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Designing And Implementing A Computer Literacy Course For Academically Excellent Disadvantaged Intermediate Elementary Students

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DESIGNING AND IMPLEMENTING A COMPUTER LITERACY COURSE FOR ACADEMICALLY EXCELLENT DISADVANTAGED INTERMEDIATE ELEMENTARY STUDENTS

by

Ronny Einbinder

A Practicum Report
submitted to the Faculty of the Center for the Advancement of Education of Nova University in partial fulfillment of the requirements for the degree of Master of Science.

The abstract of this report may be placed in the School Practices Information Files for reference.

March/1986

Running Head: COMPUTER LITERACY

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practices. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my own work, presented here, will earn similar respect.

Ronny A. Einbinder

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Abstract

Designing and Implementing a Computer Literacy Course for Academically Excellent Disadvantaged Intermediate Elementary Students.
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Descriptors: Academically Gifted/Computer Literacy/ Disadvantaged/Disadvantaged Environment/Disadvantaged Youth/Educationally Disadvantaged/Gifted Children/Gifted Disadvantaged/Gifted Students/Grade 4/Grade 5/Grade 6/ Intermediate Grades/Microcomputers/

The author designed and implemented a computer literacy course for academically excellent disadvantaged intermediate elementary students. The author introduced the students to a wide range of computer related skills. This information was presented in an introductory manner in order to acquaint students with the varied uses of the computer in today's technological society. The program's aims were to teach computer literacy to academically high achieving students who had little or no previous computer knowledge or experience, to provide computer time for students whose environmental background has denied them equal access to computers, and to build higher level thinking skills. The course consisted of a brief introduction to the history of computers and their impact on society today, a glossary of computer related terms, weekly lesson plans, worksheets, and tests. Student

progress was monitored on a weekly basis by individual mastery lists. At the conclusion of the course, student mastery of the skills taught was determined by a Post-Test. All of the students mastered the skills, and the objectives were met.

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Chapter 1

Purpose

The writer teaches fifth grade in an inner city elementary school in South Florida. She is also the computer resource teacher for the school. The duties of this position include attending workshops, in order to bring information back to the home school, previewing software, recommending the purchase of software, and providing computer literacy in-service training sessions at the home school.

The school is in a residential area, but the business district is only a few blocks away. The student population is 100 percent black, as is the surrounding community. The area has a high crime rate. It is a low income area, and has a high rate of unemployment. In the past, these factors have caused violence in the area that was precipitated by other events. The continuing social problems cause a feeling of unrest and dissatisfaction in the community.

Progress and improvement have been made in the business district. In the spring of this year the area had cause to celebrate. A major supermarket chain opened its doors to the community. The area had been

without one since 1980, when civil disturbances had caused the closing, and move from the area, of the prior chain store. A new fast food restaurant has also been built this past year, directly across the street from the supermarket. This new business growth has given the neighborhood a positive image, and has helped to combat a bad reputation and a dilapidated appearance.

The improvement and growth of the community are due to a group of highly visible and active area leaders. These civic minded men and women are responsible for keeping the area calm when a potentially dangerous situation could provoke much violence and destruction. They try to instill a sense of pride and optimism in the citizens of the neighborhood, and are always available to come to speak to the students about their heritage and their future.

The problems that exist today have not always been present. The school was built in 1938 in an all white middle class neighborhood. In 1968, during the height of the civil rights movement, the school became desegregated. Within five years the school population drastically changed as white people fled the area due to the influx of black families whose children began to

attend the school, and also, in part, to the presence of black faculty members that were now present.

In 1981, the school was identified, as one of three in the country, as being a "turnaround" school. In essence, this meant that the three schools had the lowest test scores. These three schools were targeted for immediate and long range improvement. Large sums of money, change in staff members, and upgrading of the physical aspects of the building, and its maintenance, became top priority. Today the school is still a "turnaround" school, but great strides have been made. The money, effort, and dedication of those involved have begun to reap the rewards hoped for. The administration provides strong leadership. Teachers who have remained, and those that have joined the faculty, are dedicated to improving overall student performance. They have worked hard, resulting in improved test scores. State Student Assessment Test scores are at an acceptable level, and therefore the school is not classified as deficient.

The physical appearance of the school is outstanding. The lawns are manicured, the buildings constantly painted and cleaned. There is no graffiti

to be seen anywhere on school grounds. Because of the age of the main buildings (two additional wings have been added in the past ten years), the style is that of classrooms with many windows and doors that open up to an inside, landscaped courtyard. This architectural style provides students with bright, cheerful classrooms. Improvement is ongoing, but some basic needs have yet to be met. At the present time the school is still not air conditioned, with the exception of the office and several of the primary classrooms which are housed in a building known as the "six-pack". There is no paved parking lot, or faculty lounge, or bathroom facilities designated solely for staff.

The school is working to continue to improve in all areas including raising test scores, improve student performance in basic skills, decrease the dropout rate of all students, with particular empahsis on low achievers, improve student attendance, and increase parental involvement in the educational process. There is a relatively small, but active, PTA that is helping work toward these goals.

This year there are forty classrooms, ranging from kindergarten to sixth grade. The school also has a

Headstart program. Of the forty classrooms, approximately 60 percent are Chapter I. The Chapter I program began at the school as an all day, full time alternative to regular classrooms, in 1983. Prior to that time, low achieving students could receive remedial help in an after school program. Chapter I students qualify for the program based on their scores on the Reading Comprehension and Mathmatics Application subtests of the Stanford Achievement Test. These students are taught in the basic skill areas of Reading, Math, and Language. Science, Social Studies, and Health concepts are taught as part of the Language Experience program, which reinforces reading objectives.

This year an Academic Excellence program was started. Students were chosen for the program based on test scores and teacher recommendation. This Enrichment class consists of approximately 35 to 40 students in grade 4, 5, and 6. The students in each grade meet with the resource teacher one morning each week. While some independent work is assigned to them, and they do receive some enrichment activities not available in the regular classroom setting, little is done to develop higher level thinking skills, creative thinking, or problem solving skills. The emphasis is to build these

students' test taking skills. Therefore, much time is spent on instruction and the practicing of taking tests. The rationale for the program for these bright, but disadvantaged students, is to boost their academic skills so that they can compete intellectually with students from a less deprived area.

Although the Enrichment class meets in the Resource Room, which is also the Computer Lab, there is no instruction given, or curriculum for, computer literacy. What little contact and familiarity these students have ahd with the computers has been in the form of playing games rather than interacting. These students do not have access to a computer in their home, and tend to regard computers in much the same way they do video games.

At the present time the Academically Excellent students are given no instruction in computer literacy. No curriculum exists at the school for this purpose. Although the Enrichment class meets each day, the students have no access to the computers.

The problem has been identified after observing the Enrichment class, and after several discussions

with the resource teacher regarding curriculum for these students for the school year. Observable behaviors are:

1. No time designated for the use of the computers by the Enrichment class.
2. The computer lab is run by an aide who works only with Chapter I students in the area of basic skills.
3. Enrichment students spend much time on building test taking skills and expanding knowledge in the basic skill areas.
4. Enrichment students work on problem solving skills through creative writing assignments and other pencil and paper activities rather than apply skills in new, or unfamiliar, academic areas.

The problem exists because the computers are designated for use by the Chapter I students. These students come to the lab at a specified time, twice a week, for a nine week period. They work on skills that have been identified, by their classroom teacher, as being weak. A prescription sheet has been filled out for each student by his teacher, and he is then given drill type programs to work with in order to build his skills. The comptuer lab is run by an aide who is guided in software choice by the prescription sheets filled out by the students' teachers.

The Enrichment students have no time alloted to them to learn computer skills, or to explore the capabilities of the computer. It would seem that the Academically Excellent students may also come from

deprived environments, and while there may be somewhat more parental interest in the education of the student, the home the child comes from may still be lacking stimulating and motivating forces. Education may not be highly valued or prized, and therefore, the child coming from such an environment may not seek to discover and expand knowledge, even though interest and ability may be present. The student may not have the resources available to him to grow intellectually or to explore new areas of interest. He may not even be aware of the possibilities that exist. It appears that these children may have very limited resources available to them.

