AN ABSTRACT OF THE THESIS OF

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Title: DEVELOPMENT OF SELF-INSTRUCTIONAL MATERIALS FOR LEARNING BEGINNING SEWING SKILLS

Abstract approved: Dr. May DuBois

This was a two part study to develop self-instructional material to meet the needs of students and teachers in an individualized clothing construction program.

First, two self-instructional kits were prepared, called Skills of Sewing Kits (SoS Kits), to teach stay-stitching and a lapped zipper application.

Each kit contained guidelines for using the kit, general information about the technique, practice material on tissue paper, and a self-evaluation device. A teacher kit was also prepared which included additional teaching aids and suggestions for using the material.

In developing the kits the investigator endeavored to keep in mind the theories of learning and the needs of students and teachers indicated by findings from experiments with individualized programs.

The kits were field tested by 30 eighth grade girls in two
heterogeneous classes as part of an experimental program to find
the most effective instructional material for use in an individualized
clothing program.

The second part of the study involved a two part evaluation of
the goals of the study.

The students completed a written evaluation form and a tape-
recorded interview was made by the investigator and two teachers.

Conclusions were drawn from the positive and negative ratings
and comments made in the evaluations, and from these, recommenda-
tions were formulated for the future use of SoS Kits.

The results indicated that students saw SoS Kits as being of
most value in helping them learn to follow directions (80 percent),
learn a new technique (70 percent), and to feel more confident when
they had to work on their projects (60 percent).

The teachers concluded that:

- SoS kits were an excellent technique for individualizing
  instruction.
- the role of the teacher changed.
- the opportunity to practice helped students considerably.
- students could work at their own rate.
- learning and retention was increased.
- using the kits required more time than conventional teaching
  methods.
most of the students liked using self-instructional material.
the kits did not motivate students.
external rewards might help motivate some students.
students displayed less frustration, especially on their zipper applications.
availability of a range of kits would help teachers cope with individual differences.
students might not be motivated to use SoS Kits to learn construction techniques not included in a project.
the kits were of most help to average students.
practice material could be used for demonstration and display purposes.
practice material could be used for pretests.
the kits could be used as a conventional teaching tool.
teachers had more time to help individual students.
teachers would use the kits if they were available on a commercial basis for a reasonable fee.

Based on the findings of this limited study, the investigator concluded there was a real and urgent need for this type of self-instructional material in the clothing construction area. It was recommended that the investigator or some designated company produce a range of Skills of Sewing Kits to cover the basic sewing techniques. These should be made available on a re-order basis, for a nominal fee, to
any teacher desiring to use the material, either in an individualized program or in a traditional program.
Development of Self-Instructional Materials for Learning Beginning Sewing Skills

by

Ruby Lorna Campbell

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DEVELOPMENT OF SELF-INSTRUCTIONAL MATERIALS FOR LEARNING BEGINNING SEWING SKILLS

I. INTRODUCTION

As educators have responded to the influences of technological and social forces emerging in today's society, American schools have undergone many and sometimes radical changes.

One of the trends to emerge from this changing scene has been an individualized approach to instruction. Accompanying this trend has been a recognition that individualized instruction called for different instruction strategies, for it was apparent that without supportive instructional material a teacher could not cope with a classroom of students each doing her "own thing." One means of meeting this challenge has been the development of self-instructional materials tailored to meet the needs of various individualized programs.

The investigator's experience teaching home economics made her aware of the need for and potential advantages of an individualized program in the area of clothing construction. She was also acutely aware of the fact that this goal could only be achieved if appropriate instructional material was available to help her meet the needs of the students in such a program. Therefore she chose to explore the possibilities in this area.

Out of this exploration has come the present study involving the
development and field testing of self-instructional material for teaching beginning clothing construction techniques to a heterogeneous group of junior high school students. The material developed and used in this study has been called Skills of Sewing Kits (hereafter referred to as SoS Kits).

**Purpose of Study**

The purpose of this study was to develop SoS Kits, to field test these, and then, by means of subjective teacher and student evaluations, to determine:

1. If SoS Kits would meet needs of teacher and students in an individualized clothing construction program.
2. If SoS method of self-instruction was effective in teaching sewing skills.
3. If using SoS Kits allowed a student to proceed at her own rate.
4. If students liked this method of learning a sewing skill.
5. If self-evaluation device helped student gain an appreciation of her level of competence.
6. If use of practice material increased learning.
7. If use of disposable practice material helped to diminish frustration and discouragement when work was unsatisfactory.
8. If self-instruction motivated students to complete tasks, or if an external reward system would be useful for this purpose.
9. If availability of a variety of SoS Kits would make it possible for students to choose projects suited to their ability.

10. If SoS Kits could be used to teach students construction techniques not incorporated in a sewing project.

11. If there were advantages in using SoS Kits with slow or fast learners.

12. If practice material would be suitable for demonstrating sewing techniques to students and if completed practice material would make suitable illustrative material for bulletin boards.

13. If there were uses for SoS Kits not anticipated in field test.

14. How, if at all, using SoS Kits altered the role of the teacher.

15. If format of SoS Kits was satisfactory.

16. If teachers would use SoS Kits if a range of these were available at a nominal fee.

Limitations of Study

This study was limited in the following ways:

1. Emphasis was given to using SoS Kits as self-instructional material for individualizing instruction. However, as the kits were administrated at the end of the year, the teacher believed she needed to push all the students to finish their projects.

2. Classes were not adequately controlled so that several unplanned variables became involved.
3. Only heterogeneous classes were used to test the kits.

4. Only eighth grade junior high school students were included in the test.

5. Students using the kits would not have a severe reading problem.

6. Students included in the testing program may or may not have sewn before.

7. Only two SoS Kits were developed and tested--one involved a simple technique (stay-stitching) and one a more complex technique (lapped zipper application).

8. The SoS kits were subjectively evaluated by the teachers and students.

9. Only 30 students used the kits and, therefore, the evaluation by these students may be limited.

Method of Procedure

This was a developmental study of two parts.

The first part of the study involved preparing SoS Kits to teach clothing construction techniques by means of self instruction. The construction techniques were chosen in consultation with the teacher in charge of the testing program. It was decided that two kits should be developed and that these should cover a simple technique (stay-stitching) and a more complex technique (lapped zipper application), so that it could be determined if this learning technique would work
equally well in both instances.

Each kit contained guidelines for using the kit, general information about the specific clothing construction technique, practice material on tissue paper, and self-evaluation device (Appendix A).

A different kit was prepared for the teacher (Appendix A), suggesting ways of using the material. This kit also contained a "Contract and Planning Sheet," which could be used by teacher and student to cooperatively plan a project. A "mini quiz" for each clothing construction technique was included as an additional evaluative device. These two teaching aids were in the form of master copies which could be dittoed and used at the teacher's discretion.

Different colored paper was used for each kit, because the investigator thought this would be useful for identification purposes if a number of kits were in use and because it would add to the visual attractiveness of the material.

Cartoons were used throughout the kits, because it was believed these would appeal to junior high students and might increase their interest in working with the material.

Information in the kits was gathered from many sources and consisted of facts the investigator thought would be needed to give enough background to enable students to understand how, why, when, and where to use each technique.

As a review technique, key words were underlined in the general
information section and students were required to know these terms before proceeding to the practice material. A review form was included for this purpose.

Since practice is considered to be essential in learning a skill, tissue paper practice material was provided to simulate the sewing experience. Detailed sequential directions were prepared to be used with the practice material. These directions were illustrated whenever it was thought this would add to the student's understanding. All seam allowances and stitching lines on the practice material were similar to those used on a real project.

The practice material was planned to give the student two kinds of experience. The first part was programmed in detail, so the student would know exactly where to fold, match, and stitch. The second part merely provided a blank outline on which the student was to repeat the technique. The investigator thought the second step was crucial for three reasons: it more nearly approximated the conditions which the student would encounter on a real project; it would indicate if student really understood the process; and it would show if student was able to transfer learning from lined to unlined material.

A self-evaluation device was included. Through its use, it was hoped students would develop ability to recognize standards of workmanship.

Throughout preparation of the kits the investigator endeavored
to keep in mind theories of learning and findings of previous experiments with individualized instruction, so that the instructional material would not only provide an effective learning experience, but also would have the built-in flexibility needed in an individualized program.

Completed kits were first examined by a member of the staff in the Clothing, Textiles and Related Arts Department, Oregon State University, and several changes were made on her recommendation.

Two other faculty members of the Home Economics Education Department then checked the contents, and a few additional alterations resulted from their suggestions.

