at the videotapes on a small black-and-white
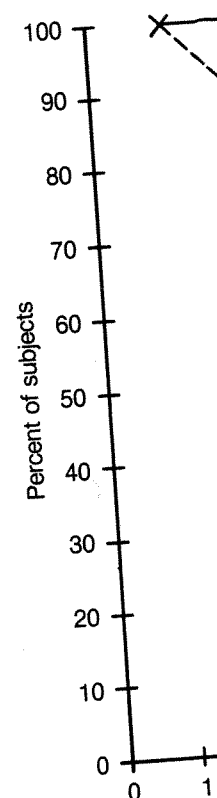
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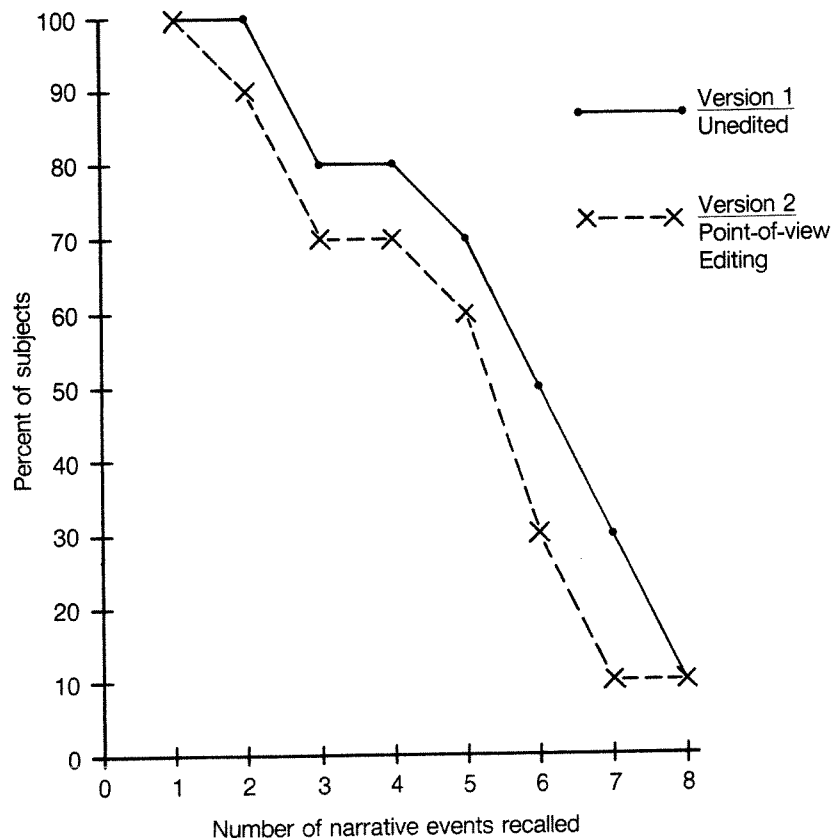cant.

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Figure 2: **Global recall of narrative events in Versions 1 and 2**

screen. For instance, the shadows of branches falling across the sheep and
goats may have led viewers to see zebras. In other cases, errors seem quite
unexplainable, as when one viewer described the herdsboy as "wearing a
green shirt. . .and a hat with a green band."

We had hypothesized that those villagers viewing Version 2, which provided
close-ups of people, objects, and events, might recall more visual and audio
details than those viewing Version 1, which presents the entire narrative from a
stationary point of view. Examples of visual details include recalling the thief as
moving "something like a lame person, crouching along," sheep "that were
different colors," and the herdsboy's "having cuts on his stomach." In fact,
these viewers recalled *fewer* visual details ($\bar{x} = 2.0$ compared to $\bar{x} = 2.8$ for
those viewing the unedited tape), but this difference was not statistically signifi-
cant.

In measuring audio details, we examined whether participants could recall
specific sounds (such as animals) and words (such as dialogue between the
father and son) that were present in the videotape. (Audio tracks in both ver-

sions were uniformly similar.) Some viewers remembered the interaction between father and son practically word-for-word or remembered a specific bird call or other sound. Others recalled the herdsboy telling his father that he knew the sheep were "stolen because he saw the footprints of the thief." Although most viewers included no audio details ($\bar{x} = .5$), those who saw the point-of-view version recalled more details ($\bar{x} = .9$) than those viewing the unedited tape ($\bar{x} = .1$). Perhaps the greater visual demands of Version 2 led to greater reliance on the audio track as an aid to comprehension.

Although many viewers made visual errors, those who recalled visual details were unlikely to do so ($r = -.40$). We suspect that variability in eyesight or perceptual skills contributes to this finding.

In informal conversation with the participants, we asked about their reactions to the videotape as a storytelling device. Virtually all responded positively. Several commented, "That which one can see with the eye is better than through the ear alone." An older villager, in describing his past experience viewing a motion picture in another village, said he saw "moving pictures of cows, goats, mountains, trees and people running" but that he "didn't notice any story to the picture." Perhaps this material had relied on transitional editing conventions to manipulate time and space, which may be less comprehensible than point-of-view techniques.

For adults, the skill suggested by the concept of "media literacy" may not be strictly a result of experience and familiarity with the medium. Although Pokot tribal villagers did not have perfect or uniform comprehension, and differences in the ability to remember details did exist, their overall ability to comprehend the narrative was adequate. The use of point-of-view editing to fragment the visual scene and reconstruct it through changing the distance between the viewer and the camera did not impede their ability to comprehend the narrative.

The evidence from this study supports our belief that at least some media-specific codes, particularly those editing conventions that are used to manipulate point-of-view, are analogs of perceptual processes. As such, they "preorganize the viewer's experience in a manner which facilitates its encoding and storage" (21, p. 3.42). If, as we have found, systematic training is not required to master decoding skills for this medium, then we have a better explanation for television's awesome power "to teach early, quickly and efficiently" (21).

However, it is not just the media-specific codes, the editing conventions, that make film and television so accessible to viewers, but the representation of sounds and images that appear on the screen. In the two-step process of decoding these messages, viewers must first recognize two-dimensional images as representations of physical objects and events. This ability is well developed in most adults, regardless of their experience with modern communications media (17, 25, 28). In the second step in the process, viewers decode media-specific conventions that manipulate images through juxtaposition, framing, camera angle, and other techniques. Perhaps they manage this task by "leapfrogging" from the first process of representational decoding (22). That is, per-

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haps the media-specific codes are learned by relying at first on the representa-
tional codes. We suspect that the medium's most basic codes—the
representation of images and sounds—permit naive viewers to comprehend the
content of the medium, even if they lack the skill to decode more complex
editing conventions.

Future research should examine the comprehensibility of additional media-
specific codes, including the manipulation of time, space, and causality. For
example, a complex narrative using a mix of transitional editing conventions
might be constructed so that viewers would be unable to comprehend the nar-
rative content without demonstrating their understanding of the use of editing
techniques that manipulate time and space. Such a model would allow a more
careful examination of how representational codes work to aid comprehension
of media-specific codes.

Since in this study experience with photographic representation was corre-
lated with comprehension, more evidence on the nature of villagers' familiarity
and ability to process two-dimensional representations would be valuable.
Finally, work with additional populations from across the continents of Asia,
South America, and Africa would aid in helping to generalize beyond the limits
of the Pokot tribe in Central Kenya.

Scholars, film theorists, and media producers have valued the complexity of
image-sound relationships and the powerful and expressive potential that can .
be achieved through editing. It may be the analogic nature of both the screen
images and basic editing conventions that invite even naive viewers to attempt
to make sense of more sophisticated media codes.

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