Integrating Computers Into the Primary Classroom

An Honors Thesis (HONRS 499)

by

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(Abstract)

In this day and age, no one can afford to be computer illiterate or be afraid to use them. Computers have entered every facet of our lives and we need to feel comfortable around them and know how to utilize their full capacities. The computer is a very handy tool that has the ability to help us all in a variety of different ways. There are three basic approaches in which to introduce a computer in a classroom. The first way to be discussed is that of a computer center that functions as a learning center. A second manner of computer presentation to be discussed will be that of a single computer being used by the teacher to instruct an entire classroom. The third manner of presentation involves the employment of a computer lab.

In order to make use of the three approaches mentioned, one must consider software selection. The final portion of this work contains suggestions of developmentally appropriate activities for grades kindergarten through the third grade.
"Computers, in my classroom? I don't like even computers and I don't really know how I can use them at all." Unfortunately the above statement is one that many teachers have been known to say about computers. In this day and age, no one can afford to be computer illiterate or be afraid to use them. Computers have entered every facet of our lives and we need to feel comfortable around them and know how to utilize their full capacities. The computer is a very handy tool that has the ability to help us all in a variety of different ways.

The presentation of a computer in a classroom may be done using several methods. Like any teaching material, a computer may and should be introduced and exercised in diverse fashions so that each child has a chance to learn in the way that best suits him. There are three basic approaches in which to introduce a computer in a classroom. The first way to be discussed is that of a computer center that functions as a learning center. Such a center could serve an individual student or a small group of students. A second manner of computer presentation to be discussed will be that of a single computer being used by the teacher to instruct an entire classroom. This would allow the whole class to work together on a lesson. The third manner of presentation involves the employment of a computer lab that consists of networked terminals that would allow each student to work independently at their own pace on the same lesson as the class, or on a lesson that has been individualized specifically for him.

In order to make use of the three approaches mentioned, one must be sure to consider one factor very carefully. That factor is that of software selection.
There are several things an educator needs to weigh when choosing the material that dictates the success of any given lesson. The subject of software selection and the process thereof will be discussed. Also to be discussed are the kinds of software available.

The final portion of this work will be the suggesting of activities for grades kindergarten through the third grade. These activities will be developmentally appropriate in nature and will be ones that any educator could fit into any curriculum. The three approaches before mentioned shall be addressed and supplementary materials and in addition activities will be mentioned.

As with any learning center, a computer center is one that may be adapted to concentrate on any subject area or skill development that the teacher desires. If a classroom were set up in a learning center fashion, it would usually include a combination or mixture of the following: a reading center, a math center, a science center, a language arts center, a social studies center, and a materials or hands-on center. A computer center might be used to concentrate on one of these areas, or might be used as a culmination of several of them.

Initially, a computer center should be one that will aid the students to become familiar with the computer itself. Students need to understand what the parts of the machine are, what they do, and the proper terminology for them. This may be accomplished through self-directed activities or through a brief lecture given by the teacher. Once the students are made aware of the computer, they are then ready to use it correctly. This getting-to-know period will enhance the interest of the students and help to eliminate any fears they may have.

The number of students who are working on the computer at once is something that the teacher must decide, depending on the management technique desired. This will also be affected by the type of activity planned and
the type of software involved. It is important to vary the method used periodically so that the students won't become bored with the center and stop to think about what they're doing while there. A computer center could be one that is exciting and ever changing. Students should look forward to their turn at the center and feel challenged when there.

Another use of a single computer in a classroom is that of the teacher instructing the whole class at once. To do so well will require some special equipment however. The computer screen generally will be too small for the whole class to see at once, so some form of enlargement or projection of the screen's image is necessary. One option to consider is the use of a large television screen. The color quality is high and students could easily sit around the television and see well all that is being displayed. Relatively speaking, this option may be one of the lesser expensive ones. Another option is a device that allows the teacher to connect the computer to an overhead projector. A drawback to this device, called a LCD, is that they are usually monochrome in display and difficult to see at times. The precise graphics of several of the latest programs on the market would lose their effect on a LCD projector. Color LCD projectors are available, but are very costly. The prices of such devices varies, and understandably many school systems may find obtaining them difficult.

