Individualized Approach to Learning Library Skills

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DURING THE LAST FIFTEEN years, academic librarians have become conscious of the fact that many library users (and potential users) do not know how to use libraries effectively. As a result, a whole new movement concerned with bibliographic instruction has arisen. Many attempts to teach basic library skills have utilized methods of large group instruction—the "library tour," general orientations, and the like. By and large, librarians have found these attempts to be unsatisfactory; students tend to be unmotivated, they forget important skills by the time they need them, or, in any given group of students, the level of library sophistication varies widely. Many librarians have turned from large-group presentations to methods which promise to meet the needs of individuals.

Of course, libraries have a long history of working with people as individuals. Traditional reference service is built upon the notion of responding to individual needs; good reference librarians have always tried to teach the user in the process of answering his or her question, so that the user learns basic skills that may be utilized for the next problem. If there were enough reference librarians always available, and if patrons always asked for their help, there would probably be no need for other forms of individualized instruction. However, because reference librarians cannot be everywhere they are needed, and because much of

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such instruction is repetitious and can be taught more efficiently in other ways, a number of other individualized approaches have been used in libraries.

Approaches that have been used are largely adaptations of methods developed and used in education. "Individualized instruction" became popular during the early 1960s, probably because, as Cross points out, the more heterogeneous the group, the more necessity there is to individualize;[1] if the members of a group all have the same needs and are at the same level, then the group can all learn the same material at the same rate. Like most teachers now, however, librarians must work with students who come to them with skills ranging from almost nonexistent to quite sophisticated. To avoid losing some students and boring others, librarians must consider individualization.

To many people, the term *individualized instruction* is synonymous with programmed instruction. However, according to Bolvin and Glaser, individualization is any instruction that is adapted to individualized needs, including small group instruction, teaching machines, programmed instruction, tutoring, project work, and independent study.[2] Ways of individualizing the instruction may range from presenting the same material but at differing rates, to using the same materials but varying the type of presentation according to the personal or social styles of the student, to using materials and objectives chosen to match the student.

Obviously, then, individualized approaches may take many forms. It may help to think of approaches on a continuum, from a noncontrolled and nonstructured format to a controlled and structured one. Independent study might constitute one end of such a continuum, and traditional classroom teaching the other (see table 1).

Like methods used in education, the types of individualized approaches used in libraries can also be arranged in a continuum, from nonstructured and noncontrolled formats to structured and controlled. By doing so, one realizes that many activities which librarians have traditionally carried out (preparation of guides, providing reference service) are indeed forms of individual instruction; and some activities which are often thought of as "completely individualized" (for example, programmed instruction) are considerably less student-controlled than one might otherwise think. This paper, then, will be concerned primarily with examining those activities which are currently being used in libraries and which might be classified as individualized approaches. The activities will be organized along the same continuum, from least structured and most student-controlled to most structured

and librarian-controlled. (This is not to say that the less structured the better; each approach has its own advantages and applications.)

TABLE 1. LEARNING CONTINUUM

Type	*Characteristics*
	Nonstructured, noncontrolled
Independent study	Student chooses what to study and how information or skills are to be acquired. Student has control over topic, rate of learning, method of learning.
Small group	Grouped according to skills or interests, students choose their course of study and may be responsible for content and method.
Programmed instruction	Student has no choice of materials, but may proceed at own rate; in some instances, student may skip parts that he or she has mastery of.
Traditional classroom	All students are given the same materials; the teacher has control over content, method and rate.
	Structured, controlled

Signs

While signs are certainly not new in libraries, it is only recently that they and other large graphics have been considered a teaching tool. Articles on library graphics are included in bibliographies of library instruction, and they are also listed under the subject heading "Instruction in the Use of Libraries" in *Library Literature.*

How do signs instruct? One obvious example is that large well-designed graphics indicate locations for users; certainly a reference librarian's time can be better spent than in pointing to rest room doors twenty times a day. However, signs can have other uses. An information center near the front of the library, which includes a floor plan and basic information for locating books and journals, helps to orient a user to the basic organization of the library, and can indicate a logical flow for locating information. A description of a whole system can be found in *Library Guiding* by R.J.P. Carey.[3] A more recent publication, by Pollet and Haskell, is *Sign Systems for Libraries: Solving the Wayfinding Problem.*[4]

Adequate signs in a library give users a sense of assurance in being able to locate materials which they already know how to use, or make them aware of materials of which they previously had no knowledge. Almost everyone would prefer to be able to find his or her way around a place without having to ask questions continually. However, signs by themselves cannot give all the information needed by an independent user.