The kits were pretested by eight eighth-grade students, each of whom had had clothing construction in the seventh grade under the investigator and who were considered to have average sewing ability. Since it was not possible to use sewing machines for pretest, each student, in conference with the investigator, read through direction sheets for the practice material and indicated what she would do. It was thought this method gave an accurate estimate of the clarity of the directions from students' point of view. These students were also asked to comment on anything they did not readily understand. As a result of the pretest one or two additional minor modifications were made in the material.

Sufficient quantities of the kits were printed to permit 30 girls
in two eighth grade classes to field test the material.

The school used for testing purposes was selected because it was an experimental center for developing a home economics curriculum based on individualized instruction, and the regular teacher and her student teacher were interested in trying three types of instruction--SoS Kits, programmed material, and handouts (consisting of dittoed information sheets compiled by the teacher) to determine the most effective material for their program.

The student teacher, in this instance, had been a county agent for several years, during which time she had considerable experience teaching sewing to 4-H Club members. Therefore, it was believed she had sufficient basis for evaluating the material as a teaching device.

The second part of the study involved evaluating the SoS Kits.

Upon completion of the field test, the teachers and students subjectively evaluated the kits. This evaluation was accomplished in two parts.

First, the students completed a written evaluation form and were encouraged to make additional comments if they thought these would add to the value of the evaluation.

The second part took the form of an interview between the investigator and teachers. During this session the goals of the study were discussed in terms of whether or not and how well they were
accomplished. The teachers added other comments they thought were pertinent to the study. This session was tape recorded.

The positive and negative ratings and comments of these evaluations formed the basis for drawing conclusions about the effectiveness and uses of the kits in an individualized program.

From these conclusions, recommendations were formulated for the future use of SoS Kits.
II. REVIEW OF LITERATURE

The Changing Scene in Education

Today change in American society is so rapid that few people can adjust to one set of developments before new developments require other adjustments. Since schools mirror society, educators are subjected to continuous pressures for innovations to keep education relevant and effective.

Gezi and Myers (8, p. 35)) have quoted Francis Keppel, former U. S. Commissioner of Education, as stating:

In the past ten years more time, talent, and money than ever before in history have been invested in pushing outward the frontiers of educational knowledge, and in the next decade or two we may expect even more significant developments.

Innovations in education have taken many forms. Some, such as teaching machines, educational television and functionally new architecture, have resulted from technological advances in the classroom; others, such as staff organization, nongradedness, variations in scheduling, curriculum revision, and instruction techniques have come about because of the expanding frontiers of knowledge in humanities, physical, social, and behavioral sciences (8, p. 350).

One of the exciting outcomes of this striving for more effective education has been a major thrust towards individualizing instruction,
long a dream of many educators.

Esbensen (4, p. 9) has quoted R. Louis Bright, a former Associate Commissioner for Research, United States Office of Education, as saying: "It is my prediction that within ten years almost the entire academic portion of instruction will be on an individual basis in most schools."

**Rationale for Individualizing Instruction**

According to Hunter (11, p. 54), the individualization of learning tasks is based on two major premises, both of which have been validated by research. These premises are:

1. **Students learn at different rates.** Age and grade level are in no way guides to the appropriateness of a learning task. A task which is right for one learner will be wrong for another who has already achieved that learning, or for one who is not ready for it.

2. **Learning is incremental.** Some learnings act as a foundation for other learnings. It is impossible to achieve complex learning without first having mastered the simpler component learnings, even though some children may take bigger or faster learning steps than others.
Definitions of Individualized Instruction

According to Esbensen (4, p. 1) individualized instruction is:

an arrangement that makes it possible at all times for each student to be engaged in learning those things that are most appropriate for himself as an individual.

Howard (10, p. 54) supports Esbensen by stating that:

In individualized instruction, each objective will be custom-tailored to a particular learner, not homogenized for the whole class and in reality fitting only a few.

Howard has added that individualized instruction does not mean that each student must work individually, but the teacher must thoughtfully and on the basis of the child's learning needs make the decision as to whether for this task students should be learning alone or in a group.

Baker and Goldberg (11, p. 775) have described individualized instruction as follows:

An individualized learning system is a highly flexible system of multiple materials and procedures, in which the student is given substantial responsibility for planning and carrying out his own organized program of studies, with the assistance of his teachers, and in which his progress is determined solely in terms of those plans.

The individualized system is a total educational program incorporating all useful concepts known to enhance the learning process. Its success depends upon an optimal balance between the student's own self-appraisal and the teacher's counsel—the student does not progress autonomously in his learning program.
Individualized Instruction Contrasted
With Independent Study

In dealing with individualized learning systems, it is necessary to distinguish between individualized learning and independent study. The two terms are not synonymous.

According to Baker and Goldberg (1, p. 776), to individualize instruction in a subject area the student and teacher select from a variety of materials and media and determine the sequence of study that appears most effective in terms of that particular student's abilities and needs. A student may choose to work independently in an individualized learning program, but merely working by himself does not mean that a student is participating in an individualized learning program. Individualized instruction is not an end in itself, but rather a means to achieve learning successfully, economically, and predictably. It is an effective and efficient means for achieving learning goals as well as increasing student learning.

Independent study, on the other hand, is a method of learning that gives the student maximum freedom with a minimum of teacher guidance in directing his own learning. Students study alone or in groups of two or three. Their time would be spent in reading, listening to tapes or recording, using teaching machines, looking at filmstrips, kinescopes or slides, writing, experimenting, creating,
visiting, interviewing, seeing, analyzing data, evaluating progress, making reports—in short, using every available resource to solve problems that are pertinent to them.

In an independent study program students would learn to plan work, discover resources, and evaluate their own progress. The teacher would not tell students how and when to perform tasks, but would act as a consultant, a resource, a challenger, or a director to broader horizons in thinking and action (6, p. 160).

**Vehicles for Individualizing Instruction**

If the two premises set forth by Hunter are accepted, it is no longer acceptable to deal out to an entire class, on an assembly-line basis, the books and assignments of one grade level. A learner is an individual and must be taught accordingly.

One of the first requirements for implementing an individualized learning system is that a wide variety of instructional material be constructed for providing learning experiences to guide the student in planning and pursuing their own individual programs. The individualized learning system must include alternative learning procedures by which a particular objective can be reached (1, p. 777).

Innovations such as small group work, audio- and video-tape lectures and demonstrations, teaching machines and programmed instruction materials have helped. Yet what is needed is a system
which permits the selection of both the curriculum and the manner in which it will be presented for each individual learner.

The instructional medium most often used as a vehicle for individualizing instruction is the teaching-learning package or self-instructional package.

Different kinds of packages produced by publishing corporations and teachers presently are in evidence. Some include basic curriculum outlines, texts, diverse materials, and applications of media for use with varying types of machines and electronic equipment and accompanied by in-service information and activities. Others more nearly resemble textbooks cut up into worksheets and accompanied by film material assembled in boxes. Some are more aptly designated as "kits," containing a variety of items.

Another type utilizes a "guide sheet" or "unit" which is distributed to all students in a class and contains several pages of learning activities--jobs to do and questions to answer, people to see, designed to keep students busy in the library and digging through textbooks to find answers (17, p. 764).

But according to Unruh (17, p. 765), well designed teaching-learning packages are built as instructional system and are characterized by several distinguishing features.

1. The emphasis is on individualization. Pretests or other means of assessment may be used to determine what the
student already knows and placement can be arranged for him into personally tailored instructional processes and content. Options are offered to accommodate for differences in learning rates, past achievement, interests, motivation, and other diversities. All students are not expected to complete all of the procedures.

2. The total package is comprehensive and frequently encompasses basic substances and a wide range of materials of a defined area of study as opposed to the type of package intended as supplementary materials to accompany a textbook.

3. Clearly stated instructional objectives convey to the student the quality of performance expected of him.

4. Multimedia learning materials of varying types are included to provide a choice of vehicles for learning for various steps in the process. The package recognizes that people learn in different ways and that a variety of media may provide more effective learning.

5. The package not only provides diversified materials, but also provides for diversified learning activities, particularly student-student interaction and teacher-student interaction. The range of activities may include large group and small group instruction, field trips, model building, role playing, simulation, laboratory experimentation, independent study, and others. The
package has built-in self-evaluation processes designed to provide continuing feedback to assist the student in determining his progress toward achievement of the instructional objectives.

6. The role of the teacher-instructor is significantly changed. His function as a dispenser of information is considerably reduced as the student moves into a more active role in the learning process. Teachers become diagnosticians of learning and find themselves developing professional competence in helping each individual learner find success. Teachers have more time for effective instructional planning to solve learning problems and to provide enrichment for individual students (17, p. 765).

Unruh (17, p. 763) stated that: "It is probably safe to predict that learning packages or instructional packages will become more educationally sophisticated and widely used as expertness develops."