The target population in the implementation of this practicum consisted of ten students. There were 6 sixth graders, and 4 fifth graders. The sixth graders were two girls and four boys. These students will be referred to as students A, B, C, D, E, and F. The fifth graders were one girl, and three boys. These students will be referred to as students G. H, I, J, and K. All of the students in the target population were chosen by their classroom teacher and the resource teacher because of outstanding academic abilities, and

maturity levels necessary to deal with the information presented. All of the students in the target group were working on, or above, grade level in all subject areas of the time of implementation. The observable behaviors related to the target population.

The major objectives of the program were:

A. Over a period of ten weeks, the students in the target group will improve their vocabulary of computer related terms by 80 percent as measured by the difference between a Pretest and Post-test constructed by the author. (Appendices I and J, Computer Literacy Pretest and Post-test)

B. Over a period of ten weeks, the students in the target group will improve their problem solving skills as evidenced by teacher observation of their ability to master computer related skills. (Appendices K, Mastery List For Computer Literacy)

C. Over a period of ten weeks, the students in the target group, using a word processing program, will improve their creative writing skills as evidenced by teacher observation of their ability to master this skill, and by the students' critique of their own assignments. (Appendices K, Mastery List For Computer Literacy)

D. Over a period of ten weeks the students in the target group will improve their critical thinking skills as evidenced by teacher observation of their ability to work at the computers, and demonstrate and apply learned skills.

While these were the major objectives of this project, there were other outcomes which were in evidence at the conclusion of the implementation of the practicum. The author felt that skills such as following oral and written directions, building self-esteem and confidence, risk taking, and applying knowledge learned during the ten week course were certain to be by-products of the four major outcome objectives. These less tangible outcomes were observed by the author and discussed with the students in the target group.

Chapter 2

Research and Solution Strategy

Surely no one who is aware of, and functional in, our technological society can doubt the impact of computers in the lives of virtually all citizens worldwide. It would seem few could argue successfully that the computer has not made significant and radical changes in industry, government, politics, business, economics, science, and education.

Perhaps not since the launching of Sputnik has there been such a demand for increased awareness, and mastery of skills, as has been demonstrated in the past several years as the computer revolution surged into the classroom. According to Molnar (1978), foreign governments have worked cooperatively with commercial firms and educational establishments to challenge this country in the areas of research and development of computer based industries. These countries have placed a high priority on the development of computer based skills in their educational systems. Molnar feels that the key to the success of this technological challenge lies in new educational methods whereby the computer becomes an integral part of the curriculum from kindergarten to the university. Such a plan would allow students to experience computer uses and practice

on a daily basis. Luehrmann (1980) believes that the ability to use computers is as basic and necessary to a person's formal education as reading, writing, and arithmetic. While computer awareness can be gained by means of books, television shows, lectures, and other passive means, computer literacy can be reached only by practice.

A search of the literature reveals a common problem related to teaching computer awareness and skills. There is no widely accepted definition of the term "computer literacy". In order to incorporate computer literacy into the already existing curricula, educators must be able to define it at least as it pertains to the student body for which it is intended. Computer literacy, as defined by Lipkin (1983), is the ability to use the computer as an aid to problem solving in all spheres of human activity, as appropriate, can greatly benefit the individual and the society. Roberts (1985) quotes Coburn's 1982 definition as a general range of skills and understanding needed to function effectively in a society increasingly dependent on computer and information technology. A more specific definition by Poirot (1980) states computer literacy as including an understanding of

the technology used when processing information, an understanding of the effects that computers have had and will have on society, and an understanding of how computers are problem solving tools. A broad definition by Watt (1982) is, a collection of skills, knowledge, understandings, values, and relationships that allow a person to function comfortably as a productive citizen in a computer-oriented society. Dr. Watt goes on to divide this concept into four specific areas: A) the ability to control a computer so as to achieve a variety of personal, academic, and professional goals; B) the ability to use interactive programs for personal, academic, or professional purposes; C) the ability to understand the growing economic, social, and psychological impact of computers on individuals, groups, and society as a whole; D) the ability to make use of ideas from the world of computer programming and applications as part of an individual's collection of strategies for problem solving, information gathering, and communication. What appears evident is that while the term "computer literacy" is one of the most often heard educational buzzwords of the decade, it means many different things to many people (Prentice, Beckelman, Caputo, 1983). Regardless of the controversy

and discussion surrounding the meaning of the term, there is no evidence to suggest that education will be able to ignore the influence of the computer influx into the school setting. Nor will educators be able to refrain from having input into what area of computer studies students will be required to master, and at what level. According to administration at the author's school, the 1989 Stanford Achievement Test, which is given countywide, will include a section on computer literacy.

Prentice, Beckelman, and Caputo (1983) believe that computer literacy must suffuse every aspect of the educational process just as they are suffusing every aspect of our culture. They believe we cannot give our children one dose of computer literacy and expect them to be literate for life. It is our duty then, to provide a comprehensive approach to computers which will touch every grade level, build on skills previously taught, and provide a relationship between what is learned in the school setting and tomorrow's world. It is our obligation to prepare students for this world, because computers, and their many uses, will make their world dramatically different from today's.

It appears that while the need for computer literacy is not disputed in the literature, availability of access to computers is. Research seems to indicate that accessibility and the way computers are used has a great deal to do with the location of the school, and the socio-economic standing of the surrounding community. Watt (1982) has pointed out that when computers are used in suburban schools, it is in the context of programming and awareness. In disadvantaged or inner-city schools the computer is more likely to be used in less creative ways. Therefore, affluent students are learning to have control over the computer, while poorer students are learning to do what the computer tells them to do.

In 1984, Newsweek reported on a study conducted by the University of Minnesota. This study found that the 12,000 wealthiest schools in the country are four times more likely to have computers than the 12,000 poorest schools. Newsweek also reported the findings of a study conducted by Henry Jay Becker of Johns Hopkins University. He found that the students in mostly white schools tended to learn programming skills, mostly in BASIC. Students in nonwhite schools are usually confined to drill and practice type activities

that do not give them a sense of control over the technology. This situation is usually caused by the source from which the funds are obtained. Most often, schools in economically depressed areas obtain computers through federal or state funds. In such cases, what is taught is often mandated by the provider of the funds, and what is mandated is usually the teaching of basic skills. Such is the case at the author's school.

Lipkin (1983) states that one of the implications of the new information technology is that poor people are the last to receive its benefits. These are the people who usually lack the prerequisite skills of reading, writing, and computation, and are therefore handicapped in attaining computer literacy. The economically and educationally disadvantaged are the group that would seem to be prime candidates to join this new category of disadvantaged, the computer nonliterate.

Evidence of inequity in school computer use first appeared in 1981 when the results of a survey taken by Market Data Retrieval became known (Lipkin, 1983). MDR found that 30 percent of the school districts where less than five percent of the population was below poverty level used computers for instructional purposes.

Only 12 percent of the districts with a poverty level over 25 percent reported computer ownership. A follow-up study done by MDR the next year found that 80 percent of the nation's largest and wealthiest high schools used computers, while only 40 percent of the smaller, poorer high schools had them. Lipkin also cites the Johns Hopkins study finding that those schools that already owned computers were more likely to buy additional ones than schools without any were to buy them for the first time. This would seem to indicate that the gap is widening. Poor schools are not catching up and the wealthier schools are increasing their advantage.

Ashbrook (1984) found that the failure to provide computer access to special populations may limit that segment's ability to control their daily lives, and perhaps more importantly, may limit their educational and vocational opportunities. As Winkle and Mathews (1982) state: If computer literacy is becoming a basic skill, then we must consider the question of equal access to this skill for each person. This is the concept of computer equity. It requires awareness, action, and the flexibility to employ differing approaches to meet differing needs. Computer equity

means individualizing instruction in computer literacy, since students approach this new technology with varying experiences and expectations, and interact with computers in different ways. All students must be given the chance to become computer literate. In order to do this, Lacina (1983) writes that it is necessary to provide computer equity in our educational systems because computer literacy is becoming a basic survival skill in our society. Lacina also writes that in order to achieve computer equity in education, federal financial assistance may be necessary. The rationale for this is that computer knowledge is indispensable in the areas of science, government, and business. One of the functions of the federal government has been to finance programs of national significance. This then could be the justification for increased revenues to help foster computer equity.

A review of the literature tends to support the view that it is unlikely that computer literacy will be achieved equally by all members of society. Ashbrook (1984) writes that even though the cost of the home computer has decreased drastically, families with marginal incomes are still unable to afford them. The

children of these families will be unfamiliar with the computer's operation, and will be at a serious disadvantage. Without computer skills, Ashbrook writes, vocational opportunities will be limited. A worsening economy and a rising unemployment rate, combined with the shift toward computer applications in business and industry, will result in a further narrowing of employment opportunities for those with limited education and training. Those who have been denied access to computer literacy will be at a particular disadvantage.

