I. INTRODUCTION

This report is submitted to the Chairman, House Appropriations Committee, and the Chairman, Senate Finance Committee. pursuant to the Minnesota Laws of 1981, Regular Session, Chapter 359, Section 2, Subdivision 6 (e). The period covered is July 1, 1984 - December 31, 1984.

The report covers the present status and work accomplished in the following areas:

State Department of Education Information System (SDE-IS)

Elementary/Secondary/Vocational Information System (ESV-IS)

Data Management Within and By the Department

Microcomputer Systems and Uses

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II. STATE DEPARTMENT OF EDUCATION INFORMATION SYSTEM (SDE-IS)

The Education Data Systems Section (EDSS) has developed and is operating the computer systems that operationalize many of the Department's legislated functions. Collectively, these systems (approximately 40 in number) are known as the SDE-IS. Some of the areas within the SDE-IS are: calculation and payment of state aids; calculation of each school district's levy limits; licensing of all school district professional staff members; evaluation of school district financial operations and conditions; collection and validation of pupil membership and attendance data; gathering and reporting of district associated civil rights information; student assessment, child nutrition and related areas.

During the six month period from July 1 through December 31, 1984, EDSS has completed 86 Data Processing Services Requests from users throughout the Department, as well as outside agencies such as House and Senate Research. Representative activity occurred but was not limited to the following areas:

1. All aids have been paid on schedule.

2. The Levy System was modified and production occurred approximately one month ahead of schedule.

3. Extensive enhancements to the Minnesota Civil Rights Information System (MINCRIS) were completed.

4. Year end district financial data was received and loaded on diskette from three school districts reporting directly to the Department.

5. Development of a Commodities System for the Child Nutrition Section was begun. This system will order and maintain inventories of commodities from the USDA.

6. The development of the Assignment portion of the Personnel Licensing System and all related specified reports were completed.

7. The Data Base Element Dictionary (DBED) System was enhanced to include descriptions of systems and data sets as well as data elements.

8. Data processing services to the Vocational Technical Education System were provided as requested, including the development of a Property Accounting System to report on AVTI fixed asset data.

9. The Letter of Credit System for the Fiscal Services Section to process draws against and maintenance of grant awards from the federal government was implemented.

DOCUMENTATION. Documentation of the SDE-IS for the user has been completed with the exception of those systems currently in development or modification. Review of technical manuals is now completed by each system's user. Documentation is modified or updated as needed.

EQUIPMENT. Within the Department of Education there is a variety of equipment that allows Education Data Systems data processing staff and users to utilize, maintain, and continue the development of the SDE-IS. The Department currently houses 34 CRT terminals, 1 auxiliary printer, 8 disk drives containing 2 spindles or 17,500,000 segments of data, 1 remote job entry (RJE) line, and 5 dial-up lines (one for Vocational Education) that connect the Department to the Burroughs mainframe computer housed at METRO II. In addition, there are 7 CRT terminals and 1 remote printer housed at MECC.

Currently, there are 1,300 magnetic tapes in use, and approximately 100 batch jobs are processed per day. On-line INQUIRY programs run from 7:00 a.m. to 5:00 p.m. each day with approximately 5,000 pages of print per day, excluding the printing of teacher licenses and various types of mailing labels.

III. ELEMENTARY/SECONDARY/VOCATIONAL INFORMATION SYSTEM (ESV-IS)

The Minnesota Educational Computing Corporation (MECC) provides administrative data processing services which support the statewide ESV-IS. Under contract with the Minnesota Department of Education, MECC currently provides these services through their MECC-MIS (Management Information Systems) Division and the ESV-IS Management Teams.

The MECC-MIS Division has two purposes. The first is to provide common software development and maintenance to the seven regional computer centers each operated by a consortia of school district clientele. This activity is supported through state funding and monitored by the Department of Education. The second purpose of the MECC-MIS Division is to provide APPLE and IBM microcomputer finance software, training, and maintenance for pilot school districts until July 1, 1985. The MECC-MIS Division currently serves 560 reporting units within the Elementary/Secondary/Vocational communities of Minnesota.

MECC's large mainframe computer maintenance section develops, maintains, and documents common computer software and interfaces with user requests from the seven regional centers through the state approved ESV-IS Management Teams. These teams advise MECC on regional and Department of Education needs, priorities, and the effect of proposed changes to the ESV-IS systems and approved alternative systems.

