COMPUTERIZATION of
EASTERN KENTUCKY SCHOOLS

A Prospectus

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"Progress through service to the Eastern Kentucky Region"
COMPUTERIZATION OF
EASTERN KENTUCKY SCHOOLS

A PROSPECTUS

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I. INTRODUCTION

The Office of Research and Program Development of Morehead State University has undertaken a study concerning the feasibility of using computers in schools in Eastern Kentucky. Under the direction of Dr. Adron Doran, President and the Director of Research and Development, Dr. Morris Norfleet, this survey will establish tentative goals and objectives of the plan to computerize Eastern Kentucky schools.

This report will give one an introduction to the projected goal of the program. This writing will outline the locations of computers, the area to be served, the tentative services that could be rendered, the reciprocity of the equipment, and the office and staff organization.

After reading the prospectus, it is hopeful one might have a better understanding of the project under consideration. Although this report is tentative, it is based upon thorough study and consideration of computer programs underway at present. It is quite feasible that much of the material in this writing could serve as a foundation for a computerized system.
II. STATUS OF COMPUTERS

The potential applications of computers in education are unlimited. The public schools have barely pricked the surface concerning the potential contributions computers are capable of making to educational development in the United States. Today, the third generation of computers is a reality.

With the arrival of this third generation, computers offer greater potential and possible utilization in the public schools.Outlined below are some of the advantages of the present computer generation.

1. Computers function at incredible speeds.
2. The present equipment can function on a transmittal basis to terminals miles away.
3. Programming is somewhat easier to accomplish through improved computer language systems.
4. The storage of data is on an improved basis in comparison to earlier equipment types.
5. Computers provide pin-point accuracy in the transmission, storage and acceptance of data.
6. An unlimited number of people can use and reuse one program.

These advents in the computer field have pointed to the practicality of using the computer in schools today. Morehead State University has undertaken this study to determine the feasibility of utilizing computers in educating Eastern Kentucky public school students.
III. LOCATION OF COMPUTER COMPLEX

The tentative location of the computer complex will be the campus of Morehead State University. A computer center will be established providing the focal point for the equipment used in the project. A team of qualified personnel will man the operation.

A coordinator of computer activities will oversee the operation. This person will be directly responsible for the efficient operation of the system. Working with the coordinator will be a secretary and data processing personnel. The data processing people will handle the programming of the computer and keep the equipment functioning. All personnel in the computer center should be cooperative in nature and sympathetic to the programs and problems posed by the schools in the region.

It has been the experience of others that local personnel are better able to interact with people in the region than imported talent. The coordinator should be well schooled in educational procedures and familiar with the data processing system. One person in each school should be designated as a representative of the school. This person will work closely with University personnel in the establishment and operation of the project.
IV. EQUIPMENT RECIPROCITY

The heart of the system will be located on the Morehead State University campus as mentioned earlier in this writing. The central system will contain all the pertinent equipment related to memory and data transmission.

Terminals will be established in twenty-one counties throughout Eastern Kentucky. The terminals will be of teletype in nature plugged into the central system located at Morehead State University. The terminal can turn on a program at MSU, identify the user, enter the proper code and proceed to enter an exchange with the center on a given program.

The terminals will be located in the classrooms where they are readily accessible to students. A terminal will enable the student to plug into the Central University Computer, work on a prescribed program of study, and proceed at his own rate of speed.

The counties participating in the program are those served by Morehead State University. The counties are the following: Bath, Boyd, Breathitt, Carter, Elliott, Fleming, Floyd, Greenup, Johnson, Knott, Lawrence, Lewis, Martin, Mason, McGoffin, Menifee, Morgan, Pike, Powell, Rowan and Wolfe.
V. SERVICES TO BE RENDERED

The computer complex will be initiated to serve as a resource for the public schools of Eastern Kentucky. As a resource, the computer should provide services to the region that will directly and indirectly serve one purpose—to aid students. The Computer Assisted Instruction program is a primary objective of the program. Along with the Computer Assisted Instruction, the computer will offer assistance to the schools in the area of administrative duties. By offering resource help in these two areas, the schools of Eastern Kentucky should be greatly aided in the instruction, evaluation and registration of young people. The material that follows examines the computer potential in the area of Computer Assisted Instruction and as an aid to administrative procedures.
A. COMPUTER ASSISTED INSTRUCTION

Computer Assisted Instruction is receiving much attention in America. A CAI project is currently being successfully operated at University Breckinridge Training School at Morehead State University. Classroom Assisted Instruction on a regional basis will include instruction in the academic areas. However, the programs would not have to be limited to the academic disciplines. Possible utilization might be in the area of guidance services to students and interest surveys.

