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ABSTRACT

The new library/media center at Port Jefferson High School, Long Island, was designed to use and integrate all formats and media. In addition to meeting the traditional responsibilities of a library, the center participates in the educational process by broadcasting over 100 television programs per week. (Author/PP)

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Library Media Center — Port Jefferson High School

by Joseph M. Thom

Tablets in a school lobby commemorate the obvious. Rarely do they give credit to the years of planning and support of persons and groups without whom the facility would not have been constructed: the teachers, students, former school board members, and a host of people from state agencies. The design of the new library facility at the Port Jefferson High School had its beginning early in my tenure as its librarian. Twelve years ago, when I was appointed to the staff of the Port Jefferson High School, over 1700 students were being served by a library collection of 6000 volumes in a room of about 800 square feet. A superb faculty, literate and imaginative, and a student body with unsatisfied intellectual needs made the drive for adequate library services and facilities an all-consuming one.

What gave the drive for new and improved library services a chance for success was a Board of Education which agreed that the library in its then present condition would not meet the needs of a modern educational program. What assured the success was a Supervising Principal who opened lines of communication between the librarian and the Board. As librarian, I was able to make my views known to the Board of Education. To be able to communicate with the Board was probably the most

important element in developing the design and construction of the new library facility at Port Jefferson High School. As librarian, my views were not only sought but were part of the final approval process. I developed the specifications for all equipment and furnishings of the new library media center, and when necessary, was authorized to seek help from professional and paid consultants.

Technology was an important influence in Port Jefferson Public Schools' redesigning and redefining the role of its libraries from that of a non-programmed educational center to a center in which the student may pursue his "programmed" educational and intellectual needs.

The uniqueness of the Port Jefferson High School's library media center is its use and integration of all formats and media. The library continues to meet the traditional responsibilities of making available a reasonable inventory of material that reflects our intellectual and cultural heritage. In this respect, the student may supplement, reinforce, and expand his educational experience. In the expanded view, that of a programmed learning center, the library is an integral part of the school's formal educational process. The library offers courses of study where in the past courses of study were not feasible. It offers new dimensions and levels of understanding to a course of study where the limitations of the printed word inhibited learning. It offers increased opportunities to learn.

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The ability of the library to involve itself in the educational process, and the extent of the involvement, are due in large part to the scientific and technical advances in communication - specifically the systems of information and data handling. It is reasonable to conclude that the advanced and improved techniques of transmitting and receiving messages help make library materials more accessible to the library user, and the new and improved techniques enable the library user to manipulate the library material: - actually handle them, regardless of the format or media.

Of all the new media available, the Port Jefferson Public School concluded that the television medium had the characteristics or the capabilities that were most compatible with library responsibilities. Television is capable of recording, storing, and retrieving information and data. Further, the state of the art in television enables the "reader" or the library client to handle the information in this

format with almost the same efficiency as with printed material - as a "cool" medium, the viewer is thus able to be more creative. With due respect to those who hold that the medium is the message, it is the message that concerns the librarian, the student, and the teacher. The librarian is thankful to the technologist for affording improved techniques of handling information and data, for no longer being limited to or inhibited by the printed word or published material to convey an idea or transmit a concept.

Television was seen in Port Jefferson as a mass medium that could be reconstituted to a medium sensitive to individual and specific needs of an educational program. Over an eight-year period, with sought-after advice, help, and guidance from many sources, including the Bureau of Educational Television of the State Education Department and experts from the television industry, the Port Jefferson High School Library now has a television system that broadcasts over 100 programs per week. It has a collection of over 800 hours of video tape and video cassette. The collection includes video taped programs supplied by the State Education Department and in-house produced programs; non-video material that is convertible to the television medium, such as films, filmstrips, audio recordings, slides, etc; recordings of off-air programs such as presidential messages and speeches of outstanding personalities, and recordings of off-air programs originating with Channel 13, the New York educational television station, for delayed broadcast purposes.

The television facilities are a function of the library and administered by the librarian. The television system includes production and broadcast

facilities. For broadcasting, there is a master antenna distribution system of two cables to each receiving station: all classrooms and offices, the auditorium, the gym and the library. One cable distributes standard off-air television signals; the second is reserved for the closed circuit television broadcasts originating in the library. In addition to the classrooms, the closed circuit television outlets are located in 20 library carrels and the four library seminar rooms. Each carrel is furnished with a small television receiver and is also equipped to receive audio signals.

The library can broadcast over five CCTV channels simultaneously. Recent revisions to the system and the use of video cassettes permit 8 programs to be broadcast simultaneously to library carrels. Requests from students and faculty for television programs for individual or group viewing may be satisfied within minutes of scheduling. Through the use of the video cassette playback equipment, the library is able to satisfy requests for programs at the circulation desk. TV and audio programs are serviced as the library services requests for a reserved book.