ESV-FIN. This mandated system provides school districts with important operating information and also provides the state with critical financial data. The Finance System Management Team continues to allocate more time to testing, preferring error-free system patches, and less time to programming of new development. In fiscal year 1985, MECC has released 94 changes to the ESV-FIN software to date through the patch release procedure, continues to maintain user and technical documentation, and continues to provide software maintenance. Fiscal year 1984 ended with 24 "bugs" and 79 enhancements to be prioritized and completed.

ESV-PPS. This non-mandated system provides payroll processing, checks, payroll reports, W-2s, and personnel reports to districts who choose to use it. At this time, there are approximately 280 users. The Personnel/Payroll System Management Team continues to be satisfied with a ratio of correct system patches to total patches, consequently there is a larger amount of time devoted to programming than there is to testing. In fiscal year 1985, MECC has released 47 changes to the ESV-PPS software to date through the patch release procedure, continues to maintain user and technical documentation, and continues to provide software maintenance. Fiscal year 1984 ended with 5 "bugs" and 2 enhancements resolved but not yet released to the regional centers and 4 "bugs" and 31 enhancements to be prioritized and completed.

FIN-APPLE and PPS-APPLE. These two systems were developed for the Apple microcomputer to provide a less expensive and less time consuming means for districts to interface with the regional mainframe computer. These systems also give the district immediate access to some types of reports available from the ESV-FIN and ESV-PPS. Before the development of these systems,

districts had the choice of submitting their data to the region via CRT terminal, which resulted in high computer time charges, or by manually filling out forms and submitting them to the regions for batch processing, which resulted in a time consuming task for district personnel. The FIN-APPLE and PPS-APPLE systems are currently used for the most part by smaller school districts. Fiscal year 1984 ended with 1 "bug" and 2 enhancments to be completed for FIN-APPLE, and 1 "bug" and 1 enhancement to be completed for the PPS-APPLE system. In fiscal year 1985, MECC has released to date 3 changes for FIN-APPLE and 2 changes for PPS-APPLE through the patch release procedure.

REGIONAL FUNDING. The Governor's recommended base of $3,100,000 plus inflation results in the following proposed distribution of funding for the ESV Regions in fiscal year 1986 and fiscal year 1987.

	FY86	FY87
Region I	$435,382	$454,974
Region II	$377,171	$394,143
Region III	$454,918	$475,390
Region IV	$422,290	$441,293
Region V	$496,493	$518,836
Region VI	$416,199	$434,928
Region VII	$621,546	$649,516
Total	$3,224,000	$3,369,080

The formula for distributing these funds is the same formula used to distribute state funds in fiscal year 1984 and fiscal year 1985.

IV. DATA MANAGEMENT WITHIN AND BY THE DEPARTMENT

The Data Acquisition Unit (DAU) has continued to strengthen the data management process within the MDE and the long term goal of establishing a central coordination point for data collection within MDE has been reached. The DAU now faces the task of consolidating the collection of data from the districts and building computer systems which allow for the sharing of the data resource.

The Data Acquisition Review Committee (DARC) continues to operate with five local education agency representatives and four Department representatives. Since July, the DARC reviewed 67 data collection activities, and modifications have been incorporated into 26 forms. Reasons for modification typically include: allowing more time for districts to respond; clarifying instructions; using existing data rather than recollecting data; using the UFARS structure; reducing the amount of data requested; and improving the organization of the form layout. The DARC committee membership will be working with Department data collectors to further promote the electronic transfer of data in the upcoming six months. The majority of DARC members participated in a meeting on improving automated data collection held in December.

The work of the Uniform Terminology and Coding Committee (UTAC) is proceeding as scheduled. This internal MDE committee is responsible for standardizing the terminology used in data reporting. The 1984-85 Annual Data Acquisition Calendar included a listing of over 140 terms and definitions which have been resolved by the UTAC. Since the issue of the calendar, over 70 additional terms and definitions have been resolved by the committee. All staff reporting terminology has now been reviewed by the UTAC. Current plans include the resolution and publication of all staff and student reporting terminology with the release of the 1985-86 Annual Data Acquisition Calendar.

The Data Base Element Dictionary (DBED) (M.S. 121.931, Subd. 2) is near completion. To date, over 4,150 data elements have been reviewed and defined. The dictionary process has resulted in the better management of the SDE-IS--over 600 data elements have been removed from the system since the review and definition process indicated these elements were obsolete. The final steps towards implementation of the DBED include final reading of the definitions for accuracy, the definition of 26 systems, and the definition of 140 data sets. The DBED is expected to be completed by the end of February 1985. Training for Department, legislative, and other user staff will begin in late March.

