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Huang Liang-Chen

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A STUDY OF THE CURRENT STATUS OF ELECTRONIC DATA
PROCESSING IN TAIWAN, REPUBLIC OF CHINA

A Problem Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the
Degree of Master of Science

By
Huang Liang-Chen

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KANSAS STATE COLLEGE OF PITTSBURG
Pittsburg, Kansas
May, 1974

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CHAPTER I

INTRODUCTION

In the short span of the decade from 1950 to 1960 the application of the electronic computer has become a dominating force in the working operation. Automation came first to the factory, then to the office and finally to the rank and file of management. The influence of automation reaches everywhere, from day labor to executives, from production to sales, and from one department to the entire social and economic system. Automation is influencing economic policies, patterns of industrial organization, and work cooperation.¹

Since Taiwan was an underdeveloped country, there was no institution that adopted the electronic computer as a data processing instrument before the year 1964. But because of the fast rate of economic growth, the Gross National Product has increased 384 percent from 1952 to 1971.²

¹Keith Davis, "Understanding Automation," Human Relations at Work, third edition, 1967, pp. 462-463.

²China Yearbook, 1972-1973 (Taipei, Taiwan: China Publishing Company, 1973), p. 203.

With the fast rate of economic growth, it was necessary to adapt the electronic computer to the business world. Government offices, educational institutions, factories, and offices use the electronic computer regularly. From 1964 to 1973, there were 46 institutions in Taiwan which had installed 49 pieces of electronic computer equipment.³

Statement of the Problem

The purpose of this investigation was to delineate the current status of electronic data processing in Taiwan, Republic of China.

Purposes of the Study

The purposes of the study were:

(1) to present the information concerning the status of electronic data processing development **in** Taiwan from the year 1964 to the year 1973;

(2) to determine what types of institutions utilize the various kinds of data processing equipment and the type of work completed on the equipment;

(3) to determine the educational background of the employee and the job title given these employees **in** such institutions; and

³These data were obtained from the Data Processing Center of the Directorate General of Budget, Accounts, and Statistics, the Executive Yuan in Taiwan.

(4) to formulate recommendations which would assist the governmental officers, the educators, and the institutional administrators in making decisions regarding the future plan for electronic data processing development.

Need for the Study

The development of data processing has been highly regarded by the general public. However, there are still drawbacks involved in the methods of implementation. Generally speaking, public attention is focused only on the installation of equipment and the training of programmers. The training of system analysts and the study of application techniques have been ignored, so that, in spite of the installation of a great number of machines, few new applications have been developed.

The recommendations of this study should prove to be valuable to related government officials, the educators, and the institutional administrators in order to improve their present situation and the future development of business and industry.

Delimitations of the Study

The study is limited to data obtained from the 46 institutions in Taiwan which have electronic data processing equipment. The data of the names and addresses of these

institutions were obtained from the Data Processing Center of the Directorate General of Budget, Accounts, and Statistics, the Executive Yuan in Taiwan.

The investigation was also limited to the information included on the Questionnaire which can be found in Appendix B.

Definition of Terms

1. E.D.P. (Electronic Data Processing)--"data processing through electronic machines with no moving parts, as distinguished from data processing which uses machines with moving parts (as in punched card equipment)."⁴

2. Computer--"Device capable of accepting information, applying prescribed processes to the information, and supplying the results of these processes; it usually consists of input and output devices coupled to the storage, arithmetic, logical, and control elements of the central processing.⁵

3. Memory--"Device in which data can be stored and from which it can be obtained at a later time. The means of storing data may be chemical, electrical, or mechanical."⁶

⁴Harold Sackman, Computer, Systems Science, and Evolving Society (New York: John Wiley & Sons, Inc., 1967), p. 605.

⁵ibid.

⁶ibid.

Related Research

The survey method was used in the computer study by Edward James Laurie.⁷ Two questionnaires were mailed to 161 business firms and two college **firms**. Case studies, visitations, and library research were also utilized. He found that (1) manufacturing firms were the heaviest users of computers; (2) most of the data processing personnel were trained by first using electronic data processing equipment or the equipment manufacturer (3) programmer, computer operator, **and** peripheral equipment operator were the most frequently used job titles (4) payroll and inventory were the two most common uses of the computer in business; (5) of **the** colleges involved in the study, 46 percent offered general courses and 43 percent offered detailed courses; (6) eighty-eight percent of the **colleges** were not teaching undergraduate courses or offering a graduate major; and (7) college and business respondents agreed that knowledge for personnel should include computer coding, computer logic, and programming.

In Elizabeth Tarpey's study,⁸ questionnaires were sent to 100 colleges and universities of various sizes

⁷Edward James Laurie, "Application of Domestic Digital Computing Systems in Business and Schools of Business in the United States" (unpublished Doctoral dissertation, University of California, Los Angeles, 1959), p. 440.

