USE OF COMPUTERS IN MAINTAINING PERSONNEL DATA AT STATE COLLEGES AND UNIVERSITIES IN KANSAS

A Thesis

Presented to

the Division of Business and Business Education

Kansas State Teachers College of Emporia

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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by

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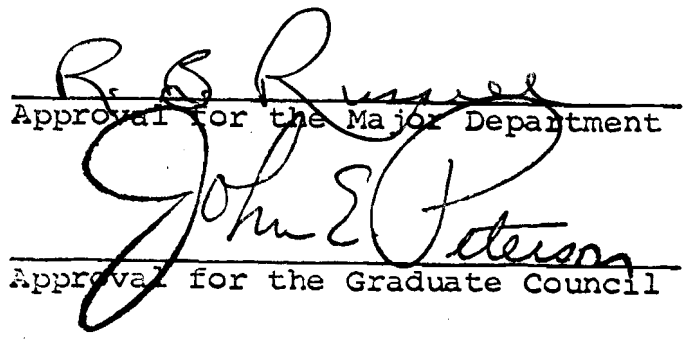

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Chapter 1

INTRODUCTION

Since the beginning of time man has made decisions based upon available information. As societies became more complex, more information was needed to make good decisions that would attain the desired results. Educational institutions have experienced this same problem as they have grown in size over the years.

> As universities have grown in enrollment and budget and as their functions have become more complex, with respect to both internal and external commitments and responsibilities, the management of universities has become an increasingly difficult task. Intelligent decision making requires a great variety of complex information if it is to be carried forward effectively toward the end that the utilization of the human, physical, and financial resources of the university will be optimized.[1]

There is an increasing demand for personnel information about employees of colleges and universities both from within the institution, where the administration is constantly in need of more and better information for making decisions on effective utilization of employees, and outside the institution where fast and accurate information is needed for comparative studies. The Western Interstate Commission

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[1]Charles B. Johnson and William G. Katzenmeyer, Management Information Systems in Higher Education: The State of the Art, p. v (Preface).

for Higher Education is working on the development of a uniform system of reporting institutional information for all of higher education.[2] If such a system could be established, it would facilitate the gathering of data so that studies could be made from current data rather than from data that was three or four years old, because it took that long to secure the data from all sources. The institutions themselves would also benefit from such a system, because it would provide them, within a reasonable period of time, the information required to make intelligent administrative decisions regarding the optimal use of employees.

Not only is time an important factor for establishing a computerized system to handle data but the data itself is more reliable since it is normally checked and re-checked for accuracy before it goes into the computerized system.

THE PROBLEM

To a limited extent colleges and universities have made attempts to put part of the personnel data of their employees on various types of data processing equipment, but much remains to be done in this area. In most instances the personnel data on computers is far from complete and not always available in the format requested by either the administration or an outside agency.

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[2]John L. Green, Jr. and Harry C. Grothjohn, Administrative Data Processing in Higher Education, p. vi (Preface).

Statement of the Problem

The purpose of this study was (1) to determine as of February, 1972, the extent to which personnel data of employees of the state colleges and universities in Kansas was maintained on computer and (2) to develop a recommended computerized personnel data system that could be used at Kansas State Teachers College of Emporia.

Hypothesis

No personnel data of employees at state colleges and universities in Kansas was maintained on computer as of February, 1972.

Importance of the Study

The administration of a college or university should be provided with complete and up-to-date information in all areas where decisions have to be made and should know what the probable consequences will be for each of the alternatives available to them before a final decision is made on a problem.

> The growth of the American college and university in this century has been spectacular and has now reached a point of near-crisis for those charged with administering this dynamic enterprise of higher education. Enrollment of students has skyrocketed from the 1900 level of 250,000 to the present level of 3,500,000, and is on its way to an anticipated 10,000,000 by 1975.[3]

According to the business manager at Kansas State Teachers College of Emporia, the state board of regents and the state

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[3] University-College Information System-IBM Data Processing Applications, p. 1.

legislature in Kansas are requiring greater detail and accuracy in planning and justifying fund requests. "With the rising cost in higher education, it is increasingly important to find ways to utilize available resources more effectively."[4]

The payrolls at most colleges and universities comprise over 70 percent of their total annual operating budgets. In fiscal years 1969, 1970 and 1971 at Kansas State Teachers College of Emporia payrolls averaged a fraction over 76 percent of the total operating budgets and for the next fiscal year starting July 1, 1972, payrolls will account for 77.5 percent of the total operating budget. This information was obtained from the budget officer for the college.

To utilize college and university payroll funds more effectively it is important that every opportunity be taken to save money through promotion from within and to otherwise use each employee in the type of work that best suits his talents, abilities and experience. An illustration of how a promotion can save money can be shown in the promotion of a Clerk-Typist II in the state classified service to a Secretary I where the Clerk-Typist II was receiving $411 per month and goes to $432 which is the first step of the Secretary I salary range. This would allow the hiring of a new Clerk-Typist II at a starting monthly salary of $372

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[4]Green and Grothjohn, op. cit., p. vi (Preface).

which would be a net savings on the promotion and new hire of $39 ($411 - $372) per month. Because faculty and administrative positions at state colleges and universities in Kansas are unclassified (not assigned to specific salary ranges), it would be difficult to illustrate a savings in payroll dollars because of a promotion from within rather than bringing someone in from the outside, but such a savings could occur since those promoted in this area are usually already at the higher salaries.