The Annual Data Acquisition Calendar was distributed to districts prior to the start of the school year. The highlight of this year's Calendar was the inclusion of the terminology resolved by the UTAC. Definitions for all staff and student reporting terminology will be included with the 1985-86 Calendar.

On December 12, 1984, the Education Data Systems Section sponsored a Forum on Improving Automated Data Collection. The forum was attended by over 25 people, including staff members from the legislature, school districts,

regional computer centers, Department of Education data collectors, DARC members, and Data Acquisition Unit staff. The purpose of the meeting was to discuss the feasibility of electronic reporting via the regional centers. The six hour forum, moderated by Dr. Charles Sederberg of the University of Minnesota, brought to light the problems associated with data transfer from regions as well as the availability of types of data at the centers. The DAU presented a list of candidate forms for electronic transfer and a list of the data elements which need to be maintained for electronic reporting. Participants of the forum felt it was a useful effort. Some of the issues raised were:

1. In order to fulfill data automation improvement goals, a commitment to support an information system must be made on the part of everyone involved--the Department, school districts, and regional centers.

2. There must be recognition of costs at the school level by anyone seeking to alter or expand data collection; budget cuts have made it difficult for districts to meet data reporting requirements.

3. Standard data elements for data collection and management must be defined and goals established.

4. Consideration as to how districts can use data to their advantage to improve their management skills must be given.

The Data Acquisition Unit staff will be following up on the topics discussed at the forum within the next few weeks.

The DAU has continued the implementation of a Staff Data Pilot. The goal of this pilot is to test and confirm the notion of sharing data within the SDE-IS, with the primary method of sharing data to be through the utilization of information from the Teacher Assignment System. To date, the Hopkins school district has confirmed participation in the pilot project. A review of the project has taken place with Department staff, and it has been determined that the Special Education, Equal Educational Opportunities, and Adult Education sections will participate. The identification of other school district participants will be completed by the end of January. The goal is to make comparisons of data and write recommendations by March 31, 1985.

The Data Acquisition Unit has been working with SDE-IS consultant staff in the establishment of a "student record" on the database. This record would include unaggregated data on the SDE-IS for students which could be manipulated by Department staff to meet data reporting requirements. The proposed system has been discussed with "key" Department staff. In the next several weeks, the results of the discussions will be shared with these staff. Issues to be resolved include:

1. What data should the system contain?

2. What "future data needs" might be added to the system?

3. What manual forms could be eliminated?

4. How would the data be collected from the districts?

5. What part would regional computer centers play?

6. What will the system design and access consist of?

V. MICROCOMPUTER SYSTEMS AND USES

The microcomputer continues to be a useful and necessary tool within the Department of Education. There are currently about 70 microcomputers housed within the Department. Most of these are the Apple II+, Apple IIe, and IBM PC models--the current State Contract only allows the selection of these two manufacturers.

The Education Data Systems Section (EDSS) continues to publish a bi-monthly newsletter that is distributed to microcomputer users within the Department. This newsletter shares information and computing experiences with other microcomputer users.

Education Data Systems also continues to provide training on various commercial software packages. These services are provided by a staff member who is assigned specifically to microcomputer systems design, and whose responsibilities include: teaching staff members how to utilize/design specific software according to their needs and/or design mainframe applications incorporating microcomputer applications, such as the VISION and LEVY Systems; and investigate/evaluate new software packages available on the market. The results of these software evaluations are published in the microcomputer user newsletter.

Currently, the microcomputers are used as a multi-purpose tool, incorporating a wide variety of applications, most of which fall into the following four categories:

A. Word Processing
B. Spreadsheet (calculation and forecasting of financial information)
C. Data Base Management
D. Graphics

Usually, Word Processing, Spreadsheet, and Data Base Management applications on the microcomputer are "stand alone" applications. Graphics can include both Spreadsheet and Data Base Management applications. The Department currently has under consideration a policy that would determine whether an application should be considered a microcomputer or mainframe application.

Within the last six months, EDSS has added new micro applications such as those dealing with Migrant Education, Veteran's Education, Indian Scholarship, VISION updates which include opening Department data bases to the ESV Regions, yearly levies to school districts, EDSS documentation updates, a tracking system on school district replies to the "Minnesota Schools 1985" survey, in-house microcomputer staff development, map plotting, and EDSS staff support for a Department-wide microcomputer training program.