Examples of Individualized Learning Programs

A number of experimental programs have grown out of the concept of individualized instruction.

"Project Congdon" is an example of such a program, which was begun in 1964 at Congdon Park Elementary School under the sponsorship of the Duluth Public Schools.

This program was designed to help answer the following question:
What would formal education be like if it seriously tried to reach the ideal of educating every child according to his own personal inventory of abilities, needs and interests? (4, p. 20).

The following were some of its salient characteristics. Four volunteer teachers and upwards of 120 fifth and sixth graders were involved in the program. The traditional arrangement of the self-contained classroom was abandoned and an instructional pattern was developed that used the special strengths of the project teachers, instead of assuming that one person could be all things to his pupils.

The four teachers were given in-service work designed to provide them with the know-how necessary to conduct a program of individualized instruction. During the in-service program the following six-point format for developing instructional objectives was created:

1. Content classification
2. Purpose
3. Criterion performance
4. Sample test situation
5. Taxonomy category
6. Resources

This format was used for developing "Project Congdon" instructional material.

Student assignments were in the form of individualized lesson plans, that is, each student worked in each of the subject matter
areas at a level and a speed commensurate with his prior achievement and capabilities. Each student normally received a lesson plan designed for one week's work. He was encouraged to progress according to his own rate of learning. A large assortment of instructional material and devices were developed and used. Flexibility was the key thought behind all instructional arrangements within the project.

Although, for the most part, instruction took place on the basis of individual learning assignments and each student was, within wide limits, encouraged to decide for himself how best to complete a given assignment, tests were administered as a check on completed assignments and the progress of every student was recorded and used as a guide for further assignments. Among other things, the Iowa Test of Basic Skills was used to measure student achievement. These tests gave information in the areas of vocabulary, reading comprehension, spelling, capitalization, punctuation, language usage, map reading, reading graphs and tables, knowledge and use of reference materials, arithmetic concepts, and arithmetic problem-solving.

The program worked effectively in promoting the basic academic achievement of the project students, and it also made it possible for these students to grow in ability to organize their own learning activities, and to become adept in acquiring the skills of independent inquiry.

According to Richard Weatherman, Duluth's Assistant Superintendent in charge of pupil personnel, "This education experiment was
Based on the premise that the future will demand of the educated individual that he be able to learn and relearn concepts and facts throughout his life and that these learning experiences must be self-initiated (4, p. 22).

Another example of an approach to individualizing instruction was developed by the Department of Education and Stanislaus State College in California, and was centered around the creation and use of self-learning material called Learning Activity Packages (LAPs) which were made up of several distinct, but interrelated parts which effectively lead the learner to predetermined changes in behavior. Students were permitted to proceed at their own rate and were given choices and involved in decisions about how and what they would learn. Large group instruction, small group instruction, inquiry processes, finding and organizing resources, and evaluation techniques were also an important part of the teaching technique (13, p. 179).

At a home economics in-service education seminar for Oregon homemaking teachers, May 1970, Dr. Richard V. Jones, Jr., Professor of Education, Stanislaus State College, Turlock, California, broke down the process of individualizing instruction used in this program into the following concerns:

1. Curriculum development
2. Instructional strategy
3. Materials and equipment
4. Facilities

5. Staff development

6. Student orientation

7. Parent-community orientation

8. Reallocation of funds

Need for Instructional Materials

In describing the Duluth experience with individualized programs, Esbensen (4, p. 20) pointed out that it was difficult if not impossible to find a suitable range of commercially available material that could be used in assisting students to achieve desired objectives. Not only were there virtually no instructional materials in existence that defined in any measurable way what they could help students learn, but multi-media instructional packages with multi-level capabilities were, for all practical purposes, unobtainable in the education market.

Because of the current thrust towards individualized instruction, and the obvious need for different kinds of instructional strategies, self-instruction devices, kits, systems, and programs have been entering the educational market in an ever-increasing flow. However, there is still a great need in this area.
Guidelines for Creating Self-Instructional Materials

Self-instructional devices and materials have been enthusiastically endorsed by many because of the benefits which may be derived from them. For the first time there is a possibility of meeting the needs of individual students and of freeing the teacher from many necessary but monotonous activities, making more time available for the purely creative aspects of teaching.

Creating self-instructional devices is a time-consuming occupation requiring expertise in subject matter, knowledge of students and how they learn, and the needs of the teacher working in an individualized program.

Unruh’s list of characteristics (17, p. 765) that make up the distinguishing features of learning packages has previously been set forth, and provides a framework within which learning packages can be constructed.

Additionally, many theories have been advanced by psychologists about the learning process and factors that influence learning in positive and negative ways. These can provide supplementary guidelines both for constructing the learning material and for using them in the classroom.
Dale's Cone of Experience

For example, one of the currently popular learning theories was developed by Dale (5, p. 13). His "Cone of Experience" (Illustration A) was devised a number of years ago, and has since been used extensively by educators in planning classroom experiences.

According to Dale's theory, the farther down the cone an experience occurs, the greater becomes the permanence of learning. Therefore, direct, purposeful experience is the most effective way to learn and it should be used whenever possible. However, where actual experience is impossible or impractical, contrived or simulated experience is considered to produce the highest amount of learning. Skills of sewing, for example, would be naturally taught by real experience, but simulated experiences could also be an effective way of learning these techniques.

Techniques of Motivation

Motivation has always been a difficult and perplexing problem because motives are individual and personal. The unique personality of the student is an important factor in motivation. The student's basic drives and past experience are factors at work in all learning situations. The teacher will find that what creates desire or purpose in one student does not appeal to another. While certain procedures
FROM: Primarily Symbol-Based Conventional Process

TO: Primarily Experience-Based New Process

Illustration A


CONE OF EXPERIENCES

(Edgar Dale, 1954 as cited in Fantini and Weinstein, 1969, p. 13)
will prove generally successful in the hands of a skillful teacher, there will always be some students who must be reached through other channels. The effective teacher is one who has studied his students to discover the best avenues of approach in each case. There are no standardized steps to follow in the techniques of motivating students; the learning situation as well as the personalities of the students will make a considerable difference in the procedures used (11, p. 116).

In trying to motivate, differences in personalities of students must be considered. These include many factors, but the five most important among them are: (1) intelligence, aptitudes and temperament; (2) readiness—abilities and attitudes pertaining to schoolwork; willingness and set to work; (3) attitudes about behavior, traits, and personal habits; (4) interests—leisure-time and vocational; and (5) scholastic needs as shown by observation and tests.

No two students are alike in these respects, yet they will respond in much the same ways to the same kind of treatment and types of motivation, even though their specific motives for attaining goals may differ considerably (11, p. 116).

Other factors have been shown by research to influence motivation. For example, motivation which originates with the individual is more effective than that which is imposed from without. There is also evidence that a clear understanding of purpose enhances motivation,
and that self-imposed tasks tend to create more interest than teacher-imposed tasks. In choosing class and individual projects, it would, therefore, seem expedient to capitalize on the existing interests of the students.

Motivation does not always spring from within, and for some students external rewards may be necessary and effective in stimulating initial interest. The effectiveness of awards as motivators for a class depends on two factors: (1) their value to the students in comparison to some alternative, and (2) the possibility that the award can be earned by all who want to try for it. If awards are to be given, it should be on the basis of standards of attainment, so that all who work for the award will have an equal opportunity to secure an award if they meet the standards. If only one award is offered, it will motivate only a few who feel they may well attain it (11, p. 130).

Another important consideration would be the selection of the teacher, since a highly interested and motivated teacher tends to produce highly interested and motivated students. In other words, motivation is contagious (9, p. 483).

All students have certain psychological needs which must be met. For some students high anxiety makes learning difficult or impossible, but anxiety and frustration in a mild form can be beneficial to learning. The important thing would be to remember that each student has a different level of frustration tolerance, and if a task
is too difficult and if assistance is not readily available, frustration can quickly lead to demoralization (9, p. 483).

Research has also indicated that varied teaching techniques and procedures are effective in maintaining interest. This is an important consideration in providing for student variability and the fact that students learn in different ways and at different rates (9, p. 267).

Every student needs to experience success, and research has confirmed that reward is more effective than punishment in the learning process. Immediate reinforcement of a desirable response is also important.

Practice and Review

In acquiring skills, practice and review are important aspects of the learning process. There are a number of principles that determine how these processes should be used.

According to Hoover (9, p. 390), "Practice, while inappropriate for initial learning, may build upon original learning by adding meaning and association."

However, it is also pointed out that, although repetitive practice is essential in the perfection of a skill, enforced practice may have no positive effect. It is important, therefore, that the pupil sees the importance of practice in terms of his own goal (9, p. 396).