Subjects including English, mathematics, reading and foreign languages lend themselves well to Computer Assisted Instruction. Other disciplines including science and the humanities deserve consideration for possible utilization.

The CAI approach will be to establish programs on various levels of difficulty. These programs will be coded and programmed into the computer memory cell.

The academic programs will serve as a continuing resource available to the schools of the region. The classroom teacher through computer pretesting will establish the level of difficulty for each student
according to his individual ability. The CAI will be used to correlate drills and studies with classroom activities. It will be used as an aid to the student rather than as his primary source of instruction. This will tend to keep his educational foundation on a personal basis with the teacher. The Classroom Assisted Instruction materials will be a question-and-answer type, employing other suitable drill materials.

Classroom Aided Instruction will be used as a resource aid to both teacher and students. Most authorities recognize the potential impact this reinforcement will have on the educational development of an individual. The association of students with electronic computing equipment provides a fresh incentive to learn.
B. **ADMINISTRATIVE SERVICES**

The administrative service potential of a computer is great in relation to its capabilities for storing information. The Eastern Kentucky computerization of schools would afford many opportunities to provide these administrative services to the region.

The computer bank will be programmed to perform functions other than those related to classroom instruction. It is the intent here to point out various possible functions of the computer in carrying out administrative procedures. By programming the computer to accept vital data on students, teachers and administrators will be enabled to get a large amount of specific data in a short time. The presence of accessible data gives school personnel a base upon which to make better decisions regarding the welfare of students.
1. STUDENT ACCOUNTING

The computer center will be used as an area for the storage of data pertaining to student accounting. In this file, a student's attendance, grades, permanent records, health data, registration and scheduling information could be recorded. This will give the school ready access to individual and school-wide trends in the area of student accounting. This area would contain information regarding dropouts, socio-economic status of student, census of students enrolled in special classes, and standardized test scores.

After gathering this information, the computer can make numerous surveys and analytical studies regarding the climate and nature of the student body. This research will lead to valuable information relating to curricula development, class additions and deletions, and evaluation of the instructional staff.

2. BUSINESS ACCOUNTING

Much of the busy work that consumes time within the public school can be reduced by the introduction of computers. In this regional program, the possibility of the computer taking over some of the tedious responsibilities that burden school personnel is evident. A computer is capable of handling various business
accounts including cafeteria funds, payroll, school activity accounts, transportation, budgets and purchases of the school. Not only will the accounting processes of the school be alleviated through the computer usage, accuracy will also be at a premium.

3. CURRICULUM AND STUDIES

The addition of a computer will contribute to curriculum planning and development. After evaluating the performance and aptitudes of the student body, the educational leaders of the school will be able to properly evaluate curriculum offerings. Numerous studies will provide contrasting data contributing to curricula improvement.

4. PUPIL PERSONNEL

A school census could be maintained through the use of a computer system in Eastern Kentucky. The census will include pupil enrollment, attendance, and pertinent data needed in planning for the needs of students. The data is available at the present time, but unfortunately must be sifted from the tonnage of school records.

The bulkiness of present filing systems inhibits one from taking full advantage of the information available. The computer brings this information to the finger tip at instantaneous speeds.
5. **INDEPENDENT FILE**

The computer will be utilized to maintain records of various functions within the school not covered in this report. The library poses certain financial and detail considerations that would be expediated through the use of computers. Along with the library's financial records, inventory could be maintained concerning volumes in stock and the fields of study the library encompasses.

Teacher-load studies are very significant and equalize the instructional load. The personnel records of teachers could be maintained in a file.

The computer can be used to provide educational and vocational resource information.

A supplies and maintenance file can be kept to record the availability of materials and equipment. An effective inventory is possible through a program. The computer can be programmed to project the growth of the region county by county. These studies will enable the school to meet the needs of the students more effectively through data processing and the speed through which information is relayed.
VI. PRIORITIES SUMMARIZED

The computer will be used as a tool for evaluation, planning and control of data. This writing has touched on educational priorities and administrative priorities for the computerization of Eastern Kentucky schools.

