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ABSTRACT

This qualitative evaluation study described how instructional computing can be better used by a Texas intermediate education service agency. Open-ended questions were asked of the Education Service Center Staff. Products included identifying services available across the Center and compiling 60 suggested computer uses. The major finding was poor communication between institution and computer personnel. Computer staff need to better publicize services, identify a contact person for instruction and expand administrative services, especially for microcomputers. Instructional staff need to learn more about computers, perhaps through inservice by computer personnel. (Author/GK)

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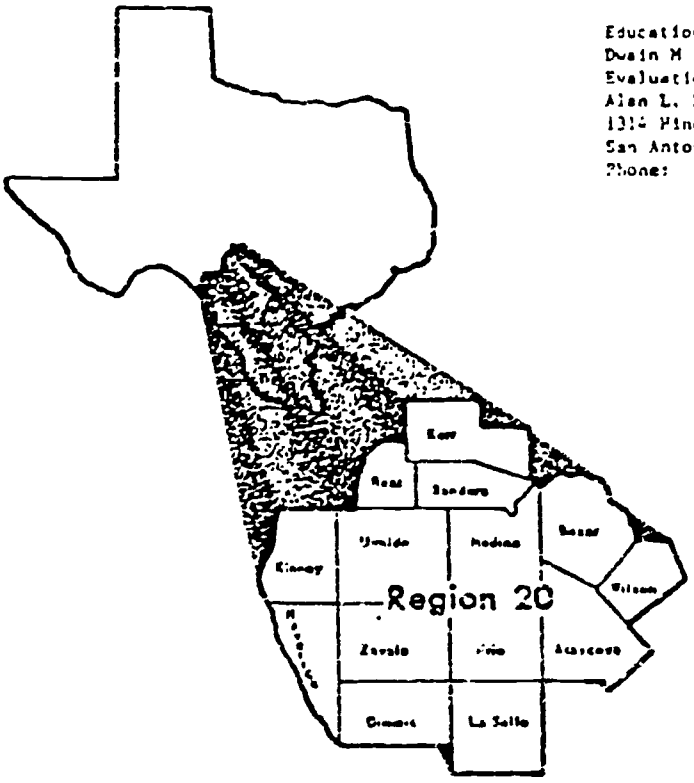

BETTER USE OF INSTRUCTIONAL DATA PROCESSING AT AN INTERMEDIATE EDUCATION SERVICE AGENCY

by

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Paper presented at the annual meeting of AERA held in Los Angeles, April 1981.

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ERIC

Better Use of Instructional Data Processing at an Intermediate Education Service Agency

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Education Service Center, Region 20 (ESC-20) is one of 20 intermediate education agencies in the State of Texas. Established as part of the public education system of Texas in 1967, the agencies offer school districts and teachers an opportunity to receive specialized services normally beyond the reach of the average-sized school system. Evaluation of services and programs provided to districts is done by a twenty member evaluation staff. ESC-20 houses the South Texas Multi-Regional Processing Center (STMRPC) which works with eight Texas Service Centers including ESC-20. The STMRPC provides a wide variety of products in administration and instructional areas.

The purpose of this study was to examine ways data processing could be used more productively by ESC-20 instructional programs. Information was collected from administrators during face-to-face interviews. A content analysis of interview information revealed several problem areas as well as suggested solutions. Existing and potential uses of the computer were identified.

Methodology

Qualitative methodology was used in carrying out this study. The methodology which employed open-ended questions was well suited for researching "How can the computer be better used in instructional areas?" The overall design was guided by Chapter VII, "Qualitative Interviews" from Michael Quinn Patton's just released Qualitative Evaluation Methods.

All ESC-20 Administrators in DP (N=9) and Instruction (N=40) were interviewed by the author in Spring, 1980. They were asked "Can you suggest ways Data Processing can be better used by instructional programs at the Center?" Also, they were requested to comment on a list of existing and potential DP services. Detailed notes were taken. Key quotes were read back to those being interviewed. The average interview length was 20 minutes; the longest interview was nearly two hours; the shortest, five minutes.

Responses to: "Can you suggest ways Data Processing can be better used by instructional programs at the Center?"

- Summary

- Narrative

SUMMARY

ESC-20 Administrative Responses to: "Can You Suggest Ways Data Processing Can Be Better Used by Instructional Programs at the Center?"

