Study on the Strategy for Development of Teaching Materials in Technology Education

—— Functions of Teaching Materials in "Information Technology" Area ——

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In Technology Education the effective use of teaching materials is crucial to accomplish its objectives as a subject. Linked with a study on the functions of teaching materials in Technology Education, this study has chosen "Information Technology" area and investigated it to comprehend the conditions of using teaching materials in actual junior high schools and examined the findings concretely. The findings are as follows: textbooks are the most popular in the teaching of content areas that are learned via lecture; software and textbooks are popular in the teaching of content areas that are mostly learned via productive practice; other teaching materials are also used in both content areas mentioned above; teaching materials tend to be used by students mainly, and individually; a close relationship between student interest and use of teaching materials is clarified. These findings indicate fundamental knowledge about the content of teaching materials to be developed in the future.

Key words: Technology Education, teaching material, Information Technology

1. Introduction

It is well known that teaching materials (Teaching aids are included here in a broad sense.) that link teachers and students are important in order to accomplish the objectives of Technology Education.

Various kinds of materials are now used in Technology Education, as they are used in other subjects. They are sorted according to the perspective of their media, such as printed materials, audio-visual aids, real things, field trips, and teacher instruction, or according to the perspective of their histories, such as textbooks, publication materials, broadcasts, tapes and films, computer software, etc. Thus, the concept of teaching materials is grasped in different points of view and the necessity of taking various perspectives has been increasing. This study has chosen "Information Technology" area as one example to comprehend the roles and effects of various kinds of teaching materials mentioned above or to grasp the present conditions of using the teaching materials in actual junior high schools as a link of a study on the functions of teaching materials in Technology Education.

2. Method

The participants of this study are Technology Education teachers at 236 public junior high schools in K-prefecture. A questionnaire was sent to them and collected. This study was implemented during June and July 1998. Teachers at 56 schools answered the questionnaire and the return rate was 23.7%. The investigated items concern teaching materials which are used in all 16 content areas in "Information Technology," as shown in Table 1.

The questions were : (1) what kinds of teaching materials are used; (2) who uses them; (3) what are the present conditions of use; (4) when are they used; (5) how much student interest is there; (6) for what purposes are they used. Appendix 1 shows the questionnaire about teaching material utilization.

Table 1 Classified Teaching Contents.

Teaching Contents (Process)		
Computer in Daily Life		(1)
Computer Mechanisms	Basic Computer Structure	(2)
	Basic Computer Operations	(3)
	The Functions of Software	(4)
	The Functions of Program Languages	(5)
	Designing a Program	(6)
Computer Utilization	Software Utilization	(7)
	Word Processing Software	(8)
	Computer Assisted Design	(9)
	Spreadsheets	(10)
	Database	(11)
	Control by Computers	(12)
	Computer Applications	(13)
History of Computers		(14)
Computer Networks		(15)
The Bright and Dark Sides of an Information-Oriented Society		(16)

3. Results and Considerations

3.1 Basic Data

Fifty-three male teachers and three female teachers answered the questionnaire; their average length of teaching experience is 16.8 years, with 10.4 years in Industrial Arts and Homemaking. The average scale of the schools in which they teach is nine classes and the average number of students in one classroom is 22.6 persons. "Information Technology" is taught at 53 schools co-educationally and at three schools separately.

3.2 The Conditions of Teaching Material Utilization

Table 2 shows the relationship between teaching materials and each content area at the schools in this study. The percentage figure given represents the total number of schools (on the bottom as the denominator) and (on the top as the nominator) the number of these schools that use optional teaching materials.

The different kinds of teaching materials and their average percentages of use are as follows, beginning with (1) selected textbooks, the most popular teaching materials, with an average rate of use of 55.9%; (2) software, which includes Japanese word processor, Basic language, integrated type software, and table calculation, otherwise known as spreadsheet, all software collapsed into this category, with an average rate of use of 33.1%; (3) data books, which includes supporting materials and learning notebooks, with an average of use of 28.7%; (4) teacher-made handouts that explain such things as

management device functions and how to use software, etc., 21.9%, (5) real things of parts used in a computer, 17.6%; (6) video instruction on such topics as the role of computers in daily life and the history of computers, 7.6%; (7) wall charts giving such things as the basic computer structure, key operations, etc., 3.8%, (8) overhead projector use with transparencies indicating such things as kinds of program language, management flow from inputting through outputting, etc., 3.7%; (9) slides popular for showing the basic computer structure, etc., 0.6%, (10) hands-on samples of such things as basic electronic device, etc., 0.6%; (11) models of such things as a 2-motor control in BASIC program, etc., 0.4%.