To have the information on all personnel working for a college or university in a form that is complete, up to date, readily available and accurate, it must be maintained on some type of computerized personnel data system. Only then will the administration have information on all current employees whenever the information is required or an opening occurs. With such a system the administration may find the person, with the background and experience needed for an opening, already employed by the institution. If this should be true, the administration may not only save money on salaries but also save time and money that might have been spent looking for a qualified person outside the institution.

The net results of a computerized personnel data system could be a more efficient and effective use of the institution's employees and payroll funds.[5] If the

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[5] University-College Information System-IBM Data

employees know the institution where they are employed maintains an up-to-date personnel data system and a promotion policy similar to the one set out in the preceding paragraphs, they know they will be considered for any openings for which they qualify before the administration would start looking elsewhere. An institution with a workable promotion policy may gain higher employee productivity, willingness of the employee to learn new and different jobs, and self-improvement by the employee on his own time. All of this will lead to improved employee morale and to the encouragement of cross training of employees within a department. Cross training can prove very valuable whenever an employee in a key position takes a vacation, becomes sick, or terminates his employment and an immediate replacement is needed to keep up with the work-load of the department.

Furnishing information to other institutions in a usable form and within a reasonable period of time is also very important. The Western Interstate Commission for Higher Education is trying to develop a uniform system of reporting for higher education which would be based upon a good management information system on some type of automated data processing system.[6]

For these reasons it is important to develop an adequate management information system on an electronic

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Processing Application, p. 9.

[6]Ibid., p. vi (Preface).

computer which should include complete information on all employees.

Delimitations

This study was delimited to the analysis of the extent to which state colleges and universities in Kansas utilize computers in maintaining personnel data on their employees as of February, 1972, and of the need for a management information system on computer to handle personnel data at Kansas State Teachers College of Emporia. A technical knowledge of computers was not necessary for this study and, therefore, the study does not include technical information about computers.

DEFINITIONS OF TERMS USED

Three basic terms in this study that may not be familiar to individuals not knowledgable about computers have been defined, because they are a key to the development of an understanding of any study of computer orientated personnel data systems. The term "Personnel Data System" has not been defined separately since it is a part of a management information system and falls within that definition.

Management Information System (MIS). "A management information system is a management-oriented system characterized by information elements structured into a data

base serving the information requirements of policy and operating management."[7]

Data base. "The data base of the management information system contains elements of information which have been structured to form the workable base of the information system."[8]

Random access storage. "A storage technique in which the time required to obtain information is independent of the location of the information most recently obtained."[9]

METHODS OF PROCEDURES

In searching for material for this study, the writer utilized the school library and found three books that had relevant material. No periodicals could be found that contained material for this study in the school library. The library maintained by the director of the Kansas State Teachers College of Emporia Data Processing Center provided three publications printed by I.B.M. Corporation that were used in parts of this study. The Kansas State Teachers College of Emporia business manager furnished the material from the Western Interstate Commission for Higher Education, a copy of the booklet Administrative Data Processing in

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[7]Norman L. Enger, Putting MIS to Work (American Management Association Inc., 1969), p. 14.

[8]Ibid., p. 40.

[9]Ibid., p. 235.

Higher Education, and budget information on the college payrolls and related material.

After reviewing all of the above related literature, a questionnaire was designed to gather data for this study. The designing and testing of a questionnaire was relatively easy because of the detailed existing structure for personnel data found in the material prepared by the Western Interstate Commission for Higher Education.[10] The questionnaire was used to determine how much of the personnel information recommended by WICHE was actually being maintained on computer by each of the state colleges and universities in Kansas and how certain groups of questions were answered by these institutions.

The questionnaire, which is in the Appendix, was designed so that only a check mark needed to be placed in the column headed "yes" if the information were on computer and a check mark in the "no" column if it were not. They were mailed to the state colleges and universities in Kansas on February 1, 1972, and the last completed questionnaire was returned on February 15, 1972. Six tables were made from the data on the completed questionnaires to indicate in detail what items were on computer at the various state colleges and universities and the response of

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[10]Charles R. Thomas, Data Element Dictionary: Staff pp. 16-33.

these institutions as a group on various segments of the questionnaire.

The method of procedure followed for the second part of the problem, which was to recommend a computerized personnel data system that could be used at Kansas State Teachers College of Emporia, was based upon contact with the present administration's needs at various levels, the needs of sources outside the institution (using WICHE's recommendations as a guide), and an evaluation of what items could be included as a practical matter in such a computerized system.

The resources used for information in the first part of the problem proved to be useful in establishing a proposed computerized personnel data system for higher education. Then came the process of modifying the system to the particular needs of Kansas State Teachers College of Emporia, both internally and externally, and the further modification of determining, for practical reasons, those items that could not be included in the computerized system.

A recommended time table was planned to complete the computerized personnel data system so that it could be accomplished in an organized manner with all interested parties included in the establishment of the system. Much of this material came from the booklet Administrative Data Processing in Higher Education.

Chapter 2 presents those various sources that were used to gain a knowledgable background as to what had been developed in the way of management information systems in higher education prior to February, 1972. Some of these sources were written for commercial or industrial management information systems but proved to be valuable in obtaining an insight into the workings and structure of any good management information system.

