

To Synchronize or Not to Synchronize?

That is the Question

A comparison of effectiveness in a learning situation with synchronized or manual slide sets.

James R. Griffith

COMPARATIVE EFFECTIVENESS in learning situations using synchronized and manual slide sets is not a question of whether today's students are afraid of audiovisual equipment. We have all grown up with the ability to tune in a television picture or a radio. Most homes have adult toys such as cassette recorders and even CB radios. People today have little fear of audiovisual equipment, and they believe what the machines tell them. Children today have "learning machines" of all kinds in the grade and high schools; so by the time they reach college the student is accustomed to learning from a machine.

This study was not to see if there was fear of the equipment, but rather to determine if a machine could replace or supplement the professor in the classroom or a teacher in a workshop.

On the premise that an instructor using a synchronized slide set is more effective in classroom seminar or workshop learning situations, this study compared the use of a synchronized slide set without an instructor, with an instructor using a manual slide set, and with an instructor using a synchronized slide set. We tested for comprehension, retention, and understanding of instructional materials presented.

The variable of instructor personality as it relates to instructional technique was compared in the three presentation methods.

The testing suggested the most effective technique or combination of techniques to be considered in the preparation and use of audioslide set presentations for instruction. It also anticipated that one technique may facilitate learning more than the others. And a secondary finding would be the effectiveness of a professional or non-professional voice in the classroom or on tape.

Background Information

The human brain is the most fantastic computer system ever created. The communication of our thoughts and the understanding of what we hear are accomplished largely through visualization. New ideas are identified, classified, labeled, and assimilated in microseconds. It is well known that visualization plays an important role in the learning process.

We learn approximately:

- 1% through taste
- 2% through touch
- 4% through smell
- 10% through hearing
- 83% through sight¹

According to these figures, learning through sight is more important than through any of the other senses. So, the eyes carry the main burden of learning.

However, seeing does not always mean learning. How many of you have seen the television viewer looking but not perceiving? How many of you have sat in front of the television and not realized for a few seconds that the picture was gone?

Retention is as important as perceiving an idea.

Studies have shown that people generally remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they hear and see
- 70% of what they say
- 90% of what they say as they do a thing

It is not unreasonable to suppose that these figures are a good indication of what actually happens.

The most significant figure is the 50% that represents the approximate rate of retention of what is simultaneously heard and seen.

Quality of Participants

The people participating in the study ranged in age from under 18 to over 51 years, and 73% were under 30 years of age. The participants had educational levels ranging from grades 1-6 to college; 47% of the participants had completed some level of college work and an additional 35% had completed high school. This means that 82% of the people tested had a high school or higher education.

Synchronized Slide Sets

Most of the participants had viewed synchronized slide sets before this test set. Synchronized slide sets are used in many different ways and

¹M. P. Murgio, "We live in a Visual World"
Communication Graphics

locations. They are used in grade schools, social clubs, group meetings, commercial exhibits, and many other places.

In analyzing the questionnaires, it was discovered that 87% of the participants had viewed a synchronized slide set before viewing the test set and 9% of the participants had viewed synchronized slide sets over 50 different times; only 13% had not viewed a synchronized slide set before seeing the test set.

Table 1

Percent of Viewers Who Had Viewed Synchronized / Sound Slide Sets Before Test Set

	Yes	No	No Ans.
Questionnaire 1 (Synch. w/o instr.)	82%	16%	2%
Questionnaire 2 (Manual w/instr.)	87%	13%	0%
Questionnaire 3 (Synch. w/instr.)	89%	11%	0%
Average	87%	13%	0%

Table 2

And Number of Times

	1-5	6-10	10-25	26-50	Over 50
Questionnaire 1 (Synch. w/o instr.)	39%	16%	20%	8%	0%
Questionnaire 2 (Manual w/instr.)	29%	16%	18%	13%	12%
Questionnaire 3 (Synch. w/instr.)	31%	21%	21%	7%	10%
Average	32%	17%	19%	10%	9%

Slide Sets and Education

71% of the participants indicated that they feel that slide sets (not only synchronized) are a good way to educate. It is my belief that slide sets should do more than educate. They should be entertaining, although not

Table 3

Did the viewer think slide sets are a good way to educate?

	Yes	Sometimes	No	N/A
Questionnaire 1 (Synch. w/o instr.)	67%	31%	0%	2%
Questionnaire 2 (Manual w/instr.)	70%	29%	1%	0%
Questionnaire 3 (Synch. w/instr.)	74%	26%	0%	0%
Average	71%	27%	1%	1%

entertaining to the point that it distracts from the educational message. 75% of the participants believed that a slide program **should** be entertaining as well as educational. Also, 90% of the viewers believe that a slide program can be entertaining and educational.

Table 4

Do you think slide programs should be entertaining as well as educational?