	Instructional Services Administration	Data Processing Administration
Response Frequency	Many of the 40 administrators gave two responses, a few stated three. A total of 78 responses were stated.	All of the 9 administrators gave two responses, three administrators offered 3. A total of 21 responses were recorded.
Major Results	About 60% of Instructional Staff stated communication between Instruction and Data Processing needs to be improved. Instructional staff need to better understand computers and requested training on how to better use Data Processing. Some staff believe Data Processing should be more sensitive to their needs. Others felt they did not know who to contact when they had a question about Data Processing.	Data Processing administration unanimously agreed that better communication with Instruction is an important starting point. Data Processing personnel need to learn more about Instructional programs; correspondingly, Instructional staff need to better understand Data Processing.
Other Results	Data Processing should better advertise their services, possibly expanding current offering.	Nearly all Data Processing administrators stated better use of computer services is needed and identified specific services that should be used.
	Data Processing services may not be cost effective.	Practical, cost effective uses of the computer should be identified.
	Data Processing services are somewhat inaccessible due to the operations' geographic isolation.	Data Processing services are somewhat inaccessible due to the operations' geographic isolation.
	Data Processing services are seen as meeting district needs.	Instructional data processing should be housed in Instructional Services.

NARRATIVE

Communication: The Problem

The major problem was lack of communication between Instructional and Data Processing personnel. As two interviewees saw the problem:

"Data Processing and Instructional people need to communicate more about what they need and what can be made available. I don't believe Data Processing has done a good job of publicizing services that could be offered. On the other hand, I don't believe Instructional people have asked for what they need."

"Data Processing wishes to keep the information about the computers close to them. They do not wish to share it with others. In addition, Data Processing does not value the instructional process. They do not accept Instructional Services as a viable instructional entity. Instructional staff are afraid of the computer. They make no effort to learn more about it; they are defensive whenever anyone asks them questions regarding Data Processing. Their behavior reinforces Data Processing's view of them."

Part of the problem is the size of the DP operation. It serves seven other Texas Education Service Centers in addition to Region 20. The thoughts of one DP staff on this issue were:

"I wonder how Data Processing is perceived by the Center. Data Processing needs information on the nature of this perception. This would be a good retreat topic. Is, for example, Data Processing seen as too large or too dominant? I believe Data Processing should be seen as an elder brother but I'm not sure this attitude is present. Our dollar volume contributes heavily to the Center. I wonder if Data Processing might be dragged down due to political problems."

Several instructional staff felt DP personnel were not sufficiently concerned about their computing needs.

"A major problem in getting instructional programs supported within Region 20 is that the administrative staff of Data Processing sees themselves as being separate from the rest of the Center. We need to have an ongoing dialogue. I see the problem due to Data Processing's lack of effort to integrate themselves with the rest of the Center. This is a major obstacle to using the computer for instructional purposes. Data Processing administration then needs to be more open so that people can talk to them."

"During our first year, I had dollars set aside for Data Processing. I contacted them on several occasions. They didn't care whether they helped me or not. It was more work on my part to simply get them to work with me than it was really worth. I felt I was more of a liability to them where, in fact, I was paying the bill. Perhaps my request was not large enough."

Another aspect of the problem involved geographical and political barriers. Data Processing was and remains isolated from most Instruction.

"There are many things Data Processing can do for instructional programs. We need to identify what they are. A major problem is location. Center employees need to be housed at the same place. Data Processing is not in regular contact with other people in the Center and subsequently does not know what help is needed or if help could be used if provided."

"The fact that we are in a separate building from Data Processing limits the interaction with Data Processing staff. When Data Processing staff were in this building, I would occasionally run into them and would frequently find out useful tidbits of information that could assist me in using Data Processing services."

That instructional computing was part of DP rather than Instruction was viewed as a possible communication barrier.

"Instructional Staff needs to learn more about Data Processing. What, for instance, can Data Processing do to make Instructional Staff more aware of our capabilities? One possibility is to further explore putting instructional data processing in an instructional component of the Service Center. The other two Texas Multi-Regional Processing Centers have found this arrangement to be very satisfactory."

"I wonder if instructional data processing should be part of Instructional Services. It might allow better coordination."

A final consideration was that personnel did not understand each other's responsibilities.