The narrower aspect of this study, which deals only with a personnel data system in higher education, did not detract from the value of the related literature which was involved, for the most part, with complete management information systems. The procedures and steps that are needed to establish a computerized personnel data system are basically the same as those needed to establish a complete management information system.

In Chapter 3 the data acquired through the questionnaires completed by the state colleges and universities in Kansas were recorded on various tables. A written commentary on items found to be on all computer systems of these institutions and those not found on any computer systems was included in this chapter. A brief discussion on the remaining items on the questionnaire was also included.

The methods, procedures and data base for a recommended computerized personnel data system for Kansas State Teachers College of Emporia was outlined in Chapter 4.

Chapter 5 summarized all of the material in the four preceding chapters and focused on the problem stated in Chapter 1. After summarization, the original hypothesis was reviewed and certain conclusions were made after considering the results of the data obtained from the questionnaires.

Recommendations were made about expanding the personnel data bases at the state colleges and universities in Kansas to both improve their information service to outside sources as well as the administration of their institutions.

Chapter 2

REVIEW OF RELATED LITERATURE

Prior to the writing of this thesis little had been written about management information systems. Much of the material which was available came from technical information manuals published by computer equipment manufacturers. These manuals were designed for the most part for business rather than education. They were very general in nature and very few of them dealt specifically in the area of a data base for either personnel information or management information systems for higher education.

One of the forerunners in designing a uniform system of reporting for higher education was the United States Office of Education which put together the Higher Education General Information System for institutions of higher learning in reporting the various aspects of their operations.[1] While this type of system does provide an outside source with needed information, it does not solve the problem of the institution's needs or exactly how the institution is to gather and compile the needed data.

At present, the administrator who sees the need and the responsibility for the development of an adequate

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[1]Johnson and Katzenmeyer, op. cit., p. 79.

management information system can find little assistance in published form. Only a modicum of information is available that will enable him to utilize the accumulated experience of others in making decisions relative to the building of a successful system at the lowest cost with the highest return on his investment.[2]

R. L. Martino in his book Information Management covers the subject of management of information in a non-technical manner so that management personnel should be able to read this book and have a fair understanding of the concepts and applications of computerized management information systems as they relate to private industry. An application which he lists in his book is how a computerized information system can work in the area of personnel placement where a skills inventory is maintained for immediate reference whenever needed. As a position opening occurs, a search can be made to see if anyone presently working for the company meets the qualifications for the open position. "The skills inventory is just one of many personnel functions which can be aided by automation."[3] A management information system should have these three attributes: (1) measure the impact of decisions either before or after they are made, (2) measure the environment (because management can neither

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[2]Ibid., p. vi (Preface).

[3]Dr. R. L. Martino, Information Management (MDI Publication: Management Development Institution, 1968), p. 15.

control nor forecast the effect of changing external circumstances), (3) react in an appropriate timeframe so that management can learn of the development of potential trouble areas in time to take appropriate action.[4]

Mr. Martino made an interesting point that must be kept in mind when considering the installation of a computerized information system.

> We must, however, make certain that the information pays for itself. Information is a product and like any product has an expense associated with it. This expense must be out-weighed by the value of the information if we are running our business wisely.[5]

In Putting MIS to work Norman L. Enger reviews the history, design and operating characteristics of computer-based management information systems. He stresses that management must have firm control in the development of management information systems and must state what the objectives of the system are to be.[6]

> Management must create an organization structure for these systems to permit their successful development. A clear line of authority and responsibility must be created from the president to the executives responsible for system development.[7]

When a management information system is being developed it is important that "the definition of information

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[4]Ibid., p. 156.

[5]Ibid., p. 157.

[6]Norman L. Enger, Putting MIS to Work (American Management Association Inc., 1969), p. 216.

[7]Ibid., p. 218.

requirements and relationships should recognize both present and future needs."[8] The establishment of a complete data base is one of the first steps that must be accomplished when setting up a new management information system. Another important matter to consider during the organizational stages of setting up a management information system is the ease with which information in the data base can be added or deleted and the speed with which information in the data base can be retrieved. The information in the data base can be sequential, list, or random access. For retrieval and updating purposes it is best to have random access.[9]

Not only should all imput into the data base be checked and rechecked before it enters the system but an error detection procedure should be established before the system becomes operational. The data base should also be periodically audited to see that the information is correct.[10]

John L. Green, Jr. and Harry C. Grothjohn co-authored a monograph which they entitled Administrative Data Processing in Higher Education. In this publication the authors have listed the general procedures that should be followed by those who are establishing an Administrative Data Processing Center, the recommended steps that should be

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[8]Ibid., p. 47.

[9]Ibid., p. 42.

[10]Ibid., p. 47.

taken to acquire a computer, and the actual operation of such a center.