In a two part article on technology, specifically computers, Cardenas (1983) points out three dangers which he feels will increase the gap between the advantaged and the disadvantaged. The first danger is the replacement of educational equity by technology education as a national priority. The second is the difference in educational opportunity between affluent and poor school districts, and the impact this will have on the ability to acquire technology. And finally, the differences in the personal resources of students from affluent and poor homes will affect their educational opportunities to acquire technological advantage in the home. The second part of this article

deals with Computer Assisted Instruction for specific populations. The target groups for this research were limited English speaking students, who were also commonly minority groups, and economically disadvantaged students. Cardenas analyzed the use of computers in public schools and found four areas of concern. They are: A) students in wealthier schools have at least twice as much accessibility to computers as those in poorer schools; B) there is limited and inequitable participation by these special populations; C) available software is inappropriate for these populations, either instructionally, culturally, or both; D) under the circumstances that exist, there are few current benefits for these populations. Cardenas believes that it is up to national and state governments to address these points and to provide adequate funding to ensure that equity is achieved.

Sisk (1980) makes the point that it has always been the policy of the Title I Office of Education to use funds to serve only the disadvantaged underachiever. Never have these funds been used for the disadvantaged gifted. In 1978 Assistant Secretary of Education Mary Berry and Representative Shirley Chisolm argued that they saw no reason that Title I funds could not

be used to serve this population since it can be argued that the disadvantaged gifted are grossly underachieving and may never reach their full potential due to educational deprivation.

The problem of finding suitable material for students seems to be widespread due to the swiftness with which computers have come onto the educational scene. Roberts (1985) relates her search for a curriculum guide that would satisfy the needs of her gifted middle school students. Her search was fruitless, so she used the research available and designed her own curriculum that is based on individualized teaching. Her course is designed with objectives and activities based on levels of achievement rather than grade level. She finds that this permits flexibility in planning activities and goals for these students. She has also designed a mastery list for skills taught in computer literacy. She insists that the students fulfill each requirement at the minimum and intermediate level, and then be evaluated in each area, before he or she is declared computer literate on a technical level. The students then may move on to the advanced level. The objective for her curriculum guide are coded with an M, I, or A to denote levels of proficiency.

In 1984, Ascher reported little research had been conducted on the success of using computer assisted instruction for disadvantaged students. The studies that have been completed indicate that CAI has had a positive effect on the computation skills of disadvantaged elementary and secondary students, and on the language arts skills of elementary students. The studies show mixed results when using CAI to teach vocabulary and reading to this population. Ascher cautions schools serving disadvantaged populations to be certain that these students are being served equitably by their exposure to computers, and to question whether the curriculum offered is suited to their needs. The answer, as yet, seems unclear.

Sny (1983) reports on a program model and curriculum guide that was developed in a one week teacher workshop for a school district in Wisconsin. The program was designed for gifted and talented third and fourth grade students. The focus of the curriculum is on developing thinking skills through creative learning tasks. Objectives, teaching strategies, student activities, and resources are offered for language arts, reading, math, science, and computers. The unit on computers.

deals with problem solving with computers and their use in society. Also included in this model is a unit for an affective curriculum.

The Bristol Public Schools (1983) in Connecticut published a computer education plan for grades K-12. Also included is a description of three special programs. For grades K-8 the plan includes objectives, which are listed separately by grade level, activities, and methods of instruction. The 9-12 grade plan includes course descriptions as well as objectives, activities, and methods of instruction. The courses are in the business and math departments and include data processing, word processing, computer math, and programming. The special programs described are EPIC, a program for gifted students in grades 4-8, CARP (Computer Assisted Remediation Program), which provides remediation in reading, language arts, and math for high school students, and GIS (Guidance Information System), which provides occupational information for high school students. A four page glossary of computer related terms is included.

At the Council for Exceptional Children National Conference on the Use of Microcomputers in Special Education, a paper was presented by Edwards (1983) giving a rationale for teaching gifted students computer literacy and related skills as a means to develop higher

level thinking skills. Edwards suggests programming, word processing, and interactive educational software, encompassing drills, simulations, and strategy games to develop creative thinking and problem solving skills. An evaluation of courseware for gifted students is also briefly discussed in this paper.

Gress (1982) reports on a computer literacy module that has been made a part of the curriculum at the Junior High level. She found that while the availability of computer literacy instructional materials has been increasing, there was a lack of a curriculum at this level. She feels that the middle school years are the ones in which the basic skills have been mastered. Therefore, computer literacy activities are consistent with career education objectives of that level, and can serve as a motivating factor for further computer studies at the high school level. Gress's module is composed of three units. The first of the three units involves the evolution of the computer, the major figures in the history of mechanical computation and their contributions, and an understanding of the revolution in technology that has occured. The second unit concerns the anatomy of the computer, both internally and externally. The third unit is the heart of the module

and involves the social impact of computers and their applications in society.

Gress (1982) points out that the critical aspect of this module is that it must be taught within the framework of a hands-on experience in order for the students to derive the greatest benefit. The Junior High students involved in this program were very aware of the ramifications of computers in society, and were quick to evaluate their benefits and their problems. Regardless of the debate and its final outcome, one thing must be accomplished according to Gress. A critical goal of this module is the elimination of the mystique surrounding the computer. Understanding the computer is the key to reducing the anxiety that accompanies this new technology, and the module described provides the means to accomplish that goal.

The writer's school is in a low income area. The majority of the students are assigned to the Chapter I program. As has been the case in other schools, with similar populations, the students are scheduled for time in the computer lab to work on basic skills. The literature review has substantiated the fact that these students rarely see the capabilities of the computer, rather they are used as another tool for drill and practice type exercise.

The problem at the writer's school is unique in that there is an academic excellence program, MASE, which was formed to encourage and stimulate students in the higher level thinking skills. Much emphasis is placed upon problem solving, and yet highly capable students are not given computer equity because of the funding of the computer lab. These students do not need reinforcement in the basic skills, so equal access is denied them. The writer provided a basic computer literacy course that was designed to acquaint the learner with a wide range of computer related topics and activities.

After reviewing the literature, the author came to the conclusion that the most feasible solution to the problem previously set forth was to write a computer literacy course designed specifically for intermediate elementary students with little or no prior knowledge in this area. The course covered a broad range of computer related topics, and was introductory in nature rather than limited to fewer topics that would have been covered in depth. The writer believed that offering the target group a wide range of skills would acquaint the students with the many possibilities that the computer offers.

The course included a brief introduction to the history of computers, a glossary of computer related terms, a Pretest and Post-test, vocabulary tests, worksheets, weekly lesson plans, and a mastery list for each student.

Because of the lack of any curriculum in this area at the writer's school, the strategy employed by the writer was to design a course based on student experience in this area, as well as ability. The students in the target group, while lacking computer related experience, are academically able, and were working on or above grade level. They had not had access to the computer lab due to the fact that they are academically high achievers and the computers at the school had previously been used only for remediation purposes for the academically low achieving students.

The computer lab is fully equipped and required no additional supplies or monetary expenditures by the school for the practicum. The implementation of the practicum was carried out during school hours. The students were taken from their regular class in the same manner in which they are pulled for the enrichment class. They were expected to complete their regular class assignments.

Chapter 3

Method

The students in the target group met for the first time with great excitement. The author explained to the students that this was an orientation session designed to present an overview of the program in which they would be participating. Present at the first session were 6 sixth graders, 2 girls and 4 boys, and 4 fifth graders, 1 girl and 3 boys. The students were aware that they had been chosen for a special program that was not being offered to other students at the school. At the first meeting, the students introduced themselves since they were not all acquainted. There was no appreciable difference in behavior or enthusiasm, among the students, that the author could discern. They were quite anxious to get to the computers. The author gave them a brief explanation of the purpose of the program, why they were chosen, and an overview of the skills they would be learning. The students in the target group were well aware that many students in the school came to the computer lab. The author sensed some disapointment in the students when it was explained to them that they would not just be playing games. They

were told that since they did not need reinforcement in their basic skills, they would be learning higher level skills not being taught to the general population of the school. They were also told that while they were not going to receive grades for participating in the program, a record would be kept of their progress, and that worksheets and tests would determine mastery of the skills taught. At this orientation session, a Computer Literacy Pretest, designed by the author, was administered to the target group. There was some agitation on the part of the students upon receiving the test. This was the response expected by the author. The students, being highly motivated and grade conscious, expressed opinions that it wasn't "fair" to give a test before being taught. The author explained to them that it was not expected for them to know any of the material on the Pretest, but that it was a way to measure what they learned after completing the program, as opposed to what they knew upon starting the program. They were assured that they would indeed become familiar with all the terminology and procedures, and that they would be given a Post-test similar to the Pretest. This explanation seemed to allay

their fear of failure. The Pretest was given, and as had been anticipated, 100 percent of the target group failed, having gotten only a score of 20 to 30 percent correct.

