EDU-WARE®

COMPU-READ™
3.0

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For almost two years, EDU-WARE sold COMPU-READ Version 2.0. Many thousands of these programs are still in use in various settings. Yet, COMPU-READ 2.0 was among the oldest programs in the EDU-WARE inventory. As such, it lacked both the instructional quality and programming sophistication associated with more recent EDU-WARE product developments. Improvements and advances in these products led to the development of this completely new version of COMPU-READ.

COMPU READ 3.0
User's Guide

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COMPU-READ 3.0 Program and Documentation
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ACKNOWLEDGEMENTS

COMPU-READ 3.0 was developed exclusively by Edu-Ware Services, Inc., a California software development company dedicated to the production of instructionally valid C.A.I. and intellectually challenging games.

It took the efforts of a number of individuals to bring this product to fruition:

Sherwin Steffin created the basic instructional design which led to the development of the COMPU-READ 3.0 programs, and was the primary author of the previous version 2.0 of the same system. He wrote all of the documentation, including the description of the Instructional Model.

David Mullich coded the entire set of programs, and was the designer of the LEARNING MANAGEMENT SYSTEM which is the heart of this new series.

Michael Wurtzel was responsible for all system testing of the Atari Version of these programs.

I. AN INTRODUCTION TO COMPU-READ 3.0

Many schools and consumer computer owners alike want software systems to help improve reading skills. COMPU-READ's series of four Reading Learning Modules is designed to answer that need, spanning the range from the youngest reader to the skilled adult. Increasing reading speed and recall are the goals for all.

COMPU-READ's Four Learning Modules

Letter Recognition

The first module asks the reader to remember and enter on the keyboard a group of three letters. After the three letters are displayed, the reader enters each one in order when the mark appears on the screen in place of the letter.

If the reader is correct in the selection of all three letters, then the next trial will appear. If the reader is incorrect, the correct answer will appear on the screen. After reviewing the correct answer, the reader presses the [SPACE BAR] to continue.

Rapid Words

Instead of individual letters, this module presents words flashed quickly onto the screen. The reader simply types in the correct word after it disappears. If the answer is correct, the next word is presented; if wrong, the correct answer is shown. After reviewing the correct answer, the reader presses the [SPACE BAR] to continue.

Synonyms and Antonyms

Five words are displayed, one on top of the next. The top word is the ROOT word. The reader must compare it with the other words. One of the four is either a synonym (a word with nearly the same meaning) or an antonym (a word with an opposite meaning) of the root. The reader must select the correct word and enter it on the keyboard. The correction to a wrong answer, or the movement to the next trial, is handled as in the previous units.

Sentences

Sentences are presented rapidly on the screen. After reading each one, the reader is asked a question about the sentence, and enters a single-word answer. Right and wrong answers are handled as in earlier modules.

COMPU-READ's Features

A variety of features help COMPU-READ and you to achieve your objectives.

** All letters are displayed in upper and lower case and are available in double size letters in three of the four programs. (The SENTENCES unit has only the unit-size letters available.) These fonts have been designed to provide you maximum legibility regardless of the screen format you choose.

** Each Module's LEARNING MANAGEMENT SYSTEM gives you control of a variety of learning adjustments varying the difficulty and challenge of tasks which are presented.

** A graphic and numeric reporting system gives complete data about progress and reading rates.

** COMPU-READ is designed to be used in either home or classroom settings.

** A detailed USER'S GUIDE describes both the system, and the instructional ideas behind its development.

About COMPU-READ's User's Guide

The GUIDE which follows gives you information about how to use COMPU-READ; the thinking that went into its design; and what to do if you run into problems.

The first section is written for the reader (the reader may be you, your student, or your child), and gives a detailed outline of everything needed to operate COMPU-READ and each of its Learning Modules.

The outline is followed by a text explanation, written to the person who sets up the Learning Modules for the reader, which describes how to adjust parameters like speed, number of trials, and font size.

Next is the INSTRUCTIONAL MODEL. This material takes you into the thinking processes of those who designed the system. It lets you see the ideas which led to the system working in the way that it does. It also gives you a method to evaluate the PROGRESS CHARTS at the end of each module.