"We need to get people at Region 20 aware of what the computer can do. The level of ignorance is very high. I tried this once but the response was low. In short, a Center-wide education program is required. People need to know that the computer doesn't bite and attack them."

"I'm not familiar with services offered in Instructional computing. I don't know, for example, what our Instructional computing staff actually do. I have limited knowledge of what is done in the Instructional Divisions. The structure of Data Processing, in general, serves schools, not Region 20 staff."

"Each of us needs to know a little bit more about each other. Instructional Services, in other words, needs to know how Data Processing works and Data Processing might need to know more about Instruction."

Recommendations for Better Communication

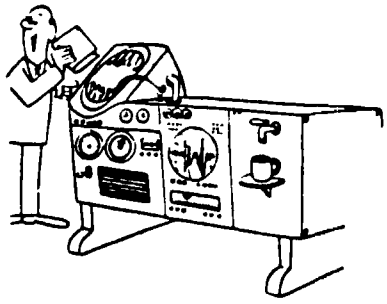
Instructional personnel want training on how to use computers.

"I need to learn more about computers. I don't know enough to ask the correct questions. Through the Center, we need to learn more about what Data Processing can do. Inservice activity would be a good time to do this."

"I need a better background on computers and what they are about. I simply get lost in the terminology and don't really understand how they work. Perhaps a workshop would be useful."

Training activity must make Instructional personnel comfortable around computers.

"The more people handle something they are unfamiliar with, the more they will use it in their programs. We need to design a way so that instructional people can be comfortable in using the computer. This could be done by Data Processing providing training sessions on what kinds of things the computer can do. These training sessions should involve follow-up activity geared to individual program needs."



A DP contact person for Instruction is needed.

"We need to know who to contact at Data Processing for certain kinds of service. One time, for instance, I was transferred to four different people before I found out who it was I was supposed to talk to."

"I don't know what Data Processing is presently doing. Do they have, for example, a person who identifies uses for the computer? If they don't, a consultant should be provided for doing this. This is a very needed service."

Data Processing should make people more aware of their services.

"Data Processing needs to show the Center what services they have. There's a lot of capability and technical competence in Data Processing. Instructional staff simply are not aware of what Data Processing can do. Data Processing then needs to better inform the Center of what kinds of services they have."

"Data Processing needs a better publicity campaign. I wasn't aware of some of the services available, and I've been here four years. Teachers and district staff generally are not aware of services available."

DP should offer more services.

"Given the future direction of computers and how it is predicted that computers will be in many homes within five years, I'm not sure we are doing enough for the schools in the area of computers."

"There should be a wider range of Data Processing services available to the school districts. I know, for example, there are other areas such as reading, science, and social studies that can be made available."

Instructional personnel should make better use of existing DP services.

"Make Instructional people aware that Data Processing provides special programming services. A special processing request must be completed cooperatively by Data Processing Consultants and Instructional Staff."

"We can do statistical analysis, provide instruction on how to use the Statistical Program for the Social Science (SPSS), and can perform statistical work."

A Secondary Problem: Cost of Data Processing Services

Some Instructional staff thought Data Processing services were too costly.

"With the 17% cutback for the Center, I have had to cutback on Data Processing services. Increasing costs included dollars for evaluation as well as general increases. In fact, I do not use them at all. In the past I used them for schedule, keeping class rosters, etc. The services provided were excellent."

"Dollars must be made available to fund computers. Sometimes they simply aren't there."

"The bottom line is that there is a cost to the computer services. The Center will not provide them for free, we pay for everything. I'm not sure I'm willing to pay for these services when other more appealing alternative are available."

Data Processing personnel felt computer services were cost effective when practical, clear-cut products could be identified.

"Instructional Staff need to identify problems for Data Processing. Data Processing Staff are like M.D.'s: Problems must be brought to them. Many things can be automated. Often the products are not useful and/or practical. This is what happens when Data Processing looks for problems rather than solving them."

"Several steps are needed. (1) To find the process, state the program simply. Someone needs to define what the instructional program is, no salesmanship is necessary. The program needs to be broken down into its components. This is not adequately done in most proposals. (2) After step one is accomplished, have a competent Data Processing Staff look at component parts. (3) Price out what is desired and then ask: 'Is it cost effective?' Also, what are the long term benefits of the program? Projects of limited duration may not be cost effective. You also need to ask: 'When it ceases to be free, who will pay for it?'"

