

8-16-1996

# Multimedia Training Systems for the Fortune 1,000 Companies: Empirical Findings

Sun-Gi Chung

*Department of CIS, Alabama State University, sungichun@asunet.alasu.edu*

J. P. Shim

*Department of Management & IS, Mississippi State University, jshim@cobilan.msstate.edu*

Follow this and additional works at: <http://aisel.aisnet.org/amcis1996>

---

## Recommended Citation

Chung, Sun-Gi and Shim, J. P., "Multimedia Training Systems for the Fortune 1,000 Companies: Empirical Findings" (1996). *AMCIS 1996 Proceedings*. 215.

<http://aisel.aisnet.org/amcis1996/215>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 1996 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# **Multimedia Training Systems for the Fortune 1,000 Companies: Empirical Findings**

By

[Sun-Gi Chun](#)

Department of CIS  
Alabama State University  
Montgomery, AL 36101-0271  
sungichun@asunet.alasu.edu

[J. P. Shim](#)

Department of Management &IS  
Mississippi State University  
Mississippi State, MS 39762  
jshim@cobilan.msstate.edu

## **Introduction**

For the past several years, multimedia systems have become widely used in the various organizations such as business, government, educational and research institutions. Training has been perceived as one of the major application areas of multimedia systems (Shim and Chun, 1994). According to a survey, U.S. organizations with 100 or more employees had a total budget of 52.2 billion dollars for formal training in 1995 which was 3.2% increase over 1994 without adjusting inflation (Hequet, 1995). 27% of the respondents used multimedia training systems. Multimedia training systems were considered as one of the alternative solutions to overcome the barriers of the limited training budget and achieve the goal of the higher training quality.

## **Research Objective**

Even though so many success stories of multimedia training systems being used at the major U.S. companies have been known to us, there have been few empirical studies on the effects of multimedia training systems. This paper presents a survey result on the effects of multimedia training systems being used at the Fortune 1,000 companies in comparison to traditional instructorled training systems.

## **Literature Review**

Many success stories about the use of multimedia training systems at the major companies in the insurance, transportation, chemical, automobile, retail, and food industries have been reported in the various trade journals. Allstate Insurance Company invested in multimedia training systems called Claims Performance Systems that were equipped with video discs, CDROMs, and personal laptops (Cleland, 1994). American Airline developed WorldTutor, interactive multimedia instruction to train employees worldwide (Blalock, 1994). Companies in the chemical industry used multimedia training systems to train employees for learning new safety standards and dealing with highly hazardous chemicals more safely. Lexus, the luxury car division of Toyota Motor Sales developed a custom-made multimedia training system that improved the productivity of the sales representatives by providing learning tools to perform such things as comparisons of the competitive models of automobiles, finance and lease, tutorials on sales skills, and interactive testing (Irish, 1995).

Other studies examined the beneficial effects of multimedia training systems on the learning performance of trainees. A U.S. Department of Defense study found that multimedia training systems were more effective than traditional training with 30% higher retention rate and 30% shorter learning curve (Shulman, 1992). In addition to the benefits of multimedia systems on the performance of the trainees, multimedia training systems could lead to the cost reduction, productivity improvement, sales increase, and the higher return on investment (ROI) (Fox, 1994). In addition to those benefits, multimedia training systems could provide such benefits as higher training quality by offering higher instructional consistency, more privacy when trainees asked questions, more complete learning by repetition, higher motivation, increased access, and more enjoyable learning (Flynn, 1995).

Some authors attempted to develop evaluation criteria to systematically measure the effects of multimedia training systems (Sorge et al., 1994; Forman, 1994). In order to evaluate the overall effects of the training systems, Forman (1994) suggested a ROI model that employed eight criteria as follows: (1) "use" meant that multimedia training systems were really being used or used as originally expected. The distributed self-paced multimedia courses were to be used by trainees. (2) "course reactions" indicated the effects of the systems on the instructional structure and content of the courses. (3) "attitudes" meant changed attitudes of trainees from negative to positive ones with multimedia training systems. Trainees could obtain more confidence, self-esteem, and participation with multimedia systems. (4) "knowledge of facts" was a lower level knowledge to be learned from the systems. (5) "knowledge of intellectual skills" was a higher level knowledge involving critical thinking, analysis, and problem solving skills. Simulations were one of the ways to measure intellectual skills. (6) "performance" indicated the changed learning behavior of trainees during the training session on multimedia systems. (7) "transfer to jobs" meant how job behavior of trainees at the work site would be changed as a result of the training with multimedia systems. (8) "business results" showed the impacts of multimedia training systems on the business performance in terms of the cost reduction, productivity increase, and revenue increase. On the basis of the above literature review, the research hypothesis was derived as follows:

Multimedia Training systems are better than traditional training systems in terms of use, course reaction, knowledge of facts, knowledge of intellectual skills, attitudes, performance, transfer to jobs, and business results.