The production facilities, while sophisticated, are simple enough to be wholly student operated. In fact, it is the students who operate the broadcast system; the system is dependent on student involvement.

Port Jefferson's television system has extended the potential of the educational program in the following ways:

- 1 Courses of study that were not economically or administratively feasible have been added to the high school's educational program.

- 2 Courses of study have been made available to an increased number of students.
- 3 The ability of the teacher to individualize his instruction has been extended.
- 4 The scope of the curriculum has been extended.
- 5 The ability of the teacher to reach the marginal reader or slower learner has been extended.

feedback, and incentive did not significantly affect the posttest scores of learners (Higgins & Kearns, 1973; Higgins, Kearns, & Tenpas, 1974; Tenpas, 1974). Based on these results, it had been suggested that instruction was the major factor contributing to learner posttest performance (Tenpas, 1974). However, practice had only been examined in a study involving subjects who, prior to instruction, were somewhat proficient at performing the task being taught, as indicated by the subjects' pretest scores. It had been suggested that practice might make a significant contribution to learner performance in cases where subjects were not familiar with the task (Tenpas, 1974).

The purpose of the present study was to determine the individual and combined effects of instruction and practice on learner posttest performance on an aircraft instrument comprehension task. Learners who were expected to be unfamiliar with the task being taught served as subjects. Two levels of instruction (presence and absence) and two levels of practice (presence and absence) were manipulated in a 2X2 factorial design. The dependent variables that were examined were learner posttest score on an aircraft instrument comprehension task and learner rate of response on the posttest.

Method

Subjects

The subjects in this study were 52 undergraduate students enrolled in an educational psychology course at Arizona State University during the spring semester of 1974. These learners were expected to be unfamiliar with the task being taught.

Materials

The materials used in this study were variations of the self-instructional program, Aircraft Instrument Comprehension Program (Higgins, 1973). This program is designed to teach students to identify which one of four illustrations of an aircraft in flight most nearly represents the position indicated on an attitude indicator and a heading indicator. These indicators are used to determine the aircraft's pitch, bank, and heading. A sample illustration of an aircraft in flight is shown in Figure 1. A sample illustration of an attitude indicator and a heading indicator is shown in Figure 2.

Insert Figure 1 and Figure 2 about here

Instruction in the program consists of one instructional cue and three examples for each of the three concepts presented: pitch, bank, and heading. There are also eight examples in which the various concepts are combined.

Practice in the program consists of one to four practice items following the instruction for each concept. An additional 10 practice items are included at the end of the program. All practice items require learners to identify which one of two or more drawings of an aircraft in flight most nearly represents the position shown on an attitude indicator and a heading indicator. Learners are required to respond to the practice items on a chemically-treated answer sheet which provides learners with feedback in the form of knowledge of correct response.

Procedures

Upon entering their classroom on the day of the study, subjects were randomly assigned to one of four treatment groups. All groups remained in the classroom, but each group received a different set of materials. The instruction and practice group received an instructional booklet with all instructional cues, examples, and practice items intact. The instruction only group received an instructional booklet containing all instructional cues and examples, however, all practice items were deleted. The practice only group received an instructional booklet containing all the practice items, however, all the instructional cues and examples were deleted. The control group received only a posttest booklet, they did not receive any instructional cues, examples, or practice items.

When all subjects were seated, they were told they were participating in an experiment, and that they would receive extra credit toward their grade in the course because of their participation. They were also told that the first page of the booklet they had received explained how they could earn additional extra credit. Subjects were then told to begin reading the booklet that had been given to them.

The first page of each booklet stated that all participants in the experiment would be taking a test and that if a participant's speed and score on the test exceeded a certain predetermined level, the participant would receive extra credit toward his grade in the course. It was also stated that various types of booklets had been

distributed to the participants and that the level a participant had to attain on the test would depend upon the type of booklet he had received.

The last page of each booklet asked each subject to record the time he had finished his booklet and to raise his hand so that a proctor could collect his materials. A proctor checked the completion time the subject had listed, collected the materials, and instructed subjects who had taken the posttest that they could leave. Subjects who had completed a version of the instructional program were given a copy of the posttest by the proctor, who recorded the subject's starting time. When the subject finished the posttest, he recorded his completion time, had his material collected by a proctor, and was dismissed.

Criterion Measure

The posttest that was administered was the Aircraft Instrument Comprehension Test: Form B (Kearns, Tenpas, & Higgins, 1973). The test contains directions, a sample test item, and 36 multiple-choice test items. All the test items require learners to identify which one of four aircraft in flight most nearly represents the position indicated on an attitude indicator and a heading indicator.