Next, the relationship of teaching materials to the teaching focuses is examined.

Textbooks are used 65.8% of the time in the teaching of content areas 1 through 5, which are: 1. Computers in Daily Life, 2. Basic Computer Structure, 3. Basic Computer Operations, 4. The Functions of Software, and 5. The Functions of Program Languages. Textbooks are also used 65.8% of the time in the teaching of content areas 12 through 16, which are: 12. Control by Computers, 13. Computer Applications, 14. History of Computers, 15. Computer Networks, and 16. Bright and Dark Sides of an Information Oriented Society. This indicates a high rate of textbook use in learning via lecture. On the other hand, textbooks are used 64.4% in the teaching of content areas 6 through 11, which are: 6. Designing a Program, 7. Software Utilization, 8. Word Processing, 9. Computer

Table 2 Relationship between Teaching Content and Teaching Materials.

Teaching Contents	Teaching Materials & Teaching Aids (%)											The Total Rate of Teaching Material Utilization
	Textbooks	Data Books	Teacher-made Handouts	Wall Chart	Transparencies on the Overhead Projector	Slides	Videos	Hands-on Samples	Models	Real Thing	Software	
1	85.1	31.4	20.3	5.5	9.2	1.8	22.2	0	0	9.2	5.5	190.2
2	74.0	29.6	16.6	16.6	5.5	1.8	5.5	1.8	0	35.1	12.9	199.4
3	59.2	27.7	27.7	9.2	1.8	0	7.4	0	1.8	46.2	24.0	205.0
4	53.7	25.9	22.2	5.5	0	0	5.5	1.8	0	27.7	40.7	183.0
5	57.4	31.4	27.7	3.7	9.2	0	9.2	0	0	14.8	35.1	188.5
6	50.0	22.2	37.0	1.8	3.7	0	5.5	0	0	27.7	48.1	196.0
7	48.1	27.7	20.3	0	3.7	1.8	7.4	0	0	20.3	55.5	184.8
8	33.3	24.0	40.7	1.8	3.7	0	0	1.8	0	27.7	77.7	210.7
9	33.3	22.2	27.7	1.8	5.5	0	0	0	0	18.5	72.2	181.2
10	37.0	20.3	25.9	1.8	1.8	0	0	0	0	22.2	68.5	177.5
11	42.5	20.3	11.1	1.8	1.8	0	1.8	0	0	14.8	46.2	140.3
12	51.8	31.4	9.2	0	3.7	1.8	3.7	0	5.5	3.7	9.2	120.0
13	64.8	38.8	14.8	1.8	1.8	0	12.9	0	0	3.7	18.5	157.1
14	74.0	37.0	14.8	3.7	3.7	0	14.8	3.7	0	3.7	1.8	157.2
15	59.2	29.6	14.8	5.5	1.8	1.8	9.2	0	0	7.4	11.1	140.4
16	72.2	40.7	20.3	1.8	3.7	1.8	16.6	1.8	0	0	3.7	162.6
The Average Rate	55.9	28.7	21.9	3.8	3.7	0.6	7.6	0.6	0.4	17.6	33.1	173.9

Assisted Design, 10. Spreadsheets, and 11. Database. This indicates a rather low rate of textbook use in learning via productive practice. However, the rate of textbook use is still high, on the whole, compared with other teaching materials, except software.

Software is used 23.6% of the time in the teaching of content areas 1 through 5, which are: 1. Computers in Daily Life, 2. Basic Computer Structure, 3. Basic Computer Operations, 4. The Functions of Software, and 5. The Functions of Program Languages. Software is used 8.8% of the time in the teaching of content areas 12 through 16, which are: 12. Control by Computers, 13. Computer Applications, 14. History of Computers, 15. Computer Networks, and 16. The Bright and Dark Sides of an Information Oriented Society, and 61.3% in the teaching of content areas 6 through 11, which are: 6. Designing a Program, 7. Software Utilization, 8. Word processing Software, 9. Computer Assisted Design, 10. Spreadsheets, and 11. Database. Contrary to the results for textbooks, these results indicate a low rate of software use in learning via lecture and a high rate in learning via productive practice. However, the rate of software use is 37.9% of the time in the teaching of content areas 4 and 5, which are: 4. The Functions of Software and 5. The Functions of Program Languages. This result means even in learning via lecture the rate of software use is slightly higher.