This section of the report will be arranged according to the lesson plans used in the implementation. Each lesson plan will be followed by the author's notes, which were recorded after each session, and then compiled on a weekly basis.

All of the instructional materials, including lesson plans, worksheets, tests, and individual mastery lists for each student, were developed by the writer and prepared on an Apple IIe computer using the Apple Writer II word processing program.

Week # 1

Objectives - Students will be able to:

1. Trace the development of computers from the 1600's until the present.
2. Identify the three main parts of the computer.
3. Define vocabulary words.
4. Describe and demonstrate proper care and handling of a disk.
5. "Boot up" a disk.

Vocabulary to be Introduced: computer, input, output, Central Processing Unit (CPU), disk, disk drive, CRT (Cathode ray tube), "booting up".

Lesson 1

1. Rules for the computer lab will be read orally and discussed.
2. An introduction to the history of the development of computers will be given by the instructor, followed by a class discussion about the importance of computers in our daily lives.
3. Proper care and handling of a disk will be demonstrated by the instructor.
4. A demonstration of "booting up" will be given by the instructor.

Lesson 2

1. Individual student folders will be distributed and explained (all vocabulary words, worksheets, notes, assignments, and tests are to be kept in folders).
2. Vocabulary words will be introduced and explained.
3. Review steps in "booting up".
4. Students will "boot up" a disk.

Instructor's Notes

Week # 1

Upon coming to the computer lab for the first time, the students were given a copy of the rules that were to be followed in the lab. Several of the students were chewing gum and eating candy. These were accepted habits

at the author's school. The reasons that this was not allowed in the computer lab were explained to the students, who then disposed of these things willingly.

Students were shown pictures of early computers, and introduced to the names of some of the pioneers in the development of computers. The author led the students into a discussion of how their lives have been affected by the use of the computer in society. The target group, as a whole, had little awareness of computer usage in the world at large. They tended to think in terms of sophisticated games, and of computers as another form of entertainment.

The target group was then introduced to a disk. They were shown how to handle it, and how to insert it into the disk drive and turn the computer on. Only one student, a fifth grade boy, had ever seen a disk, and none of the students had ever handled one.

Students were given their individual folders, and were instructed as to how they were to be kept. They were told that at the end of the program their folders would be given to them to keep, and that all material developed by them would be theirs, including worksheets,

tests, programs written by them, creative writing assignments, and the mastery list certifying that they had passed all the skills taught.

The first week's vocabulary words were put on the board, copied by the students, and explained by the writer. The procedure for "booting up" a disk was reviewed, and the students then tried it themselves.

At the end of the first week the students in the target group had begun calling themselves "The Computer Club".

Week # 2

Objectives - Students will be able to:

1. Define vocabulary words.
2. "Boot up" a disk and work through an interactive program.
3. Successfully initialize or format a disk.
4. Complete Computer History Worksheet.

Vocabulary to be Introduced: hardware, software, programs, keyboard, cursor, prompt.

Lesson 1

1. New vocabulary words will be introduced and explained.
2. Vocabulary words for week # 1 will be reviewed.
3. The procedure for initializing a disk will be demonstrated by the instructor.
4. Students will format a disk.

Lesson 2

1. Review vocabulary words.
2. Students will "boot up" and work through "Apple Presents ... Apple An Introduction to the Apple IIe Computer.
3. Review history of computers.
4. Independent Activity - Students will complete the Computer History Worksheet.

Instructor's Notes

Week # 2

The vocabulary words from week # 1 were reviewed. There was confusion among most of the students, and not as much retention as the author had hoped for. The one term all of the students remembered was "booting up". After some discussion and reteaching, the students seemed more comfortable with using the terms. The words from the first session that seemed to cause the most problems were CRT and CPU. The students used them interchangeably throughout the second week. The author noted that perhaps a good solution for solving this problem would be to not introduce the words in the same lesson. The new vocabulary words were put on the board, copied by the students, and explained by the author.

It was explained to the students that a disk is blank until it goes through a certain procedure. They were told that this is called formatting or initializing a disk. The writer then wrote the procedure on the board, and demonstrated it with a disk at the computer. The students copied the program in their notes. They were given blank disks and moved to the computers to initialize the disks that they would be using during the program.

It immediately became apparent to the author that all of the students had a problem with finding the keys on the keyboard. This was not an anticipated problem. The author did not take into account the fact that the target group, as a whole, had never used a typewriter for any extended period of time. They also did not have access to one at home, and as a result, there was some confusing of letter and number keys, and complete lack of knowledge as to how to use the shift key. Adjustment will have to be made, if the program is repeated, and more time and practice allowed for the students to gain familiarity with the keyboard.

The students were given the Computer History Worksheet, and an opportunity to complete as much of it as they could

independently. The writer and the students then checked it orally, and the students then made any corrections necessary. The author dated and graded this skill on the Mastery List kept for each student in the target group.

Students were given an opportunity, during the second lesson, to use the interactive program, "Apple Presents ... Apple An Introduction to the Apple IIe Computer. This program game them a chance to work independently at the computer and to proceed at their own pace. They were asked to follow directions and to respond to instructions. The students loved this program, and were so totally occupied that they were unaware of normal distractions going on about them. They did not have time to complete the entire program, but the author assured them that any time they finished the required assignments they could go back and continue through the program, or repeat a part of the program they particularly liked.

Week # 3

Objectives - Students will be able to:

1. Define vocabulary words.
2. Complete Worksheet # 1.

3. Pass a Vocabulary Test with 80 percent accuracy.

Vocabulary to be Introduced: menu, load, memory, data, RAM, ROM, peripheral.

Lesson 1

1. Vocabulary will be introduced and explained.
2. Students will complete Worksheet # 1.
3. Instructor will review all vocabulary words from weeks 1, 2, 3.

Lesson 2

1. Vocabulary Test # 1.
2. Students will "boot up" and play Gertrude's Puzzles.

Instructor's Notes

Week # 3

Students were given approximately 10 minutes to look over their notes and review vocabulary words from the previous weeks. They copied the new vocabulary words from the board which the writer then explained. All vocabulary words were reviewed, and where necessary, procedures were demonstrated again. Three 6th graders, students A, B, and E, missed part of the second week of instruction due to a sixth grade class trip. These

students copied the notes they had missed, and the writer worked with them independently in order for them to initialize a disk and catch up with the rest of the group.

Worksheet # 1 was given to the students and presented no problem to any of them. They finished the worksheet in far less time than the author had expected. Papers were exchanged, and it was checked orally. Scores ranged from 80 percent correct for students A and H, to 90 percent for students B, C, E, G, and I, and 100 percent correct for students D, F, and J.

At the next session the students were given the first vocabulary test and completed it quickly and with a high degree of accuracy. All of the students scored over 80 percent. Students A, E, and I scored 90 percent, and the remainder 100 percent.

The writer began to sense a feeling of self confidence among the students in handling the materials in the lab, and in using the jargon that was being taught. The change from the first week was evident as the students were no longer "turning on" the computer, but rather "booting up", and they were not watching the screen, but instead watching the CRT.

All of the students played a game called Gertrude's Puzzles. This is an interactive game which familiarizes players with the keyboard as instructions are given to move a duck in and out of various situations. The writer chose this as an independent activity because it enforces the skill of following directions. Not all of the students were able to complete the game due to the time element involved. Some of the students paired up and were more successful in completing the game and getting the reward at the end. All of the students wanted to try it again.

At the end of this week, the students were reluctant to leave the lab, and the author was asked by other students if they could join the computer club.

Week # 4

Objectives - Students will be able to:

1. Define vocabulary words.
2. Name three programming languages.
3. Use a joystick to play a game.

Vocabulary to be Introduced: command, Logo, BASIC Pilot, bug, catalog, joystick, paddle, PR#6.