> If top management feels that an Administrative Data Processing Center might be of value to their institution, one of the first actions which should be taken is the appointment of an Administrative Data Processing Planning/Policy Committee.[11]

The members of this committee should have broad administrative experience in order to define problems and describe benefits to be derived from the system. The committee should also include several individuals who have technical knowledge of computer usage and applications to help keep the committee within the realm of practicalness.[12] The committee will have a difficult assignment, and the administration should make certain that all departments in the institution are prepared to provide information and assistance when needed.[13]

The committee should develop a long-range Information Systems Development Plan for management approval and assume a permanent role as a policy-making group in setting priorities for systems design and development functions.[14]

> The ISD Plan should describe in considerable detail the efforts of the institution to bring new techniques and revised management philosophy with respect to automated information systems. The ISD Plan should be

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[11]Green and Grothjohn, op. cit., p. 4.

[12]Ibid., p. 4.

[13]Ibid., p. 5.

[14]Ibid., p. 6.

> developed and presented in terms of the major subsystems which will initially comprise the overall system to be supported.[15]

A Seminar on Management Information Systems: The State of the Art was held at Duke University, June 24-27, 1969, and the publication Management Information Systems in Higher Education: The State of the Art was put together by Dr. Charles B. Johnson and Dr. William G. Katzenmeyer using the seminar papers for the main part of the book with additional comments by the editors and other commentators.[16] This volume was divided into three parts but for this study only Part I was used since Part II and Part III covered other aspects of management information systems not pertinent to the subject of this work.

> The primary function of Part I is to provide basic information about the approaches to management information systems in the aspects of development, theory, principles, organization, and resource allocation.[17]

A look at almost any institution with a computer data processing center will reveal that the administration will get very little usable management information incidentally as a by-product of computer processing of institutional data. If the administration wants usable management information, the system must be planned specifically for this purpose.[18]

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[15]Ibid., p. 10.

[16]Johnson and Katzenmeyer, op. cit., p. v (Preface).

[17]Ibid., p. vii (Preface). [18]Ibid., p. 30.

> Information needed for a college to function can be divided into three levels--(1) information for management decisions and planning, (2) information for control, and (3) information for operations.[19]

Most colleges and universities have done quite well in utilizing their computer centers to process student records, payrolls, departmental budget controls, etc. (levels 2 and 3), but very few institutions have even begun to utilize this equipment to furnish information for management decisions and planning.[20]

The steps in the development of an information system may be listed as follows:

1. Specification of goals and objectives of the system.
2. Specification of fixed system requirements.
3. Development of the system to fulfill the goals and objectives as efficiently as possible.
4. Compromise as necessary.
5. Test of the system.
6. Revision as necessary.
7. Implementation.
8. Evaluation.
9. Repeat of steps 1-8.

> These are not wholly discrete steps; certainly, there will be overlap between steps. In general, however, tasks should be performed in the order indicated.[21]

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[19]Ibid., p. 30.

[20]Ibid., p. 29.

[21]Ibid., p. 33.

Steps one and two should be performed by management since only they can provide this information. The systems analyst should do step three. The remaining steps should be done jointly by both management and the systems analyst. Many times management has a tendency to slight its responsibilities in steps one and two by saying they do not know anything about information systems so the systems analyst should determine what they need. What usually happens when this situation occurs is the system does not adequately serve the needs of management and the systems analyst is accused of exceeding his authority for systems development.[22]

The Data Element Dictionary: Staff prepared by Charles R. Thomas for the Western Interstate Commission for Higher Education is the second of six sections which will eventually make up the total Data Element Dictionary.[23] This section is broken down into four categories which are demographic data (vital statistics), training and professional data, employment data, and activity data.[24]

The purpose of the Data Element Dictionary: Staff was to make it possible to derive data which would be truly comparable for interinstitutional comparisons but still allow complete institutional autonomy in such matters as

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[22]Ibid., p. 34.

[23]Charles R. Thomas, Data Element Dictionary: Staff (Denver, Colorado: WICHE, 1969), p. 3.

[24]Ibid., p. 8.

coding and file structure. Not all of the elements listed should necessarily be kept in a staff file. For example, several of the elements would have to be stored in historical record files as updated versions of the elements were collected. The method of storage for such historical data would be an institutional prerogative as far as WICHE would be concerned.[25] Several suggestions were made by WICHE on what the institution should consider when coding and setting up a system to handle this information.

> In personnel and payroll management are found the functions which deal with employees, the most valuable resources of the institution, and one that accounts for a large portion of its total expenditures.[26]

Personnel records are made up through the procedure of collecting, recording, and analyzing of facts about employees.[27] A problem always facing personnel offices is keeping informed on the status and progress of each employee.[28] When all information on an employee is maintained within a system, management has quick access to names of people who might fit any specific personnel assignment.[29]

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[25]Ibid., p. 6.

[26]College and University Administrative Applications-IBM, p. 29.

[27]Personnel Records-IBM Data Processing (Accounting) (1955), p. 5.

[28]Ibid., p. 14.

[29]University-College Information System-IBM Data Processing Applications, p. 9.

In summary of the literature presented in this chapter the following items are listed as the main points:

1. If a management information system is being considered, the first step is to establish an Administrative Data Processing Planning/Policy Committee.

2. The committee should develop a long-range Information Systems Development Plan.

3. Management must take and maintain control over the management information system.

4. Future as well as present needs must be considered at all stages of development of an information system.

5. A complete data base must be maintained and constantly updated for any information system.

6. Institutions of higher education in general have done very little in the way of developing their own management information systems to help their administrators handle the many complex problems they face each year even though the answers to these problems may have wide and far reaching affects for years to come.