The rate of data book use is rather high, 37 to 41% in the teaching of content areas 13, 14, and 16, which are: 13. Computer Applications, 14. History of Computers, and 16. The Bright and Dark Sides of an Information Oriented Society. Compared with other teaching materials except textbooks, the rate of data book use is higher than 20% all across the content areas and the rate is stable, so data books are found to be used overall instruction areas.

Teacher-made handouts are used from 20 to 41% of the time in the teaching of content areas 1, 3 through 10, and 16, which are: 1. Computers in Daily Life, 3. Basic Computer Operations, 4. The Functions of Software, 5. The Functions of Program Languages, 6. Designing a Program, 7. Software Utilization, 8. Word Processing Software, 9. Computer Assisted Design, 10. Spreadsheet's, and 16. The Bright and Dark Sides of an Information Oriented Society. This shows the tendency that teacher-made handouts are used depending on the content area.

Real things are used 25.5% of the time in the teaching of content areas 2 through 11, which are the two small units of Computer Mechanisms and Computer Utilization. Real things are especially used 40.6% of the time in the teaching content areas 2. Basic Computer Structure and 3. Basic Computer Operations. Video tapes are used 16.6% of the time in the teaching of content areas 1, 13, 14, and 16, which are: 1. Computers in Daily Life, 13. Computer Applications, 14. History of Computers, and 16. The Bright and Dark Sides of an Information Oriented Society. Wall charts are used 16.6% of the time in the teaching content area 2. Basic Computer Structure. Transparencies on the overhead projector are used 9.2% in the teaching of content areas 1. Computers in Daily Life and 5. The Functions of Program Languages. This rate is rather high.

Among these teaching materials, real things and wall charts seem to be used to bring students to a full understanding of basic computer knowledge, while video tapes seem to be used to teach the present conditions of an information oriented society effectively and to teach content areas deeply. That is to say, adequate teaching materials are used according to the nature of the teaching of content areas.

On the other hand, slides, samples, and models seem to be used in timely relation to the teaching of content areas, though these teaching materials are rarely used.

As shown above, textbooks are the most popular throughout the content areas; with software the second most popular. Regarding these two teaching materials, textbooks are mainly used in learning via lecture while software is more used in learning via productive practice, which indicates a characteristic of the classes and teaching methods of "Information Technology." Compared with the two teaching materials mentioned above, the rate of data book use is lower, but data books are used throughout the content areas and they are valuable for attaining the desired learning effect. At the first stage of a teaching plan video tapes, wall charts, and real things are used; then at the succeeding developmental stage teacher-made handouts or transparencies on the overhead projector are used;

and, finally, at the concluding stage, video tapes are again most often used. Video tapes are also found to be used relating to specific content area. The rate of use of visual aids, such as slides, and that of samples and models are still low, though these teaching materials are considered to be educationally effective. Therefore, there is a need to develop and use these visual aids more in the future.

The total rate of use for each teaching material in each content area is calculated as an index using each teaching materials and is shown in the right section of Table 1. The index indicates high values in the content areas 1 through 3, 6, and 8, which are: 1. Computers in Daily Life, 2. Basic Computer Structure, 3. Basic Computer Operations, 6. Designing a Program, and 8. Word Processing Software, so the existence of teaching materials is more meaningful and important in these content areas than in other content areas.

3.3 Users of Teaching Materials

Figure 1 shows the different rates for student and teacher use; it indicates who uses each teaching material in the teaching of each content area. The percentage figure given represents the number of schools where Technology Teachers answered about users of teaching materials (on the denominator) and (on top as the nominator) the number of selected users. The questionnaire asked who uses teaching materials in the teaching of each content area, teachers, students, or both.
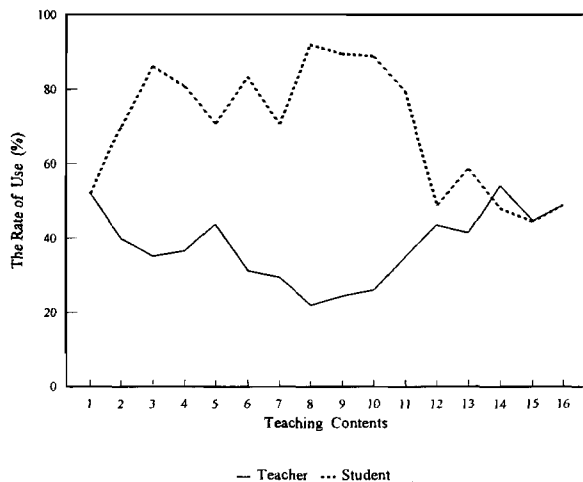

— Teacher ⋯ Student

Figure 1   Users of Teaching Materials.

