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ABSTRACT

This study replicated the earlier survey efforts of Carroll, Paine, and Ivancevich (1972) and Neider (1981) on the relative effectiveness among practitioners of various training methods for attaining different training objectives. Ten training methods were assessed: (1) computer aided instruction (CAI); (2) programmed instruction; (3) lecture (with questions); (4) movie films; (5) television lecture; (6) sensitivity training; (7) case study; (8) conference/discussion; (9) role playing; and (10) simulation/games. These methods were assessed regarding their effectiveness for attaining six training objectives: knowledge acquisition; knowledge retention; attitude change; development of interpersonal skills; development of problem solving skills; and participant acceptance. Training practitioners (N=285) who are members of the American Society of Training and Development, responded to a questionnaire assessing their familiarity with training methods, the methods they use in their practice, and their opinion of the effectiveness of each of the 10 training methods studied for achieving each of the six training objectives. CAI received high ratings for knowledge acquisition and it was felt that CAI's effectiveness surpassed that of programmed instruction for all objectives except interpersonal skills. Lecture, television lecture, and movie films were perceived as less effective methods for all training objectives while case study, conference, role-playing, and simulation-games were seen as relatively effective methods for achieving objectives. The lecture method was reported as the most frequently used method, yet its relative effectiveness was low for all training objectives. Implications for practitioners are discussed. (NB)

THE RELATIVE EFFECTIVENESS OF TRAINING METHODS FOR ATTAINING TRAINING OBJECTIVES: CURRENT OPINION OF TRAINING PRACTITIONERS

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ABSTRACT

The paucity of empirical literature on the relative effectiveness of various training methods for attaining different training objectives led Carroll, Paine, and Ivancevich (1972) and Neider (1981) to turn to practitioners to provide such information. Our study replicated these earlier survey efforts and now provides a current data base. Ten training methods were assessed (Computer Assisted Instruction was added to the nine methods used in the earlier studies, i.e., Programmed Instruction, Lecture (with questions), Movie Films, TV Lecture, Sensitivity Training, Case Study, Conference/Discussion, Role Playing, and Simulations/Games) regarding their effectiveness for attaining six training objectives (i.e., Knowledge Acquisition, Knowledge Retention, Attitude Change, Development of Interpersonal Skills, Development of Problem Solving Skills, and Participant Acceptance).

Two hundred and eighty-five training practitioners, who are members of the American Society for Training and Development, responded to a questionnaire assessing (a) How familiar they are with each of the ten training methods and which methods they actually use in their practice, and (b) How effective they think each of the ten training methods is for achieving each of the six training objectives.

The questionnaire data were analyzed to determine the mean effectiveness rating and ranking of each method for attaining each training objective. Interrater reliability of the ratings was computed and found to be at an acceptable level. A comparison of the results of this study with the findings from the two previous studies indicated that generally, the rankings from our study are similar to those in the previous studies. Implications for training practitioners regarding the relative effectiveness of training methods for achieving different training objectives are discussed.

METHOD

Sample

A sample of 500 training practitioners was randomly selected from the membership list of The American Society for Training and Development.

Instrument

The questionnaire provided a brief definition of each of the 10 training methods under investigation followed by a brief definition of each of the six training objectives under study. The definitions of the methods and objectives may be found in Tables 1 and 2, respectively. The questionnaire then asked respondents to indicate (1) the relative percentage of use of each of the training methods, (2) the extent to which the respondent was familiar with each method, (3) the type of industry in which they worked, and (4) the ratings of effectiveness of each of the ten training methods for achieving each of the six training objectives.

Procedure

A "prior notification" postcard was sent to all individuals in the sample four days prior to mailing the questionnaire. The questionnaire mailing included a cover letter explaining the purpose of the study, the instrument, and a stamped, pre-addressed return envelope. A follow-up postcard was sent two weeks following the mailing of the questionnaire requesting the prompt return of the questionnaire.

RESULTS

Response Rate

A 57% (N=285) response rate was obtained.

Questionnaire Data

Reported Familiarity with Methods. Participants were asked to indicate the extent to which they were familiar with each of the 10 training methods (1=not familiar, 2=somewhat familiar, 3=moderately familiar, 4=quite familiar, 5=highly familiar). The grand mean familiarity rating across all 10 methods was 4.07. Lecture received the highest mean familiarity rating (4.88) and CAI received the lowest (3.23). Thus, even the lowest mean familiarity rating indicated that respondents were moderately familiar with the method.