Computer Uses

- Collection
- Existing Services (Figure 1)
- Potential Services (Figure 2)
- List of Additional Uses (Figure 3)

Information Collection

During face-to-face interviews in March 1980, DP administrators were asked to describe existing and potential computer applications. Existing services were documented (Figure 1). Suggested potential services were merged with other computer uses suggested in recent publications. Publications reviewed included:

- The Fall 1979 issue of AEDS dedicated to microcomputers: Important were several articles from staff and intermediate service agencies.
- The 1979 and 1980 issues of Educational Technology: Especially relevant were articles that focus on computers in education.
- Recent issues of Time and Newsweek which discussed how computers will impact society.
- Newspaper articles describing educational uses of the computer.

In May 1980, instructional consultants were asked to review the list of suggested and available services. Most revisions involved wording, allowing suggestions to be more easily understood.

The revised list of services was reviewed by instructional personnel during regularly scheduled interviews (Figure 2). The final list includes [illegible] additional suggestion[illegible] by Instructional administration (Figure 3).

Figure 1

DATA PROCESSING SERVICES CURRENTLY AVAILABLE

MATH DRILL (Grades 1-6)

The computer provides the student instruction in all areas of basic arithmetic skills. Student progress is monitored by pre- and posttesting administered via the computer terminal. Summary statistics of student progress are maintained.

REMEDIAL MATH DRILL (Grades 7-12)

Students with remedial needs are provided instruction while interacting with the computer terminal. Curricular materials are similar to those used for grades 1-6 math drill.

ENGLISH DRILL (Grades 7-12)

Students learn grammar and vocabulary via the computer terminal. Content areas include sentence structure, the parts of speech, word usage and word acquisition. Student progress is monitored by the computer.

WRITING COMPUTER PROGRAMS TO SOLVE PROBLEMS (Primarily Grades 9-12)

Students program the computer to solve problems related to regular classroom activity, especially in the areas of science and mathematics. A user-contributed library contains programs addressing common instructional problems. The library has, for example, a computer program demonstrating the laws of physics for differing conditions.

GUIDANCE (Grades 7-12)

The guidance function provides two complementary services: (1) The GIS (Guidance Information System) provides nation-wide data on occupations, requirements for two and four year colleges, graduate schools, and financial assistance for college work. (2) A localized vocational data bank that provides information on jobs, training facilities and training programs offered by public and private schools.

HANDLING STUDENT INFORMATION (Grades K-12)

Scheduling Classes

Reporting Grades

Keeping Attendance Records

Test Scoring: Achievement, mental ability, and vocational aptitude tests

Maintenance of student information: Ongoing systems include the Special Education Management System and the Migrant Student Record Transfer System. Programs custom-written to user specifications.

OTHER SERVICES

Keeping track of the amount of consultant services, including workshops, provided to districts.

Statistical Analyses

Using the computer to design format and score classroom tests and surveys.

Figure 2

Potential Computer Uses Identified from Pilot Phase

DATA PROCESSING USES SUGGESTED

Suggestion	Response	Finding
ERIC Retrieval System	High	3 out of 4 favor use.
Cataloging Proposals	High	2 of 3 believe a system is needed. The system may not need computer support.
Coordinating Travel	High	Responses equally divided irrespective of computer use.
System Describing Services Available and District Needs	Moderate	Near unanimous support.
Computer Assisted Instruction (CAI)	Moderate	Most favor CAI for Adult Education.
Word Processing & Text Editing	Moderate	Nearly all saw as useful for proposal development.
Microcomputers & Microfishe	Low	An emerging technology meriting attention.
Computer Simulation	Low	8 in 10 saw as helpful, especially for training new consultants.
Upgrading Capabilities of Computer Terminals	Very Low	Most did not understand suggestion.
Combining Computer System	Very Low	Most did not understand suggestion.

NOTE:

High: 70% or more responding
Moderate: Between 50 and 70% responding
Low: Below 50% responding
Very Low: Below 20% responding

Figure 3

List of Suggested Computer Uses/
Applications Made by Instructional Staff

Direct Services to Districts

Develop teacher placement and referral system for rural districts.