Practice and repetition can become monotonous very quickly,
even under favorable circumstances. Consequently, practice situations should be varied if the student's interest is to be maintained.

When an individual practices for a purpose which is very important to him, motivation can remain high after long periods of time. Too frequently, however, classroom problems are more remote to the learner than might be desirable.

It should be remembered that early practice is largely diagnostic, and, consequently, accuracy rather than speed should be emphasized first.

Generally speaking, practice conditions should resemble those in which the skill will be used. However, practice periods are generally most effective under some pressure and a small amount of emotion.

Overlearning, i.e., learning beyond the point of bare mastery, tends to make skill learning more permanent than otherwise would be possible. This, of course, is to be encouraged.

Another facet to consider in planning experiences is that of transfer. Practice and review procedures are useful in making learning more meaningful to the student and facilitate the transfer process (9, p. 396).
Evaluation

Knowledge of results of learning may be either a positive or a negative motivator. Consequently, the teacher needs to know under what conditions knowledge of results will spur a student on to attain desired goals. If the student does not value the goal of learning very much and sees that the results of learning are not satisfactory--indicated by low scores--he may abandon the learning altogether. If, on the other hand, the learning is satisfying, as indicated by a high score, the learner might begin to enjoy the activity and want to continue with the learning. In this case the score reinforces the learning because a high score is associated with satisfying experiences. Low scores will be a positive motivator only if the learner for some reason puts a high value on the goal, which might be an A or just a passing grade. Assuming that the student has the ability, the amount of effort he will put forth will depend on the goal he values most, other things being equal (11, p. 122).

A more effective method of evaluating would be to have the student compete with his own achievement record. According to Hoover (9, p. 339), "The learner himself is the best judge of his own accomplishments." However, he suggested that in areas where the data may not be clear-cut, the teacher needed to help by making the rate and degree of progress known to the learner. He suggested that
development of individual progress charts, score sheets, and the like tend to contribute greatly to self-evaluation.

**Basic Reasons Why Conventional Teaching May Fail**

According to Dale's "Cone of Experience" theory, "doing" leads to the most permanent form of learning, while the least permanent form of learning takes place through the use of the symbol-based conventional teaching process.

Hoover (9, p. 378) has also set forth reasons for the ineffectiveness of conventional teaching methods. Information-giving methods, for example, can encourage the retention of facts as an end in itself. Oral presentations tend to relegate the learner to a passive position, whereas learning should be an active, dynamic process. Another pitfall would be that excessive use of lecturing tends to encourage acceptance of the teacher as a final authority, and teacher biases and prejudices thus may be accepted at face value.

The attention-span of adolescents is short, and there is a tendency on the part of teachers to lengthen oral presentations beyond their usefulness. Also, exposition as an approach to teaching tends to emphasize the wants and desires of the lecturer rather than those of students.

The lecturing method makes it difficult to provide adequately for individual differences when presenting information. This method
is particularly inadequate for teaching certain types of concepts. Attitudes, feelings, and skills, for example, are not learned through pure telling or showing procedures.

Some teachers have difficulty adapting their presentations to the comprehension levels of their listeners, and a passive audience is less able to indicate its lack of understanding.

Lecturing tends to encourage a competitive rather than a cooperative approach to learning.

The average student, and the slow learner, especially, has difficulty following verbal procedures. Then, too, the limited experiential background of some students would provide an inadequate basis for the formulation of "mind pictures" essential in oral communication (9, p. 378).

**Problem of Reading Level**

One question raised about self-instructional material concerns the reading level of the students in a class, which might vary as much as eight years. Stolurow (16, p. 59), after reviewing a number of research studies concerned with the problem, concluded that:

... available research on the relationship between the learner's ability and his gains in learning do not justify the assumption that different programs have to be written for high and low ability groups.

He offered the hypothesis that a single program probably could be
prepared for a wide range of abilities. However, according to Hoover (9, p. 310) these findings would contradict many other findings in the area of individual differences.

**Implications of Individualized Instruction for the Students**

Experimental programs in individualizing instruction have shown that the ability to take responsibility for learning varied enormously from student to student. Some were able to function more or less independently right from the start. Others were so used to working only under the direct supervision of teachers that they found it hard to adjust to another way of doing things (5, p. 74-75).

However, individualized programs had advantages for the student not found in other kinds of teaching. For example, a student could proceed at his own rate through the study of each subject and he was able to enjoy a one-to-one relationship with the subject he was studying. Also, working with self-instructional material gave the student an immediate response, and enabled him to understand better the subject he was studying. Another big advantage was that the student could concentrate on those aspects of the subject which diagnostic tests indicated he needed and he could move with greater speed on those materials with which he was more familiar.

Because of the nongraded nature of individualized instruction,
Role of the Teacher in an Individualized Program

Experiments with individualized programs produced some interesting facts about the role of the teacher in an individualized program.

In a study conducted by Lindvall and Bolvin (14, p. 40), for example, it was discovered that despite the lengths to which materials and procedures were developed to permit pupils to progress on an independent basis, there were many aspects of instruction that could not be carried out effectively without the personal intervention of the teacher. This was true, for example, in assessing the characteristics of the individual learner. While test results and records of past performance of pupils could be important in identifying certain needs of the learner, there were many variables that could only be identified through the day-to-day interaction between the teacher and the learner.

Another function of the teacher was that of adjusting learning programs to meet the characteristics of the learner. Such personal intervention by the teacher could involve providing personal tutoring or some other type of personal instruction for the student. It could also involve a decision to set up peer tutoring; arranging for one student to instruct another. Frequently it could result in the decision
to use small group or large group instruction, when either was deemed to be the most effective procedure for achieving certain goals.

Another essential role of the teacher was taking exceptions to the system when this was necessary. The idea of adaptability to individual differences would seem to require that, no matter how carefully developed or how fully variations in procedures were provided, there was still provision for variations based upon on-the-scene decision of the teacher. One example of this would be a decision to lower the mastery requirement on a skill or unit for a given pupil. Another might be the decision to have a student skip certain units. The teacher always needed to remember that the goal of instruction was the growth of the individual pupil, not the completion of skills or units, and modification of the system to enhance this type of growth would be essential to an individualized program (14, p. 40).

Flynn and Chadwich (7, p. 51, 52) conducted a study to determine the role of teachers in individualized classrooms. They concluded that these teachers spent less time presenting subject matter information to students, but they spent more time in traffic control (e.g., taking roll, directing students' whereabouts, etc.) in using various noninstructional materials to aid in the management of students, and in getting supplies and materials for students.

The teachers had more time to make evaluative comments about
students and to give grades to students and to discuss these grades with them. More time was devoted to housekeeping chores, such as cleaning equipment, and in directing students to do logistical tasks (e.g., having students get supplies).

On the whole, less time was spent asking questions and selecting students to answer questions and in interacting with the whole class.

Another interesting finding of this study was that teachers in the individualized classroom and traditional teachers both spent about the same amount of time interacting with individual students. The explanation seemed to be that in traditional classes the teachers tended to interact with individual students in front of the entire class, while in individualized classes they interacted with a student without involving the other students (7, p. 52).

Clymer and Kearney (3, p. 282) from their work with individualized programs, have concluded that:

The teacher is the key to curricular and instructional provisions. Material centers, time blocks, small classes, scheduling, grouping, curriculum guides, teaching materials, and audio-visual aids are only devised to facilitate teaching. None of them alone will produce desirable changes in students. Only as the teacher utilizes the resources available to him in organizing his class and carrying out an instructional program adjusted to needs of students can we hope to make progress in developing the potential of the students in the public schools.

Gezi and Myers (8, p. 65) have stated that individualized
programs cannot possibly replace the teacher. Instead, they will take the load off the teacher for teaching much of the basic skills and content, leaving him valuable and much needed time to humanize learning—leading discussions, raising challenging questions, diagnosing, working with individuals, conferences, examining materials, planning, listening to children.

They concluded that not only will individualized instructional programs give the teacher a new status and role in the classroom, but they will bring a new excitement into teaching and learning, making it a truly creative experience for teachers and children.

**Staffing an Individualized Program**

In an individualized learning system, there must be trained personnel at more than one level of teaching. Included are regular teachers, teacher aides, master teachers, and possibly some specialized staff members.