Reported Use of Methods. Respondents were asked to indicate the relative percentage of time they used each training method. The mean percentage of time each training method was used is reported in Table 3. The lecture method was reported as the method most frequently used (32.8% of the time) and the TV Lecture was reported as the method used least frequently (1.22%).

Industry Type. Respondents were also asked to indicate the type of industry in which they worked. The most common industries were Manufacturing (23%); Finance, Insurance or Banking (16%); Consulting (11%); Transportation, Communications, or Utilities (10%), Wholesale or Retail Trade (6%); Business Services (6%); Educational Services (6%); Health (5%), Public Administration (5%); and Other (11%).

Effectiveness Ratings. The questionnaire data were analyzed to determine the mean effectiveness rating and ranking of each method for attaining each training objective. These results are reported in Table 4. Interrater reliability of the ratings was computed and found to be at an acceptable level.

Comparison of Results with Previous Studies. A comparison of the results of this study with the findings from the two previous studies indicated that generally, the rankings from our study are similar to those in the earlier studies. The results are compared in Table 5. CAI, a method not included for evaluation in the earlier studies, received high ratings for Knowledge Acquisition. The rankings for Programmed Instruction (PI) declined from previous studies for every objective. With the exception of Interpersonal Skills, CAI's effectiveness surpasses that of PI for all objectives.

Several methods received rankings similar to their rankings in the 1972 and 1981 studies. Lecture, TV Lecture, and Movie Films continue to be perceived as less effective methods for achieving virtually all training objectives. While Case Study, Conference, Role Playing, and Simulation-Games were perceived as relatively effective methods for achieving each of the objectives.

CONCLUSIONS

Results from this study serve to clarify our current level of knowledge of the effectiveness of various training methods for achieving six common training objectives. Generally the findings of our study are consistent with those of earlier studies. The nine methods evaluated in 1972 and 1981 were ranked within two ranks of their earlier rankings. It should be noted that the two earlier studies did not evaluate CAI, a method that is increasingly being used for training in business and industry.

It is interesting that the Lecture method was reported as the most frequently used method, yet the relative effectiveness of this method was low for all six training objectives. Although the effectiveness of a training method is not the only factor to consider when developing a training program (i.e., other factors might include available resources, cost, trainee variables, etc.), it certainly is one which will bear directly on the utility of the training program.

REFERENCES

Carroll, S. J., Paine, F., & Ivancevich, J. J. (1972). The relative effectiveness of training methods: Expert opinion and research. Personnel Psychology, 25, 495-509.

Neider, L. (1981). Training effectiveness: Changing attitudes. Training and Development Journal, 35, 24-28.

TABLE 1. TRAINING METHODS

PROGRAMMED INSTRUCTION (PI)
A self-instructional method in which the trainee is allowed to progress at his/her own rate. (Frequently the material is presented in a booklet in a logical sequence and the trainee is tested after completion of each section of the booklet.) This does not include computerized versions of PI.

COMPUTER ASSISTED INSTRUCTION (CAI)
The trainee and microcomputer interact on a one-to-one basis. The computer is capable of a "branching" technique, the result of which is an instructional lesson tailored for each trainee.

LECTURE (with questions)
Conventional classroom presentation of material, with trainer doing most of the talking.

MOVIE FILMS
Entertainment, educational films, or videotapes (i.e., VCR) presented to trainees.

TV LECTURE
The instructional message is given uniformly to several locations in the organization at the same time via television broadcast.

SENSITIVITY TRAINING (T-Groups)
Usually 6 to 8 individuals participate in training to increase awareness of self and others, as well as interpersonal relations.

CASE STUDY
A written description of a specific organizational problem in which trainees diagnose the underlying issues and make a judgment regarding what they believe should be done.

CONFERENCE (Discussion)
A small group meeting in which a highly qualified leader helps the group identify and define a problem, leads the discussion, and summarizes the principles or explanations that reflect the consensus of the group in dealing with the problem.

ROLE PLAYING
The trainee is asked to assume a specific role in an organizational situation. Usually a discussion follows to ensure trainees understand the underlying principles and implications demonstrated during role playing.