In the area of providing access to the Department's data bases to the ESV Regions, ESV Region II (Duluth) has been acting as an experimental region in testing remote operations using the VISION System with existing telephone

lines. This test consists of using a communications modem to run VISION in order to obtain data from approximately 30 Department data sets--LEVY, UFARS, STUDENT, TEACHERS, IDEAS, and several others. The Arrowhead Regional Computer Center is currently using VISION to download timely, accurate, and meaningful reports for data to be used at 1985-86 revenue budgeting workshops; these budget projections were not available in the past. History data from VISION provides several years of data on County Apportionments, Endowment Funds, Taconite Receipts, Actual State Property Tax Credits, and Ratio of Property Tax Credits to Spread Levy. Some examples of VISION reports are:

A. Unappropriated Operating Fund Balance
B. Operating Fund Balance Per Resident Pupil Unit
C. Regional Ranking of Fund Balance
D. Operating Fund Expenditures for Fund 01-04
E. Operating Expenditures Per Resident Pupil Unit
F. General Fund Revenue Mix Reports
G. General Fund Salary Expenditure Reports
H. Salaries and Fringe by Fund

This list names only a few of the options available on the VISION system.

Department staff are still encouraged to use commercial vendor software whenever possible on the microcomputer, and/or EDSS supported VISION software on the mainframe computer, excluding the usual custom designed software available on the mainframe.

MICRO-FIN Pilot Test History

Pilot test districts were selected by the Department during 1983 after issuing a general invitation to all districts for their participation in the test of a MECC developed, APPLE-based accounting system. Eighteen districts responded with an initial expression of interest and were judged on the basis of the following characteristics:

1. District processing and storage needs can be met within the limitations of the microcomputer hardware and software. Districts with a large number of accounts, vendors or transactions (usually districts with 1,000 or more pupils) were eliminated while those with a small enrollment and/or a simple account structure were considered as test candidates.

2. Districts will have varying levels of previous microcomputer and accounting expertise, they will have different organizational structures and should be geographically disbursed. In order to identify the relationship between expertise in the micro area and likelihood of success in operating a stand alone system, districts were chosen to reflect varying degrees of expertise. Similarly, differing administrative personnel structures of districts were desired so that analysis could be made regarding the likelihood of successful stand alone computing in various organizational structures. Finally, differing ESV regional membership was considered a critria so that as many regions as possible could gain experience with the system and so

that data regarding the impact, if any, of differences in regional operations on the success of the test could be gathered.

3. Districts must have access to a 48K Apple microcomputer with at least two disk drives and a printer.

Seven districts were chosen to participate in the test. Five of these districts; Plainview, Randolph, Brooten, Mazeppa, and Nicollet, were designated to test the MECC developed floppy disk system, while Ortonville and Holdingford, the other pilot districts, were designated to test the MECC developed hard disk system. The data of three test districts, Plainview, Randolph, and Ortonville, would be transmitted directly to the Department on a diskette while the data of the other test districts would be submitted to the region of affiliation.

The pilot test was scheduled to commence in July with data conversion and subsequent live operation of one district followed by periodic conversion thereafter of the other districts. It was anticipated that the pilot districts would operate on a parallel basis (using both the regional and the microcomputer systems) for a period of time and would begin stand alone operation only after a period of successful parallel operation. However, the pilot test did not begin on schedule; due to various delays in the development process and programming "bugs," the first district was not able to even begin a parallel operation until December 1983. The conversion of other districts was consequently delayed until system problems could be resolved. As of the time of the ESV Computer Council's February 15, 1984 report to the Legislature, only two of the seven pilot districts were fully operational pilot tests, another district was getting close to live operation and the remainder were waiting to begin the preliminary phases of conversion.

As might be expected, serious evaluation problems were caused by the delayed pilot test schedule. However, even with the limited experience with pilot testing at the time of the Council's 1984 report to the Legislature, the ESV Computer Council was able to make the following findings:

1. The system was appropriately designed and well documented.

2. A significant degree of district expertise in finance accounting/data processing or a high level of support from an organization with that expertise was required for successful conversion and operation in the existing pilot districts and any other districts converting from the mainframe system to the MICRO-FIN system in the future.

3. Provision of the necessary accounting and data processing support could not effectively be accomplished by adding responsibilities to the functional responsibilities of existing Department employees.

4. Concerns regarding data loss, operating error and/or diskette failure were valid.

Based on these findings, the Legislature determined that the pilot test should continue through fiscal year 1985. It was also mandated by the 1984 Legislature that the ESV Computer Council select an additional microcomputer finance accounting and reporting system, one not developed at MECC, for pilot testing.