Preservice or in-service programs, or a combination of both, can provide the training necessary for the school personnel to perform adequately at different levels within the system. Each staff member must be given sufficient time to accomplish the tasks required to organize instruction for individualized learning, as contrasted with total class management of learning (1, p. 778).
Blake and McPherson (2, p. 65) have concluded that:

Working with students in a genuinely individualized fashion is a complex task calling for sophisticated, professional skills on the part of the entire staff. Because teachers tend to teach in the way they have been taught, it is of crucial importance that institutions of higher learning begin a radical revamping of their teacher education programs—now, and without delay.
III. ANALYSIS AND INTERPRETATION OF DATA

Introduction

This study involved the development and field testing by 30 eighth grade girls of self-instructional kits for teaching beginning clothing construction techniques to junior high school students. The instructional material was designed to meet the needs of students and teachers in an individualized sewing program. The development of the kits was based on the belief of the investigator that a range of SoS Kits covering basic sewing techniques would make it possible for a teacher to diversify her program by helping students select projects suited to their particular skill level and recognizing their special interests. It was also believed that such instructional material would help teachers cope with individual differences in the classroom.

To evaluate the effectiveness of SoS Kits as self-instructional material, two devices were used.

The first device involved the students participating in the program, and called for completing a checklist to indicate their attitudes towards SoS Kits.

The second device involved a subjective evaluation by the two teachers in the testing program, and consisted of responding to a series of questions prepared by the investigator and centered around the goals of the study.
Problems Encountered in Field Testing Material

In analyzing the results of the teachers' and students' evaluations of SoS Kits, several factors needed to be considered because of their potential influence on the results.

SoS Kits were one of three teaching methods used in the experimental program—the other methods being programmed learning and teacher handouts. SoS Kits were used to teach two sewing techniques, with the other methods being used to teach the balance of the program.

According to the teachers, many students reacted unfavorably to the programmed method of instruction. This was borne out by students' evaluations of the year's program, where groups made the following comments:

"We didn't like the books that we used before we started sewing because there was too much repetition and the programmed learning took too long.

We liked the zipper SoS, but instead of the programmed learning it would have been better to have had handouts and demonstrations."

"We didn't seem to learn very much for the amount of time spent on the books and paper."

"Instead of having books, have demonstrations by teacher."

Listed under "Bad" column: "Doing a booklet for everything."
The investigator thought there was a possibility the negative feelings towards this part of the program may have negatively influenced some of the students' opinions about SoS Kits, because they were all part of the same unit.

Another possible influence involved the time element. Conducting an experimental program was time-consuming, and both the teachers and students felt frustrated by the pressure of having to complete the unit by a deadline, which was the end of the school year. (The investigator would point out that in a truly individualized program, students would have been permitted to work at their own rate even if this meant their project would not be completed.)

The following comments, taken from the students' year-end evaluation, seemed to reflect their frustration:

Under the heading, We didn't like: 1. "Too rushed" 2. "Programmed lessons" 3. "We were always behind."

"Programmed learning may have taught us, but it sure slowed us down. We were really hurried. We had too much homework. That wasn't fair to us because we just couldn't keep up."

"We don't feel it was right to be penalized because we had to take it home. It was the fault of the SoS booklet and the timewasting program texts."

The teachers indicated that students in one of the experimental
classes had a generally negative attitude. They reacted negatively towards using the SoS Kits, as they had towards all other units and methods of teaching during the year. The investigator believed the number of students who tended to react negatively in this class could have resulted in a more negative evaluation of SoS Kits and may have slanted the conclusions that could be drawn therefrom.

Still another factor that may have had some bearing on the results was the fact that students were given little preparation for using SoS Kits. The teachers believed that the students' attitude might have been improved if they had been aware of the potential benefits to be gained through their use.

Students' Beliefs about Effectiveness of SoS as a Self-Instructional Device

For the first part of the evaluation, students filled in a checklist to indicate how SoS Kits had helped them (Appendix B).

Table 1 gives the rank order of students' responses concerning the skills in sewing kits which helped them.

Students saw SoS Kits as being of most value in helping them learn to follow directions (80 percent), learn a new sewing technique (77 percent), determine standards for their own work (70 percent), and feel more confident when they had to work on their projects (60 percent).
Table 1
Rank Order of Students' Responses Concerning the Skills in Sewing Kits Which Helped Them (Number = 30)

<table>
<thead>
<tr>
<th>Skill Description</th>
<th>No.</th>
<th>Percentage of Positive Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>follow directions</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>learn new sewing techniques</td>
<td>22</td>
<td>77</td>
</tr>
<tr>
<td>determine standards for my work</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>feel more confident when I had to work on my project</td>
<td>18</td>
<td>60</td>
</tr>
<tr>
<td>improve my skill through practice</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>decide when I need more practice</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>I found directions in SoS Kits were easy to follow</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td>recognize seam allowances</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>work at my own rate on my project</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>I liked practicing on paper</td>
<td>14</td>
<td>47</td>
</tr>
<tr>
<td>feel less frustrated when I made a mistake because I didn't have to rip out</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>unsatisfactory work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>work on my own with little or no help from teacher</td>
<td>13</td>
<td>43</td>
</tr>
<tr>
<td>I like this way of learning a sewing skill</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>I would like to use SoS Kits to learn all the sewing skills needed for my project</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>sew straight</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>
Fifty-seven percent saw the kits helping them improve their skill through practice. However, since both classes in the program had, according to the teachers, "The best zippers we have ever had," this could be an indication that students did not recognize the benefit they had gained from practice.

Fifty-seven percent indicated they thought the kits helped them decide when they needed more practice. From discussions with the teachers, it was evident that in giving students assistance they helped some students decide when they needed more practice, and this was undoubtedly reflected in the evaluation. This tied in with findings of other experimental programs, where it was discovered that many students needed to depend on the teacher to help them make decisions.

Fifty-three percent of the students found the directions in the SoS Kits were easy to follow. The fact that nearly half the students said the directions were not easy to follow could have resulted, in part, from this being a new method of learning. Also, the lapped zipper application is one of the more complicated sewing skills and, of necessity, involved a fairly lengthy set of instructions. According to the teachers, the students "zipped" through the stay-stitching kit with little or no difficulty, because this was a simple technique. However, the reasons for finding the directions difficult to follow could be many, and a more detailed study would have to be made to determine
Fifty percent recognized the kits helped them work at their own rate. However, it was thought the pressure to finish on time could account for the fact that half the students were of the opinion they could not work at their own rate. It should also be noted this evaluation runs contrary to the teachers' opinions.

Fifty percent thought this learning experience helped them recognize correct seam allowances.

Forty-seven percent said they liked to practice on paper. The teachers pointed out that students had difficulty seeing the similarity between working on tissue paper and sewing on a fabric. Consequently, some of the girls could not see the relevance of the practice material. An understanding of the purpose of the practice material may have helped them appreciate its worth and might have resulted in a more positive evaluation.

Forty-three percent said they were less frustrated when they made a mistake because they did not have to rip out unsatisfactory work. It was the opinion of the investigator that pressure to finish on time might have caused students to feel frustrated over any setback or delay and that this would be reflected in their evaluation.

Forty-three percent of the students thought they could work independently with little or no help from the teacher. This would tend to bear out conclusions drawn from other experimental programs
that not all students could work independently and that the teacher was an indispensable part of any program.

Forty percent of the students liked the SoS way of learning a sewing skill. It was the investigator's opinion that if the teachers had helped the students understand the benefits they could gain from using the kits and if they had not been under constant time pressure, a more positive response might have been anticipated.

Thirty-three percent of the students said they would like to use SoS Kits to learn all the sewing skills needed for a project. The investigator views this as an indication of the need to make more flexible use of the material, which time did not permit in this experimental program. For example, many students commented that they would have liked demonstrations, and it would have been possible to use the practice material for either teacher or peer demonstrations. Since it is acknowledged that students learn in different ways and need varying amounts of assistance from teachers, it would be desirable to use the kits in any way that would facilitate a student's learning.

Thirty percent said SoS practice material helped them sew straight. However, several students commented in the margins of their evaluation forms that they already knew this.
Teachers' Beliefs about Effectiveness of SoS Kits as Self-Instructional Material

For the second part of the evaluation of SoS Kits, the investigator prepared a set of questions covering the goals of the study. During the evaluation session the teachers responded to these questions. The questions and a summary of the teachers' replies are presented hereunder:

**Question 1.** Skills of Sewing Kits were designed to discover if sewing skills could be learned by self-instructional material and if the availability of such material would help individualize instruction in a sewing program. Now that you have had an opportunity to use two of these kits, do you think these goals were accomplished?

Both teachers believed that SoS Kits were an excellent technique for individualizing instruction, because students could work on their own until they understood the technique and then apply it to their garment. They could, therefore, work at their own speed.

It was also their view that the opportunity to practice helped students considerably, particularly some of the slower students. Those who needed to practice further had the opportunity, they said.

**Question 2.** What would you say were the advantages or disadvantages of using the kits over other types of instruction?