Districts need a better vehicle for managing their monies from federal sources. The type of budget information we have at Region 20 would be very helpful.

Print gum labels for mailing to districts.

Make available to districts a list of funding sources. This would be good public relation.

Provide a service for keeping track of leaves and absences for districts similar to the one used at Region 20.

Maintain a file of who has been trained in different programs. Offer this service to districts.

Develop a system for selecting speakers and field trip sites. Make it available to districts. This service is especially needed in the area of career education.

Develop a Title I tracking system like we have for Migrant and Special Education children.

Develop a better system for districts to keep track of truant and educationally disadvantaged students. Assist them to use this information to improve attendance.

Do an analysis of the Texas Assessment of Basic Skills (TABS).

Analyze the SAT scores for districts so that they can improve their curriculum.

Use curriculum mapping, TABS results, and the districts' curriculum guide to identify priority needs.

Secure the program from the state which predicts migrant student drop out based on questionnaire data.

Use computer terminals in districts to deliver information from Region 20. This could replace the newsletter "Roundup."

Instructional

Develop computer simulation of inservice training and follow-up assistance, especially for training new consultants.

Simulate events in history: What would happen if another decision would have been made with respect to the course of history? For example, simulate major battles to show "Who would have won" under different conditions.

Combine microcomputer technology with video disk. Video disk can be read by laser beam. Using the television monitor such system could give you a map - a map allowing, for example, branching to different parts of a city.

Train instructional staff on how to access the media retrieval system.

Use the computer to make services more accessible in adult learning centers.

Use available item banks for improving the energy education program.

Keep track of materials in media using a Wand system.

Coordinate reference materials from the various PDC's.

Secure the ERIC retrieval system for Region 20.

Use the computer for analyzing and comparing data for inservicing educators.

Use the computer to provide services in the area of reading.

Vocational assessment profile: Correlate test scores to worker trait factors. Then select possible occupations.

Provide computer assisted instruction in the areas of vocational and adult education.

Special Education

Put the occupational and physical therapy programs on the computer.

For a given occupational or physical therapy problem, have the computer suggest alternative prescriptions.

Develop a job bank for the handicapped. Match handicapping characteristics with job requirements.

Develop a Braille computer print out.

Design a computer program for the deaf to allow them to learn sign language.

Given existing diagnostic information on a child with respect to special learning needs, making a better individual education plan.

Provide a library for the blind by making voice imprints on tape for printed matter.

Take better advantage of the existing technology for the blind in service Region 20 districts.

Maintain a list vendors of instructional materials and equipment. This list should include name, address, and toll free numbers. Such a list represents a priority need for special education staff who work with districts.

Administrative

Use the computer to do zero-based budgeting.

Track the progress of the center's self study.

Maintain statistical information on a district including ethnic composition, staff characteristics, and demographics of the community.

Use the computer for planning large conferences.

Secure word processing and text editing capabilities for producing lengthy documents.

Reinstate the system for managing information for the Youth Employment Training Program. This system was previously maintained by evaluation.

Secure an easily accessible address file of district personnel for Region 20 program staff.

Combine existing computer systems to increase capability. For example, merge proposal development resource file with the media retrieval system.

Use the computer to establish the most efficient routes for media vans.

Store the information we put in the needs assessment section of the proposal so it can be retrieved for future use.

What about management services on the computer such as cost accounting and long range predictions based on existing needs? I believe these services are available.

Computerize center goals and objectives with state priorities. Use this information for proposal writing.

Have an open ended question on the workshop evaluation form stating "What additional services could Region 20 provide?" Combine this information across workshops.

Use the computer to better coordinate travel to districts by Region 20 staff.

Reduce paperwork for the Adult Education annual reports by using the computer.

Develop a system describing services available and needs identified for each district.

Computerize the list giving the amount and cost of services from Living Science delivered to districts.

Develop a system cataloging by content area, proposals written and/or funded.

Develop an objective bank correlated to needs identified.

Upgrade the capabilities of the existing terminals. For example, have the computer be able to do more of the budget.

Do follow-up studies on teachers trained who leave the Region. Use the computer for tracking and storing information.

Better integrate new emerging technologies. An example would be the area of microcomputers.

Assist universities in improving their computer capabilities. Could, for instance, a data bank for students be provided that could be accessed by those wanting to to research?