7. At the present time no device or method has been developed to evaluate the intrinsic value of providing an administrator with all available information on a problem and the probable results of alternate avenues of action available to him under the circumstances. Therefore, the benefits of a management information system cannot always be directly tied

to a reduction in expenditures as can be shown in a control or operational information system.

8. The most valuable resources of an institution of higher education are its employees who account for a large portion of its annual budget. Therefore, in personnel and payroll management are found the functions which deal with employees and should be considered a very important part of a management information system.

Chapter 3

PRESENTATION OF DATA

After reviewing all the material and related literature used in this study and discussing the matter with my advisor, Dr. Lloyd Edwards, the decision was made to prepare a questionnaire based upon the data base recommended by the Western Interstate Commission for Higher Education in its Data Element Dictionary: Staff to gather data for this study. This data base is not to be considered by any means complete but it does contain most of the data that should be maintained on any management information system which is to include personnel data.[1] The questionnaire used to provide the information for this chapter can be found in the appendix.

The questionnaire information furnished by the seven state colleges and universities in Kansas is shown on Table 1 by the total number of items on and off the computer system of each institution as well as the combined average for all institutions. Kansas State University had the most information on its computer system of any of the institutions and Pittsburg State College and Fort Hays State College had the least amount of information. The Kansas University

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[1]Thomas, op. cit., pp. 16-33.

Table 1

Personnel Information Maintained on Computer as Indicated by State Colleges and Universities in Kansas February, 1972

Institution	Items on Computer	Per Cent of Total	Items Not on Computer	Per Cent of Total
Kansas State University	21	66	11	34
Kansas University	18	56	14	44
Kansas State Teachers College	16	50	16	50
Wichita State University	16	50	16	50
K. U. Medical Center	15	47	17	53
Pittsburg State College	11	34	21	66
Fort Hays State College	11	34	21	66
Average	15	47	17	53

Medical Center had the same number of items on their computer system as the overall group average in this area. Five institutions were at or above the overall group average for items on computer and two institutions were below the group average.

Table 2 shows the results of the first thirteen items on the questionnaire which have been grouped under the heading of "Personal Data Questions." The legal name of each employee (Question 1) is maintained on computer at all but two of the institutions. The same is true for Questions 5 and 7 on sex and dependents. All but one institution maintains birth data (Question 3) on all employees. The only unanimous affirmative answers to any questions shown on this table were on Questions 2 and 6 (Social Security Number and Marital Status). There were four questions that brought a negative response from all institutions. These questions were number 4, 8, 11 and 13 (Birth Place, Information on Spouse or Relative, Military Status and Physical Handicap). Of the remaining questions on this table (Questions 9, 10, and 12) the majority of the institutions did not maintain this information (Citizenship Status, Race and Office Address) on computer.

Only four questions from the questionnaire are included on Table 3 under the heading of "Educational Data Questions." Two institutions maintained information on Highest Degree or Diploma (Question 16), one institution maintained information on Undergraduate Education and

Table 2

Personal Data Questions Completed by State Colleges and Universities in Kansas*
February, 1972

Question Numbers	KU Med.	KU	KSU	WSU	Pitt.	Hays	KSTC
1. Legal Name	1	1	1	1	1	2	2
2. Social Security Number	1	1	1	1	1	1	1
3. Birth Date	1	1	1	1	2	1	1
4. Birth Place	2	2	2	2	2	2	2
5. Sex	2	1	1	1	2	1	1
6. Marital Status	1	1	1	1	1	1	1
7. Dependents	1	1	1	1	2	2	1
8. Name, Relationship and address of Spouse or Other Relative	2	2	2	2	2	2	2
9. Citizenship Status	1	1	1	2	2	2	2
10. Race	2	2	2	2	2	2	1
11. Military Status	2	2	2	2	2	2	2
12. Office Address	1	2	1	1	2	1	2
13. Physical Handicap	2	2	2	2	2	2	2

*The number "1" means the item is on computer and the number "2" means the item is not on computer.

Table 3

Educational Data Questions Completed by State Colleges and Universities in Kansas*
February, 1972

Question Numbers	KU Med.	KU	KSU	WSU	Pitt.	Hays	KSTC
14. Undergraduate Education	2	2	1	2	2	2	2
15. Graduate Education	2	2	1	2	2	2	2
16. Highest Degree or Diploma	2	2	1	2	2	2	1
17. Post-Doctoral Education	2	2	2	2	2	2	2

*The number "1" means the item is on computer and the number "2" means the item is not on computer.

Graduate Education (Questions 14 and 15) and none of the institutions maintained information on Post-Doctoral Education (Question 17).

Three questions from the questionnaire make up Table 4 which has a heading of "Professional Data Questions." None of the institutions maintained any of the information set out in these questions (Questions 18, 19 and 20) on Professional Licenses, Certificates and Registrations, Special Competencies and Publication Record.

The remaining questions on the questionnaire are included in Table 5 under the heading "Appointment Data Questions." All institutions maintained information on Account Number, Appointment Percentage, Appointment Salary and Academic Rank (Questions 23, 24, 25 and 27). All but one institution had Appointment Title, Appointment Code and Appointment Period (Questions 21, 22 and 26) on computer. Most of the institutions had Appointment Effective Date and Appointment Type (Questions 30 and 32) on computer but did not have Support Staff Skill Level, Tenure Status and Appointment Expiration Date (Questions 28, 29 and 31) included on their computer system.