Data Analyses

Analyses of data were performed to determine the individual and combined effects of instruction and practice on posttest scores and on posttest rates of response.

Results

The posttest mean scores by treatment are shown in Table 1.

Insert Table 1 about here

The mean score of 29.80 for groups receiving instruction was almost 14 points higher than the mean score of 15.84 for groups not receiving instruction. Difference in mean score between groups receiving practice and groups not receiving practice was less than one point. The results of a two-way analysis of variance, as shown in Table 2, revealed a statistically significant difference attributable to instruction, $F(1, 48) = 82.62, p < .001$. The F -ratios for practice and for the interaction of practice and instruction were not statistically significant.

Insert Table 2 about here

The time each subject spent answering items on the posttest was converted to a rate of responding by dividing the total number of items by the subject's completion time. The mean posttest rates of responding by treatment are shown in Table 3. The mean rates of the

Insert Table 3 about here

four treatment groups were all within .25 items per minute from the overall mean rate of responding. The differences in posttest rates of responding did not approach statistical significance.

Discussion

The purpose of the present study was to determine the individual and combined effects of instruction and practice on learner posttest performance on an aircraft instrument comprehension task. The study was part of a series of studies initiated to determine the extent of the contribution of a number of instructional variables to the effectiveness of an effective self-instructional program. The results of the study indicate that instruction contributes greatly to the effectiveness of the program. Subjects receiving instruction, consisting of instructional cues and examples, achieved a significantly higher mean score on the posttest than did subjects not receiving instruction. Subjects who did not receive instruction were able to respond correctly to an average of only 44% of the items on the posttest. Subjects receiving instruction were able to correctly respond to an average of nearly 83% of the items on the posttest.

The powerful effect of instruction may be attributable to the way the instructional cues and examples in the program were developed. The first step in the developmental process was an analysis of the task the learners were expected to perform. An instructional objective, describing the task to be performed, as then written. After the objective had been specified, the information a learner would need in order to perform the objective was determined. Instructional cues and examples, containing the needed information, were then generated. This systematic development of cues and examples, aimed specifically at providing the learner with the information necessary to perform the objective, may account for the rather high level of performance of

the subjects who did receive instruction.

The powerful effect of instruction on subject posttest performance had previously been hypothesized (Tenpas, 1974). It had also been hypothesized that practice might have a significant effect on subject posttest performance in cases where subjects were unfamiliar with the task being taught (Tenpas, 1974). The mean posttest score (15.07 out of a possible 36) of the control group, the group that received neither instruction nor practice, indicates that subjects used in the present study were, prior to instruction, rather unfamiliar with the task. However, practice did not have a significant effect on subject posttest performance, despite the subjects' unfamiliarity with the task.

Results of the study indicate that practice alone does not enable subjects unfamiliar with the aircraft instrument comprehension task to learn how to perform it correctly. The results also indicate that when practice is combined with effective instruction, practice does not improve learner performance. If practice, when combined with effective instruction, does not improve learner performance, then the time learners spend completing practice exercises might be better spent receiving instruction on other skills. Future research should be conducted to determine whether practice does contribute to the effectiveness of effective instructional materials.

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TABLE 1
Posttest Mean Scores by Treatment

Instruction	Practice		Totals
	Practice	No Practice	
Instruction	28.07	31.53	29.80
No Instruction	<u>16.61</u>	<u>15.07</u>	<u>15.84</u>
Totals	22.34	23.30	22.82

N = 13 per cell

TABLE 2
Analysis of Variance: Posttest Scores

Source of Variation	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F-Ratio</u>
Instruction	2534.02	1	2534.02	82.62*
Practice	12.02	1	12.02	.39 NS
Instruction X Practice	81.25	1	81.25	2.65 NS
Within	1472.02	48	30.67	

*p < .001

NS = Not Significant

TABLE 3

Mean Posttest Rates of Responding by Treatment

Instruction	Practice		Totals
	Practice	No Practice	
Instruction	2.70	2.43	2.57
No Instruction	<u>2.85</u>	<u>2.71</u>	<u>2.78</u>
Totals	2.78	2.57	2.68

N = 13 per cell

Note. Rate of responding is listed as items per minute.

FIGURE 1

Illustration of Aircraft in Flight

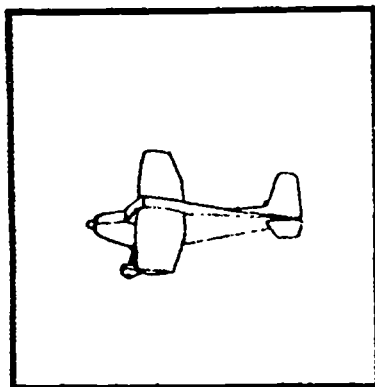


FIGURE 2

Illustration of Instrument Panel