One of the greatest advantages, they felt, would be letting the
students work at their own rate.

Another advantage was that learning seemed to be increased. Students had better zipper applications than the teachers had previously seen and seemingly with less frustration.

The teachers also pointed out that the final written examination showed students could repeat the steps of putting in a zipper. This ability was greater for techniques learned by SoS Kits than it was for techniques learned by programmed material or teacher handouts.

Another interesting observation was that students had difficulty relating what they did on tissue paper to what they would do on their dresses. The teachers thought they needed to help students see this connection before they used the material.

The main disadvantage was time. By and large, practicing on paper and putting the zipper in correctly the first time saved time, they said, but because the classes were behind schedule both teachers and students felt pressured.

**Question 3.** Were the kits useful in permitting students to proceed at their own rate?

Both teachers thought the kits allowed students to proceed at their own rate. However, they pointed out that the SoS Kits and programmed learning units tended to give students an opportunity to "goof off." They believed that if students were going to be given choices, then teachers would have to be prepared to accept such
consequences.

**Question 4.** Another principle of learning is that excessive direction by the teacher often discourages learning, as does an authoritarian atmosphere. (a) Did you feel students liked the idea of using self-instructional material as a means of learning a sewing skill? (b) Did the use of self-instructional material seem to make a difference in attitudes towards learning?

(a) Both teachers concluded that most of the students liked using self-instructional material.

(b) It was the teachers' opinion that working with SoS Kits did not help motivate students, but for those who did want to work this technique of learning was effective. This was also believed to be true of other self-instructional techniques. Both saw a need to devise some type of system for motivating students.

**Question 5.** How did the students react to evaluating themselves?

While some of the students did evaluate themselves, no checking was done by the teachers, and so no feedback was available on the value of this technique.

**Question 6.** "Practice makes perfect" is a familiar saying. Was there evidence that being able to practice a sewing technique before applying it to a project helped students improve their skill and gain confidence in their ability to do the job successfully?
Both teachers believed the opportunity to practice was a definite advantage. This was most evident in the zipper application, because students, on the whole, had nicer zippers than in previous years. They speculated that this could be partially due to the simplifications of the method for zipper application as well as the procedure for learning it.

They thought that if an SoS Kit could succeed in teaching a zipper application technique, then in all probability the kits would be successful in teaching other sewing techniques.

It was also pointed out that one of the students had considerable trouble with her zipper, but she had had difficulty with other procedures too. From the experience, teachers were convinced that not all students could use the kits without the help of the teacher.

Question 7. We know that discouraged and frustrated students may avoid further effort. In your opinion, did the use of SoS Kits help lessen discouragement and frustration?

Both teachers thought that there was less frustration, particularly on the zipper application, than there would have been otherwise. However, some of the "better" students "blew up" because they said they did not understand the instructions. These students had done some sewing before, and it was the teachers' belief that because they were used to putting in a zipper by another method they did not take time to fully read the instructions before they started to sew.
Consequently, they had difficulty understanding the method used in the SoS Kit. It was pointed out, however, that after they went back and re-read the instructions and slowed down a little they did a good job.

The teachers agreed it would have helped to prepare the students for using the SoS Kits. They had, they said, "just handed out the booklets with a very brief explanation."

**Question 8.** Was there any evidence that the kits helped motivate students?

It was the teachers' opinion that the kits did not motivate the students. They believed that if students had a desire to learn, the kits helped them learn better and they could proceed at their own rate. In this way the students were encouraged to go ahead, but the actual motivation did not come from the kits.

**Question 9.** We know external rewards help motivate some students. Could you see value in this type of reward system being built into a program using the kits—for example, giving student a "ticket" for completing an SoS Kit, with the understanding that the accumulation of a specified number of these kits would lead to a special privilege jointly and previously agreed to by the student and teacher?

While external rewards were not included in the program, it was thought they might be used successfully with seventh graders, but that eighth and ninth graders would not get the same degree of
motivation from this technique. However, it was agreed this was something that would have to be tried before a conclusion could be reached.

It was their opinion that if a range of kits were available this would expedite giving students a choice of learnings they wanted to incorporate in their project, and that this would be more effective than external rewards for motivating eighth and ninth graders.

Question 10. Students like to anticipate success, but they also need a challenge. In planning classroom projects, would the availability of SoS Kits help you and your students select projects that are neither too simple nor too difficult for them. In other words, could you better cope with individual differences in the classroom?

It was agreed that the availability of a variety of SoS Kits would help to cope with individual differences, although it was thought that using SoS Kits would not help students select projects that were neither too difficult nor too simple. The teachers said that the selection of projects was one of the more difficult problems in an individualized program, because the students did not know their own skill level. They were apt to get in over their heads because they had chosen a dress by what they wanted to wear rather than by what they needed to learn. However, the practice material was seen as providing a possible way to pretest students to determine their skill level, and, to this extent, it was agreed the kits might be helpful in selecting
appropriate projects.

**Question 11.** Sometimes classroom projects may not incorporate all the skills the teacher wishes to teach. Could you see the kits being used by students to learn construction techniques not incorporated in the sewing project?

While it was agreed that SoS Kits could be used to teach a construction technique not included in a project, it was recognized that motivation would be an important factor to consider before using the kits for this purpose. They pointed out that students had trouble applying what they learned to a garment, let alone to a sample, and that it was important to have the technique on the project for the students to learn it.

**Question 12.** Did you have an opportunity to use the kits with slow learners or with exceptional students, and, if so, could you see any advantages in using the kits with either type of student?

The teachers had anticipated that the kits would be an advantage to the exceptional student, but, as it turned out, they were of most help to the average student.

As for the slow learner, it was acknowledged that to use the kits a student would have to be able to read and understand the directions and then apply them. In working with slow learners, the teachers said they had taken the students individually step-by-step through the procedure, eliminating the use of the written instructions. The
students came to the teachers for help. They said that being able to practice helped these students.

Question 13. Did you have an opportunity to use the practice material to demonstrate a sewing technique or as illustrative material, and can you see advantages to the teacher in using the practice material in this way?

The teachers indicated they would have liked to use demonstrations along the way, but it was impossible to do this on even a limited group basis because of the way their classes were set up. Both agreed that demonstration was a valuable technique, and indicated the practice material in the kits would have been of help. They thought the samples made by the teacher could be useful as illustrative material.

Question 14. Can you see other uses for SoS Kits in the classroom?

Both teachers could see the kits being useful for evaluation purposes and for pretests. It was thought the practice material would give a good indication of a student's ability to follow instructions and that the tissue technique could be used for evaluation purposes rather than using fabric.

Question 15. Some home economics teachers have all their students make a similar project. In this situation, how could you see the kits being used as teaching material instead of
self-instructional material?

While the material was not tested in this context, after working with the kits the teachers could see them being of considerable use as teaching material in the traditional age-group lock-step classroom.

Question 16. In what way would you say using the kits made it possible for you to use your time differently?

The big advantage in using the kits, according to the teachers, was that they had more free time to check and help individual students.

At the onset, the teachers felt they had lost control of what was happening in class, and it was necessary to devise methods of checking on each student's progress because some students rarely asked for help. Eventually they became more aware of what the students were doing and could give help when it was needed. They said it took a while to change their way of teaching.

Question 17. Have you any recommendations about the format of the kits? For example, would it be an advantage to make the kits in a booklet form—excluding the practice material, of course?

The teachers agreed the practice material was the valuable part of the kits. They liked the idea of the instructions and then the practice material. Some students got lost on the transfer from the lined to the unlined practice material, which pointed out the value of the two levels of the practice material.
The teachers said the students seemed overwhelmed by the amount of instructions in the zipper kit, but they could not see a way to make them shorter. But they said the students "zipped" through the stay-stitching practice material and instructions very rapidly.

**Question 18.** Would you make use of Skills of Sewing Kits if they were made available to your school for a reasonable fee?

Both teachers gave an enthusiastic positive response to this question. The kits, they said, had value in a completely individualized set-up or in a conventional classroom, and they added that hopefully the kits could be made available quickly.

**Question 19.** Are there any other comments you would like to make concerning the use of and your experience with SoS Kits?

Both teachers said they appreciated the opportunity to try the SoS Kits, because they worked in well with their testing and experimental program. Although they had been considerably frustrated as teachers along the way, they thought this was inevitable when trying something different. "It was exciting," they said, "and they certainly enjoyed it."

It was concluded students reacted more favorably to the SoS Kits than to the programmed material.

Instead of giving each student a kit, they suggested using instruction booklets and handout answer sheets. The booklets could
then be ordered in classroom sets and reused. While this would destroy the package idea, it was pointed out that it would cut down the cost factor.
IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the evaluation of the testing of SoS Kits by a limited number of students, the investigator has reached the following conclusions regarding the use of this self-instructional material in an individualized clothing program.