Table 6 summarized the information shown on Tables 2 through 5 and indicates an average percentage for all seven state institutions for both those items actually on computer and for those items not on computer. As a group these institutions had most of the Appointment Data for their employees on computer (73 percent). Less than half (47

Table 4

Professional Data Questions Completed by State Colleges and Universities in Kansas*
February, 1972

Question Numbers		KU Med.	KU	KSU	WSU	Pitt.	Hays	KSTC
18.	Professional Licenses, Certificates and Registrations	2	2	2	2	2	2	2
19.	Special Competencies	2	2	2	2	2	2	2
20.	Publication Record	2	2	2	2	2	2	2

*The number "1" means the item is on computer and the number "2" means the item is not on computer.

Table 5

Appointment Data Questions Completed by State Colleges and Universities in Kansas*
February, 1972

Question Numbers	KU Med.	KU	KSU	WSU	Pitt.	Hays	KSTC
21. Appointment Title	1	1	1	1	1	2	1
22. Appointment Code	1	1	1	1	1	2	1
23. Account Number	1	1	1	1	1	1	1
24. Appointment Percentage	1	1	1	1	1	1	1
25. Appointment Salary	1	1	1	1	1	1	1
26. Appointment Period	2	1	1	1	1	1	1
27. Academic Rank	1	1	1	1	1	1	1
28. Support Staff Skill Level	2	2	2	1	2	2	1
29. Tenure Status	2	1	1	2	2	2	2
30. Appointment Effective Date	1	1	1	1	2	1	2
31. Appointment Expiration Date	2	1	2	2	2	2	2
32. Appointment Type	1	1	1	2	1	2	1

*The number "1" means the item is on computer and the number "2" means the item is not on computer.

Table 6

Grouping of Information Furnished by State Colleges and Universities in Kansas February, 1972

Groupings	Average % of Items on Computer	Average % of Items Not on Computer
Personal Data*	47	53
Educational Data**	14	86
Professional Data***	0	100
Appointment Data****	73	27

*For details see Table 2

**For details see Table 3

***For details see Table 4

****For details see Table 5

percent) of the Personal Data on their employees was maintained on computer. In the area of Educational Data only 14 percent of the items was on computer and for Professional Data there was zero percent on computer.

The data obtained from the questionnaire indicates that the state colleges and universities in Kansas had done very little in the way of developing a good data base for a computerized personnel data system at their institutions. Most of the data presently on computer at these institutions was of the type needed for payroll processing purposes and related areas. Relatively little information was maintained in the areas of educational and professional data by these institutions.

Chapter 4

COMPUTERIZED PERSONNEL DATA SYSTEMS

The development of a computerized personnel data system, which was the second part of this study, was based mainly on information obtained from the related literature set out in Chapter 2. The actual items to be included in the data base for the system came from the questionnaire used for this study, and suggestions from Dr. Stanley J. Laughlin, Director of Institutional Studies at Kansas State Teachers College, and Dr. M. Lloyd Edwards, Director of the Kansas State Teachers College Data Processing Center and Bureau of Measurements.

Careful planning must be done before starting to put together a complete management information system or even a segment, such as one that would handle personnel data. This planning should be done through an Administrative Data Processing Planning/Policy Committee which should be a permanent Committee composed of experienced administrators and those with experience and knowledge of the workings of computer systems. This committee should develop a long-range Information Systems Development Plan and see that steps are taken to implement the plan as developed. Future as well as present needs must be considered at all stages of development of the information system and revisions made where necessary.

Management, working through the committee, must take and maintain control of the management information system if it is to really become a management tool. There are certain areas where no one but management should have the final authority, such as determining the goals and objectives of the system and the information that must be a part of the system. The systems analyst should be given the responsibility to develop as efficiently as possible the system to fulfill these goals and objectives.

Compromise is a very important element in developing a management information system. For example, management may want a certain piece of information included in the system but the systems analyst believes that the inclusion of the information would be costly to secure and maintain and would not be really vital to the system. If the data is not one of the "must" pieces of information, management may agree that it need not be included.

RECOMMENDED SYSTEM

The data base for the computerized personnel data system for Kansas State Teachers College of Emporia should include but not necessarily be limited to the following:

1. Legal name of employee
2. Social Security Number
3. TIAA or CREF Number
4. Birth Date
5. Birth Place (City, County, State and Country)

6. Sex of employee
7. Current Marital Status
8. Number of dependents
9. Number of dependents claimed on pay records
10. Spouse or other relative to contact in the case of emergency (Name, relationship, telephone number and address)
11. Citizenship Status (Non U.S. should show visa type)
12. Race
13. Military Status
14. Department or departments where employed
15. Physical Handicaps
16. Civil Service salary range table
17. Work experience qualification
18. Undergraduate Education
19. Graduate Education
20. Highest Degree or Diploma
21. Post-Doctoral Education
22. Professional Licenses, Certificates and Registrations
23. Special Competencies (See Item 19 on questionnaire)
24. Publication Record
25. Appointment Title
26. Appointment Code
27. Account or fund numbers for charging salary on payroll
28. Percentage break down of payroll by position as to instruction, research, public service, etc.