Using a computer to instruct the entire class lends itself well to several types of learning activities. Group reviews can be done in the form of trivia games on the enlarged screen. Map skills can be developed with good software that lends itself to this form of presentation. Math instruction and practice is a good whole class activity to engage with the computer. The class can pool together its efforts and develop thinking skills and problem solving skills. Enrichment activities in all subject areas can employ this method also. The
teacher can use this tool to generate class discussions on a variety of topics.

A computer lab is something that more and more schools seem to be getting. Usually they consist of several computer terminals that are networked together. As there is typically only one lab in a given elementary school, classes must reserve the time they may spend in there. This is an obvious factor to consider when planning the time on task for the activities. How such a lab is used is dependent upon the way in which it is set up and the kind of software that runs the network. Some labs allow the teacher to set up individualized lessons and activities for each student. Others may only allow the teacher to load or access one program at a time for the class (students would still be working independently).

Another example of a network system is one that is spread out throughout a given building. There may be only one computer terminal in each classroom, or there may be a few terminals in each classroom. The teacher is responsible to know how to use the network system to its fullest advantages.

Some other activities that a class could do within the framework of a network is the communication with other persons. Through the use of communication equipment which allows one computer to "talk" to another, students could send messages to classmates, persons in other classes, other schools, other states, and even to businesses and government offices.

The next topic of discussion is the selection of software. In principle, the goals of and the processes for evaluating instructional software (both computer-assisted instruction and utility software such as a word processor) are the same as for any kind of instructional material (Bright, 87). The best way to gain an understanding of a software package is simply to play with it. In so doing, the teacher can see first hand what the program looks and sounds like. Three main categories to look for are the general design of the program, the
content of the program, and the ease of use of the program. Many programs on the market promise wonders, and fail to come through. A program might have a defect that will make it crash, which is a failure to work properly. This will be easily detected when attempting to use it. Does the program do what it is advertised to do? Does it even tell you what it is supposed to do? Is it reliable? Can the user exit the program easily if he desires?

The content of the program is very important. The teacher needs to evaluate if the program is adaptable to different levels of instruction, if it is factually correct, and if it is encouraging to the student who may be having difficulties. A computer program to be used in a classroom should be free from any excessive violence or competitiveness. Stereotypes should not be encouraged in its presentation. Instructional materials should be positive in nature and not offend a user in any way.

How easy the program is to use greatly influences its effectiveness. Can the students use it independently? Are the directions consistent for operation? Can answers be changed or corrected before continuing with the program? Are the sound effects appropriate? Can sound be turned off? Can the student turn the program off whenever he wants to stop? Are the pace and sequence of events appropriate? Are the graphics neat and attractive?

There are some other miscellaneous things to consider. Is there an instruction manual included? Does the program offer additional activities to further its objectives? Can the teacher manage how it is used? Is record keeping an option? Does it fit into the curriculum of the school? Could it be presented to the class in a variety of methods? Is it fun? If you were the student, would you enjoy using it? Is it affordable?

The types of software available fall into several categories. One type available is drill and practice software. Drill and practice programs are those
that allow the student to get additional work needed on skills or behaviors. It is important that drill and practice activities are not overdone, as students might become bored or burned out with them, especially in the primary grades.

Some programs are tutorial in their approach. They may be used to introduce new material or to provide backup instruction for students who were absent or for those who didn't grasp the information during the first exposure to it. The problem with initial presentation of material through the computer is that it is not a hands-on approach, which is the preferred method of introduction at this age level.

A third type of software is games. Games have a set challenge against a task or opponent. Children enjoy games and usually aren't aware that they are learning anything while playing one. The teacher must be careful that the game isn't too competitive, as winning the game shouldn't outweigh the purpose of playing. An example of a good game would be one that has the students working together using a certain skill or piece of knowledge to win something or achieve goal.

A fourth form of software is simulation activities. This is something the computer can do far easier than can the teacher in many circumstances. A computer can place the students in a position that they wouldn't normally even be able to conceive. Simulation programs can show students things that they would normally never see. An example of educational simulation software are those that are used in science to simulate the dissection of an animal or plant. Another example is a simulation game in which the participant is placed in a situation and must weigh all the possibilities of solving a problem that exists.

Databases are another type of program useful in the primary classroom.
They allow the students to organize and manipulate information. A good database program enhances the students' thinking skills, encourages them to research a topic well, and teaches them to organize and use the information in various ways within the database. Extending the things learned or gained from the use of databases should be done to show the students why we collect data and manipulate it. Databases are also a tool for the teacher. Student records are easily managed and maintained, attainable in a few seconds. Form letters are simple to produce and keep on record for future use. Also, lesson plans can be kept in a database, and if the teacher wanted to look up a lesson on a certain subject or grade level, it would only take the computer a fraction of the time it could take a person to look through the files in a file cabinet.