Guides and Handbooks

Handbooks are also not new in libraries. Like signs, a handbook can serve to orient a user to a particular library and to its services. In practice, handbooks are often much too long. Like the library tour, they tend to overwhelm the user with more information than is needed (or can be absorbed) at a first introduction. A 30- or 40-page handbook that attempts to answer every question which might be asked is probably never read. A brief, concisely written handbook ought to give the reader a quick overview with a little more information than could be obtained from a sign system.

More recently, guides which are aimed at a particular need have appeared. On display in a library may be a series of guides, aimed perhaps at particular tools (e.g., "Using Periodical Indexes" or "Finding Government Documents") or at disciplines (e.g., "Psychology: A Guide to the Sources" or "Zoology: Formulating a Search Strategy"). Sometimes the guides are actually lengthy bibliographies, which may be useful; but a guide fills more of a teaching role if it attempts to organize an approach to a type of literature or to a discipline, that is, if it says to the user, "this is the approach that should be used when investigating a problem in sociology," for example, and then demonstrates it. The user than can apply this approach in future research. The LOEX (Library Orientation/Instruction Exchange) clearinghouse at Eastern Michigan University has a number of excellent examples of such guides prepared by many different libraries.

A more specific type of guide is that called the "Pathfinder." Originally developed by Project Intrex at the Massachusetts Institute of Technology, the Pathfinder "functions as a step-by-step instructional tool which introduces a library user to the variety of information sources available in research libraries....Pathfinders are aids for the first three to five hours of literature searching."[5] Pathfinders take a topic, such as one which might be suitable for a research paper (e.g., "Sedimentation as a Wastewater Treatment"), define it, and give citations to specific intro-

ductions, books and articles, as well as listing appropriate subject headings. Pathfinders are invaluable aids for topics that many students research, because they save a librarian from going through the same explanations over and over, and allow the student to proceed independently. However, Pathfinders also take a large amount of time to prepare. Librarians ought to devote the necessary time only to topics in which there is enormous current interest. Pathfinders have been available commercially from Addison-Wesley, but the librarian is then faced with the task of making them fit a particular library and seeing that students can find them when they are needed.

There is, of course, no requirement that a guide appear in print format. One widely used approach is to produce a self-guided tour on audiotape, which allows the student to walk around the library accompanied by a friendly voice. Audiotapes are inexpensive, easily updated, and appealing to a generation oriented to sound and earphones. Yet another popular approach is to produce what is called "point-of-use" instruction. These are modules (nearly always in some audiovisual format) which explain to a student how to use a particular tool and are located near that tool. A student may pick up a telephone and receive instructions for using the card catalog; sit down at a carousel projector and view a slide-tape presentation on *Chemical Abstracts*; or look at a diagram which explains a citation index. Typically locally produced, such presentations may be surprisingly expensive in terms of time needed for production, initial cost of the equipment, and maintenance. The library which plans to implement point-of-use instruction should begin on a small scale, developing one or two modules, and evaluate carefully the amount of use the programs receive in comparison to the expense involved.

All of the guides discussed in this section have one characteristic in common: they allow the student to have control. He or she selects only those items needed, decides how much information is wanted, and proceeds independently. Providing it has motivated patrons who want and are capable of independent work, the library which develops a comprehensive system of guides at various levels of sophistication may find that it has met most individual needs. However, for many students more structured approaches may be needed.

Tutorials

As discussed earlier, reference librarians have traditionally worked with patrons individually, and have often used the reference contact to teach library skills. However, the patron may approach the desk at a

busy time, or the particular librarian may not have sufficient subject area background to fill the patron's needs. To alleviate these problems, many libraries have adopted a reference tutorial service. At SUNY-Oswego, this service is called PLUS (Personalized Library User Service). A student makes an appointment two days in advance, filling out a brief form which explains his or her topic. A librarian with some subject background does some preliminary searching before meeting with the student for about one-half hour to outline a search strategy and explain the use of necessary tools. PLUS at Oswego usually handles about fifty appointments per semester, and has had highly favorable student responses without placing an undue burden on the staff (generally because the assigned librarian is already familiar with the subject area.) Similar services are offered at libraries around the country.

Students like such services because through them they receive a great deal of information at a time when they need it. To make the sessions teaching situations, however, librarians must be careful that they are not just handing out information, but are demonstrating a method which may be used by the student in the future. Since they are dealing with highly motivated students on an individual basis, chances for successful and meaningful teaching are high.

Programmed Instruction

Programmed instruction (PI) as it was developing in the early 1960s was acclaimed as a panacea by educators.[6] Programmed instruction, it was felt, could take on most of the actual teaching, leaving teachers free to work with students who needed extra attention. Fifteen years later, educators view PI somewhat differently. It is generally believed that while PI can teach facts and skills rather quickly, the rate of learning is often the only thing under the control of the learner, and many programs are recognized as boring and meaningless. Programmed instruction is still around, but it is no longer seen as a reasonable substitute for the teacher.