29. Appointment Percentage

30. Percentage of full-time teaching equivalent (FTE)

31. Appointment Salary

32. Appointment Period

33. Academic Rank

34. Support Staff Skill Level (See Item 28 on questionnaire)

35. Date for figuring years of service

36. Date Appointed to present position

37. Tenure or Civil Service Status

38. Effective Date for Current Appointment

39. Expiration Date for Current Appointment

40. Type of Current Appointment

41. Payroll Code Number

42. Retirement Code and Date

43. Tax Sheltered Code

44. Group Health Insurance Code

45. Unemployment Compensation Code

46. Termination Code and Date

47. Individual TIAA and CREF contribution balances to previous December 31.

A survey should be made to determine where information needed for the data base is located in the various college offices and what additional information must be obtained from either the employees of the college or other sources to complete the data base. A form should be prepared that would be used by all persons who have information

to put into the data base. All such forms should be sent to one central clearing point for processing and forwarding to the data processing center. This same form or a similar form could be used to update the data base with current information again clearing all such forms through one selected office.

All data going into the data base should be checked and rechecked before it enters the system and some type of error detection procedure should be established before the system becomes operational. A periodic audit of the data base should be made to see that the information is correct. The information in the data base should be random access, which is the fastest method to retrieve from or to update information already in the system.

From the foregoing data base there could be extracted by proper computer programming some of the following:

1. Information to prepare personnel transaction forms on the computer for any changes affecting the records maintained by the State Personnel Division.

2. Group listings of the tenure or civil service status of all employees.

3. A listing of those employees presently employed who have a specific talent, background or experience for which the college is looking to take care of a need in its operation.

4. A listing in order of years of service for checking longevity pay increases, special awards or other similar reasons.

5. Various statistical reports that may be required by the government under such programs as Affirmative Action, Unemployment Compensation, Fair Labor Standards Act, and other state and federal programs.

6. Statistical information for sources both inside and outside the institution other than the government.

An Administrative Data Processing Planning/Policy Committee should be created at Kansas State Teachers College of Emporia. This committee should consist of the Vice President, the Deans, the Business Manager, the Director of the Data Processing Center, the Director of Institutional Studies, the Personnel Officer, systems analysts and computer programmers. Periodic progress reports should be submitted to the President of the college by the committee, and all final decisions should be cleared by the President or his authorized representative. This committee should be organized by November 1, 1972, and should be considered a permanent committee to handle ongoing problems that may occur once the tremendous task, which in itself may take several years, of establishing a workable management information system has been completed.

The committee should establish long-range goals for presentation to the President of the college for his approval, and during all phases of the development of the management

information system, the committee should strive to recognize both present and future needs of the administration. They should follow the steps outlined on pages 19 and 20 of this work as they go about actually setting up the system. Such a system should measure the impact of decisions either before or after they are made, measure the environment, and react in an appropriate timeframe so that the college can learn of the development of potential trouble areas in time to take appropriate action.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to (1) determine the extent to which personnel data of employees of state colleges and universities in Kansas was being maintained on computer and (2) to develop a recommended computerized personnel data system that could be used at Kansas State Teachers College of Emporia.

SUMMARY

The information needed for the first part of this study was obtained through a completed questionnaire furnished by each of the seven state colleges and universities in Kansas. The questionnaire form can be found in the appendix.

Of the thirty-two items on the questionnaire the seven state institutions on the average had less than half of these items on their computer systems. Kansas State University had the most items on computer (21) and Fort Hays State College and Pittsburg State College had the least (11).

The items on the questionnaire were put into four groups under the arbitrary headings of Personal Data, Educational Data, Professional Data, and Appointment Data. Of these four groups, the one which rated the highest as to

percentage of items on computer was Appointment Data with 73 percent, next was Personal Data with 47 percent, then Educational Data with 14 percent, and last was Professional Data with zero percent.

The sources for the second part of this study came from the various books and publications listed in the bibliography, Dr. M. Lloyd Edwards, Director of the Kansas State Teachers College of Emporia Data Processing Center and Bureau of Measurements, and Dr. Stanley J. Laughlin, Director of Institutional Studies at Kansas State Teachers College of Emporia.

CONCLUSIONS

The hypothesis in Chapter 1 that "No personnel data of employees of the state colleges and universities in Kansas is presently maintained on computer," was not substantiated by the data obtained on the questionnaires used for this study and is therefore rejected. The information found on computers at most of these institutions was that which would normally be either entirely for payroll processing purposes or for processing payrolls and a few related areas.

Based upon the related material reviewed for this study there was a definite need for a computerized personnel data system at Kansas State Teachers College of Emporia which should be planned by the college administration as part of a complete management information system. A great deal of

preliminary work must be done in a highly organized manner by some very knowledgable people who should make up the Administrative Data Processing Planning/Policy Committee or a committee with some similar title. The administration working through the committee must maintain control of the system if in the end it is to truly serve the needs of the administration.

RECOMMENDATIONS

The state colleges and universities in Kansas should expand their computer personnel data base system to include as much as is possible of the basic personnel data recommended by the Western Interstate Commission for Higher Education in their Data Element Dictionary: Staff as well as other data needed for other outside sources. Thus, they would be in a position to provide required data to many sources outside of their institutions in a timely manner once the proper computer programs had been developed to retrieve the information.