Investigation of the relationship between users and each content area makes it clear that the rate of student use is as high as 79% of the time

in the teaching of all content areas except 1, 12, and 14 through 16, which are: 1. Computers in Daily Life, 12. Control by Computers, 14. History of Computers, 15. Computer Networks, and 16. Bright and Dark Sides of an Information-Oriented Society. Regarding overall content areas, the rate of teacher use and that of student use are 37.9% and 69.4% respectively, so students use teaching materials more often than teachers. The rate of student use is always higher than that of teacher use in the teaching of content areas centered on learning via productive practice and mostly so in the teaching of content areas centered on learning via lecture.

3.4 The Conditions of Using Teaching Materials

Conditions of using teaching materials in each content area are classified into compulsory use, group use, or individual use. Figure 2 shows rates of use for each of the three categories. The questionnaire investigated the conditions of teaching materials, with a choice of compulsory use (all students in the same class use them), group use (some students in a classroom use them as a group), or individual use (individual students use them), with a choice of more than two conditions also being allowed.

— Compulsory Use ⋯ Individual Use
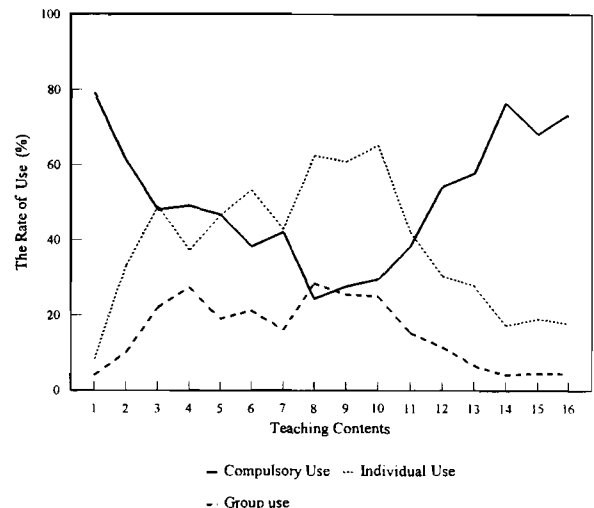
-- Group use

Figure 2   Use Condition of Teaching Materials.

The relationship between the conditions of use and each content area is as follows. Compulsory use shows a high rate of use in the teaching content areas that are mainly learning via lecture, such as 1, 2, 4, 5, and 12 through 16, which are: 1. Computers in Daily Life, 2. Basic Computer

Structure, 4. The Functions of Software, and 5. The Functions of Program Languages, 12. Control by Computer, 13. Computer Applications, 14. History of Computers, 15. Computer Networks, and 16. Bright and Dark Sides of an Information Oriented Society. Group use shows a rather stable rate of use throughout the teaching of content areas; the rate is slightly higher in learning via productive practice, such as the teaching of content areas 3, 4, 6, and 8 through 10, which are: 3. Basic Computer Operations, 4. The Functions of Software, 6. Designing a Program, 8. Word Processing Software, 9. Computer Assisted Design, and 10. Spreadsheets. Individual use shows a high rate of use in learning via productive practice, such as the teaching of content areas 5 through 11, which are: 5. The Functions of Program Languages, 6. Designing a Program, and the small unit of Computer Utilization. These results of compulsory and individual use show the similar tendency to the results of investigation about users in the above section. In other words, teachers use teaching materials in class as compulsory use and students use them individually. In detail, wall charts, transparencies on the overhead projector, and real things used in the teaching of content areas 1 through 5 are generally utilized by teachers. On the other hand, a teaching material used in the teaching of content areas 6 through 11 tends to be software. This is due to the fact that software is a teaching material that students use individually in learning via productive practice. Software is most often used in compulsory use, 50.8%, less so in individual use, 38.3%, and least often used in group use, 15.3%.