The manipulation of numerical data is done through the use of a spreadsheet program. Students can learn to have the computer do computations for them. In order to properly take advantage of a spreadsheet's capabilities, students must first know how to do basic operations, and they need a lot of practice just in the mechanics of spreadsheets before applying this to other class assignments. Spreadsheets are also a great tool for the teacher. All sorts of records can be kept up to date continuously, such as grade averages or amounts of money collected for whatever purpose. Spreadsheets can also be used to construct instructional charts or tables.

Word processors are a type of software with which almost every computer user needs to be familiar. Students gain a lot from word processors because they don't need to be so worried about mistakes, as they are easily fixed in the computer. They produce professional and neat-looking assignments. When using one, students don't get as hung-up about experimenting as they might when using pencil and paper. Like databases and spreadsheets, word proces-
sors are essential tools for the teacher as well. With the desktop publishing capabilities available, teachers are able to create their own worksheets, certificates, bulletin board materials.

Some programs are set up to teach students how to program. They can tell the computer what to do as opposed to the computer telling them. The students gain a better understanding as to how the computer "thinks." Programming enhances students' logical thinking skills. They grow to appreciate the software they use and comprehend how much work is involved in a single program.

Several programs concentrate on the instruction of gifted or remedial students. This is especially helpful as it allows students to work on specific things that they need. This permits the teacher to spend time with a larger group that is on the same level while a student who is a little ahead or a little behind to catch up or to not feel out of place with the group. Such programs are great in the way that they can make a student feel special because they have their own little particular program on which to work. They are unaware of whether it is remedial or whether it is a gifted activity.

Students can tap into a bulletin board, an online service where a host computer stores messages received and posts messages for other uses. Several bulletin boards have software that is accessible to those who are online. Students will find receiving and sending messages from all over the country exciting and can gain a great deal from such communications.

"What now?" you ask. Knowing what kind of implementations are possible in the classroom and what kinds of software are out there is the first step. It will be helpful to sit down and plan a few activities for each of the three common methods of presentation. This will begin to build a file of ideas and activities, so that when the time comes to apply this new knowledge,
panic won't be necessary.

When going to set up a classroom's computer center, there are several kinds of activities that one could be plan to take place there. Students might be assigned to use a graphics software package to create certain shapes, colors, letters or words. Small groups might be assigned to write a short essay about an activity done at another center, such as one about something made or discovered. Students need practice to go into a program and print out a given file or picture. They could play a game together to enhance a skill or for extra practice on a specific skill. Keyboarding skills may either be introduced or reinforced at a computer center. A database program could be used to make a chart of a book's characters or main events.

When instructing the whole class with some sort of projection device, younger students could get ample practice naming the letters that appear on the screen or the shapes drawn by one student at a time. Spelling words can be placed into a word search program and the teacher can have each student take a turn finding one. Dictation can be given by the teacher for language experience activities. Together the class and teacher can draw maps of the school building or even of the classroom itself. Science experiments can be described and simulated on the screen for all to see at once (this would allow the teacher to regulate the results found by all of the students).

Spending time in the lab could be a source of great anticipation. Students could be given their choice of games to play during that time. They might be assigned to work on special makeup work or specific enrichment activities. Using communication hookups, the class could spend the time communicating with a pen pal from another school across town. This time will allow the teacher to communicate with the students individually through the use of messages sent to each. Students could take computer administered tests that
would be automatically graded for the teacher, with reports that include the amount of time on task or perhaps on each item, the analysis of types of items that were frequently missed, and more.

In conclusion, the computer definitely has a place of its own in the primary classroom. Its possibilities are endless. Teachers need to either educate themselves on computer implementation or find a way to have someone educate them. Such training might be provided through the school system in the form of teachers' conferences or in-service training. Once a computer has entered a classroom and been used properly, it rarely leaves. If the options and suggestions made in this paper are attempted, the rewards will become obvious. Just remember, like any teaching material, computers are only successful if used correctly. An educator can't expect this tool to automatically do its job all on its own. It takes people who aren't afraid of machines to make them work.
BIBLIOGRAPHY