MECC SYSTEM STATUS. Since the last report to the Legislature, the MECC developed, Apple-based finance accounting and reporting system has been thoroughly tested. Of the seven pilot districts, five were able to successfully convert to full use of the system. The remaining two districts, Mazeppa and Nicollet, chose not to make a full conversion. At year end, state required data was successfully received in the Department from each of the five pilot districts using the alternative system.

It should be noted that the Apple-based finance system is currently being used by a small number of other government users. Therefore, MECC will continue to maintain the system for a period of time. However, MECC too has noted the capacity limitations of the Apple II as a business computer and has determined that the focus of MECC finance system development efforts should shift to IBM PC-XT and IBM PC-AT based systems development. At this writing, MECC development of an IBM-based finance accounting and reporting system is nearing completion. We anticipate that the IBM-based system will meet state UFARS reporting requirements while significantly increasing the processing capabilities of users. Consequently, we have recommended that the existing pilot test of the Apple system terminate upon release of the IBM-based system. Current Apple-based system test districts will be allowed to continue pilot testing using the MECC IBM-based system or a private vendor test system for the remainder of this fiscal year.

PRIVATE VENDOR SYSTEM STATUS. Within the last few months, several private vendors have released microcomputer financial accounting and reporting systems that may meet the needs of Minnesota school districts. To determine which of those systems warranted further analysis and pilot testing, the ESV Computer Council recently issued a general Request for Information and a subsequent Request for Proposals. Five private vendors responded to the request with proposals. Of those, three systems appeared to meet UFARS requirements and meet the management information needs of Minnesota districts. Two private vendor systems, Burroughs and National Computer Systems, were selected for pilot testing to begin in February of this year.

FINDINGS. Based on the test of the MECC developed, Apple-based finance system and our experience to date with private vendor systems and the MECC IBM-based system, we make the following findings:

1. Districts can effectively meet finance management information needs through use of microcomputer financial accounting systems.

2. State needs for accurate, uniform, and timely education finance data can be met through district use of microcomputer-based finance data accounting and reporting software.

3. The MECC developed, Apple-based finance accounting and reporting system does work from a district management perspective and does provide the reporting capability required by the state. However, the system is one that we believe has limited usefulness due to the capacity limitations associated with any system developed for use on an Apple II microcomputer. Only districts with a very limited chart of accounts and very simple management information needs will be satisfied on a long term basis with this system.

4. Districts using alternative microcomputer systems require a significant level of support and training for successful conversion to and operation of the system. Without a high level of support, state receipt of accurate, uniform, and timely education finance data is at risk.

5. The degree to which districts can successfully operate stand-alone microcomputer finance accounting and reporting systems is a factor of district staff accounting expertise, district staff computer expertise, quality of the software, its documentation, and the outside support available to the district.

6. Until completion of the MECC IBM based system pilot test and the pilot test of vendor developed microcomputer finance software, the state cannot effectively select one or more alternative systems for general district use.

RECOMMENDATIONS. The Department of Education and ESV Computer Council have reviewed the successes and the problems associated with district use of microcomputer finance systems. Based on that review, the Department and ESV Computer Council make the following recommendations to the 1985 Legislature:

1. By July 1, 1985, the State Board, with the advice and assistance of the ESV Computer Council, should designate at least one approved microcomputer finance accounting and reporting system which may be used by school districts as an alternative to the mandated ESV-FIN system. The system designated should be that which appears to be the most cost effective after completion of the MECC and private vendor system pilot tests during the remainder of this fiscal year.

2. Districts should continue to have the option to petition for state approval to use a finance accounting and reporting system other than the state approved general microcomputer alternative or the state ESV-FIN system.

3. To help ensure that the state continues to receive uniform, accurate, and timely education finance data, districts using approved microcomputer finance software should continue to be affiliated with and receive support services from an ESV region.

If endorsed, these recommendations will provide districts with more flexibility in determining their own solutions to management information problems while continuing to provide a degree of protection to the state interest in receipt of accurate, uniform, and timely data. To implement the recommendations, only the following minor legislation changes will be needed:

1. M.S. 121.936, Subd. 1 (b) (2): The district shall use the ESV-IS finance subsystem through the center <u>or a State Board approved alternative system</u> to process every detailed financial transaction of the district.

2. M.S. 121.931, Subd. 7 (c): The use by a district of an alternative <u>finance</u> management information system to ESV-IS pursuant to section 121.936, Subdivisions 2 to 4.

January 28, 1985
MTM