Libraries have used PI almost from its beginnings; one bibliography on the topic is subtitled "A Classified Bibliography of Programmed Texts and Other Materials, 1960-1974."[7] An early study by Wendt on the possibility of using teaching machines to instruct freshmen in the use of a university library was published in 1963.[8] There are a large number of packages and modules of programmed instruction for libraries, and many of these can be found quickly in the ERIC document collection.

However, it is in the form of workbooks that programmed instruction has been most widely used in libraries. Workbooks meet the definition of programmed instruction by presenting a series of questions, usually accompanied by short descriptive materials, that students work through at their own pace. One of the best-known examples was developed by Miriam Dudley and her staff at the College Library of UCLA.[9] Begun in the early 1970s and now in its third edition, it has been used in more than 100 colleges and universities. The program consists of twenty segments directing the student to locate certain tools in the library and to use them to find answers to questions. There are 100 different sets of questions; therefore, there is little likelihood of any two students discovering that they have the same questions.

While the workbook can be used as a course in itself, it has most often been used as a section or requirement of another course, such as freshman composition. Its effectiveness in teaching many library skills is acknowledged in a well-written article describing its use at the University of Arizona.[10] Similarily planned workbooks in subject areas (history, political science, etc.) are being published by The Libraryworks in their "Materials & Methods" series.[11]

The use of such a workbooks offers a far better alternative to tours designed to reach large numbers. Students are directed by the workbooks through the library and are encouraged to use the materials discussed. Given the number of librarians and funds available for teaching, there is probably no sounder way to reach large numbers of students with assurance that they will actually participate in the learning experience. However, like much of programmed instruction, the workbooks do not allow for differences in level of student ability; they do not allow students to follow their own interests, and must often depend on the motivation of course requirements to ensure their completion.

Another form of workbook allows for student choice of topic. The student is given information on a generic type of tool—periodical indexes, for example—and, using his or her own topic, is asked to locate a pertinent index and find information relevant to the topic. This approach is often used in library courses taught for credit, such as the one taught since 1973 at SUNY College of Environmental Sciences and Forestry. The end result of the student's activity usually is a bibliography on the chosen topic.

Allowing students to pursue their own topics usually results in greater student interest and motivation. Often the topic is one which the student is researching for another course, which results in the library skills being viewed as a means to an end, rather than as a meaningless

exercise. Finally, since the choice of topics is almost infinite, the chances are very small that students will copy the work of others.

There are, however, some disadvantages to this approach. There is less teacher control over the learning situation, so that some materials may not be completely covered. With the possibility that every student may be using a different tool, the nuances and quirks of one particular tool may not be completely explored. Some topics may not be suitable for some generic tools. (Imagine a student attempting to research Debussy in government documents.) Finally, correcting these workbooks is a more arduous task than dealing with those having only one correct answer. Student enthusiasm for this approach may well overcome the disadvantages, but the librarian contemplating the use of workbooks in which students choose their own topics must be aware that there is probably a limited number of students who can be dealt with in any one period of time.

There are other forms of programmed instruction used in libraries. Some of these are part of learning packages (which will be discussed later). Others are printed programmed instruction, such as the self-study book by Lolley. First published in 1974, it is still in print and presumably being used five years later.[12]

Computer-Assisted Instruction

Like programmed instruction (to which it is closely related), computer-assisted instruction (CAI) had an enormous boom in the 1960s. With the help of federal funding, numerous projects were started. As funding ceased in the early 1970s, so did most of the projects.[13] However, some projects are still going on, both in education at large and in libraries.

Computers may be used for instruction in several different ways. A program which differs little from printed programmed instruction may simply be put on a computer. The student is given a small amount of information, responds, is told if the response is correct, and moves on. Such an application of CAI has only a few advantages over a printed format (and, of course, costs much more). Students generally enjoy the interaction with the terminal. There is little possibility of cheating, scoring is done, and statistics are gathered automatically. With a little more ingenuity, branching programs can be added. Based on response, the student can be directed to a subprogram, thereby not only moving at his or her own rate, but also receiving more or less instruction according to need.

More imaginative programs have been developed which rely on the simulation capabilities of a computer. Medical students have been taught diagnosis using a hypothetical patient with certain symptoms; the student diagnoses the problem and prescribes a course of treatment. If a fatal mistake is made, the patient is, after all, only hypothetical. On the PLATO system, developed at the University of Illinois, elementary school students can learn fractions by following recipes to create monsters (if the fractions are accurate, a picture of a monster appears on the screen). Education majors can simulate a first year of teaching. Given a principal with unknown characteristics, the students make a series of decisions and find out at the end of a hypothetical year whether they are fired, retained or promoted. Such creative applications of CAI carry their own motivation. Students learn almost despite themselves.