Lesson 1

1. Vocabulary will be introduced and discussed.

2. Students will complete Worksheet # 2 - "The Main Parts of a Computer".

Lesson 2

1. Review vocabulary words.
2. Oral review and discussion of Worksheet # 2.
3. Students will boot up and play Dragon Mix (joystick required).

Instructor's Notes

Week # 4

Vocabulary words from previous sessions were reviewed, and new words introduced. The students were given Worksheet # 2, "The Main Parts of a Computer", to complete independently. By this time they had become well acquainted with all of the terms and the entire target group scored 100 percent on this worksheet. This skill was checked off on the students' individual mastery lists. By the fourth week all of the students had achieved mastery of half of the skills that were listed, and it was evident to the author that being checked off, even though it was a pass/fail grade, was important to all of the students. Several had been absent over the weeks that the implementation was in progress, but they

had borrowed the notes of others in this group, and came to the author's class to obtain any worksheets they had missed. There appeared to be some competition among the students to see who could get their Mastery List completed first. Student G, a fifth grade girl seemed to be the frontrunner at this time. She was very quick to catch on to all of the work, and completed the assignments before the others.

Students were given the opportunity to work with joysticks as they played a math game called "Dragon Mix". Speed is essential in this game, as well as knowledge of basic math facts. The students knew all of the answers to the problems, and it only took them a short time to master the use of the joystick. They loved this game and it reminded them of an arcade type of game. They had a contest to see who could score the most amount of points. This contest lasted the rest of the program. As the students finished assignments they were allowed to play the game, and they kept a score sheet. They refused to set a time limit, and since no one was willing to concede, the game has not ended, and a winner was not declared.

many of the students began to discuss other things that might be done on the computer. The most generally asked question was whether math homework could be done by the computer without having to figure the problems. The author assured the students that it certainly could be done by the computer, but that the student would have to know how to program the computer to accomplish the task.

The students were given Vocabulary Test # 2. Ninety percent of the students scored 100. One student scored 90 percent. He had confused the terms RAM and ROM.

Week # 7

Objectives - Students will be able to:

1. Write a minimum 20 line program to the computer.
2. Save the program on their disc.
3. Obtain a hard copy of their program.

Lesson 1

1. Review PR #1 command and proper use of the printer.
2. Students will write their programs on paper.

Lesson 2

1. Students will write, and run, their programs on the computer.
2. Students will obtain a printout of their programs.

Instructor's Notes

Week # 7

This week was devoted to having the students work on their individual programs. The author reviewed proper use of the printer. The students were not allowed to use the printer without the author observing them. This did not seem to disturb them, but rather seemed to give them more security, and they were anxious to use it.

The students who had gotten a headstart the week before, continued to type in their own program. Those students who had not finished Worksheet # 3, completed it and typed it on the computer. All of the students appeared to have grasped the concept of using number lines and quotation marks. The main difficulty the students seemed to have was pressing the wrong keys. It was common for them to forget to use the shift key to get the quotation marks, and instead they got an apostrophe. They soon realized what they did and were able to correct their own mistakes. There were many unintentional spelling errors, again caused by hitting the wrong keys, and these produced many laughs.

The majority of students wrote about a friend at school, or a letter to someone they knew. One student

wrote about her mother, and called her program "Foxy Lady". This was the program the students liked the best. It was written by student G who had, by this time, become something of a class expert. She enjoyed this role immensely, and was very generous in her help to her peers.

All of the students completed their independent programs on paper, and most finished typing it on the computer. Several of the students only had 17 or 18 lines, and the writer accepted these programs. Those students who did not finish typing, saved what they had and were told they could finish the assignment the following week.

Week # 8

Objectives - Students will be able to:

1. Design a graphic on a storyboard.
2. Plot a graphic on the computer and save it.

Lesson 1

1. Instructor will demonstrate plotting a graphic on a storyboard.
2. Students will design a graphic on a storyboard.

Lesson 2

1. Students will plot their graphic on the computer and save it.

Instructor's Notes

Week # 8

Students were shown three storyboards, each with a graphic designed by the author. They were then shown a printout of these designs. The designs were a birthday cake, a letter of the alphabet, and a violin. The author demonstrated at the board how each shape was accomplished, using the same BASIC commands the students had already mastered. The only new concept introduced to the students was the counting of spaces to get the desired shape. The author then began to plot the shape of a triangle, using the letter x, on a storyboard. The students quickly got the idea and were eager to try a graphic on their own.

The three students who had to finish typing their program, saving it, and obtaining a printout, were given the time to do so. The other students were asked to sketch a simple graphic on paper and show it to the author before receiving their storyboard. As expected, most of the sketches were far to complicated, and the author explained why the designs should be kept simple. After revisions, the students who had worked out

feasible designs began to plot them, in pencil, on their own storyboard. The designs consisted of initials, geometric shapes, words, an animal, and a car. The students thought it was "great" that they could use any letter, number, or symbol to make their graphic. Those students making their own initials, of course, used the letters of their names.

At the end of this week all of the students had a graphic plotted on a storyboard, typed on the computer, and saved on their disk. They were able to accomplish this assignment in far less time than the author had anticipated because most of the students were using only one or two keys for the graphic. Counting the spaces seemed to present no problem to them. All of the students had this skill checked and dated on their Mastery List, and they had begun to ask how many more weeks they would be coming to the lab. There was general disappointment when they were told that the program would last only two more weeks. The majority of students asked why they could not continue to come.

Week # 9

Objectives - Students will be able to:

1. Complete a writing assignment using a word processing program.

Lesson 1

1. Students will work through the tutorial of Bank Street Writer.
2. Students will write a brief, original, creative writing assignment using the word processing program (a poem, story, paragraph, or letter, etc.).

Lesson 2

1. Students will finish their creative writing assignment, and obtain a printout.

Instructor's Notes

Week # 9

Students were introduced to the word processing program Bank Street Writer during this week. None of the students in the target group had ever heard the term "word processing". The author told the students that all of their worksheets, tests, mastery lists, as well as lesson plans for the program in which they were participating, were typed on the author's computer using a word processing program. The students showed surprise

and all voiced the opinion that they had thought it had been done on typewriter. The author then explained that there were many word processing programs available, and that by using one, the computer can be used just as a typewriter is used, but that using the computer has many advantages.

The author then assigned the students to groups in order to work through the tutorial of Bank Street Writer. The students were then told that they were to write something short and original. They were told that it could be a poem, story, story starter, paragraph, letter, book review, or anything else they would like to write using Bank Street Writer. This writing assignment had to be completed first on paper, and approved by the author for content and length. The students had to take turns using the program because there were not enough copies for each student to have his own. This gave the faster students time to get started, while those who were not sure what they wanted to write, had time to think and work it out. There were five poems, one paragraph on Spring, the beginning of a mystery story, a movie review, and two letters. The students did very well on this exercise. There were only a few commands

they had to use. All expressed the view that they liked it better than programming, and that it was a lot easier because they did not have to remember to use number lines and quotation marks. The students saved their creative writing assignments on a disk, and then were able to get a copy of their work and were allowed to take it home to share with their parents.

This example, along with evaluating their own work, finding errors and correcting them, and applying the skills learned, is indicative of the implementation objective of critical thinking.

Week # 10

Objectives - Students will be able to:

1. Pass a Computer Literacy Post-test with 80 percent accuracy.

Lesson 1

1. Review all vocabulary words and procedures.

Lesson 2

1. Students will take the Computer Literacy Post-test.

Instructor's Notes

Week # 10

The last week of implementation was a review of the activities that had been done, vocabulary that had been learned, and discussions about each student's favorite project, and how their feelings had changed in the 10 weeks that they had been coming to the lab. The students all said that they never expected to learn as much as they did. They all admitted being "scared" because it was unfamiliar to them, and they were afraid they would fail. They said it helped them have confidence in themselves, and that they wouldn't mind trying something new again. They questioned whether the Comupter Club would be a regular activity at the school.

The author initiated a discussion about how the students' attitudes had changed since the first time they had come to the lab. Most of the students said they were sure people who worked with computers every day had to be very smart. They questioned the kind of education necessary for getting a job working with computers, and were very interested in how much money these people made. Several of the students expressed feelings of interest in a career working with computers.

Week # 5

Objectives - Students will be able to:

1. Define vocabulary words.
2. Identify commands of the BASIC language and demonstrate their use on the computer.
3. Write a five line program in BASIC on paper.