3.5 When to Use

The time when teaching materials are used in the each content area has been investigated according to three learning stages; introduction, development, and conclusion, as shown in Figure 3. The questionnaire asked in which stage teachers use teaching materials; introduction, development, or conclusion. The percentage figure given represents the total number of returned questionnaires (on the bottom as the denominator) and (on top as a nominator) the number of use in each stage. Choosing more than two stages for one teaching material was allowed.

The rate of use in introduction swings between

10 and 30% except a rather high rate of 40% in the teaching of content area 1. Computers in Daily Life. The rate of use in development is as high as 70 to 90% except 40 to 50% in the
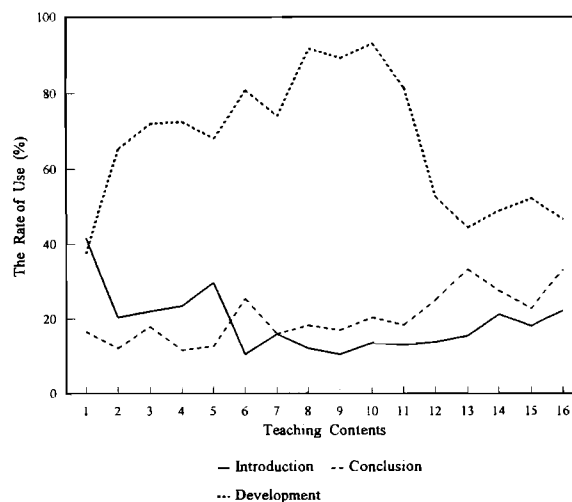

Figure 3   When to Use Teaching Materials.

teaching of content areas 12 through 16. This result clearly indicates that teaching materials are used most often in the developmental stage. The rate of use in conclusion is low all over and swings between 10 to 30%, but it is 33.3% in teaching content areas 13 and 16 in particular. This indicates that teaching materials are used highly in the developmental stage in the teaching of all content areas except No.1. Also it is characteristic that teaching materials are used rather highly in the introduction of the teaching of content areas 1 through 5, which correspond to the introduction of this "Information Technology" area, and again teaching materials are used in the conclusion of the teaching of content areas 13 through 16, which also corresponds to the conclusion of this area.

Examining the time when teaching materials are used from the view of the teaching content, it is found that teaching materials are most often used in development, 66.9%; less so in conclusion, 20.5%; and least used in introduction, 19%. This indicates that teaching materials play their allotted roles in introduction, development, and conclusion, with the developmental stage as central. Therefore, it seems necessary to develop teaching materials which motivate student interest for the introductory stage and to develop those which arrange and put learned content in order for the concluding stage.

3.6 Relationship Between Teaching Materials Used and a Purpose of Their Use

The questionnaire asked about the purposes of using teaching materials that have a special purpose in the teaching of each content area. Answers were written in the form of free comments. The 369 cases that responded were classified according to four points of view of assessing student learning: interest and motivation, original ideas (creativity), skills, and knowledge and understanding. Table 3 shows the results of this investigation.

The results show that in 191 out of 369 cases teaching materials are used for imparting knowledge and understanding; in 113 cases teaching materials are used for developing skills; in 45 cases they are used for furthering interest and motivation; in 20 cases they are used for fostering original ideas.

Table 3   Relationship between Teaching Materials and Objectives for Use.

Teaching Materials	Purposes	Interest & Motivation	Creativity	Skills	Knowledge & Understanding	Total
Real Thing		7	7	51	26	91
Textbooks		8	1	0	65	74
Teacher-made Handouts		6	2	0	33	41
Data Books		6	4	0	27	37
Videos		5	0	0	11	16
Transparencies		2	0	1	8	11
Wall Charts		4	0	1	5	10
Slides		2	0	0	2	4
Hand-on Samples		1	0	0	0	1
Models		2	0	0	0	2
Software	Integrated Software	1	3	31	10	45
	Basic Language	0	1	12	2	15
	Japanese Word Processor	1	0	6	0	6
	LOGO Language	0	1	2	1	4
	Spreadsheets	0	0	3	0	3
	MS-DOS	0	0	2	1	3
	Authoring Tools(1)	0	1	1	0	2
	Authoring Tools(2)	0	0	1	0	1
	Game Software	1	0	0	0	1
	Computer Assisted Design	0	0	1	0	1
	Computer Communication	0	0	1	0	1
	Subtotal	2	6	60	14	82
Total (number)		45	20	113	191	369