Finally, computers sometimes do strange things to their owners. The PROBLEMS Section is there to help you master the beast. We suggest some simple diagnosis and treatments for the problems you are most likely to encounter.

II. THE COMPU-READ USER'S GUIDE

EQUIPMENT AND MATERIALS NEEDED

- ATARI 800 or ATARI 400 COMPUTER
- ATARI BASIC CARTRIDGE INSTALLED
- TV SET
- ATARI 410 RECORDER/PLAYER
- 32K MEMORY INSTALLED IN THE COMPUTER
- AN "ATARI 410 PROGRAM RECORDER OPERATOR'S MANUAL"
- AN "ATARI BASIC REFERENCE MANUAL"
- THE EDU-WARE COMPU-READ 3.0 SYSTEM

The Following outline will guide you through each of COMPU-READ's Learning Modules, from loading COMPU-READ into your Atari computer and adjusting the level of difficulty you want, to actually working with the program. The outline is divided into four sections, one for each Learning Module, and gives a step-by-step description of how to do each task. For each step, we have listed the manual you can refer to should you want more information; either your "ATARI 410 PROGRAM RECORDER OPERATOR'S MANUAL" (PROM), your "ATARI BASIC REFERENCE MANUAL" (BRM), or this COMPU-READ USER'S GUIDE.

A STEP BY STEP GUIDE

A. USE LETTER RECOGNITION PROGRAM

FOR THIS TO HAPPEN	DO THIS	REFER TO
PROGRAM LOADING	1. CONNECT Atari 410 Recorder to Computer.	PROM
	2. TURN ON computer and TV set.	
	3. REWIND the Atari 410 Recorder and set the footage counter to 000.	PROM GUIDE page 11
	TYPE **CLOAD;** PRESS the [RETURN] key.	
	5. When you hear a "beep," PRESS [PLAY] on the recorder, and PRESS the [RETURN] key again.	PROM
	6. When **CLOAD** finishes, the prompt "READY" will appear again on the screen. PRESS [STOP] on the recorder.	PROM
	LOADING COMPLETED	

SET UP PROGRAM	1. When you see "READY" on the screen, TYPE **RUN** and PRESS [RETURN].	BRM page 11
	2. The screen will go blank for a few seconds. Then the words LETTER RECOGNITION will be seen at the top of the screen.	
	3. ANSWER "NUMBER OF TRIALS (2 to 100)" by entering a number. PRESS [RETURN].	GUIDE page 12
	4. ANSWER "INITIAL SPEED (.001-10)." PRESS [RETURN].	GUIDE page 12
	5. ANSWER "SPEED INCREMENT (.001 to 10)." PRESS [RETURN].	GUIDE page 12
	6. ANSWER "DISPLAY DELAY (.001 to 10)."	GUIDE page 12
	7. SELECT FONT.	GUIDE page 13
	SET UP COMPLETED.	
USE THE PROGRAM	1. Three letters will flash on the screen. TYPE in each letter when the prompt appears.	GUIDE page 3
	2. If you incorrectly type any letter, you will be presented with the correct three. PRESS the [SPACE BAR] to continue.	GUIDE page 3
	3. PRESS the [SPACE BAR] to receive the PROGRESS REPORT after the last trial.	GUIDE page 13
	4. INTERPRET PROGRESS REPORT and then PRESS the [SPACE BAR].	
	5. SELECT whether to end or repeat the unit.	