Vocabulary to be Introduced: printer, line number, new, home, run, list, save, PR#1, word processor.

Lesson 1

1. Vocabulary words will be introduced and explained.
2. Instructor will demonstrate BASIC commands on the computer.
3. Total Group Activity - A program will be dictated by the class and recorded on the board by the instructor (Worksheet # 3).

Lesson 2

1. Review all vocabulary words.
2. Review BASIC commands.
3. Independent Activity - Students will write a five line (minimum) program on paper (Worksheet # 3).

Instructor's Notes

Week # 5

During this week the students were introduced to programming in BASIC. This was also the last week for new vocabulary words to be introduced. The vocabulary

dealt mainly with BASIC commands. The author explained to the group that when they had initialized their disks they had, in fact, written a very short program in BASIC.

The author wrote a five line program on the board, explaining each line as it was written. It was then typed on the computer and saved on a disk. The commands to run, list, and save the program were then demonstrated, as well as clearing the screen and starting a new program.

The students were told that they were going to write a program together and that the author would write it on the board as they copied it on Worksheet # 3. They were told that they would then type it on the computer and save it on their disk. The author suggested the group write a short poem. This was done so that the studnts would not become bogged down in content, but rather concentrate on the form the program must have, and the commands necessary to accomplish the task. The resulting program was:

```
NEW
10 PRINT "ROSES ARE RED"
20 PRINT "VIOLETS ARE BLUE"
```

```
30 PRINT "I LOVE COMPUTING"
40 PRINT "I HOPE YOU DO TOO!"
END
```

After writing the program on Worksheet # 3 the students were free to go to the computers and begin typing it in. Again the author found that some of the students had difficulty finding the keys, and needed help. Several of the students finished typing, saved it, and helped the other students. The students who were quick to finish, immediately began to write their own program at the bottom of Worksheet # 3. They wanted to know how long their program could be, and they were told there was no limit.

Not all of the students were able to begin working on their own program during this session because of the time it took for them to complete the class program. They were told they could do it at home and bring it in the following week, or if they experienced difficulty, work on it the next time the group met.

Week # 6

Objectives - Students will be able to:

1. Identify commands of the BASIC language and demonstrate their use on the computer.

2. Write a five line BASIC program on the computer.
3. Save a program on a formatted disk.
4. Obtain a hard copy of a program.

Lesson 1

1. Review all BASIC commands.
2. Students will begin to write their programs on the computer.

Lesson 2

1. Students will complete writing and running their programs on the computer.
2. Students will save their programs on formatted disks.
3. Students will obtain a printout of their programs.
4. Vocabulary Test # 2 (words from weeks four and five.

Instructor's Notes

Week # 6

All of the BASIC commands that the students were taught the previous week were reviewed and demonstrated again on the computer using the disk of student G, who had completed the class program and saved it on her disk.

Those students who had not yet finished the class program were given the opportunity to do so, and given individual help, if needed. The students who were ready to begin their own program, began to write

it down. Two students had written a program at home, and after minor corrections, began typing it on the computer.

By the second session of that week all of the students had finished the class program, saved it on their disk, and had obtained a printout of the class program. Since there is only one printer in the lab, the author took groups of two or three students at a time to demonstrate its use. This was done as the students finished their class program. Each was given an opportunity to "boot" his or her disk, and to use the command PR#1 to print the program and obtain a hard copy. The author observed genuine excitement among the students as they received the printout. It did not seem to matter to them that they all received identical material. They appeared to be quite proud of the fact that they had typed it, and instructed the computer to give them a copy. This was the first realization the students had that they could actually control what the computer did. Up until this point in their instruction, they had been on the receiving end, following instructions given to them by the computer. This was a new and exciting thought, and

All of the students said that they felt they understood more about them, and that they weren't as mysterious as they had thought. Two of the girls said they would like to be secretaries and type on a computer instead of a typewriter. Two of the boys said they still thought the best thing about computers was the games that could be played, but that they never thought so many other things could be done with them. All of the students said they thought they would be able to recognize things produced by a computer. All of the students answered in the affirmative, when asked by the writer if they would like to have computers in their homes.

The students were given the Computer Literacy Post-Test and said it was "so easy". They were reminded by the author that it was similar to the test they had taken the first week. They remarked about how much they had learned, and the author agreed with them. Papers were exchanged and the test was checked orally. Nine of the students achieved a score of 100 percent. Student C had chosen CUP instead of CPU, for question # 4. He claimed it was a careless error, and his explanation was accepted.

The students were allowed to take their folders home with all the material they had produced. There was a feeling that they had become a close knit group sharing a special experience.

Chapter 4

Results

The author designed and used a Computer Literacy Pretest and Post-Test as the instruments to measure student mastery of the material introduced in the implementation of the practicum. Both tests contained 10 multiple choice questions dealing with vocabulary and procedures taught during the implementation. 100 percent of the target group failed the Pretest. This was the result expected by the author since none of the students in the target group had access to computers prior to beginning the program. The students in the target group were required to pass the Post-Test with a minimum of 80 percent accuracy in order to achieve mastery. The results of the Post-Test were 100 percent of the studetns demonstrated mastery of the skills taught. Nine of the students scored 100 percent, and one student scored 90 percent. The author was the only person who presented the material, graded the work, kept records, evaluated student progress, made revisions, and documented the results of the implementation.

The implementation consisted of worksheets, developed by the author, that allowed students to practice newly learned skills before testing. The worksheets consisted

of vocabulary words, a brief history of computers, the main parts of a computer, and programming in BASIC. The students were tested throughout the implementation on small portions of materials in order for the author to determine if the knowledge was being retained and applied. A mastery list, designed by the author, was kept for each student, enabling the author to accurately record individual progress. The mastery list consisted of 14 skills that were taught during the implementation. The skills included knowledge of computer related vocabulary, procedures involving use of computers and disks, fundamentals of programming in the BASIC language, and the use of a word processing program.

The author chose to use a Pass/Fail grading system rather than letter grades. The rationale for this was to minimize student concern over grades. Because the students in the target group were all academically able, they were grade conscious. The author wanted to lessen the competition among the students in order to focus on achievement of skills, and hoped to foster a spirit of cooperation among students. This system worked very well and students were able to monitor

their progress without any stigma attached to letter grades. The date the student mastered a skill was noted on the mastery list. This allowed the author to keep an accurate record of when the skill was mastered. In several instances, due to absence, it was taught the following week to those who had missed it. In a few cases, the students needed reteaching.

Evaluation took place on a weekly basis. This provided the author with immediate feedback, and provided time to reevaluate, remediate, and reteach, when the need arose. Instructor's notes were kept on a a weekly basis, as part of the implementation, to insure accuracy in the final evaluation of the practicum.

The objectives of the Practicum were achieved by all of the students in the target group as evidenced by the individual mastery lists. Vocabulary was learned and applied. The students were able to recognize errors in programming and other related tasks, and solve them successfully. Students wrote original pieces that they shared with their peers, and their families. The students became comfortable working with computers, became more aware of their influence, and the contribution they have made to society, and were able to apply that newly gained knowledge.

While these were the major objectives hoped for and achieved, there were other outcomes that were observed by the author. The students listened carefully, and were able to follow written and oral directions. The author observed student hesitancy and lack of confidence as the program began. After 10 weeks the students had gained self confidence, and were willing to take a chance doing something new. Fear of failure had diminished considerably. Global knowledge and awareness had increased. In many instances, the author observed cooperation and consideration among the students in the group.

It is expected that as time passes, the students' attitudes and growth in these areas will vary.

Chapter 5

Recommendations

The writer is hopeful that after revisions are made, the program will become an ongoing part of the curriculum aimed at the academically excellent students at this school. Eight new computers have been purchased, with the sole purpose of providing more lab time for students. The principal has been very receptive to the idea of using the computers to teach higher level skills to all students, rather than just drill and practice exercises to low achieving students. Great effort is being made to identify potentially gifted and academically able students at this school. Once identified, they are being given special classes in order to enrich their knowledge and meet their special needs.

The writer believes that the target group, having become computer literate, and able to demonstrate the skills learned during the implementation, could provide adequate proof of the feasibility of introducing higher level computer skills to other students at this school with similar academic capabilities.