	Yes	Sometimes	No	N/A
Questionnaire 1	71%	24%	2%	3%
Questionnaire 2	70%	28%	1%	1%
Questionnaire 3	85%	15%	0%	0%
Average	75%	23%	1%	1%

Table 5

Do you think a slide program can be entertaining and be educational?

	Yes	Sometimes	No	N/A
Questionnaire 1	84%	14%	0%	2%
Questionnaire 2	92%	7%	1%	1%
Questionnaire 3	92%	8%	0%	0%
Average	90%	8%	1%	1%

Method Preferred

Method 1 = synchronized without instructor

Method 2 = manual with instructor

Method 3 = synchronized with instructor

It is also important to see which of the three slide presentation methods the participants preferred.

The viewers who did not have an instructor found method 1 to be satisfactory (31%), but they thought that the addition of an instructor,

Table 6

Method of presentation preferred by the viewers.

	Method 1 Synch w/o instr.	Method 2 Manual w/instr.	Method 3 Synch w/instr.
Questionnaire 1 (Synch. w/o instr.)	31%	19%	49%
Questionnaire 2 (Manual w/instr.)	24%	24%	47%
Questionnaire 3 (Synch. w/instr.)	20%	22%	44%
Average	23%	22%	46%

method 3, would improve the presentation (49%).

The participants who viewed the slide set by method 3 preferred method 3 two to one over the other methods.

All participants rated method 3 as being the method they preferred. Methods 1 and 2 were equally rated at 24% each.

It also should be noted that methods 1 and 2 received an overall equal rating of 23% and 22% and method 3 an overall rating of 46% preferred. According to the questionnaires, method 3 is the one preferred 2 to 1 over the other two methods.

Rating the Instructor

The instructor or lack of instructor may influence the participants' ability to concentrate positively. The viewers of methods 1 and 3 indicated that the lack of an instructor did not affect their concentration.

This question was asked a little differently in questionnaire 2. Here, the participants were asked if the instructor influenced their ability to concentrate positively.

Questionnaires 1 and 3 indicated that the lack of an instructor does not influence their concentration but questionnaire 2 indicated that the instructor could influence the viewer.

There is no doubt that the participants believe an instructor can influence your ability to concentrate and that the lack of an instructor will not upset the class.

70% of the participants believe that the instructor's personality influences the viewers' interest. If the instructor has a good personality and can influence his audience positively, he should not be substituted by a tape. On the other hand, a poor voice on the tape would also be counter-productive. The personality of the live instructor and the narrator on the tape have a significant influence on the students.

Table 7

Does the lack of an instructor in front of the class influence the viewers' concentration (positively)?

	Yes	Sometimes	No	N/A
Questionnaire 1 (Synch. w/o instr.)	8%	30%	60%	2%
Questionnaire 3 (Synch. w/instr.)	13%	33%	52%	2%
Average	11%	31%	56%	2%

Does an instructor influence the viewers' ability to concentrate (positively)?

	Yes	Sometimes	No	N/A
Questionnaire 2 (Manual w/instr.)	37%	42%	17%	4%

Rating of Materials

If this kind of testing is to be accurate, the materials presented must be good. If the slide set was rated Poor by the participants, it would affect the findings of the research.

Tables 8, 9, and 10 show that the participants rated the slide program materials as being Good. This rating was for the complete program, and the way it was presented to the viewer may have some effect upon their decision.

They also rated the slide program Informative, Well Organized, and With A Good Pace (rate of presentation).

Table 8

Viewers' rating of the informativeness of the program

	Yes	Fair	No	N/A
Questionnaire 1	79%	20%	0%	1%
Questionnaire 2	75%	23%	1%	1%
Questionnaire 3	87%	13%	0%	0%
Average	79%	19%	1%	1%

Table 9

Viewers' rating of organization of information in program

	Yes	Fair	No	N/A
Questionnaire 1	88%	8%	2%	2%
Questionnaire 2	83%	14%	0%	3%
Questionnaire 3	96%	4%	0%	0%
Average	87%	10%	1%	2%

Table 10

Viewers rating of pace of program (rate of presentation)

	Too Fast	Just Right	Too Slow	N/A
Questionnaire 1	24%	75%	0%	1%
Questionnaire 2	10%	83%	6%	1%
Questionnaire 3	28%	71%	1%	0%
Average	18%	78%	3%	1%

The participants were asked to rate the narrator's or the instructor's voice.

The narrator's voice on tape (questionnaires 1 and 3) was of professional quality and was rated high by the participants.

The instructors used in the presentations (questionnaire 2) were of varied quality but were rated as high as the professional voice in 1 and 3.