Next, the relationship between the four points of view of purposes and the teaching materials used is investigated. Regarding teaching materials whose purposes are to impart knowledge and understanding, textbooks were most popular, 65 out of 191 cases; teacher-made handouts were used in 33 cases; data books were used in 27 cases; real things in 26 cases; software in 14 cases; video tapes in 11 cases. Regarding teaching materials whose purposes are to develop skills, software was most popular, 60 out of 113 cases; real things were used in 51 cases; transparencies on the overhead projector and wall charts were used in only one case. About teaching materials whose purposes are to further interest and motivation, textbooks were most popular, 8 out of 45 cases; real things were used in 7 cases; teacher-made handouts and data books were used in 6 cases. Regarding teaching materials whose purposes are to foster original ideas, real things were used in 7 out of 20 cases; software was used in 6 cases; data books in 4 cases.

Further, the purposes for using each teaching material are examined. Regarding the purposes for using software, 60 out of 82 cases were for developing skills; 14 cases were for imparting knowledge and understanding; 6 cases were for fostering original ideas; 2 cases were for furthering interest and motivation. In detail, integrated-type software and BASIC language are used mainly for developing skills. On the other hand, textbooks were used most often for imparting knowledge and understanding in 65 out of 74 cases; for furthering interest and motivation in 8 cases; for fostering original ideas in one case; but for developing skills there was no case. This means that the main purpose of using textbooks is to impart knowledge and understanding. Data books, teacher-made handouts, videos, and transparencies on the overhead projector tend to be used mostly for imparting knowledge and understanding, and less so for furthering interest and motivation. These teaching materials were used to develop skills and to foster original ideas in a few cases.

The two main results indicated are (1) teaching materials are mostly used for imparting knowledge and understanding; and (2) the teaching material used mostly for developing skills is software. The teachers surveyed did not have to indicate the purpose of all teaching materials; and, even though real things were not used a lot as shown in Table 2, the teachers wrote about the purposes for using them in 91 cases, as shown in Table 3. This seems to support that the use of real things is not a high priority in teaching content areas but that its use is considered necessary according to the actual purpose of the teaching content area.

On the other hand, it is suggested that future investigation is necessary to clarify the issue of insufficient teaching materials for the purpose of fostering original ideas in spite of the fact that Technology Education is considered the important school subject in which originality is to be developed.

3.7 Student Interest

Figure 4 shows the degree of student interest in each content area. The questionnaire asked teachers "high," "ordinary," and "low" to rate student interest in the each content area. The percentage figures given here represent the total number of schools where teachers answered the question (on the bottom as the denominator) and (on the top as the nominator) the numbers for each of three answers.
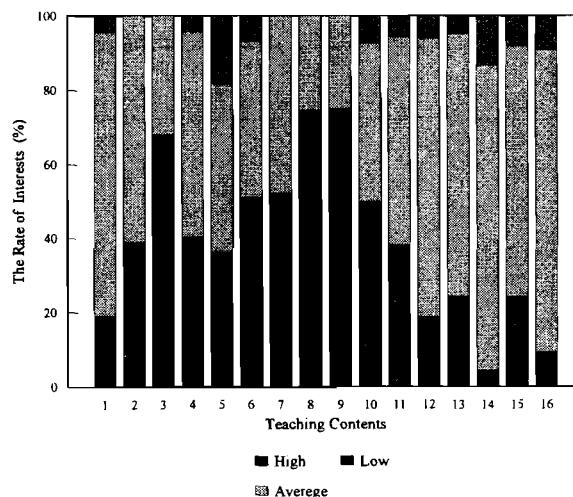
Figure 4　Student Interest.

Student interest was rather high in the teaching of content areas 1 through 4, 7 through 9, and 13, which are: 1. Computers in Daily Life, 2. Basic Computer Structure, 3. Basic Computer Operations, 4. The Functions of Software, 7. Software Utilization, 8. Word Processing Software, 9. Computer Assisted Design , and 13. Computer Applications, since more than 95% of the schools chose "high." In fact, 100% of the schools chose

"ordinary" or "high" in the teaching of content areas 2, 3, and 7 through 9, which are: 2. Basic Computer Structure, 3. Basic Computer Operations 7. Software Utilization, 8. Word Processing Software, and 9. Computer Assisted Design.