The writer believes that once it has been proven, and accepted, that disadvantaged students, who have not

had equal access to computers, can use them for purposes other than drill and practice, the results could be far reaching. Students who have been identified as having the capabilities, could then be introduced to other disciplines previously thought inappropriate for them due to lack of experience.

While the implementation was occuring, the principal asked the author, who is the computer resource teacher at the school, to hold in-service workshops for the teachers in the school who had no familiarity or contact with computers. This was done on three consecutive Wednesday afternoons. It appears that this will be a continuing program to acquaint incoming teachers with the lab, and enable them to help their students when they come to use the computers.

The author has proposed starting a computer club in the next school year. This club could be held as an after school activity and be open to any students with a willingness to learn new skills. The author has suggested that it be made clear that the program would not be for entertainment purposes.

The author is optimistic that with the purchase of the new computers for the coming school year, time will

be alloted to those students at the school designated as academically excellent. Since the MASE program is already at the school, and meets on a daily basis, it would involve minor schedule changes in order for them to meet in the lab at a specified time for instruction.

Considering the emphasis today on upgrading the quality of education in the inner city schools, it would seem that a program that has been proven to be successful in developing talents and introducing skills new to a specific student population would be readily accepted by other urban schools with similar goals for serving their academically excellent students.

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APPENDIX A

RULES IN THE COMPUTER LAB

1. Absolutely no food or drink allowed.
2. No chewing gum is permitted.
3. Pencils or pens are not to be brought up to the computers.
4. Use your library voice to speak.
5. While waiting for your turn at the computer, do your independent work, check your folder to see if assignments have been completed, or engage in silent reading.
6. Keep your Computer Literacy classroom file neat and up to date.
7. Be patient! Your turn will come.

APPENDIX B

GLOSSARY OF COMPUTER TERMS

WEEK #1

Computer - A machine that collects, stores, and rearranges information.

Input - Information that is put into a computer.

Output - Information that comes out of a computer.

Central Processinng Unit (CPU) - The main part of the computer. The part of the computer that stores memory.

Disk - A storage device made of magnetic recording material.

Disk Drive - The hardware into which the disk is placed.

CRT (cathode ray tube) - The video display unit of the computer.

"Booting up" - To start up the computer or a particular disk.

WEEK #2

Hardware - Parts of a computer that you can touch.

Software - Instructions that are given to the computer through programs.

Programs - A set of instructions written in a code or language the computer understands.

Keyboard - A device that sends an electronic signal by pressing a key.

Cursor - A bright spot on the CRT that tells where the character will appear if you press a key.

Prompt - A mark that is next to the cursor that means the computer is ready and waiting for instruction.

WEEK #3

Menu - A list of instructions or choices.

Load - A command to put a program into the computer's memory.

Memory - The part of the computer that stores information.

Data - All information that is put into, or comes from, a computer.

RAM (Random Acess Memory) - Information that is temporary and can be changed.

ROM (Read Only Memory) - Information built in by the manufacturer that cannot be changed.

Peripheral - Pieces of equipment that are added to the computer.

WEEK #4

Command - An instruction to the computer.

Logo - A computer language.

BASIC - A computer language.

Pilot - A computer language.

Bug - A mistake in a computer program.

Catalog - A command that tells the computer to show the contents of a program.

Joystick - A peripheral used for certain programs.

Paddle - A peripheral used for certain programs.

PR#6 - A command for "booting up".

WEEK #5

Printer - A peripheral that makes a written copy.

Line number - A number assigned to every line that is to be printed. Used in the BASIC language.

New - A BASIC command that tells the computer to clear its memory and prepare to receive a new program.

Home - A BASIC command that clears the screen.

Run - A BASIC command that tells the computer to put on the screen a program that has been written and stored.

List - A BASIC command that displays all the lines in a program.

Save - A BASIC command that stores information on a disk for later use.

PR#1 - A command that tells the printer to make a hard copy of a program.

Word Processor - A computer, using a special program, that can be used as a typewriter.

APPENDIX C

COMPUTER HISTORY WORKSHEET

WORD BANK

microchips	Charles Babbage
Herman Hollerith	UNIVAC
Joseph Jacquard	analytical engine
weaving machine	Blaise Pascal

In 1642 _____ _____ invented a machine that could add and subtract. About 1800, _____ _____ invented a _____ _____. Small cards with holes in them told the loom what patterns to weave. An Englishman named _____ _____ is called the "Father of Modern Computing" because he invented the _____ _____ in 1830. This was a mechanical computer, and was so advanced for its time that he was not able to get the parts to make it work.

In the 1880's _____ _____ had invented cards with holes that were used by U.S. Census takers in 1890 to calculate the number of people living in the United States.

In the 1930's and 40's computers were improved. Electric magnets and switches were used. Then vacuum tubes were used. It took 18,000 to make one machine called _____ work. In 1947 the transistor was invented. In the 1960's and 1970's computers that use _____ were developed. These allow computers to be smaller, work faster, and use less electricity than any computer was able to do before.

WHAT CAN COMPUTERS DO?

_____ _____

_____ _____

_____ _____

_____ _____

APPENDIX D

WORKSHEET #1

_____ _____

Date Name

WORD BANK

CRT	hardware
menu	ROM
program	software
cursor	CPU
memory	"booting up"

1. The _____ is a list of instructions or choices.
2. The _____ tells you where a character will appear if you press a key.
3. Screen or monitor is another name for the _____. It is the video display unit.
4. The _____ is any part of the computer that you can touch.
5. The _____ is the main part of the computer.
6. A _____ is a set of instructions that the computer can understand.
7. When we turn on a computer or start a program we call it _____.
8. _____ is information put in the computer by the manufacturer. It cannot be changed.
9. Instructions given to the computer through programs are called _____.
10. The _____ is the part of the computer that stores information.

APPENDIX E

VOCABULARY TEST #1

_____ _____

Date Name

WORD BANK

software	CPU
"booting up"	memory
menu	computer
program	keyboard
cursor	CRT

1. The part of the computer that is like a TV screen is called a _____.
2. The _____ contains a list of instructions or choices.
3. The next character will appear where the bright spot called the _____ is seen on the screen.
4. Instructions given to the computer are on programs. We call these programs _____.
5. The _____ is the main part of a computer.
6. A machine that stores, collects, and rearranges information is called a _____.
7. We call starting a computer or program _____.
8. The part of the computer that stores information is called _____.
9. A set of instructions written in a language the computer understands is called a _____.
10. The _____ looks like a typewriter and sends electronic signals.