## **Methodology**

In order to evaluate the effects of multimedia training systems, the authors conducted a survey of Chief Information Officers (CIOs) or Information Systems (IS) managers of the Fortune 1,000 companies. The population was chosen because one of their major responsibilities was to evaluate the effects of the various emerging information technology. The questionnaire was designed to assess the effects of multimedia training systems on the basis of the Forman's model. Twentyfive (25) questions were asked for eight evaluation criteria. Threepoint scale including "agree", "neutral", and "disagree" was employed. In order to analyze data, this study utilized descriptive statistics such as means and standard deviations to summarize answers of respondents.

## **Data Analysis**

For this study, all returned questionnaires, totals of 112 were usable. Among the 112 respondents, 54 (48.2%) were from the Fortune manufacturing 500, and 58 (51.8%) were from the Fortune service 500. Among the 112 respondents, 44 (39%) respondents answered the question items on the effects of multimedia training systems in comparison to traditional training systems. As shown in Figure 1, multimedia training systems were used in a variety of industries such as banking, electronics, petroleum, and transportation. As shown in Table 1, most of the respondents agreed that multimedia training systems were less rejected than expected, but trainees were not using multimedia system more frequently than expected. Most respondents agreed that multimedia training systems provided the greater number of learning paths with a better designed instructional structure; however, 12 (27%) of the respondents disagreed and 11(25%) were not sure that multimedia training systems could easily update contents.

30 (68%) of the respondents agreed that multimedia training systems provided a better simulation tool to learn intellectual skills. The change made from negative to positive attitudes during the multimedia training session was not much perceived by the respondents. 27 (61%) of the respondents agreed that multimedia training systems furnished more fun during the training session which could lead to the changed behavior of trainees in learning; however, 22 (50%) of the respondents were not sure that multimedia training systems motivated trainees better than traditional training systems.

Most respondents were not sure that multimedia training systems were better to transfer knowledge obtained from the training session to jobs by higher retention rates, lower turnover rates, higher morale, and fewer union grievances. Most respondents agreed that multimedia training systems furnished cost savings by reduced travel expenses, smaller number of instructors required, and smaller number of training hours spent by employees.

## **Discussion**

The dispersion of multimedia training systems for the major companies seemed relatively slow because many users or managers did not understand the benefits of incorporating sound, video and graphics into traditional training systems (Edstrom, 1994). However, in this study, 39% of the respondent, relatively higher percentage of the respondents actually used multimedia training systems. As expected, most respondents perceived that multimedia training systems saved training costs with reduced travel expenses, smaller number of training hours, and smaller number of training hours spent by employees while initial capital investments of multimedia systems were the financial burden to companies.

In addition to cost savings, multimedia training systems could provide the greater number of learning paths with the better designed content and instructional structure. However, multimedia systems were not developed enough to easily update the content of multimedia training systems and provide the high quality training. Multimedia training systems surely provided more fun to the trainees; however, more respondents than expected were not sure that multimedia systems did not motivate the trainees so that the higher future desire for training was not that high.

The lower turnover rates, higher morale, lower union grievances, higher retention rates measured the long-term effects of the training systems so that most respondents were not sure of the effects or disagreed. 17 (39%) respondent agreed that multimedia training systems provided higher retention rates by trainees. Comparing to traditional training systems, simulation capabilities of multimedia systems were stronger tools to learn the advanced skills. However, multimedia training systems were not so sophisticated for trainees to conduct in-depth studies. While most respondents agreed that multimedia training systems were less rejected than expected, most respondents were not sure or disagreed that multimedia systems were used more frequently than expected.

## **Conclusion**

System vendors or developers have advertised that multimedia training systems were far more effective than traditional training systems. According to the CIOs' perception, most respondents agreed that multimedia training systems saved training costs and provided more fun, more learning paths, simulation tools to develop advanced skills. However, more respondents than expected disagreed or were not sure that the content of the multimedia systems was not easy to update and systems motivated trainees better. The individual design specifications of multimedia training systems could be an important factor to influence on the CIOs' perception of the effects of multimedia training systems. However, the specific design issues of multimedia systems were not considered in this study.

References available upon request

## **Table 1: Descriptive Statistics on the Question Items**

Evaluation Criteria	Question Items	Average	Std. Dev.
Use	use more frequently than expected	2.114	.689
	less rejected than expected	2.614	.618
Course Reaction	higher quality training	2.227	.642
	better designed content	2.477	.549
	better designed instructional structure	2.500	.550
	easily updated contents	2.205	.851
	greater number of learning paths	2.841	.370
Knowledge of facts	better tool to learn about facts	2.409	.583
	advanced tool to provide simulation capabilities	2.659	.526
Knowledge of intellectual skills	better tool to do in-depth study	2.295	.701
	more positive training attitudes of trainees	2.295	.632
Performance	more fun with learning	2.568	.587
	better motivation of trainees	2.273	.660
	stronger desire for future training	2.205	.553
	changed learning behavior of trainees	2.432	.545

Transfer to Jobs	higher retention rate by trainees	2.364	.532
	less turnover rate of trainees	1.727	.499
	higher morale of trainees	2.068	.625
	less union grievances of trainees	1.718	.510
Business Results	lower training costs	2.386	.722
	less number of instructor	2.727	.585
	more number of trainees per instructor	2.477	.664
	less training hours	2.636	.532
	less travel expenses	2.727	.585

Scale Used: 1 = Disagree 2 = Not Sure 3 = Agree