B. USE RAPID WORDS PROGRAM		
FOR THIS TO HAPPEN	**DO THIS**	**REFER TO**
PROGRAM LOADING	1. CONNECT Atari 410 Recorder to computer. 2. TURN ON computer and TV set.	PROM
	3. REWIND the recorder and set the footage counter to 000. Then ADVANCE to 067.	PROM GUIDE page 11
	4. TYPE **CLOAD.** PRESS the [RETURN] key.	
	5. When you hear a "beep," PRESS [PLAY] on the recorder and PRESS the [RETURN] key again.	PROM
	6. When **CLOAD** finishes, the prompt "READY" will appear again on the screen. PRESS [STOP] on the recorder. LOADING COMPLETED	PROM
SET UP PROGRAM	1. When you see "READY" on the screen, TYPE **RUN** and PRESS [RETURN].	BRM page 11
	2. The screen will go blank for a few seconds. Then the words LETTER RECOGNITION will appear at the top of the screen.	
	3. ANSWER "NUMBER OF TRIALS (2 to 100)." PRESS [RETURN].	GUIDE page 12
	4. ANSWER "INITIAL SPEED (.001-10)." PRESS [RETURN].	GUIDE page 12
	5. ANSWER "SPEED INCREMENT (.001 to 10)." PRESS [RETURN].	GUIDE page 12
	6. ANSWER "DISPLAY DELAY (.001 to 10)."	GUIDE page 12
	7. SELECT FONT. SET UP COMPLETED	GUIDE page 13

USE THE PROGRAM	1. A word will flash on the screen. ENTER the word when the prompt appears.	GUIDE page 3
	2. If you typed the wrong word, the correct one will be shown. PRESS the [SPACE BAR] to continue.	GUIDE page 3
	3. PRESS the [SPACE BAR] to see the PROGRESS REPORT after the last trial.	GUIDE page 13
	4. INTERPRET PROGRESS REPORT and then PRESS the [SPACE BAR].	
	5. SELECT whether you wish to end or repeat the unit.	

C. USE SYNONYMS AND ANTONYMS PROGRAM

FOR THIS TO HAPPEN	DO THIS	REFER TO
PROGRAM LOADING	1. CONNECT Atari 410 Recorder to computer.	PROM
	2. TURN ON computer and TV set.	
	3. REWIND the recorder and set the footage counter to 000. Then ADVANCE to 128.	PROM GUIDE page 11
	4. TYPE **CLOAD.** PRESS the [RETURN] key.	
	5. When you hear a "beep," PRESS [PLAY] on the recorder and PRESS the [RETURN] key again.	PROM
	6. When **CLOAD** finishes, the prompt "READY" will appear again on the screen. PRESS [STOP] on the recorder.	PROM
	LOADING COMPLETED	

SET UP PROGRAM	1. When you see "READY" on the screen, TYPE **RUN** and PRESS [RETURN].	BRM page 11
	2. The screen will go blank for a few seconds. Then the words LETTER RECOGNITION will appear at the top of the screen.	
	3. ANSWER "NUMBER OF TRIALS (2 to 100)." PRESS [RETURN].	GUIDE page 12
	4. ANSWER "INITIAL SPEED (.001-10)." PRESS [RETURN].	GUIDE page 12
	5. ANSWER "SPEED INCREMENT (.001 to 10)." PRESS [RETURN].	GUIDE page 12
	6. ANSWER "DISPLAY DELAY (.001 to 10)."	GUIDE page 12
	7. SELECT FONT.	GUIDE page 13
	SETUP COMPLETED	
USE THE PROGRAM	1. A root word and four other words will flash on the screen. ENTER the synonym or antonym as directed.	GUIDE page 3
	2. If you enter the wrong word, the correct one will be shown. PRESS the [SPACE BAR] to continue.	GUIDE page 3
	3. PRESS the [SPACE BAR] to see the PROGRESS REPORT after the last trial.	GUIDE page 13
	4. INTERPRET PROGRESS REPORT and PRESS the [SPACE BAR] to go on.	
	5. SELECT whether you wish to end or repeat the unit.	

D. USE SENTENCES PROGRAM

FOR THIS TO HAPPEN	DO THIS	REFER TO
PROGRAM LOADING	1. CONNECT Atari 410 Recorder to computer.	PROM
	2. TURN ON computer and TV set.	
	3. REWIND the recorder and set the footage counter to 000. Then ADVANCE to 185.	PROM GUIDE page 11
	4. TYPE **CLOAD.** PRESS the [RETURN] key.	
	5. When you hear a "beep," PRESS [PLAY] on the recorder and PRESS the [RETURN] key.	PROM
	6. When **CLOAD** finishes, the prompt "READY" will appear again on the screen. PRESS [STOP] on the recorder.	PROM
	LOADING COMPLETED	
SET UP PROGRAM	1. When you see "READY" on the screen, TYPE **RUN** and PRESS [RETURN].	BRM page 11
	2. The screen will go blank for a few seconds. Then the words LETTER RECOGNITION will appear at the top of the screen.	
	3. ANSWER "NUMBER OF TRIALS (2 to 100)." PRESS [RETURN].	GUIDE page 12
	4. ANSWER "INITIAL SPEED (.001-10)." PRESS [RETURN].	GUIDE page 12
	5. ANSWER "SPEED INCREMENT (.001 to 10)." PRESS [RETURN].	GUIDE page 12
	6. ANSWER "DISPLAY DELAY (.001 to 10)."	GUIDE page 12
	7. SELECT RUN/REENTER.	
	SETUP COMPLETED	

USE THE PROGRAM	1. A sentence will flash on the screen and then you will be asked a question about it. TYPE in the answer.	GUIDE page 3
	2. If you enter the wrong answer, the correct word will be shown. PRESS the [SPACE BAR] to continue.	GUIDE page 3
	3. PRESS the [SPACE BAR] to see the PROGRESS REPORT after the last trial.	GUIDE page 3
	4. INTERPRET PROGRESS REPORT and then PRESS the [SPACE BAR].	GUIDE page 13
	5. SELECT whether you wish to end or repeat the program.	

LOADING INFORMATION

There are some additional facts you will want to know about loading your programs. In the preceding chart, you were given settings on your Atari 410 Player/Recorder. These settings are only approximate, and should be used to give you a rough idea where each of the programs is to be found on the tape. Each of the four locations is from the **very beginning** of the tape. Therefore, **do not** reset the counter if you are going to use more than one program. To get to the second, and later programs from the very beginning of the tape do this:

1. Insert the tape in the 410 Player/Recorder.

2. REWIND the tape completely by pressing [REWIND] on the recorder. PRESS [STOP] when finished.

3. Set the footage counter to 000 by pressing the tape button.

4. Put the recorder in "Fast Forward," by pressing the [ADVANCE] button.

5. Watch the counter. When it reaches the starting number for the module you want to CLOAD. Stop the tape by pressing [STOP].

6. Follow the steps for CLOAD given in the preceding outline.

7. If you are going to another module after completing this one, either REWIND or ADVANCE to the appropriate setting **without touching the counter button.**

PROGRAM SET-UP

Before you can use any reading module, you must set up the reading environment. This set-up allows you to adjust the difficulty and challenge of each of the component parts. These settings are:

Number of Trials

This setting simply allows you to select how many reading problems will be presented for this particular module. To select the number of trials, simply type any number between 2 and 100. Then press [RETURN] to enter the number. If you discover you have made a mistake before you enter the number, simply press the [DELETE/B SPC] key to erase each wrong digit. Then reenter the correct value and press [RETURN].

Initial Speed (.001-10)

During your first attempt in any of the modules, the letters, words, or sentences will be on the screen for a certain length of time. This question allows you to select the length of time that the letters, words or sentences are displayed on the first trial. Type in the number you want, **in seconds,** for this first display. If you make an error, correct it with the [DELETE/B SPACE] key described above. Then enter the number with the [RETURN] key.

Speed Increment

Depending on whether you are right or wrong on your first trial, the display of the next trial will either speed up or slow down. This question asks you to indicate how much time the next trial will speed up or slow down. If, for example, you got the first trial correct, the initial speed had been set for one second (1.0), and the increment was set for one tenth second (.1), then the display time for the next trial would be .9 seconds.

To set this delay, enter the time in the way that you answered the last two questions. Corrections are also done in the same fashion as before.

Display Delay

If you get an attempt wrong during the operation of any of the modules, both your answer and the correct answer will be shown on the screen. After reviewing the correct answer, you are given the instruction "PRESS SPACE BAR TO CONTINUE." This will start the next trial.

If you get the trial correct, the next problem will be displayed after a short wait. The DISPLAY DELAY determines the length of this wait between a correct answer and the next trial. Answer this question in the same way as you did those which preceded it. Error correction is also done in the same way as before.

Font Selection

In three of the four modules, the size of the letters on the screen can be varied. Two sizes are available: normal and double size. Press either (1) or (2) depending on the size letters you want for this module.

The SENTENCES module, because of the length of the sentences, can only accommodate the small size letters. Thus, no Font Selection is made available. Instead, you have the choice of selecting (1) RUN SENTENCES, or (Ø) REENTER. This command lets you go back to the previous four questions if you discover you made a mistake in your earlier entries.

This same (Ø) entry is available in the other three modules as well. Do not enter the font, but press (Ø) REENTER to correct any earlier mistakes.

PROGRESS CHARTS

At the end of each module, a PROGRESS REPORT is given to you. It consists of two parts: a statistics section, and a PROGRESS CHART.

The statistics section tells you the number of trials; number right; number wrong; the original time display; the final time display; and the number of letters or words you were reading per unit of time.

The PROGRESS CHART graph indicates, for each individual trial whether you were correct, or incorrect. If the line to the right of any trial is shorter than the one before, you missed that trial; if the line is longer, you got the trial correct. The lines represent the change in the display time for each trial. The patterns they form are discussed further in the section titled, THE INSTRUCTIONAL MODEL.

CHANGING THE DATA

After going through each of the modules, you will, in all likelihood, wish to change some of the words, synonyms, antonyms, and sentences. This next section is designed to help you do just that. All modules may be modified except the LETTER RECOGNITION unit.

Unlike previous versions in which the words used were stored on a diskette, this Atari cassette version must store its word lists within the computer programs. While Edu-Ware is happy to provide this information, we cannot cover it under our warranty. However, any reasonably competent BASIC programmer should have no trouble changing the word lists and/or helping you to change them.

Once the data is changed, you will wish to CSAVE the new program to another **blank, unused** cassette. The directions which follow tell you how to accomplish this operation for each of the three modules.

CSAVEing a program

This process is the same for any of the three modules in which you will be changing the data, so we present it first.

After modifying one of the modules (changing the data) do the following:

1. Press [BREAK] key.

2. Insert a fresh cassette into the player/recorder.

3. Type CSAVE and [RETURN].

4. Hold down the [RECORD] button on the recorder while at the same time pressing the [PLAY] button. This will lock the recorder into recording mode.

5. Press [RETURN] on the Atari. The recorder will produce a "beep" both at the start and at the finish of recording the entire file. At the second "beep," the recording has finished. Press [STOP] on the recorder.

Changing the Data

Now that you can save any new program to the cassette, you are ready to make changes in any of the current data. Follow these steps for the three programs in which you wish to make changes.

Changing Data — RAPID WORDS

1. CLOAD the RAPID WORDS program.

2. TYPE: LIST 30000,30010

3. You will see the module's word file. The numbers 30000 to 30010 are LINE NUMBERS. Each of these line numbers begins with the word DATA. The number after DATA in line 30000 is the number of words in the file. Then each word is listed, separated by a comma. If the next word will cause the line number to take up more than three lines on the screen, then the next word begins after DATA on the next line number.

Suppose you wanted to change the file to contain only the words house, chair, book, table, it. TYPE exactly as shown below:

EXAMPLE 1

30000DATA5,house,chair,book,table,it[RETURN]

The finished line of typing will look like this:

30000 DATA 5,house,chair,book,table,it

4. You should note the following:

a. The "5" refers to the total number of words which will be on your word list.

b. When the CURSOR (the little white square) reaches the end of the screen, it will go to the beginning of the next line. You may continue to type on this second, and then a third line. If the list goes beyond three lines of typing, you must start a new line number and continue with the list. A multiple line set would look like this. Each group of three x's represents a word.

EXAMPLE 2

30000 DATA 50,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,

30002 DATA xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,
xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx

5. You are now ready to test your new data. Type RUN and then press [RETURN]. Set up a large number of trials to make sure you made no typing errors. If there are any, you may get an error message at the bottom of the screen. Go back and check to see what you did wrong.

6. If you are satisfied with your file, CSAVE the program to a fresh cassette.

Changing Data — SYNONYMS AND ANTONYMS

1. CLOAD the SYNONYMS AND ANTONYMS program.

2. TYPE: LIST 30000,30010

3. Notice that the format of this file is exactly the same as that for RAPID WORDS with one exception. If you divide the words into groups of six, the first in the group is a ROOT WORD, the second is a synonym, the third an antonym of the root, and the last three in the group are not directly related to the root.

Suppose that you wanted to write your own file containing only two groups. Each group must have a root, a synonym, an antonym, and three distractors, making a total of twelve words in all. TYPE exactly as shown below:

EXAMPLE 3

30000DATA12,root1,syn1,antonym1,distractor1,distractor2,distractor3,
[RETURN]

30002DATAroot2,syn2,antonym2,distractor4,distractor5,distractor6
[RETURN]

The finished line of typing will look like this:

30000 DATA 2,root1,syn1,antonym1,distractor1,distractor 2,distractor 3

30002 DATA root 2,syn2,antonym2,distractor4,distractor5,distractor6

4. You should note the following:

a. The number "12" refers to the total number of words in the data statements.

b. The number of word groups is the total number divided by six. They must be in the order ROOT, SYNONYM, ANTONYM, DISTRACTOR, DISTRACTOR, DISTRACTOR.

5. You are now ready to test your new data. Type RUN and then press [RETURN]. Set up a large number of trials to make sure you made no typing errors. If there are any, you may get an error message at the bottom of the screen. Go back and check to see what you did wrong.

6. If you are satisfied with your file CSAVE the program to a fresh cassette.

Changing Data — SENTENCES

Changing the data for SENTENCES is just a little more complicated than for the other programs described above. There are four different data lists which must be prepared. Follow these steps:

1. CLOAD the SENTENCES program.

2. TYPE: LIST 30000,30010

3. The first set of line numbers contains sentences separated by a comma. Each sentence contains a [CTRL][P], a [CTRL][O], and a [CTRL][N] where a place, object, and name will eventually go when the sentence is presented to the reader.

The next set of line numbers contains a list of NAME words. Then there is a list of OBJECT WORDS, followed by a list of PLACE words. Each of the lists begins with the number of sentences or words within that list. No sentence may contain a comma, and each word in the word list may contain only alphabetic letters.

If you wish to create your own file, you must create a sentence list, a name list, an object list, and a place list in that order. Suppose you wanted a file with the sentences "[name] went to the [place] and bought an [object]." and "[name] is my brother." The names you wanted to use were Jerry, Tom, Mary, Bill, and Susan; the objects were house and car; and the places were Detroit and Chicago. Then type the following:

EXAMPLE 4

30000DATA2,[CTRL][N] went to [CTRL][P] and bought a[CTRL][O].,[CTRL][N] is my friend.

30002DATA5,Jerry,Tom,Mary,Bill,Susan

30004DATA2,house,car

30006DATA2,Detroit,Chicago

4. Let's first translate what all of this means. On your screen, your DATA statements will read:

30000 DATA 2,[CTRL][N] went to [CTRL][P] and bought a [CTRL][O].,[CTRL][N] is my friend.

30002 DATA 5,Jerry,Tom,Mary,Bill,Susan

30004 DATA 2,Detroit,Chicago

30006 DATA 2,house,car

a. The [CTRL][N], [CTRL][P], and [CTRL][O] respectively allow a word list to be placed in the sentence when the sentence is displayed to the reader.

b. Each [CTRL] character must be separated from the other words by a space. Commas, serve, as they did above, to separate each datum from the next one.

c. The order of entries must be the number of sentences, sentence list, number of names, name list, number of objects, object list, and number of places, place list. Each entry in the name, object, and place list must be a single word.

5. You are now ready to test your new data. Type RUN and then press [RETURN]. Set up a large number of trials to make sure you made no typing errors. If there are any, you may get an error message at the bottom of the screen. Go back and check to see what you did wrong.

6. If you are satisfied with your file CSAVE the program to a fresh cassette.

III. THE INSTRUCTIONAL MODEL

Before proceeding with further operating instructions, it seems appropriate to discuss the rationale employed in constructing COMPU-READ's instructional model:

1. Effective reading requires the perception of patterns.

If we are able to recall our own struggle to acquire reading skills, most of us will remember being first taught to recognize and identify individual letters. Next came combinations of letters into words, or word groups. Finally, we learned to assemble long strings of words into complete thoughts or sentences. Yet, analysis of eye movements clearly demonstrates stopping and starting, and at times reversal of direction of eye fixation (attention). The net effect of these interruptions is a reduction in smooth "scanning" of printed material and a net decrease in the speed by which the information contained within is processed.

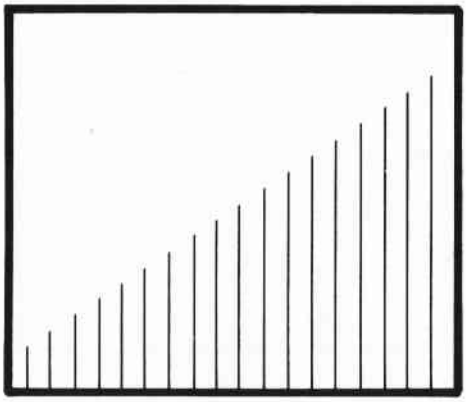
The printed page offers a stimulus situation to the reader which is relatively uncontrollable by outside influences, and certainly difficult to measure in terms of specific performance. Over the years, educators have attempted to remediate these kinds of non-optimal reading situations through the use of a tachistoscope. This device projects letters, words, and sentences at a controlled rate upon a reflective screen as is used with a motion picture projector. Such control devices greatly enhance the ability of the user (teacher, reading instructor) to control the reading experience for the learner. However, the major problem with such devices was that the specific software employed was for the most part completely unmodifiable by the user, i.e., the data base was supplied by the manufacturer.

The microcomputer allows users complete control of the data base and a number of variables which were heretofore unavailable for adjustment.

2. Users and learners require immediate feedback as to performace.

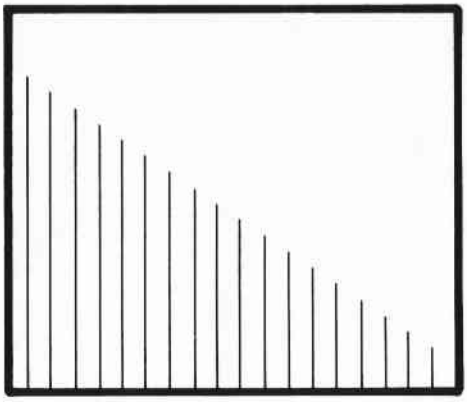
In order for the learner and the user to both have knowledge of performance (and for teacher grading purposes) we have provided a number of displays which provide both user and learner this information. These displays, indicate the number of trials, the number of right and wrong, and the percentage of correct trials for each of the learning experiences. Of perhaps greater interest is a graphic display that appears in the lower right hand corner of the screen. This display consists of a series of vertical lines. Each vertical line represents a percentage of change between that trial and the trial immediately preceding it. An increase in size between adjacent bars represents a correct response, and a corresponding increase in display speed, while a decrease represents a failure in the previous trial. Interpretations of these graphs can be used as guidelines by the user in resetting parameters and assessing student performance.

Figure 1a shows the performance pattern demonstrated by a learner when the initial speed/difficulty level was far below what the student was able to perform at system entry. The continuously increasing display speeds are indicative of the fact that the learner found no challenge since he was consistently able to get all the trials correct. However, for the learner who is timid, or who has a poor self-concept with respect to his reading abilities the ease of mastery may lead to an improved self-concept.