1. SoS Kits proved to be effective and flexible instructional material in an individualized clothing program.

2. Students showed excellent retention from this method of learning, indicating that SoS Kits, particularly the practice material, helped students learn better.

3. SoS Kits allowed students to proceed at their own rate, providing they did not have to meet an imposed deadline.

4. While some students were frustrated by the practice material, the practice resulted in more permanent learning and in an improved final product, thereby increasing satisfaction with the end product.

5. Since the teachers did not ask the students how they reacted to the self-evaluation, no conclusion could be reached as to its value. However, 70 percent of the students thought SoS Kits helped them determine standards of their own work, indicating
a potential in this area.

6. In using SoS Kits, the teacher would need to recognize that the unmotivated student would not likely be "turned on" by the use of self-instructional material, and she would need to consider the use of external rewards as a way of motivating.

7. The SoS way of learning tended to build confidence in students in their ability to perform sewing skills.

8. The availability of a variety of SoS Kits would help make it possible for students to make projects suited to their particular skill levels, but they would need the teacher's guidance in choosing their projects.

9. Not all students liked using this self-instructional material, but the percentage who liked to use the kits might have been increased if the students had understood the potential benefits to be gained through using this method of instruction.

10. Sewing techniques should only be taught if they are relevant to a project. Therefore, unless the student so desires, SoS Kits should not be used to teach construction techniques not incorporated in a sewing project.

11. SoS Kits could be used for slow and fast learners, but they are of most advantage to the average student. From the limited use with slow learners, it would appear the teacher would need to play a greater role in the learning process. From the equally
limited experience with fast learners, it is difficult to draw conclusions about their use. However, it is the investigator's feeling that if the student understood the purpose of the kits and was not forced to duplicate a technique she already knew, then the kits could be used successfully with these students.

12. Although SoS practice materials was not used to demonstrate or as illustrative material, the teachers and the investigator agreed that the practice material would be suitable for these purposes.

13. Using self-instructional material altered the role of the teacher. A teacher working on an individualized program would need to be aware of her changed role and be willing and able to adapt to the new demands on her.

14. SoS Kits would be useful as a pretest to determine a student's skill level which would help the teacher and student choose a suitable project for the individual concerned.

15. The format of SoS Kits was satisfactory, but it might be economically expedient to produce them in a pamphlet form in classroom sets, with separate supplies of fill-in sheets and practice materials. Classroom sets could then be retained and reused.

16. The investigator believed there would be widespread acceptance and use for SoS Kits if they were made available for a nominal
fee.

The following are other outcomes that the investigator thought she could conclude from this study:

1. SoS Kits could be used for homework or home projects, but this should be on a voluntary rather than mandatory basis.

2. SoS Kits would be a valuable teaching tool in a traditional program, as well as in an individualized program.

3. Students should be encouraged to engage in self-evaluation, but the teacher would need to help some students recognize her rate and degree of progress.

4. Before using SoS Kits, students should have a clear understanding of their purpose, particularly of the practice material, and of the benefits to be gained through their use, such as being able to make what she wants and the fact that her project will look better because of this additional practice, etc.

5. To provide for the varied needs and abilities of the students, the built in flexible use of SoS Kits should be fully exploited by the teacher.

6. All students cannot work independently with self-instructional material and there is considerable variation in the degree of teacher assistance needed by different students.

7. Using SoS Kits can free a teacher from time-consuming and monotonous work and allow her to spend her time on the
8. Preservice and in-service workshops or other forms of assistance would be useful in helping teachers understand the implications of and the role of the teacher in an individualized program.

9. The teacher is still the key to a successful classroom experience.

**Recommendations**

Based on this limited study, the investigator has concluded there is a real and urgent need for this type of commercially produced self-instructional material in the clothing construction area. It is recommended, therefore, that either the investigator or some designated company should produce and make available a range of Skills of Sewing Kits to cover the basic sewing techniques. These should be available on a re-order basis, for a nominal fee, to any teacher desiring to use the material, either in an individualized program or in a traditional program.

While this study was concentrated at the junior high school level, the investigator feels that this material should also be made available to high school teachers and to teachers of adult education programs where the students involved are learning basic sewing skills.


APPENDIX A

Skills of Sewing kits (3) (to be found in attached packet).
Your S.O.S. Kit will help you learn one important technique of sewing.

Your Kit Contains:

Step 1 General information about stay-stitching technique. (You will be expected to know underlined words on this sheet.)

Step 2 Practice material to help you gain and/or improve your sewing skill.

Step 3 A self-evaluation form to help you decide the level of competence that satisfies you.
Read and study the general information about the sewing skill you will be learning.

2. Be sure you understand the underlined words. Test yourself by filling in the "Review of key learning" sheet.

3. You are now ready to use the practice material. Read the "Directions for practice material," and proceed step by step as directed.

4. When your practice material is completed, rate your own work using the evaluation form in your kit.

5. If you are satisfied with your work, you are ready to complete this step on your garment. If you think you need more practice, see your teacher for extra practice material.
Stay-stitching is a line of machine stitching on a curved or bias edge of a single thickness of fabric that is to be joined to another piece. Straight edges are not stay-stitched.

Stay-stitching holds the grainline threads in place and prevents the fabric from stretching during construction. (Grain or grainline is the lengthwise and crosswise threads of woven fabric.)

Stay-stitching is always done in the direction of the grain. This is called directional stitching.

To check the direction of the grain, slide the edge of the fabric between the thumb and the forefinger. (A piece of burlap makes a good test sample.) The fabric threads fall into place when drawn with the grain and fray or ravel when drawn against the grain.
Stay-stitch in the direction that the threads fall into place to retain the grainline.

Thread that matches the fabric is used to stay-stitch because the stitching is not removed.

Use a regulation length machine stitch (10 or 12 stitches to the inch).

Stay-stitching is done on all seams except the neckline 1/8 inch from the seam line towards the cut edge. The seam line is 5/8 inch from the cut edge of the fabric. Stay-stitching is done on the neckline seam.

Stay-stitching is done from edge to edge. It is not necessary to backstitch or tie thread ends together. Threads should be clipped off even with the fabric edge.
Direction Chart for Stay-Stitching

Stay-stitching is done in the direction of the arrows.

Note: Back and front would be handled the same way.
Review of Key Learnings Before Beginning Practice Material

Define:

Stay-stitching

Curved edge

Bias edge

Grainline

Directional stitching

Regulation length machine stitch

Seam line

Cut edge

See underlined words on general information sheet to check answers.
1. Cut out SoS pattern pieces, being careful to cut on the line.

2. Using SoS 1 and regulation stitch, sew over dotted stay-stitching lines in the direction of the arrows. (----)----) Be sure to begin and end stitching at fabric edge. Try to keep machine stitching on dotted line.

3. On neck edge, stitch from shoulder edge to center front. At center front, lift presser foot, with needle still down in paper, turn and stitch off neck edge at an angle.

4. Using SoS 2, repeat the steps you did on SoS 1.

5. Rate your work, using the SoS Evaluation Form in your kit.
Tips for helping you evaluate your project:

1. Compare your second SoS sample with your first SoS sample to determine how they are alike and how they differ.
2. Compare your SoS samples with the samples on display.

<table>
<thead>
<tr>
<th>My Stay-Stitching is:</th>
<th>Neat</th>
<th>Okay</th>
<th>Oh, ick!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stitching line 1/2 inch from cut edge on all edges except neck edge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck edge is stitched on seamline (5/8 inch from edge)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stitching line is straight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All edges are stay-stitched in correct direction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Necessary edges have been stay-stitched</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation stitch length is used</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DECISIONS! DECISIONS!

Based on my evaluation, I think (check one box)

☐ I am ready to stay-stitch my garment.

☐ I had better go back and practice some more.

(Additional practice material is available on request from your teacher if you decide this is necessary.)
Your S.O.S. Kit will help you learn one important technique of sewing.

Your Kit Contains:

Step 1 General information about lapped zipper application. (You will be expected to know underlined words on this sheet.)

Step 2 Practice material to help you gain and/or improve your sewing skill.

Step 3 A self-evaluation form to help you decide the level of competence that satisfies you.
1. Read and study the general information about the sewing skill you will be learning.

2. Be sure you understand the underlined words. Test yourself by filling in the "Review of key learning" sheet.

3. You are now ready to use the practice material. Read the "Directions for practice material," and proceed step by step as directed.