The role of the computer project will be one of service to the region. Through the integration of the computer files, links will be strengthened between teachers, students, and the school. The Computer Assisted Instruction segment of the program will provide the student with individualized-drill-and-practice, a dialogue system and a tutorial system. Recognizing different achievement levels in individuals, the computer will offer a more diagnostic approach to learning.

The administrative functions alleviated by the assistance of data processing will enable educators to have more time to study the educational and physical needs of students. Records can be accurately stored and data can be extracted from these files easily.

The potential value is limited only to the imagination of those who will utilize the system. The computer can be a stabilizing aid to the school and community.
VII. PLANNING THE OVERALL APPROACH TO COMPUTERIZATION OF EASTERN KENTUCKY SCHOOLS

In consideration of the problems associated with the introduction of a computer system, a definite program of action must be outlined before attempting to undertake the project. The material in this section of the report will reveal the steps necessary to insure the success of the program.

The following points are the steps to be taken in sequence:

A. Justification of the Installation
B. Surveying the Region in Relation to Need
C. Planning the System
D. Determining Costs
E. Planning the Organizational Arrangements
F. Selecting the Equipment
G. Selecting the Staff
H. Installation of Equipment
I. Operational Phase
J. Follow-up Studies
K. Evaluation of the Project
A. **JUSTIFICATION OF THE INSTALLATION**

The justification of a computer installation is a primary factor in considering the feasibilities of data processing as an aid to education. This justification is one of the easiest steps in the project. With strides already taken in computerization of schools throughout the Nation, the future holds more opportunities for educational gain through computers. The first part of this writing partially served as a justification for computerization based upon the broadening potential for its implementation.

Justification must be based upon need. Few have failed to recognize the great needs evident in one section of our country, Appalachia. The twenty-one counties under consideration are nestled in the heart of the Appalachian belt. Most would agree that justification of a computer system to aid in the updating of Eastern Kentucky schools would be an evident factor today. This writing submits that thorough study can lead to a successful link between Morehead State University and the region it serves.

Students in rural school houses and small towns scattered throughout Eastern Kentucky will be as close as their finger tips to a learning center affording many and varied experiences. The needs for scientific equipment is a reality in the region.
In contrast to large metropolitan school systems, the schools of the region are not afforded many of the opportunities others experience. These schools do not always enjoy the most modern educational advances common in many areas of the United States. Many students have yet to closely examine a microscope—many teachers would treasure the opportunity to use audio-visual equipment in the classroom. What region could as easily justify the need for assistance in building a better program of instruction for young people? A computer link with the University will serve to enhance the opportunities for learning, the motivation for study, the understanding of opportunities, and the pride of students and teachers in their schools through this advance. The need exists—it has been justified by government officials, industrial leaders, the press, news media and educators throughout this Nation.
B. SURVEYING THE REGION IN RELATION TO NEEDS

The first section of this writing examined the potential contributions of data processing to education. The second step in planning for a data processing center is closely related to this previous section of the report.

The second step in planning the program is the survey of the region. Field workers should study closely the background data of each community.

In this survey, the following information will be gathered:

1. Number of elementary and secondary schools in the twenty-one county region.

2. The names of the schools distributed through Eastern Kentucky.

3. The enrollment of all schools in the area to be served by Morehead State University.

4. An evaluation of the academic achievement level of the schools.

5. An examination of the subject areas that could be assisted through Classroom Assisted Instruction.

6. Administrative activities that are common to all schools that could be alleviated through data processing.

7. Determination of the methods to be used in selecting personnel.

8. Sample the thinking of teachers and administrator concerning their suggestions for implementing the program.

9. Study the schools need for workshops and training.
C. PLANNING THE SYSTEM

The next step will be planning an effective system to serve the region. This planning phase will be a cooperative venture involving people on all levels throughout the state of Kentucky.

A task force of people familiar with the proposal and the needs of this section of the State will serve as an advisory body to the program. Members of the task force should include:

1. The Kentucky area Development Office
2. Community Action Program
3. Superintendents of counties affected
4. Morehead State University
5. Business and industry
6. State Department of Education
7. Appalachia Regional Commission
8. Teacher representatives
9. Developing institution--Lee's Junior College
10. Model City Program of Pikeville
11. ES-70 Project of Breathitt County
12. MSU Research and Development

The task force will evaluate data, study proposals and review all existing materials related to the program. Upon completion of the study, the task force will provide guidance to the project through recommendation.

