DOCUMENT RESUME

ED 158 727 IR 006 182

AUTHOR Bunderson, C. Victor
TITLE Alternate Learning Strategies: The "Why?" Askers. Occasional Paper No. 4.
INSTITUTION Brigham Young Univ., Provo, Utah. Div. of Instructional Research, Development, and Evaluation.
SPONS AGENCY Mitre Corp., McLean, Va.; National Science Foundation, Washington, D.C.
PUB DATE Mar 75
CONTRACT NSF-C-179
NOTE 8p.; Institute for Computer Uses in Education Series; For related documents, see IR 006 174, 177, 178 and IR 006 180, 181, 183

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cognitive Style; Community Colleges; *Computer Assisted Instruction; Display Systems; Educational Technology; Higher Education; *Instructional Improvement; Instructional Innovation; Man Machine Systems; *Student Needs
IDENTIFIERS *TICCIT Computer System

ABSTRACT

Students ask "why?" questions in the survey stage of using TICCIT lessons either because (1) they have holistic learning strategies, (2) they are searching for familiar bases upon which to attach new material, or (3) they desire to find out what relevance the lesson has for their future lives. In the design phase of TICCIT, an effort was made to answer the "why" question as it relates to the survey aspects of learning by introducing material that showed why a particular lesson or unit was important. However, the teaching and proctoring staff of a TICCIT class have the responsibility to deal with the additional "why?" questions which can only be answered by perceptive human beings, and to prompt students in the use of improved learning techniques. (CMV)

INSTITUTE FOR COMPUTER USES IN EDUCATION

ALTERNATE LEARNING STRATEGIES: THE "WHY?" ASKERS

C. Victor Bunderson

Occasional Paper No. 4

March, 1975

Sponsored by:
The MITRE Corporation
under NSF Contract #C-179

DIVISION OF INSTRUCTIONAL RESEARCH, DEVELOPMENT & EVALUATION

Brigham Young University

Provo, Utah

The Occasional Paper series of the Institute for Computer Uses in Education is designed for communication primarily with faculties and administrators at the test colleges involved in the TICCIT project. The Occasional Papers treat topics and issues which are of immediate concern.

ALTERNATE LEARNING STRATEGIES: THE "WHY?" ASKERS

C. Victor Bunderson
Brigham Young University
March, 1975

The TICCIT system was designed to accommodate wide differences in students' learning strategies (as discussed in the introductory unit, lesson number 2). A learning strategy consists of survey tactics, learning tactics, evaluation tactics, and review. The student's personal learning strategy is made up of his or her lesson-by-lesson orchestration of materials from the survey, learning, evaluation and review possibilities available through the TICCIT Learner Control language. This memo considers how the question "why" is related to such strategies.

TICCIT STRATEGIES AND SQ3R

Most of you are familiar with the old SQ3R method of study. It stands for "Survey, Question, Read, Recite, and Review". A good TICCIT strategy adopted by a learner is similar to the SQ3R study method, but adapted to the CAI environment. A good survey on TICCIT would include consideration of at least the unit level materials. The student needs to see how the lessons of the unit hang together and why the prerequisite relationships among lessons may be important. The outcome of this survey is two-fold; first the student develops a framework in his mind within which to place the information he will learn in the unit, i.e., he knows why the unit is important, how it relates to other things he has previously learned, and how the different lessons in the unit hang together. The second outcome of a unit level survey is a sequence plan for the lessons. The prerequisite structure of the unit may or may not make sequence decisions for him.

The outcomes of survey at the lesson level are similar. The student should seek an understanding of why the lesson is important, how it relates to other lessons (giving him memory hooks for storing the information in the lesson), and a feeling for the interrelationships among the segments. During the lesson survey phase he should also decide on an initial sequence for attacking the segments. This sequence will be based in part on his feeling for which segments he may already know. He would be advised to start high enough up in the learning hierarchy for the lesson to reduce the time spent going over things he may already know. The lower segments (often called "scaffolding segments") are not always necessary to the student with some familiarity for the subject matters. A third outcome of the lesson survey is to develop a set of questions to guide study (the "Q" of SQ3R). During the survey students should ask themselves the question "Why?". This question should guide their survey for the next minute or so, and facilitate later learning tactics. (More about "why" questions later). Other kinds of questions pinpoint the areas in which the student thinks he may have the least understanding. Questions raised when one surveys the objectives, and in some cases the rules of the lesson, should orient a planned sequence through that lesson and focus attention on the areas where the most work will be needed.

HOW TO ASK "WHY"

The main purpose of this memo is to discuss the question "Why?" asked by many students and the facilities available in the total TICCIT system to help answer that question. I recently visited Northern Virginia and talked to a student who felt that she was unable to get answers to her "Why?" questions from TICCIT. She also complained that she didn't like to learn things "in little pieces". This student was working hard and was not just a complainer.

