

Video: How does video aid in memory retention?

Summary:

In this cross-section of articles, video seemed to aid retention and learning in older adults while in younger adults and children, the vehicle by which training is taught either showed no change or lives training/teaching proved to be better for retention. The Mykityshy et al. article found that video followed by practice was the best method of gaining retention. In the Roebbers et al. "It's Magic" article, video came in second (to live performance) in retention and surety of correct responses. This article is only one of many studies related to this--an important area of research in child psychology and criminal law, etc.--most findings indicate that video and television can actually skewer the memory of child witnesses. The Rossiter (et al) article depicts that longer seen images in video are most easily remembered as well as those which affect the front left hemisphere of the brain (though it is never made clear what types of images affect that part of the brain). In the Weeks (et al) article, researchers found that dynamic modeling (in which video is used) produced a higher rate of retention than static modeling (with still pictures).

Reference Mykityshy, A. L., Fisk, A. D., & Rogers, W. A. (2002). Learning to Use a Home Medical Device: Mediating Age-Related Differences with Training. <i>Human Factors</i> , 44, 354-364.	
Population 30 younger adults between the ages of 17 and 24 years. 30 older adults between the ages of 65 and 74 years.	
Purpose/Questions The purpose of the study was to directly compare two media (written vs. video instructions) for training younger and older adults to use a home medical device. Both younger and older adults received training on the use of a blood glucose meter via either a user manual (a text guide with pictures) or an instructional video. The participants were tested immediately after the training and then retested after a 2-week retention interval session	Findings The type of training does not influence the performance of younger adults either immediately after training or after the 2-week period. The results of the study indicated that the older adults perform better when using the video instruction. However, the older adults show declines in performance during the 2-week retention session due to the nonuse of the instruction. The study showed that video training with immediate performance results in better learning by older adults, relative to a written manual with pictures, and that skill learning may not be retained as well by older adults as by younger adults. The effect of age differences is a critical factor in the development of effective training programs.
Reference Roebbers, C. et al. (2004). "It's Magic!" The Effects of Presentation Modality on Children's Event Memory,	

Population

270 children from Bavaria, Germany in 3 age groups (90—51 girls and 39 boys--5/6 yr olds, 92—49 girls and 43 boys--7/8 yr olds and 88—43 girls and 45 boys--9/10 yr olds).

Of these children, each age group was divided into three subgroups. For the 5/6 group, 30 (14 girls, 16 boys) were placed in the live group, 29 (19 girls and 10 boys) were placed in the video group and 31 (18 girls and 13 boys) in the slide show group. 7/8—30 (16 girls, 14 boys) in live, 30 (15 girls, 15 boys) in video and 32 (18 girls, 14 boys) in slide show. 9/10—30 (15 girls, 15 boys) in live, 30 (11 girls, 19 boys) in video and 28 (17 girls, 11 boys) in slide show.

Purpose/Questions

Researchers wanted to observe the accuracy of children's recall of events after different types of presentations: live action, video and slide show.

They also wanted to see how children could defend against false information posed to them about the three types of presentation. (These types of studies are especially valuable to the criminal justice field where children must sometimes be called to testify and their recall of events can be brought into question.)

Findings

Correct answers to non-leading questions ranged the following:

- 5/6—53.5% live, 51.3% video, 49% slide show.
- 7/8—62.2% live, 56.9% video, 51.3% slide show.
- 9/10—64.3% live, 64.7% video, 57.4% slide show.

Confidence judgments after questions (1=very unsure, 5=very sure):

- 5/6—live—4.7 correct, 4.3 incorrect
- --video—4.8 correct, 4.3 incorrect
- --slide show—4.6 correct, 4.2 incorrect
- 7/8—live—4.7 correct, 4 incorrect
- --video—4.7 correct, 3.4 incorrect
- --slide show—4.6 correct, 4.1 incorrect
- 9/10—live—4.6 correct, 3.9 incorrect
- --video—4.5 correct, 3.5 incorrect
- --slide show—4.6 correct, 3.3 incorrect.

Percentages of correct answers to misleading questions:

- 5/6—54.1 live, 47.9 video, 41.7 slide show
- 7/8—68.2 live, 53.9 video, 48.9 slide show
- 9/10—73.3 live, 63.5 video, 58 slide show

The outcome of this study suggests that children are better able to remember events and guard against misleading information when they witnessed the action live. Of the media, video recall came out on top of slide show.

Reference

Rossiter, J. et al. (2001). Brain-Imaging Detection of Visual Scene Encoding in Long-term Memory for TV Commercials. *Journal of Advertising Research*, 41, 13-21.

<p>Population</p> <p>35 Australian women aged 25-35 who were primary shoppers of their households. These women were prescreened to be right-handed, meaning their left-brains were predominate.</p>	
<p>Purpose/Questions</p> <p>Advertisers wanted to find out what frames of video would be remembered by viewers one week later. Scientists used brain imaging to see how the hemispheres of the brain reacted to each frame and how they reacted when recognition of certain frames occurred.</p> <p>Advertisers hope this kind of research will help them better understand and predict what kinds of visuals will be remembered by consumers.</p>	<p>Findings</p> <p>On a questionnaire, participants recognized 52.8% of images seen previously. They had a 20.2% rate of “false positives,” remembering images that they had not been shown. There was a 47.2% rate of “false negatives,” or not remembering scenes that had been previously shown, with a 79.8% rate of accurately identifying images and scenes that they had not previously been shown.</p> <p>Of items with shorter exposure (<1.5 secs), 41.1% were remembered. Of longer exposure (1.5 secs), 62.8% were remembered.</p> <p>The SSVEP part of the study showed that, in fast SSVEP response frames, the left hemisphere responded 66% of the time in recognition, compared to 58.7% in both hemispheres and 53.8% in the right hemisphere. For slower recognition, the right hemisphere came in at 54.2%, versus both hemispheres at 45.3% and the left hemisphere at 37.9%.</p> <p>The researchers believe this shows that longer images are necessary to be remembered and that, for faster recognition of the image, the image should affect the front, left hemisphere.</p>
<p>Reference</p> <p>Weeks, D. L., Brubaker, J., Byrt, J., Davis, M., Hamann, L., & Reagan, J. (2002). Videotape instruction versus illustrations for influencing quality of performance, motivation, and confidence to perform simple and complex exercises in healthy subjects. <i>Physiotherapy Theory and Practice, 18</i>, 65-73.</p>	
<p>Population</p> <p>Ten male and ten female university students were randomly assigned to either a dynamic demonstration (videotape instruction) group or a static demonstration group (still-photograph illustrations) for an acquisition session and retention test 24 hours apart.</p>	
<p>Purpose/Questions</p> <p>The purpose of this study was to compare videotape instruction (dynamic modeling) to instruction via illustrations (static modeling) for influencing the accuracy of movement form, motivation perceptions, and confidence of</p>	<p>Findings</p> <p>The results of this study indicated that dynamic modeling (videotape instruction) resulted in higher scores than static instruction both in the presence of the acquisition phase and in the retention phase.</p> <p>In terms of more functional memory representation, the dynamic mode of modeling with videotape instruction is more effective</p>

subjects performing simple and complex visually guided and non-visually guided exercises. This study hypothesized that accuracy of from in acquisition and retention would be greater in the group viewing the dynamic demonstrations when compared to the group viewing static demonstrations for each type of exercise.

than that of the static illustrations.