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The project will be steered through the investigation stages by a Project Study Coordinator. The coordinator will be responsible for gathering data, evaluating response to surveys, and meeting with members of the task force. Working as a team, the system will be planned and integrated into a sensible computerized project.

After carefully planning the interaction between the computer center at Morehead State University and the region, the study group will draw together concrete objectives and outcomes to be realized through this cooperative effort. At this stage, the study will turn to the implementation stages.
D. **DETERMINATION OF COSTS**

It is quite evident that certain fixed and variable costs are present in a project of this type. The study group will determine costs based upon existing procedures of the University. The list that follows enumerates the major expenses to be considered.

1. Personnel expenses
2. Equipment expenses
3. Office expenses
4. Consultation expenses
5. Workshop expenses
6. Software expenses
7. Travel expenses
8. Indirect expenses

The determination of costs involved should be a relatively simple consideration after the plans have been carefully formulated.
E. PLANNING THE ORGANIZATIONAL ARRANGEMENTS

A breakdown in the organizational arrangements of a project often results from poor communications within a group. A careful examination of this important area will be considered in the development stage. The study group will set forth guidelines of communication and provide the program with an organizational chart of responsibilities.

A complete integration of participating parties will be necessary for the success of the project. The basic organization will include members of the executive staff of Morehead State University, the superintendents of the school districts, classroom teachers, the project coordinator and the data processing team. Only through a close association of these individuals will a successful project be realized.

To keep all persons abreast of developing trends in the program, the project coordinator should publish a monthly paper reporting the events of the thirty days. Copies of this publication should be sent to government offices in Washington and to all other persons interested and contributing to the project. Individual classroom teachers and class situations should be among featured stories.
F. SELECTING THE EQUIPMENT

At this point, the program will pursue the study of data processing equipment available on today's market. According to the experience of others, the educational system should be planned in advance of equipment selection. In this procedure, the equipment is selected on the basis of the needs of the program.

The equipment will be selected by the Project Study Committee. Standard procedures for purchasing will be enacted and the equipment should be purchased with the following principles and guidelines in mind:

1. the capabilities of the equipment to perform the various functions necessary to program a Classroom Aided Instruction system
2. the versatility of the data processing equipment and its ability to serve as an aid to administration
3. the competitive cost of the equipment in relation to quality
4. the simplicity and design of the equipment
5. its ability to use existing software available; software may be defined as the input materials that go into the computer
6. durability and repair factors
7. maintenance arrangements and service contracts available
   a. effectiveness of service and repair arrangements
   b. cost of maintenance agreements
   c. time factor in relation to company's ability to get the servicemen on the job
   d. warranty and guarantees

These considerations are extremely important in the selection of data processing equipment. Once installation has taken place, it is very difficult to change over to another type of equipment that may prove more satisfactory than the initial choice. Therefore, the selection stage is the point of important decision. After investigation of the equipment selection according to the above criteria, the program should be reasonably assured the equipment will serve effectively.
G. **SELECTION OF STAFF**

The staff selection will be another consideration in the successful development of the project. Two areas of consideration will form the guidelines for selecting the personnel to be involved in the computerization project:

1. The study group will determine the job classifications necessary to operate the data processing program. Among these job classifications, specific information will be gathered to relate the number and types of personnel to be selected. Job categories will include:
   a. Project coordinator
   b. Secretarial personnel
   c. Data Processing personnel
      (1) Operational function
      (2) Repair and maintenance function
   d. Field workers
   e. School representatives

2. The second phase of selecting the staff will be the development of criteria for interviewing and selecting the individuals. The study group will decide the types of individuals needed to perform the various functions.
H. INSTALLATION OF EQUIPMENT

The installation of data processing equipment will be one of the final steps in the program. The installation will coincide with the selection of a suitable facility for housing the equipment. This facility should be airconditioned, well lighted and dust-free for the proper performance of the equipment.

Installation will be conducted by the systems analysis personnel of the computer corporation selected. The project coordinator and the staff of data processing personnel should be available at the time of installation. Much valuable information and experience will be gained through their presence at this time.

In connection with installation, the project coordinator and his staff of data processing personnel should be sent to the training facilities of the computer corporation and spend a period of time studying data processing equipment.

It should be pointed out here that a project coordinator should be educationally oriented rather than one schooled in the rudiments of data processing. The project coordinator will be the key performer in the success of the project recognizing the needs and problems of educators in Eastern Kentucky.
I. OPERATIONAL PHASE

The project is now ready for the operational phase. After the programs have been developed and the equipment installed, the operation is the climax of the planning phases.