In addition to expanding their computer personnel data base systems to provide information to outside sources, these institutions should develop additional data to provide their respective administrators with the necessary information about their employees to assist the administration in making intelligent decisions in the utilization of all personnel. Again this would call for computer programs to be developed to accomplish the desired results of making good

decisions based upon up-to-date information in the data base. The ability to quickly and accurately retrieve useful information from a complete and current data base is the ultimate goal of any good M.I.S.

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APPENDIX

LETTER

February 2, 1972

Enclosed is a questionnaire that I would appreciate your completing and returning to me in the stamped self-addressed envelope at your earliest convenience. I need this information to complete the work on my Master's Thesis which I must have completed and in final form by the latter part of March if I am to get my degree in May 1972.

Your cooperation in furnishing me this information will be greatly appreciated.

Sincerely

Donald L. Cravens

QUESTIONNAIRE

Indicate whether or not your institution has the following items of information on computer for the employees of your institution.

ITEM	DESCRIPTION	YES	NO
1. Name	Legal name of the staff members		
2. Social Security Number			
3. Birth Date	Month, Day and Year of Birth		
4. Birth Place	City, County and State (country) of Birth		
5. Sex			
6. Marital Status	Current Marital Status a) single b) married		
7. Dependents	Number of dependents including spouse		
8. Spouse or Other Relative	Name, relationship and address		
9. Citizenship Status	If non - U.S. - citizen visa type should be coded		

ITEM	DESCRIPTION	YES	NO
10. Race	Racial origin of staff member		
11. Military Status	Current Military Status of the staff member: a) Non-veteran b) Active Reserve or National guard c) In-active Reserve d) Discharge Veteran e) Retired		
12. Office Address	Record of the current office address to include a) Campus Code b) Building Code c) Building Name d) Room Number e) Campus telephone number		
13. Physical Handicap	Requires special access arrangements to building such as: confined to wheel chair		
14. Undergraduate Education	A series of elements to record the staff members undergraduate institutions and degrees or certificates: a) Institution (F.I.C.E. Code) b) Undergraduate degree (certificate, BA, BS, etc.) c) Degree Date (month and year) d) Major Field (HEGIS Discipline division and Discipline specialty)		

ITEM	DESCRIPTION	YES	NO
15. Graduate Education	A series of elements to record the staff members graduate institutions and degrees: a) Institution (F.I.C.E. Code) b) Graduate Degree (MA, MS, PHD, etc.) c) Degree Date (month and year) d) Major Field (HEGIS Discipline division and Discipline specialty)		
16. Highest Degree or Diploma	A code to indicate the highest degree, certificate or diploma held by the staff member: a) No academic credential b) High School Diploma or GED c) Trade or Craft Certificate d) Professional Certificate e) Associate Degree f) Bachelor's Degree g) Master's Degree h) Professional Degree i) Doctorate		
17. Post-Doctoral Education	A series of elements to record Post-Doctoral education to include: a) Institution (F.I.C.E. Code) b) Major Field (HEGIS Discipline division and Discipline specialty) c) Beginning and ending dates)		

ITEM	DESCRIPTION	YES	NO
18. Professional Licenses, Certificates and Registrations	A series of Alpha descriptors of specific credentials entitling the staff members to engage in specific professional practices (MD, Legal Bar, CPA, etc.)		
19. Special Competencies	A series of descriptors to identify special interest, competencies, and experiences such as: a) Foreign Country experiences (name of country) b) Foreign Language competency c) Significant Positions in: 1. Federal Government 2. State Government 3. Private Business 4. Military d) Significant Performing or creative skills (theater, music, art, athletics)		
20. Publication Record	A summary of the quantity of publications reaching publics outside the institution: a) Papers presented b) Monographs c) Major articles d) Books e) Inventions		

ITEM	DESCRIPTION	YES	NO
21. Appointment Title	Descriptive Title of a Position or Appointment		
22. Appointment Code	A code to describe the category of position other than ranks i.e. a civil service position code		
23. Account Number	The institutional account number to which the salary for this appointment is charged		
24. Appointment Percentage	Fraction of Full Time Equivalent (FTE)		
25. Appointment Salary	Amount of Salary associated with this appointment		
26. Appointment Period	Identification of the terms of Appointment a) Full year (11-12 months) b) Academic year (9-10 months) c) Summer Session (2-3 months) d) Irregular		
27. Academic Rank	Faculty Rank Categories for: a) Teaching or Research Assistant b) Teaching or Research Associate c) Lecturer d) Instructor e) Assistant Professor f) Associate Professor g) Professor		

ITEM	DESCRIPTION	YES	NO
28. Support Staff Skill Level	Support Staff Skill level categorized into: a) Service, custodial and unskilled b) Skilled mechanical and technical c) Clerical d) Professional and Technical e) Administrative and Executive		
29. Tenure Status	Tenure Code to indicate: a) Tenured b) Probationary c) Non-tenure position		
30. Appointment Effective Date	Date (month, day and year) this appointment begins		
31. Appointment Expiration Date	Date (month, day and year) this appointment ends		
32. Appointment Type	Identification of the status or type of this appointment a) Regular b) Temporary c) Visiting d) Emeritus e) Post Doctoral		

Date

Signature and Title

Name of Institution