Table 11**Viewers' rating of narrator's voice.**

	Excell.	Good	Fair	Poor	Unsat.	N/A
Questionnaire 1	31%	43%	20%	4%	0%	2%
Questionnaire 3	42%	52%	4%	1%	1%	0%
Average	38%	48%	10%	2%	1%	1%

Viewers' rating of instructor's voice.

Questionnaire 2	42%	48%	6%	2%	0%	2%
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Learning

It was also important to determine how much learning had taken place in each of three methods and if one method was better than the others.

The quiz presented to each of the groups was the same. There were 12 questions answered by multiple choice. The same questionnaire was given to a group not viewing the slide set (special questionnaire). The results were very interesting, as you can see in Table 12.

There was very little difference between the three methods as to the number of correct answers, but there was a great difference in the special questionnaire (select groups were given the test without viewing the slide set). These figures do show that the viewers did learn from all three methods.

It also would have been interesting to test further to see how much of the information is retained after the passing of a period of time.

Table 12

	Correct	Incorrect
1. Questionnaire 1	80%	20%
Questionnaire 2	80%	20%
Questionnaire 3	88%	12%
Average	82%	18%
Special Questionnaire	12%	88%
2. Questionnaire 1	80%	20%
Questionnaire 2	95%	5%
Questionnaire 3	92%	8%
Average	92%	8%
Special Questionnaire	43%	57%
3. Questionnaire 1	94%	6%
Questionnaire 2	96%	4%
Questionnaire 3	94%	6%
Average	95%	5%
Special Questionnaire	60%	40%

4.	Questionnaire 1	90%	10%
	Questionnaire 2	85%	15%
	Questionnaire 3	80%	20%
	Average	84%	16%
	Special Questionnaire	52%	48%
5.	Questionnaire 1	90%	10%
	Questionnaire 2	94%	6%
	Questionnaire 3	96%	4%
	Average	94%	6%
	Special Questionnaire	67%	33%
6.	Questionnaire 1	92%	8%
	Questionnaire 2	98%	2%
	Questionnaire 3	97%	3%
	Average	96%	4%
	Special Questionnaire	57%	43%
7.	Questionnaire 1	94%	6%
	Questionnaire 2	98%	2%
	Questionnaire 3	99%	1%
	Average	97%	3%
	Special Questionnaire	38%	62%
8.	Questionnaire 1	84%	16%
	Questionnaire 2	90%	10%
	Questionnaire 3	81%	19%
	Average	86%	14%
	Special Questionnaire	57%	43%
9.	Questionnaire 1	84%	16%
	Questionnaire 2	83%	17%
	Questionnaire 3	94%	6%
	Average	87%	13%
	Special Questionnaire	62%	38%
10.	Questionnaire 1	78%	22%
	Questionnaire 2	85%	15%
	Questionnaire 3	76%	24%
	Average	81%	19%
	Special Questionnaire	10%	90%
11.	Questionnaire 1	82%	18%
	Questionnaire 2	77%	23%
	Questionnaire 3	93%	7%
	Average	83%	17%
	Special Questionnaire	29%	71%

12. Questionnaire 1	73%	27%
Questionnaire 2	84%	16%
Questionnaire 3	89%	11%
Average	83%	17%
Special Questionnaire	40%	60%

IMPLICATIONS AND CONCLUSIONS

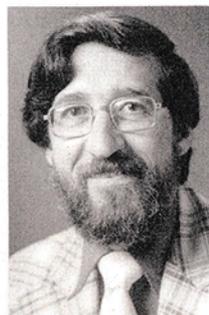
The testing has indicated that through the use of any of the three audio-visual methods, the participants can comprehend, retain, and understand the materials presented. The testing also indicates that the participants preferred the synchronized slide set with an instructor.

The testing showed further that the instructor's personality as it relates to instructional techniques does affect the information received, and the use of a professional or non-professional narrator on the tapes influenced the viewers. If an instructor has a poor presentation in the classroom, that same instructor will have an even poorer presentation in an audiovisual situation.

The study has also shown that the absence of the lecturer in front of the group does not affect the ability to learn, although it is indicated that the presence of a person to answer or clarify questions is important.

From the testing it is clear that no one of the methods is better than the others in retaining information. Avoid making synchronized slide sets just because people will accept their use. Use the best method available for each presentation. If the instructor can carry the presentation and do a better job of educating, don't use tapes. On the other hand, if the lecturer does not know the subject or is a poor lecturer, use a synchronized slide tape. A synchronized slide set is also a good way of adding variety to the lecture.

This testing indicates that synchronized slide sets are welcomed by students and should be used, but the quality must be good.



JAMES R. GRIFFITH is Head of the Visual Communications Group, Media Services, Cornell University.

Jim has been active in the field of visual communications for 15 years. He has won many awards for his visual communications work. He has been honored nationally for his design work and internationally for his exhibit design.

Jim has been an active member of AAACE since 1968 and is the director-elect for the Northeastern Region.