Figure 5 shows the relationship between these results and the rate of use for teaching materials which were shown in Table 2. Figure 5 indicates the lower limits of both factors; 120 the lowest rate for teaching material utilization, and about 80% the lowest interest rate ("high" and "ordinary" interests were combined here.). Except in one instance, there is a tendency that the more teaching materials are used, the more the interest rate increases. However, comparing the content areas centered on learning via lecture (shown with □ in Figure 5) with the content areas centered on leaning via productive practice (shown with ● in Figure 5), it is clear that the latter shows the higher interest rate on the whole. This fact can be interpreted as one manifestation of the character of Technology Education. At the same time, it suggests the necessity of further investigation into teaching materials considering this aspect.
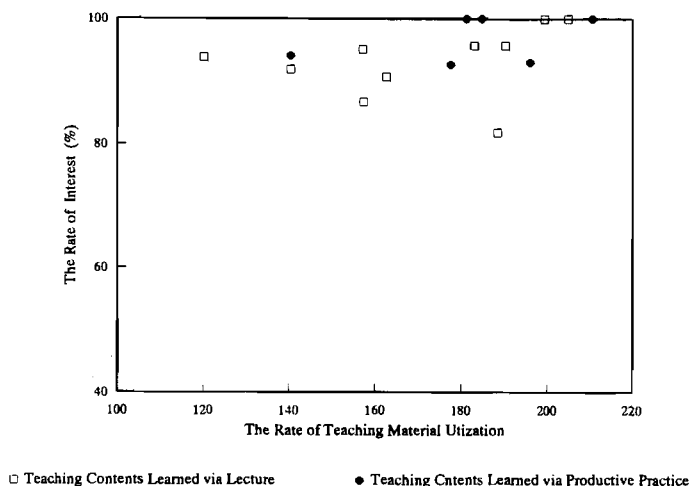

□ Teaching Contents Learned via Lecture   ● Teaching Cntents Learned via Productive Practice

Figure 5   Relationship between the Rate of Use and Student Interest.

4. Conclusion

This study, which is one in a series on the functions of teaching materials in Technology Education, concentrates on the conditions for using various teaching materials in the one area

of "Information Technology." The results of this study are as follows:

(1) Textbooks are the most popular teaching materials and are used in all content areas of "Information Technology." Data books, real things, videos, and wall charts are also used in learning via lecture. In contrast, software is more used than textbooks and teacher-made handouts are also used in many cases in learning via productive practice. Real things tend to be used in the first half of the instruction plans for Computer Mechanisms and Computer Utilization.

(2) In almost all learning with just the one exception, teaching materials are used mainly by students. Also, they are compulsory in learning via lecture and they are used individually in leaning via productive practice.

(3) Teaching materials are most often used in the developmental stage of all content areas. However, they are also used in the introductory stage in the content areas of 1. Computers in Daily Life and 5. The Functions of Program Languages and they are used in the concluding stage in the content areas of 13. Computer Applications, and 16. The Bright and Dark Sides of an Information Oriented Society.

(4) There is a close relationship between the use of teaching materials and student interest. In the content areas of this study student interest was high in learning via productive practice in which software was used.

(5) The results of this investigation have indicated that higher student interest is directly tied to a more abundant use of teaching materials. Learning via productive practice shows this tendency more than learning via lecture.

(6) Videos and slides as audio aids are not used often enough, even though they are considered to be educationally effective. Therefore, it is necessary to develop these kinds of teaching materials for educational content areas to foster original ideas, which is one of the aims of Technology Education.

Appendix 1　A Questionnaire about Teaching Materials Utilization.

Small Units	Teaching Contents		Teaching Materials & Teaching Aids												Users		Condition of Use			When to Use			Student Interest			Purposes for Using Teaching Materials & Teaching Aid
			①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉓	㉒	
Computers in Daily Life		(1)																								
Computer Mechanism	Basic Computer Structure	(2)																								
	Basic Computer Operations	(3)																								
	The Functions of Software	(4)																								
	The Functions of Program Languages	(5)																								
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The Bright and Dark Sides of an Information-Oriented Society		(16)																								

① Textbook　② Date Books　③ Teacher-made Handouts　④ Wall Charts　⑤ Transparencies on the Overhead Projects　⑥ Slides　⑦ Videos　⑧ Hands-on Samples　⑨ Models　⑩ Real Thing
⑪ Software　⑫ Others　⑬ Teachers　⑭ Students　⑮ Compulsory Use　⑯ Group Use　⑰ Individual Use　⑱ Introduction　⑲ Development　⑳ Conclusion　㉑ High　㉒ Average　㉓ Low