While there have been a number of uses of CAI in library instruction, they have not been unusually imaginative. Entire courses in library use have been taught by computer, as was done in the early study by Axeen.[14] Computer terminals have been placed in library lobbies, such as at the University of Denver,[15] where students may work through a program of orientation or learn how to use particular tools. Programs concerned with subject areas have been developed, such as a recent one for biology students at the University of Illinois.[16] More imaginative approaches have been used to teach library school students—for example, simulating a reference interview.[17]

CAI may have much to contribute to library instruction, but at present, the cost of developing course materials and obtaining terminals means that applications are limited. The availability of minicomputers may be of some future help. Also, some interesting programs may be developed at centers where extensive CAI research is still being conducted and where there are also librarians interested in instruction. (The University of Illinois has both the PLATO program and active bibliographic instruction librarians.)

Other Approaches

Other ways of individualizing library instruction have been used. One such use is the development of learning packages, where a set of materials is gathered together for a student and an instructional experience is planned, usually following the idea of behavorial objectives. The traveling workshops experiment in Great Britain involves a package which includes student handbooks, exercises, posters, slide-tapes, and audiotapes.[18] A package for learning about the card catalog might

consist of a slide-tape presentation, a catalog card drawer with sample cards, and an answer sheet for questions posed by the tape. A package on locating periodicals might include an audiotape, a sample index and a copy of a periodicals holdings list, and may finish by asking the student to locate an actual periodical in the library. Such packages are interesting for students because they offer a variety of media and call for student interaction. Certainly they are more interesting than a print program which asks a student to sit down while responding to a series of questions. Also, packages like these are useful when it is necessary to instruct very large groups of students. Regular library materials receive less wear and tear, and trampling hordes of students do not interfere with the work of other patrons. The major disadvantage is that students probably learn better by manipulating the actual materials than by using simulations, no matter how attractively packaged. This drawback may be overcome by keeping the simulations as close as possible to the actual materials. An old paper copy of an index is better than a photocopied page, and a duplicate bound copy is even better.

Still another approach is to adopt the Keller plan (Personalized System of Instruction, or PSI) for library classes. Originally developed to teach psychology, PSI calls for giving students a set of objectives that must be accomplished by the end of the course, providing means to learn the objectives (these are usually readings, but may be lectures, small group discussions, learning packages, films, workbooks, or any combination), and allowing the student to proceed at his or her own rate in meeting the objectives. When the student feels ready to be tested, he or she comes to the instructor. Tests must be passed in order to receive credit for the course, and students may keep trying until they succeed.[19]

Many students like this approach because they take the responsibility for learning; it is up to them to determine how much of the materials will be learned. Students generally work much harder in a PSI course than in one which is traditional.

As may be imagined, the major problem with PSI is student procrastination. Many students are too immature to cope with so much responsibility. Instructors have dealt with this by refusing to give "Incompletes" and by encouraging clearly unsuitable students to drop the class.

At least one library credit course has been taught using PSI at the Technological Institute of Monterrey.[20] The Keller plan can work well to individualize instruction for large classes, and it could also be used in a library segment of another course (for example, English composition).

Other ways of individualizing large classes could also be tried. The

establishment of small groups arranged according to major or other interests is possible, as are courses offered as independent study.

Future for Individualized Approaches

During the 1980s, it is apparent that librarians will be dealing with a population that is more heterogeneous, not less. Students will be coming to libraries with even wider variations in ability, knowledge and library skills. Assuming that greater heterogeneity calls for more individualization, librarians should consider even more individualized approaches if they are to teach students how to use libraries well. Moreover, there is ample evidence to show that students can learn as well from alternate approaches as from those which are traditional.[21]

What kinds of individual instruction are likely to be used? Since budgets and personnel are likely to be reduced in the coming decade, economic factors will govern decisions.

Librarians looking for ways to reach students as individuals first ought to examine their libraries to ascertain how much can be done to make them self-teaching. The use of signs, guides and point-of-use materials can obviate much formal instruction by explaining the library's organization, or by suggesting additional tools similar to ones patrons already know how to use. These factors will not, however, eliminate the need for more in-depth instruction.

At the present time, workbooks are the most inexpensive way of teaching large numbers of students in a structured manner. Not only are materials inexpensive, but students can be required to purchase them, if need be. If computer scoring is used, the time spent in grading can be drastically reduced. Learning packages can also be effective. Once the initial expense of equipment and materials is met, the costs of upkeep are low, and they can be administered with a relatively small amount of staff time. If computers and their software become less costly, there will probably be an increase in their use.

Many fine materials, ranging from worksheets to complex learning packages, already exist. Rather than each library attempting to develop its own materials in isolation, materials already in use should be refined and evaluated within the context of individual libraries. There is some indication that this is being done.

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