4. When your practice material is completed, rate your own work using the evaluation form in your kit.

5. If you are satisfied with your work, you are ready to complete this step on your garment. If you think you need more practice, see your teacher for extra practice material.
. How a lapped zipper looks:

. Parts of a zipper:

. The neat look of a garment depends on the use of a neat closing technique, such as a zipper.

. The lapped zipper closing is used in skirts, necklines, center back
and center front seams and is one of the most commonly used closing techniques.

A zipper is usually inserted at the left side of the garment or at the center front or center back.

Your teacher will tell you if the garment must be fitted before inserting the zipper.

A skirt zipper is usually inserted before the waistband is attached.

To stitch in a zipper, the presser foot is replaced by a special attachment called a zipper foot. The zipper foot permits stitching on either side of a zipper without interference from the zipper teeth. It can be moved to either side of the needle and it should be placed so that part of the foot rides on the fabric.

The opening for a zipper should be 1" longer than the metal part of the zipper to allow for neck facing seam and hook and eye. If the neckline facing has been attached before inserting zipper, make the opening only 1/2" longer than the metal part of the zipper to allow space for a hook and eye. This opening is also called a placket.

If the opening seam allowance is less than 5/8", add seam binding to seam allowance to give added width.

Color of zipper and thread should blend with fabric color.

Use a regulation length stitch to insert zipper.

Take your time. It pays in the end.
Review of Key Learnings Before Beginning SoS Practice Material

Define:

Closing technique

Placket

Lapped zipper application

Presser foot

Bottom-stop

Pull-tab

Sewing guide line on zipper tape

Teeth

See underlined words on general information sheet for answers.
1. Cut out SoS practice material, being careful to cut on line. Set aside SoS 2A, 2B, and 2C pieces.

2. Place SoS 1A over 1B so right sides of paper are together, and lines aa on two pieces match. Pin in place, placing pins about 2" apart and at right angles to the fabric edge.

3. Using machine basting stitch (6 stitches to the inch), machine stitch on line aa from neck edge to 1/2" past dot on stitching line. Change stitch to regulation stitch (10 or 12 stitches to the inch) and back stitch to dot. Reverse direction of stitching and stitch to bottom edge.
4. Press open seam.

5. With right side up, fold left side over right side. Fold top seam allowance back, so under seam allowance can be seen.

6. Fold bottom seam allowance under on line bb, which is 1/8" from seam.

7. Place zipper 1C under folded edge of seam allowance so line bb on zipper matches line bb on folded edge. (Notice there is 1" allowed between top of metal part of zipper and neck edge for facing and hook and eye.) Pin in place.

8. Replace presser foot with zipper foot so zipper foot is on left side of needle. (Check with teacher if you do not know how to do this.)
9. Machine stitch on dotted line cc on seam allowance, stitching from bottom to top of zipper tape.

10. Move zipper foot to right side of needle. With right side up, machine stitch zipper in place on dotted line dd stitching from bottom of zipper to neck edge. (To help guide your machine stitching on your garment, you may wish to mark the stitching line with a line of hand basting, using different colored thread, or You may use a strip of 3/8" masking tape for this purpose. Line up one edge with seam line and use the outside edge as a stitching guide. Remove tape when you are finished sewing. This technique should not be used on velvets or other pile fabrics.)

11. Remove basting.

12. Press on wrong side. When working with fabric be sure to use a pressing cloth.
Tips for helping you evaluate your project:

1. Compare your second SoS sample with your first SoS sample to determine how they are alike and how they differ.
2. Compare your SoS samples with the samples on display.

<table>
<thead>
<tr>
<th>My zipper application is:</th>
<th>Neat</th>
<th>Okay</th>
<th>Oh, Ick!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside stitching is even</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1/2''$ is allowed at top of zipper for hook and eye</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zipper is completely concealed when zipper is closed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation stitch is used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If neckline has been finished with a facing, $1/2''$ is left at top of zipper for hook and eye</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DECISIONS! DECISIONS!

Based on my evaluation, I think (check one box)

☐ I am ready to put in my zipper

☐ I had better go back and practice some more.

(Additional practice material is available on request from your teacher if you decide this is necessary.)
SoS Kits have multi uses, depending on the needs of the teacher and students.

Primarily, the kits have been designed as an independent study vehicle, permitting a student to choose a project and, with the aid of the appropriate kits, to complete the project with a minimum of assistance from the teacher.

The kits may also be used by the teacher as teaching material. The information sheet, for example, may be used to teach the basic information about a sewing technique. The practice material may be used as demonstration material. The samples made by the teacher
may become part of a bulletin board display and, additionally, may be a reference source for the students. The sample may also be used for comparison purposes to facilitate self-evaluation of a skill by a student or by the teacher to explain to a student the basis for grading.

For some students, working to achieve a short-range goal may be a motivating force. With this in mind, a reward system may be used whereby a student will receive a "ticket" upon completion of each kit. The student and teacher may cooperatively decide during the planning of a project what reward may be claimed upon the accumulation of a specified number of "tickets." The key, of course, is that the reward be something the student truly prizes.

The kits may be used to teach sewing techniques not incorporated in a project, but which the student and teacher feel a need to include in the program.

For the student who has had some sewing experience, the practice material may be used as a pretest to determine a student's skill level.

There are many ways a teacher can make use of SoS Kits, the only limiting factor being her imagination.

As an added convenience, master copies of mini quizzes, together with answer sheets, are provided for your use.

A contract and planning sheet is also included to help students plan individual projects.
Contract and Planning Sheet

Name: ____________________________
Class: ____________________________
Project chosen: ____________________
Pattern name and number: ____________
Pattern size: _______________________
Material:
   Kind ____________________________
   Amount _________________________
   Notions _________________________
   Cost ____________________________

Sewing techniques used in project:

<table>
<thead>
<tr>
<th>Technique</th>
<th>SoS Kit</th>
<th>Where technique will be used on project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

I plan to finish my project by ____________________ (Date)

Signatures:
Student
Teacher
SoS Mini-Quiz -- Lapped Zipper

Directions: Complete the following statements.

1. A zipper is one type of ________________ technique.

2. Four places where lapped zipper application may be used are ____________, ____________, ____________, ____________.

3. If a skirt has a side zipper, this should be on the ____________ side of the skirt.

4. The attachment used to replace the presser foot when inserting a zipper is called a ________________.

5. A placket seam that is less than 5/8" may be widened by adding ________________.

6. The color of the zipper should _________ the fabric.

7. A zipper opening should be 1" longer than the zipper to allow for ________________ and ________________.

8. If the neck has the facing attached before the zipper is inserted, the opening should be _________ inch longer to allow for a ________________.

9. Identify the parts of the zipper that are numbered on the diagram.
   1. ________________  3. ________________
   2. ________________  4. ________________
   5. ________________
ANSWER SHEET

SoS Mini-Quiz -- Lapped Zipper

1. Closing

2. Skirts
   Necklines
   Center back
   Center front

3. Left

4. Zipper foot

5. Seam tape

6. Match

7. Neck facing seam
   Hook and eye

8. Half
   Hook and eye

9. 1. Bottom stop
    2. Tape
    3. Sewing guide line
    4. Teeth
    5. Pull tab
SoS Mini-Quiz -- Stay-Stitching

Directions: Complete the following statements.

1. Stay stitching is _________________________________.

2. The purpose of stay-stitching is to _________________________________.

3. Directional stitching means _________________________________.

4. The grain is _________________________________.

5. The direction of the grain can be determined by _________________________________.

6. Matching thread is used to stay-stitch because _________________________________.

7. Stay-stitching is done ______ inch from the fabric edge except on the _________________________________.

8. Using lines and arrows indicate where and in what direction you would stay-stitch on the following pattern pieces.
ANSWER SHEET

SOS Mini-Quiz -- Stay-Stitching

1. A line of machine stitching on a curved or bias edge.
2. Hold the grainline threads in place and prevent the fabric from stretching during construction.
3. Stay-stitching that is done in the direction of the grain.
5. Sliding the fabric between the thumb and forefinger.
6. The stitching is not removed.
7. Half
   Cut
   Neckline seam
   On the seam line
8.
APPENDIX B
### Student's Evaluation of Skills of Sewing Kits

Skills of Sewing Kits have helped me to:

- learn new sewing techniques
- sew straight
- recognize correct seam allowances
- follow directions
- improve my skill through practice
- determine standards for my work
- decide when I needed more practice
- work at my own rate on my project
- feel less frustrated when I made a mistake because I didn't have to rip out unsatisfactory work
- work on my own with little or no help from teacher
- feel more confident when I had to work on my project

---

I like this way of learning a sewing skill

I found directions in SoS Kits were easy to follow

I liked practicing on paper

I would like to use SoS Kits to learn all the sewing skills needed for my project

---

Comments I would like to make about SoS Kits: