,A HANDBOOK ON HOW TO USE AN APPLE COMPUTER IN
THE CLASSROOM SETTING,

MASTER'S PROJECT

Submitted to the School of Education

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Master of Science in Education

by

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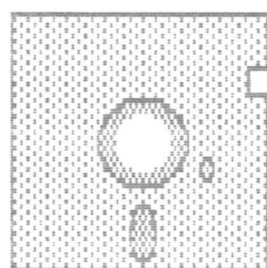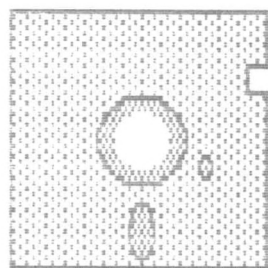
DEDICATION

This paper is dedicated to my wife, Laurie Ann, and my children Ethan, Galen, and Lauren. Without their support and patience this project would not have been possible.
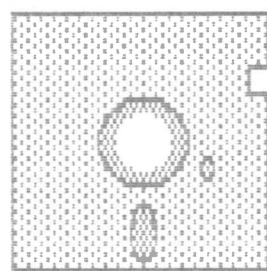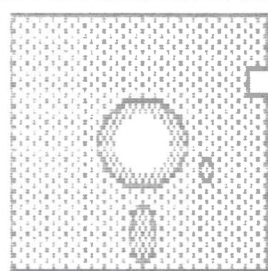
TEACHER'S HANDBOOK

FOR

APPLE

COMPUTERS

CHAPTER I

INTRODUCTION

Background

Over the past 11 years local school
districts have budgeted for the acquisition of
new educational technologies (computers) and
have placed them into their schools. Local
schools have been successful in their effort
in doing this for it has been shown that
(Feuer, 1989) more than 95 percent of the
public schools have acquired at least one
microcomputer for instruction. But, little
time has been allowed or money budgeted in
training the people who are going to be using
this educational tool in the classroom, the
teachers. If educators are to avoid their
usual hit and miss orientation (Cicchelli,
Baecher, 1989) an effort must be made to
change the thinking of the people who will be
using these computers in the classroom.

Studies have shown that despite having
the computers available, and wanting to
prepare students for the technology of the

workplace, only half of the nations teachers
report having ever used computers themselves
(Power On! New Tools for Teaching and
Learning, Congress of the United States Office
of Technology Assessment, 1989). Studies have
indicated the number of teachers who actually
use computers regularly is much smaller.
Provided with the right circumstances,
teachers using computers and other tools could
increase the interest to learn in students.

Since society has moved from an
industriaL base to an informational one,
teachers need to educate students in such a
way that upon graduation the students will
have very little problem entering this
informational society. By doing this,
educators are also (Bennett, 1987) being
accountable to the public in providing
educational methods of learning that is
similar to those that will be needed by the
students when they join the work force.

Therefore, an effort should be made by
the school districts to provide some means
that allows the teacher to gain applicable
knowledge of computers so that teachers can

apply this knowledge daily in their classrooms.

Because of the expectations on teachers today, many use the computer as merely a drill and practice instrument, if they use it at all. But this teaching tool lends itself to be so much more. It is a waste if it just sits in the classroom or is just used for drill and practice, even though the latter does have some merit.

The purpose of this handbook is to facilitate the use of the computer in the classroom by those teachers who see the great possibilities of this tool, but do not have the background in computers to fully implement it.

Review of the Literature

Over the past 11 years schools all over the country have budgeted for the acquisition of computers so that they may stay abreast with this technological wonder. Important computer applications provide students with a variety of valuable skills including word processors, data bases, spreadsheets and desktop publishers (Kennett, 1990, p.403). Business has repeated over and over again that schools need to teach computer skills to students so that when these students become potential employees they already possess the skills needed to begin the job that they were hired for.   Business claims that this will keep the United States competitive in the workplace of the world.

A major concern though, to the above thinking is that the people responsible for showing the students how to use a computer everyday are the same people who have no or very little experience with computers, the teachers. School boards have budgeted for the computers, but these same boards have given

very little consideration to the training
needed by the teachers so that they can put
this modern teaching tool into use everyday in
there classroom. The vast majority of today's
teachers have had little or no training on how
to apply computers effectively as teaching
tools (Fulton, 1988, p32). The teachers that
I am referring to here are the English, social
studies, math, etc. teachers who have the
opportunity to get students involved with
computers everyday, but do not have the
experience to in incorporate one into their
daily classes.

Inservice helps introduce teachers to
computers, but most inservices that are put
on by the local school district are usually
only for an hour or a day which is not long
enough for an educator to get comfortable with
the computer. And it is this comfort that is
needed by the teacher if the he/she is going
to even attempt to use the computer in the
classroom. Inservice technology training is
important because only about one-third of all
classroom teachers have had 10 hours or more
of technology training and over 50 percent

indicate that they have not used the computer
for instruction (Glenn, Carrier, 1989).   A
nationwide survey of education majors
indicated that less than one-third (29
percent) perceived themselves to be prepared
to teach with computers, in sharp contrast to
the students' higher degree of confidence in
their abilities in 11 other aspects of
teaching, such as instruction planning and
learning evaluation (Fulton, 1988, p. 34).

A   teacher must feel comfortable with a
computer that the school has placed in the
classroom! Because it is the application of
the computer by the student to the various
programs provided by the teacher that will
make the student functionally computer
literate.

CHAPTER II

RATIONAL

In the beginning of the auther's teaching career computers were, like the auther, new to the public educational scene. Many teachers, along with the auther, thought of computers as some mysterious machine that we would never use. But as time went on, teachers began to see the possibilities that the computer offered. The unfortunate thing is that many teachers still view the computer as that mysterious machine.

The conception for this handbook came from the questions of educators both in the public school setting and at the university graduate level about this mysterious machine. What the handbook contains are the answers to most of the questions that the auther has heard asked from fellow educators. The handbook is written in a straight forward fashion so that an educator with no computer knowledge can follow it and successfully use a computer in the classroom.

Handbook Statement

The purpose of the handbook is to provide classroom teachers with an instrument that can help them in incorporating an Apple computer into their daily work schedule.

Handbook Outline

Setting up the Apple Computer
Keyboard Functions
Definitions of Terms
Care of the Diskettes
Starting Up Instructional
Programs on the Apple
How to use the TV/VCR as a
Computer Monitor

CHAPTER III

HANDBOOK

Setting Up the Apple Computer

The setting up of the computer in the classroom is not a complicated undertaking. The first step is to simply follow the manufactures instructions. Each computer comes with a set of instructions on how to correctly assemble the hardware in a step by step manner.

Depending upon which Apple computer that will be used the following hardware will be in the box. An Apple IIe will have an Apple IIe computer with builtin keyboard, a power cord, two tutorial disks, the book <u>A Touch of Applesoft BASIC,</u> a warrenty card, and a packing list. An Apple IIc will include an Apple IIc computer with builtin keyboard and disk drive, a power cable, 5 disks, and two books. The Apple IIgs will come with an Apple IIgs computer, mouse, keyboard, keyboard cable, power cord, Apple IIgs owner's reference, the book <u>A Touch of Applesoft</u>

BASIC, three 3.50 disks going over Your Tour
of the Apple IIgs, a packing list, and a
warrenty card.   Which ever computer that
is to be used, it will have a booklet of
instructions on how to set up the hardware.
It is at this point that the individual
assembling the unit must work through the
instructions to insure that the various pieces
of hardware are connected correctly.

Up to this point the word the word
hardware has been used to describe the
computer. In computer terms hardware is
defined as (Simonson,M., Thompson,A., 1990)
the physical componets, or machines, of a
computer system. But, to fully set up, the
computer system will need peripherals.
Peripherals are (Simonson,M., Thompson,S.,
1990) devices attached to the computer such as
a CRT (Cathode ray tube. Simply put, the
monitor), a printer, or a disk drive , that is
not part of the main computer. The attachment
of the peripherals to each of the computers
that are described here vary. On the back of
each computer there will be a row of sockets
called ports. Most of the various peripherals

will be directly plugged into the computer
here. Following the instruction guide is the
best course of action when putting together
the particular system that has been purchased.
Also follow the safety instructions that have
been included.

The school system or maybe even the
teacher has spent a considerable sum of money
to purchase the computer. And while computers
are not as fragile as eggs, they can be
damaged, so the precautions described should
be followed.

A reminder here that when setting up the
hardware and peripherals of the computer
system that is to be used it is wise if the
computer's power cord is plugged in so that
the system is grounded. Make sure that the
computer's power switch is in the off position
so that there is no power in the computer.
The reason for this is that the computer needs
to be grounded so that an shock of any kind
(static for example) can be grounded. It is
also a good idea to have the computer plugged
into a power surge protector. This device can
be purchased at a hardware store and its
function is to protect the computer from any

power surges that might come through the electric lines. A good idea is to purchase a surge protector strip with an on off button. Apple computers have a tendency to have their on off switches wear out. By turning the computer on and off using the power surge strip on off button the computer will last longer without needing any repairs.

Keyboard Functions

The keyboard of the computer is set up very much like that of a typewriter. But, the functions of the computer keyboard make it easier to work with information that is to be put into the computer. The function keys or items that will be found near the keyboard are as follows.

On or near the keyboard is a translucent slot called the power light. This light is to indicate whether the computer has power to it or not. It cannot turn on the power switch, it merely lets the operator know if the power is on or not. The power switch is located in the back of the computer on the left hand side.

The return key is used to enter information into the computer when the operator is through giving input. It does not work as a return key on a typewriter. Most wordprocessing programs have a feature known as a wraparound feature that automatically brings the cursor back to the left and on the next line down. With data bases and spreadsheets, the return key will be pushed

when the data that is being put into the
computer is complete. Also the enter key that
is found on the numeric keypad, the group of
numbered keys on the right side of the
keyboard, acts in the same way as that of the
return key.

The space bar is the long rectangular key
at the bottom of the keyboard. The space bar
is used when spacing is needed between words
or other information.

The arrow keys, usually located at the
bottom right of the keyboard, are used to move
the cursor around the screen without
interrupting the text on the screen. With
some programs (ex. MECC programs) the left
arrow key is used as a backspace key.

The shift key on the keyboard is like the
one found on a typewriter in that it will put
a letter into it's upper case form. Also
holding the shift key down will give the
operator the character that is on the upper
part of a key that has two characters on it.
For example the exclamation mark that is
located on top of the one (1) in the number
row at the top of the keyboard.

The caps lock key will capitalize all letters, but will affect no other keys. For example, the operator will not get the percent sign when using the number five (5) key in the top number row.

The control key (CTRL) is used for functions that control various features of the computer. The control key is used in combination with a letter key that will bring about the function desired. The function will depend on the program being used. Depending on the program being used the letters being used with the control key will not appear on the monitor.

The tab key moves the cursor forward a fixed number of spaces. With some programs the number of spaces can be set by the operator, with others it cannot.

The reset key is a very powerful key. This key will interrupt the computer from whatever it is doing and take it back to the same state that it is in when the computer is first turned on. As a result of this data in the computer memory that has not been saved will be lost. Normally the reset key is used in association with other keys. The reset key

is usually used to restart the computer when it is already on. This is called a warm boot (open apple - control pressed down then hitting reset and then letting all three keys up). It is also used to stop a current process that the computer is doing. An example would be a disk that will not stop whirling (control - reset). Finally to start a diagnostic self - test (option - control - reset).

The escape key (esc) is used to move a program backward one step, screen, or level depending on the program being ran. The escape key can also interrupt a program process, such as saving information to the disk, or when printing out information to the printer.

Definitions of Terms for the Apple II

Applesoft BASIC

A computer language which can be used when programming the APPLE II.

Booting the System

The process of activation the disk operating system which makes the disk drive spin.

Chips

Small rectangular pieces inside a microcomputer containing electrical circuits.

Copy Protected

A copy-protected diskette has no physical modification made to it, but the DOS on it has been modified to prevent the diskette from being copied or written on.

Courseware

Instructional programs and any related support materials needed to use the programs effectively in the classroom.

Cursor

The prompting symbol displayed as a blinking white square on the video monitor

that shows where the next character will appear.

Disk Controller Card

A card which operates the disk drive, usually placed in slot 6 on the main circuit board of the APPLE II.

Disk Drive

A mechanical device capable of reading and writing information on a diskette.

Diskettes

The thin plastic disks enclosed in a cardboard casing used by a computer to store information (also known as floppy disks).

DOS (3.2 or 3.3)

DOS is a program which enables the APPLE II to read and write on a diskette. Disk Operating System Version 3.2 is used on Apple's purchased before June, 1980. Version 3.3 is an upgraded release. ProDos is the newest version.

Game Controls

Accessory to the APPLE II containing two units, each with a button and a knob, used to control action in game programs.

Hardware

The physical pieces of a computer.

Input

Information put into a computer system.

Integer BASIC

A computer language which can be used when programming the APPLE II.

INTERFACE CARD

A circuit board used to connect the APPLE II to peripheral devices (e.g., printer or disk drive).

K

Symbol meaning approximately 1,000 in reference to a computer's program memory capacity. Hence 32K APPLES have the capacity to store about 32,000 characters of memory.

Memory

Chips inside a computer which have the capacity to store information.

Menu

The list of programs available on a given diskette.

Microprocessor of Controller

Central unit of a microcomputer which controls the flow of all the information going into and coming out of the system and performs mathematical operations.

Monitor

Video display unit similar to a television used as a means of displaying output.

Output

Information sent out of a computer system.

Peripheral

Hardware attachments to a computer which allow for capabilities beyond processing. Peripherals include printers, disk drives, monitors, modoms, etc.

Power Supply

The large metal box located inside the APPLE II which accepts the current from an electrical outlet.

Program

A list of instructions which enables the computer to perform a process.

RAM

Acronym for random-access-memory. Memory which "remembers" the current program. The contents of this memory change each time a different program is run. A 32K APPLE system has 32,000 characters of RAM (program) memory available. (See K on previous page.)

ROM

Acronym for read-only-memory. This type of memory is built into the machine and cannot be changed. It is used to remember the BASIC language, for example.

Software

The programs, data, routines, etc. used by the computer.

System Master Diskette

Diskette produced by Apple Computer, Inc., containing sample programs for the APPLE II an also utility programs for functions such as diskette copying.

Write-Protected

A write-protected diskette has a "write-protect" label placed over the small square cutout on the edge of the diskette.

This prevents any writing to the diskette, but does not interfere with copying. This physical modification is easily reversed by peeling off the write-protect label.

Care of the Diskettes

There are two types of diskettes that are
in use in today's world or computers, the 5.25
floppy disk and the 3.50 floppy disk. Even
though both are considered floppy disks, the
3.50 disk comes is a hard plastic jacket. The
5.25 disk is in a plastic jacket also, but it
is very plyable. Both of these disks can
store great quantities of information so the
care of these diskettes are important.

   With proper care diskettes will last a
long time. The following are suggestions on
how to extend the life of the diskettes that
are being used (Bullough, Beatty, p. 39 1987).

   1. Always store the disk in its
   protective envelope when not in use. Make
   sure that the read-write opening is
   covered by the envelope.
   2. When handling the disk, do not touch
   the exposed surface (that portion you can
   see through the read-write opening). A
   thumb print on this portion of the
   diskette can cause the disk drive to
   misread information stored there.

3. Be careful where you place the disk –
never expose it to a magnetic field.
Electrical devices such as monitors and TV
receivers emit magnetic signals that can
damage the program on the disk.

4. When you label a disk, use a felt
marker. The pressure from a ballpoint pen
or pencil may destroy the data on the
disk.

5. Don't leave the disk in your car,
particularly on very hot or very cold
days.

6. Do not bend the disk, you may damage
it.

7. Do not use alcohol to clean the disk
surface. The alcohol will cause the
magnetic coating on the surface of the
diskette to separate from the plastic
base.

8. Never attach anything to the disk with
a paper clip.

9. A good rule to follow when placing the
disk in the drive is the "rule of thumb".
Place your thumb over the label (on the
top) and carefully insert the disk (never
force it) into the drive.

10. Store the disks upright in their

original boxes or in cases available

commerically for this purpose.

Besides these 10 rules there are a few other

that are good to keep in mind. First, the

placing of heavy objects on the diskette cause

damage. Secondly, never use erasers on a

diskette. The rubbed off eraser may get on

the disk and cause serious damage. Finally,

when using labels on the disk never layer

them.

At this point an explanation about disks

that may cause some confusion. Disks of

common size do not always contain the same

amount of storage as others. Most data is

stored on one side of the disk only. This

practice is called single-density. But, it is

possible to place twice as much information on

one side of a disk. This is known as

double-density. The double-density is

accomplished by placing a higher quality

ferrite coating on the disk than of that

placed on the single-density. The catch to

this is that the double-density disks are more

expensive.

Now, storage can be expanded by using
both sides of the disk also. A disk that is
designed to have both sides used is _certified_,
meaning that both sides have been inspected
and will indeed store information on both
sides. By using one of these disks an
individual can now have four times the storage
on one disk. A disk such as just described is
referred to as double-density, double sided.
Single sided single-density disks are also
certified and the back side of these disks can
be used. But, by using the back side of these
disks an individual is running a chance that
some of the information placed on that side
might be lost.

Starting Up Instructional Programs on the Apple

When starting up your computer system, there are a few basic steps that should be followed. The ones here are recommended by the auther when using software. To begin with, turn on the computer's monitor. Next insert a diskette carefully into the disk drive. Remember to place the exposed portion of the disk in first. Then close the disk drive door. If by chance your APPLE computer comes with two disk drives, the drive that is hooked to the computer will be drive one. Now, you need to touch the metal plate that is near the on/off button (back left side) at the back of the computer to ground yourself. It may be wise to invest in a grounding pad so that static electricity will not become a problem when using the computer. Reach around the back of the computer and turn it on. The APPLE II appears on the monitor screen and the red disk drive light will come on. Should the disk drive keep running after about 10 seconds, turn the computer off, remove the disk, and inspect the disk to see if it had

been correctly placed in the disk drive. If
correctly inserted a menu will appear. This
menu will give a list of the programs on the
diskette. From here type in the number or
letter of the program that you wish to run and
then press RETURN.

When running a program, follow the
directions given by the program. After
completing the direction given by the computer
program, the RETURN key will be pressed to
input the information. Also the space bar
should be pressed when directed to do so by
the program.

Should you wish to start over before
ending a program, open-apple, control, reset
can be pressed. This will reboot or warm-load
the program. The program may also come with
directions on how to return to the menu. If a
new program is desired, remove the present
program in the disk, insert the new program,
and then warm load the program
(OA-control-reset).

When the program is finished and you wish
to conclude the use of the computer the
following should be done. First, take out the
diskette out of the disk drive. Then turn off

the power to the APPLE computer. Finally,
turn off the monitor.

How to Change Your TV into a Computer Monitor

Kids of all ages are interested in television, and computers are now as much apart of their world as television. Educators are always looking for new and innovative ways to deliver information to students that will hold their attention. This writing is about a method combining both computer and television together as another, and hopefully interesting, method of getting information across to the students.

The following method is for the Apple Computers. This method can be achieved with an IBM, but the items needed are not known to the author at this time.