SIMULATION-GAMES
Artificial duplication or simulation of conditions that would be encountered in an actual work situation (e.g., "in-basket task").

TABLE 2. TRAINING OBJECTIVES

KNOWLEDGE ACQUISITION	Ability to learn new information.
KNOWLEDGE RETENTION	Ability to recall and utilize the information and skills that were presented during training.
ATTITUDE CHANGE	Ability to alter existing attitudes or beliefs.
DEVELOPMENT OF INTERPERSONAL SKILLS	Improve ability and skill in dealing with others (e.g., coworkers, customers).
DEVELOPMENT OF PROBLEM SOLVING SKILLS	Improve ability and skill in problem solving.
PARTICIPANT ACCEPTANCE	Degree to which a person willingly accepts and gets involved during training.

TABLE 3. REPORTED USE OF TRAINING METHODS

METHOD	$\bar{X}$ RELATIVE % USED	SD
Lecture (With Questions)	32.84	23.53
Conference (Discussion)	15.91	15.73
Movie Films	10.78	11.21
Role Playing	10.17	11.03
Case Study	8.10	7.80
Simulation-Games	7.41	9.51
Programmed Instruction (PI)	5.92	11.26
Computer Assisted Instruction (CAI)	4.87	13.26
Sensitivity Training (T-Group)	3.28	6.36
TV Lecture	1.22	3.98

TABLE 4. MEAN EFFECTIVENESS RATING AND RANKING OF EACH TRAINING METHOD FOR ATTAINING EACH TRAINING OBJECTIVE*

	OBJECTIVE											
	Knowledge Acquisition		Changing Attitudes		Problem Solving Skills		Interpersonal Skills		Participant Acceptance		Knowledge Retention	
TRAINING METHOD	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
PI	3.72	2	1.91	10	2.66	7	1.57	9	2.77	9	3.24	6
CAI	3.90	1	2.17	9	3.12	6	1.53	10	3.11	8	3.55	5
Lecture	3.55	6	2.90	6	2.62	8	2.54	6	3.26	7	2.96	8
Movie	3.24	8	2.72	7	2.22	9	2.12	7	3.30	5	2.86	9
TV Lecture	2.98	10	2.19	8	2.07	10	1.73	8	2.64	10	2.60	10
Sensitivity Training	3.07	9	3.90	1	3.23	5	4.04	2	3.27	6	3.16	7
Case Study	3.66	4	3.26	5	3.96	1	3.05	5	3.72	3	3.75	1
Conference	3.67	3	3.51	3	3.60	4	3.53	3	3.90	1	3.55	4
Role Playing	3.47	7	3.79	2	3.79	3	4.10	1	3.44	4	3.75	2
Simulation-Games	3.63	5	3.43	4	3.95	2	3.52	4	3.88	2	3.74	3

* Ratings were made on a 5-point scale ranging from 1-not effective to 5-highly effective.

TABLE 5. COMPARISON OF RANKINGS 1972, 1981, 1989

	OBJECTIVE																	
	Knowledge Acquisition			Changing Attitudes			Problem Solving Skills			Interpersonal Skills			Participant Acceptance			Knowledge Retention		
TRAINING METHOD	'72	'81	'91	'72	'81	'91	'72	'81	'91	'72	'81	'91	'72	'81	'91	'72	'81	'91
PI	1	1	2	7	9	10	6	6	7	7	9	9	7	7	9	1	2	6
CAI	.	.	1	.	.	9	.	.	6	.	.	10	.	.	8	.	.	5
Lecture	9	2	6	8	6	6	9	5	8	8	6	6	8	3	7	8	6	8
Movie	4	7	8	6	7	7	7	8	9	6	7	7	5	6	5	7	7	9
TV Lecture	5	6	10	9	8	8	8	9	10	9	8	8	9	8	10	9	9	10
Sensitivity Training	8	9	9	1	2	1	5	7	5	1	2	2	6	9	6	3	8	7
Case Study	2	4	4	4	4	5	1	1	1	4	5	5	2	2	3	2	4	1
Conference	3	3	3	3	3	3	4	3	4	3	3	3	1	1	1	5	3	4
Role Playing	7	5	7	2	1	2	3	4	3	2	1	1	4	5	4	4	1	2
Simulation-Games	6	8	5	5	5	4	2	2	2	5	4	4	3	4	2	6	5	3