Her concerns were very real to her, indicating that there were some deficiencies in the total instructional system as she understood it. These deficiencies could lie in some or all of the following areas:

a. the resources available to her on the system were not adequate to answer her "Why?" questions.

b. the advisor program had not yet evolved to the point where it was helpful to students who are "Why?" askers.

c. the proctors and teachers have not taught her how to obtain answers to her questions from the system.

d. some "why" questions can only be answered by persons.

Let us consider the function of "why" questions and see what we can do to improve our instructional practices as teachers, and how our TICCIT materials can be revised to be greater service to students like this one.

Gordon Pask has done important research showing that students doindeed have different learning styles. In one study, Pask identified two kinds of learning strategists. One kind of student he identified as a "partist". A partist learner starts at the botton of a hierarchy and works step-by-step until he reaches an objective set earlier. Another type of learner Pask called a "wholist". A wholist learner wants to get a clear picture of the structure of instruction before he proceeds with the hard work of learning, and review. Thus he does quite a bit of surveying, orienting himself to the whole structure. He may also skip around as he is learning rather than proceeding in a path from the bottom of the hierarchy directly to the top. Pask found that when he created instructional sequences for wholists which were based on a partist strategy the wholists did worse. He also found that when partists were required to go through a sequence best described as wholist, the partists did worse.

Wholist strategies represent one result of the more global mental set represented by "why?". One may put the idea of "why?" asking another way. Some people, seeking the "hooks" on which to hang new material, find that they can comprehend the details of a new lesson or subject best when they have found out some of the history, i.e., what people were trying to accomplish when they developed the new concept or precedure under discussion in a lesson. A good friend of mine, headmaster of a leading girls' school in New York City, told me he had never fully understood the subject of logarithms until he saw our introductory video-tape. The tape explained how Napier had spent twenty years of his life developing his book "An Admirable Table of Logarithms". Napier's identity and motivations helped my friend attach meaning to an otherwise abstract subject that he has known formally for years.

Other learners ask 'why?' in order to find out what good the lesson will be to them personally in their future lives (including their immediate future, in lessons for which a subject lesson is prerequisite).

Granting that students should be able to ask "Why?" and get answers, how can a system of computer materials, teachers, and proctors help students? During the early design stages of TICCIT in 1971 and 1972 we contemplated a "why?" button on the keyboard. We found however, that the question "why" had so many ramifications that it would be impossible to anticipate which meaning the student had in mind. Thinking of encyclopedias and dictionaries we recognized that people regularly ask variations of the question "why?" of these inanimate objects. They do so by learning the conventions of alphabetical order, key words, and cross referencing, then learn to search through the encyclopedia or dictionary until they find their answers. (Some questions about particular personalities, values or points of view can of course be answered neither by books nor computers.) The TICCIT Learner-Control language is a set

of conventions which students may learn to use proficiently in order to obtain answers to their questions.

During the design phase of TICCIT we considered in particular the "why" question as it relates to the survey aspects of learning. In the mini-lessons and video-tapes we consciously tried to introduce material that showed why a particular lesson or unit was important. Sometimes this included historical vignettes, other times it included work-a-day world applications of the material. The maps themselves and objectives answer other kinds of "why?" questions if the student knows how to use them properly. The "XTRA" map (which may not be implemented by MITRE) was a place where we hoped to build up historical tidbits, synthesizing games, and other materials developed on the basis of experience with students' questions. Finally, we assumed that many questions could only be answered by sensitive, perceptive human beings.

TICCIT math has but recently been introduced to the two colleges. It has not had the benefit of extensive student try-outs which would have enabled us to identify ways to improve the materials. One of the ways is through locating those lessons where the introductory materials, objectives, etc., do not adequately answer the most common "why" questions. We solicit your assistance as teachers, proctors, and courseware representatives in making suggestions for answers to "why?" questions that could be incorporated into the introductory material, objectives, or prerequisites. Send suggestions to us and within the resources that we have we will try to introduce changes into the material. Sometimes your comments may suggest ways to improve the advisor program over time as well.

It is a major responsibility of the teaching and proctoring staff of a TICCIT class to make sure that the students are properly introduced to the concept of improving their learning strategies. They need to be rehearsed in the use of survey tactics in obtaining answers to "why" and other orienting questions. We have always assumed that learning to use TICCIT efficiently would require the gradual development of sophisticated study skills over a period of time. The advisor program on TICCIT, being the first of its kind, will fall far short of the goal of helping students with all of the sophisticated aspects of learning strategy and tactics. The teachers and proctors have the opportunity to become sensitive to the students' needs, and through familiarity with the alternatives, to prompt them in the use of more powerful techniques.

The genius of computer-assisted instruction lies in its ability to help the users capture things learned from individual students and revise for the benefit of later students. To see improvements occur over time in student growth, due both to improved materials of instruction and improved professional skills as teachers, can be rewarding indeed.