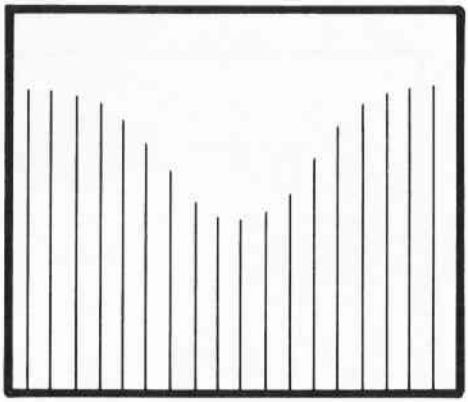
1a. too easy

Figure 1 b represents the converse to the learning environment demonstrated in 1 a. In this instance, the learner was presented with tasks far too difficult for him to master. At no point was he able to achieve success in any portion of the learning experience. Users seeing such patterns should be quick to modify the parameters. The performance demonstrated the learner's inability to cope with the difficulty of the task.



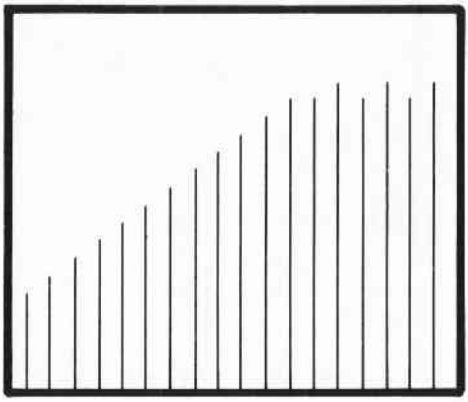
1b. too difficult

In figure 1c we have a situation which may be considered ideal. The learner has a number of files in which he is unable to initially meet the task demands. Then he begins to level out, getting some trials correct and some incorrect. In the last third of the curve, he begins to master the learning task and eventually ends with the maximum display speed possible for this particular series of trials.



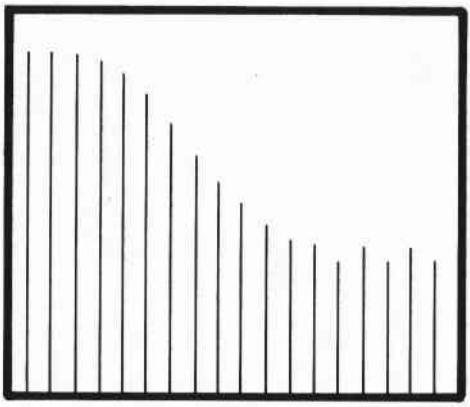
1c. skills gained

Figure 1d represents a situation in which the trials are not initially demanding of the learner. At some point in the series he begins to "plateau" out; **i.e.**, he reaches a point at which he is unable to move beyond his current learning, but is able to maintain it. One would expect in this kind of graph, that the appropriate response on the part of the user is to extend the number of trials so that new learning can begin to occur after the plateau.



1d. learning plateaus

Finally, figure 1e illustrates a situation in which the learner finds the task too difficult, begins to fail, plateaus out, and is unable to demonstrate new learning. The appropriate response on the part of the user in this case, may well be to start the next series at the last point in the plateau, so that the learner can begin to master new tasks from the plateau. Small increments of time should be employed so that new learning and task difficulty proceed in small steps.



1e. starts too difficult then plateaus

Users will be certain to discover other patterns and make other adjustments. The descriptive statements shown above are only to be taken as suggestions. Users may wish to make a variety of interpretations of the displays which they see, and to develop a variety of learning sequences best suited to the learners with whom they are dealing.

IV. PROBLEMS

The Atari cassette provides a very reliable means of loading and operating your COMPU-READ system. If you run into difficulties, try the following:

1. If you have difficulty loading your cassette, try again. Test this system cassette by loading another one you know to be operating correctly. If the problem is with your COMPU-READ 3.0 cassette, return it to Edu-Ware Services for replacement as provided in the warranty.

2. Remember that in changing any of the words in the data, this does not damage the original program. If you make a mistake which causes an error to appear on the screen, don't worry about it. Simply reload the original program, and re-enter the data as described in Section III.

3. If you run into problems, go back and re-read the User's Guide. You may have missed something the first time through.

4. Finally, if you have problems you are unable to solve for yourself, feel free to contact Edu-Ware Services' Customer Support Representative at (213) 706-0661 during normal business hours. We will be pleased to give you any help that we can.