Before operation can be a reality, an educational program will be provided for the teachers and administrators of Eastern Kentucky. This could best be accomplished through an in-service-workshop on the campus of Morehead State University for representatives of the school districts involved. The in-service-workshop should touch on the following considerations:

1. The role of the teacher in the Classroom Aided Instruction Program.
2. Classroom demonstrations of CAI in operation
3. Lectures by consultants and experts in the field of Classroom Aided Instruction
4. The programs to be covered and utilized
5. The role of the equipment in Computer Assisted Instruction.
6. Instruments and scientific measurements to be used in evaluation
7. Dynamics of terminal operation
8. Potential value of computer
9. Introduction of computerization team and definition of everyone's role
10. Administrative functions served by computer
11. Answers to questions posed by parents, teachers and students
12. Tour of the University Breckinridge Training School to observe CAI pilot program
13. Lectures by representatives of data processing company
14. Seminar for county school superintendents
15. Speeches by Dr. Doran and members of Morehead State University staff welcoming representatives and extending the cooperativeness of the University in this project
16. Participation of Federal Government representatives in the workshop

With the conclusion of the seminar, orientation should be completed in the operational phase. At this point, the superintendents and their personnel should have a firm foundation and understanding of the program and its operational procedures. The computer center on the campus of Morehead State University will be activated and the terminals throughout the region plugged in to the central system.

Members of the Morehead State University staff
will travel the region sampling the responses of the students and faculty. Assistance will be afforded schools that experience difficulty in understanding and/or operating the equipment. Periodic workshops and meetings will be conducted to keep continuity and rapport in the program.
J. FOLLOW-UP STUDY

As the program gathers momentum and is completely operational, a follow-up study will be initiated to examine continually the nature and dynamics of the project. Under the direction of Morehead State University personnel, the study will examine the synthesis of the system into an integrated regional approach.

Emphasis will be placed upon the activities and functions of the students in the project. Graduate students in the field of education can utilize the endeavor as an opportunity to observe educational advance in a community. Through the participation of students in the professional study of education, contributions and progress can be a result of their association with the regional computerization system.

The follow-up studies will point to an important outcome; better service to the region and the students in the counties participating. One cannot overlook the fact that educational advance and improvement is nearly a guaranteed result of the program.

The follow-up studies will provide Morehead State University, the Federal Government, and the participating schools an improved insight in implementing a computer system into a public school system.
**K. EVALUATION OF THE PROJECT**

Evaluating the degree of educational advance through a regional computer plan will finalize the steps in establishing a workable system. As opposed to one finalized evaluation, the evaluating process will be on a continuous basis.

Instruments of evaluation will be varied and used continually to determine the direction of the program. Some of the instruments to be used will include the following:

1. Gathering the responses of teachers and students concerning their personal evaluation of the computer in the classroom.
2. Pulling together the thoughts of county school superintendents towards the project.
3. Interviewing students in the classrooms, determining their views on computerization.
4. Studying the school achievement scores in order to determine the degree of improvement in basic skills.
5. Directing observations of classroom activities related to computer utilization.
6. Discussing the program with school principals to determine their views pertaining to the overall school participation.
Evaluations can also be conducted by authorities in the field of education visiting the Morehead State University campus through observation. Their responses can be recorded along with their suggestions for improvement.

The evaluation stage of the program cannot be overlooked as a vital part of the undertaking. After the initial concepts have been put to work, the evaluation system will continuously determine the quality of the program. Evaluation will spell out the results of past endeavors and point to improved methods for the future.
VIII SUMMATION

The computerization of education is an inevitable reality of the decade on all levels of learning. Morehead State University desires to work cooperatively with people of Eastern Kentucky to make a dream a reality in the school rooms of Appalachia of Eastern Kentucky.

The report has presented a prospectus of the "whys" and "hows" this program can be utilized. Based upon the record of excellence of the University, little doubt exists this project will be an educational success for children of Eastern Kentucky. Morehead State University is staffed, interested and willing to contribute to a project of this nature in cooperation with the counties it serves as an institution of higher learning.

Through the combined efforts of teachers, principals, superintendents, and University personnel a system can feasibly be developed that would provide great service to Eastern Kentucky Schools. The need is present; the equipment is available today; students will benefit; and Morehead State University is ready to provide the manpower and thrust for the program.