To set up the connection between the computer and television extra cords will be needed. Depending on the computer that is being used, one or two extra cables need to purchased. The first one that will be needed to purchase is an **Audio Extension Cord**. The other item needed is a **Audio Y cable extension**. Both of these allow for the merger of the computer and television. One more piece of equipment may be needed depending on

whether a VCR is used or not. If a VCR is not
used then a RF converter will be needed. The
converter allows the computer and television
signals to correspond. If the VCR is being
used, a converter will not be needed because
the VCR acts as a converter. The additional
equipment needed can be purchased at any
electronics store.

   With the Apple IIe and Apple IIc the
equipment needed is an Audio Y extension, and
an Audio extension cord. The Audio Y
extension is a jack that has a male piece that
fits into the monitor port in the back of the
computer. Connected to that jack are two
extensions that have female connections. One
of these connections will be used for the
cable between the computer and the computer
monitor,and the other will be used with the
Audio extension cable to connect the computer
to the television. If there is going to be a
direct link between the computer and
television, it is here that a converter will
be needed.   Plug in the Audio extension cable
to the converter and then attach the
converters prongs to the VHS screws on the
back of the television. The converter select

should be on VCR or Computer. The connection between the computer and the television should now be complete.

When connecting the computer to the television and the connection is going through the VCR the following should be used. The set up with the Audio Y extension will remain the same, but now the Audio extension cable will be connected to the VCR's <u>video in</u> port. Since the VCR is already hooked up to the television, all that needs to be done now is to turn the VCR machine on and to engage the VCR switch. If this switch is turned off or turned to TV, the signal will not go through. Once the preceding has been done, the signal from the computer to the television will be complete.

If the computer that is being used is an Apple IIgs, the Audio Y extension will not be needed. The Apple IIgs has an extra monitor port so the Audio extension cable can be plugged in there and then the above steps can be followed depending on whether the computer television link up will be through a VCR or not.

Now that the link between the computer and television has been established, the teacher may use it in any way that she/he may want. One method is as a vehicle for delivering notes. By using this method students can close their books and open their minds to the information being presented for discussion. At the end of the discussion a printed hard copy of the notes can be printed out and a class set made on the copier. By delivering notes in this fashion, students can concentrate more on the material being presented for discussion. Also by giving notes this way a teacher can save them easily on a data disk for future reference or test making.

Another way this method of delivering information is useful is with drill and practice programs. A teacher could involve an entire class with one of these programs instead of only one or two students around the computer.

This method of delivering notes is also good from the standpoint that the teacher never has their back to the students. With this set up the teacher is either facing the

students or at the side of the classroom.
Either way the teacher has easy visibility to
the students while conducting class.

Finally, with the linkage of the computer
to the television through the VCR, everything
that is written or shown on the screen can be
video taped. The material on the screen can
be video taped simply by inserting a VCR
cassette into its slot and press record.
Everything that appears on the screen after
the tape has started to record will be
recorded on the tape. This feature can lead
to some interesting projects. One idea is
using this method with the writing process and
LogoWriter.

An example of this would be for the
student(s) to develop a story. At certain
points of the story animation or pictures
would be inserted. The animation or pictures
could be worked out and stored on a data disk.
When all the bugs have been worked out, load
the program into the computer, load a video
tape into the machine, and start the program.
Everything that came across the screen will be
recorded and the story will be recorded on
video tape.

What has been attempted in this paper is to enlighten educators on another possible method of delivering information to students. It is not brand new, but it is an application technique that is not widely known and has the potential to be effective in the classroom. The limitation of this method is only limited to the imagination of the educator who is using it.

CHAPTER IV

CONCLUSION

It has been the purpose of the author to provide a handbook comprehensive enough to allow a teacher, with little or no background in the use of a computer, to begin to use an Apple computer in their classroom. The handbook was designed to be both informative and to eliminate the frustration and mystery that the computer holds for some people.

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