APPENDIX F

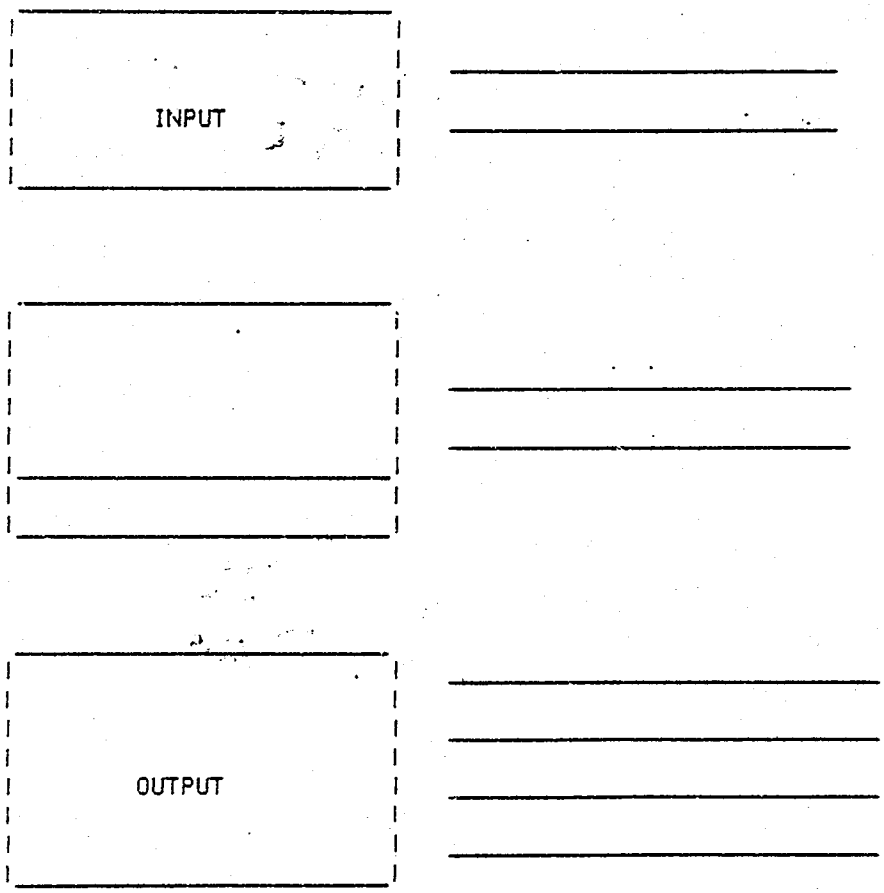
WORKSHEET #2

THE MAIN PARTS OF A COMPUTER

Date _____ Name _____

WORD BANK

PRINTER	DISK
KEYBOARD	CRT
CPU	MEMORY
SCREEN	MONITOR



APPENDIX G

WORKSHEET #3

PROGRAMMING IN BASIC

Date _____ Name _____

OUR CLASS PROGRAM

MY OWN PROGRAM

APPENDIX H

VOCABULARY TEST #2

_____ _____

Date Name

WORD BANK

data	ROM
RAM	BASIC
Logo	PR#6
command	Pilot
hardware	peripherals

1. Information that is put into, or comes from, a computer is called _____.
2. _____, _____; and _____ are computer languages.
3. A command for "booting up" is _____.
4. Information that is built into the computer is called _____.
5. The part of a computer that you can touch is the _____.
6. Pieces of equipment that can be added to the computer are called _____.
7. _____ is information in a computer that can be changed.
8. A _____ is an instruction to the computer to do something immediately.

APPENDIX I

COMPUTER LITERACY PRE-TEST

DIRECTIONS: Read each sentence. Circle the letter of the best answer to complete each sentence.

1. A computer comes with built in memory called _____.

   a. RAM b. RIM c. REM d. ROM

2. Computers come from the factory with the _____ language already built into them.

   a. Pilot b. BASIC c. Pascal d. Logo

3. Another name for screen or monitor is _____.

   a. CIT b. CPU c. CRT d. CAT

4. The _____ is a bright spot that tells where the next character will appear.

   a. cursor b. key c. prompt d. disk

5. The main part of the computer is called the _____.

   a. CRT b. CAT c. CIT d. CPU

6. Parts of a computer that we can touch are called the _____.

   a. hardware b. diskware c. software d. stemware

7. The command to start up a program is _____.

   a. PR#1 b. PR#6 c. PR#3 d. PR#4

8. A _____ is a mistake in a computer program.

   a. boot b. ball c. bug d. bomb

9. Things that can be added to computers are called _____.

   a. data b. programs c. menus d. peripherals

10. Before a disk can be used it has to be _____.

    a. greeted b. booted c. formatted d. programmed

APPENDIX J

COMPUTER LITERACY POST-TEST

DIRECTIONS : Read each sentence. Circle the letter of the best answer to complete each sentence.

1. Information that is given to us by a computer is called _____.

   a. input b. software c. hardware d. output

2. A command to start up a program is _____.

   a. PR#3 b. PR#1 c. PR#6 d. PR#4

3. A list of instructions or choices is called the _____.

   a. program b. data c. menu d. memory

4. The main part of the computer is called the _____.

   a. CIT b. CPU c. CRT d. CUP

5. The video display unit of the computer is called the _____.

   a. CRT b. CUP c. CPU d. CAT

6. A command that tells the computer to show the contents of a program is _____.

   a. home b. list c. catalog d. run

7. A line number is used in the _____ language.

   a. BASIC b. Logo c. Pilot d. Pascal

8. The memory built into a computer in the factory that cannot be changed is called _____.

   a. RAM b. ROM c. RIM d. REM

9. A disk has to be formatted or _____ before it can be used.

   a. booted b. programmed c. invited d. initialized

10. A BASIC command that will store information on a disk for later use is _____.

    a. list b. REM c. save d. home

APPENDIX K

MASTERY LIST FOR COMPUTER LITERACY

Name _____ P=Pass F=Fail

OBJECTIVE	DATE MASTERED	GRADE
* Traces history and development of computers		
* Identifies the 3 main parts of a computer		
* Defines vocabulary words		
* Describes and demonstrates proper care of a disk		
* "Boots up" a disk		
* Formats a disk		
* Names 3 programming languages		
* Identifies and uses commands of the BASIC language		
* Writes a program in BASIC		
* Saves a program on a disk		
* Obtains a printout of a program		
* Designs a graphic and saves it on a disk		
* Uses a word processing program		
* Passes a Computer Literacy Test with 80% accuracy		

Ronny A.Einbinder

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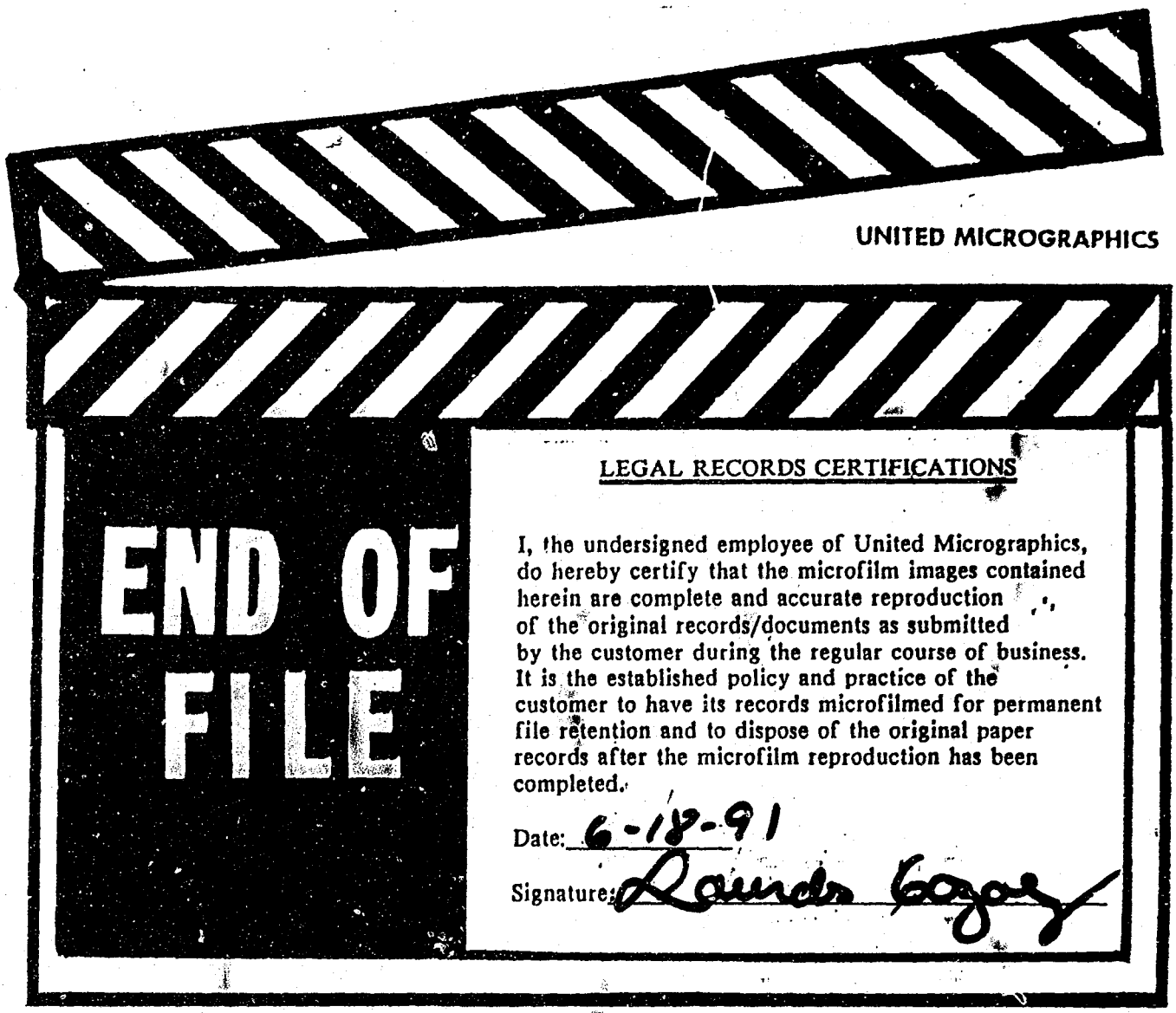
Date: 11-5-90



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