⁸Elizabeth Tarpey, "Data Processing Training in Selected NABTE Institutions" (unpublished dissertation, Southern Illinois University, 1967), p. 62.

within the continental United States which were members of NABTE. There was a return of 81 percent. She found that (1) of the respondents, 79.4 percent offered data processing instruction; (2) of the faculty, 81.54 percent were full time; (3) there were 21 kinds of computers available and fifteen were made by the IBM Corporation; (4) the most frequently appearing kind was the 1620; (5) in 34 percent of the institutions, the business department was responsible for the equipment, in 26 percent there was central control, and in 21.9 percent the administration controlled the equipment; and (6) courses were offered to business teachers usually on an elective basis and showed little continuity.

Method of Procedure

The normative survey method was utilized with the questionnaire as the technique. The questionnaire and cover letter explaining the purpose of the study were sent to forty-six data processing institutions in Taiwan. Of the forty-six institutions contacted, there were twenty-seven respondents.

For the purpose of presenting complete information concerning the status of electronic data processing development in Taiwan, the nineteen non-responding institutions were surveyed by relatives of the researcher using telephone interviews. General data concerning (1) when they began to use electronic data processing equipment, (2) the type

of computer utilized, and (3) the type of institution were gathered.

After the questionnaires were received by the researcher, they were tabulated and analyzed along with the data obtained from the telephone interviews with the non-responding institutions by relatives of the researcher.

CHAPTER II

INTERPRETATION OF DATA

The information that is contained in this chapter was obtained from the twenty-seven completed questionnaires sent to forty-six institutions which have electronic data processing equipment in Taiwan, Republic of China.

For the purpose of presenting complete information concerning the status of electronic data processing development in Taiwan, the nineteen non-responding institutions were surveyed by relatives of the researcher using telephone interviews. General data concerning (1) when they began to use electronic data processing equipment, (2) the type of computer utilized, and (3) the type of institution were gathered.

The purpose of this chapter was to analyze and interpret the data obtained and to present it in narrative and tabular format.

When Taiwan's Institutions Started the Installation of EDP Equipment

The difference between the number of institutions in Table I and the number of installations in Table II is due to the fact that there were three institutions who had two data processing installations each.

YEAR DATA PROCESSING EQUIPMENT FIRST
USED IN THE RESPONDING INSTITUTIONS
IN TAIWAN

Year Started	Number of Institutions	Percent of Total
Before 1964		
1964	2	4
1965	2	4
1966	1	2
1967	7	15
1968	6	13
1969	6	13
1970	9	20
1971	3	7
1972	6	13
1973	4	9
Total	46	100

Data presented in Table I indicate that from 1964 to 1973, forty-six institutions utilized electronic data processing installations. The period between 1964 and 1966 produced only five (10 percent) institutions which were using EDP installations. There were seven (15 percent)

institutions in 1967 and nine (20 percent) institutions in 1970 who first used EDP installations.

TABLE II

THE NUMBER OF DATA PROCESSING INSTALLATIONS
USED IN RESPONDING INSTITUTIONS
IN TAIWAN

<u>Year Started</u>	Number of Computers	Percent of Total
Before 1964		
1964	2	4
1965	2	4
1966	1	2
1967	7	15
1968	6	12
1969	6	12
1970	9	18
1971	4	8
1972	7	15
1973	5	10
Total	49	100

Data in Table show that from 1964 to 1973, forty-nine installations were used by Taiwan institutions. Seven installations were used for the first time by institutions

in 1967 and in 1972. Since nine installations were put into operation in 1970, this year had the greatest proportion of total installations for anyone year.

The Various Types of Computers
-- Used In Taiwan

As shown in Table III, there were fifteen models of computers available in the responding institutions. The predominant make of computer was IBM (International Business Machines). There were eleven (23 percent) installations of the IBM model 1130 used in the responding institutions. Three (6 percent) installations were of the newest IBM model--370/135. Table III is shown on page 12.

Types of Data Processing
Institutions in Taiwan

The data disclosed, in Table IV, that of the forty-six responding institutions in Taiwan offering data processing instruction, 66 percent were public and 34 percent were private. Concerning the characteristics of the institutions, 34 percent were educational institutions (public, 17 percent; private, 17 percent), 20 percent were governmental enterprises, 17 percent were private enterprises, 15 percent were administrative institutions, and 14 percent were military institutions. It was found that the educational institutions in Taiwan were the largest users of electronic data processing installations. (See Table IV, p. 13.)

TABLE III

MAKES AND/OR MODELS OF COMPUTERS
UTILIZED IN RESPONDING
INSTITUTIONS IN
TAIWAN

Makes of Computers	Number of Each Make	Percent of Total
IBM 1620	1	2
IBM 1130	11	23
IBM 360/20	4	8
IBM 360/25	4	8
IBM 360/30	3	6
IBM 360/40	3	6
IBM 370/135	3	6
CDC 3150	6	13
CDC 3300	2	4
CDC Cyber 72	1	2
NCR Century-100	4	8
UNIAC 1004	1	2
UNIAC 9400	4	8
NEAC 2200-200	1	2
FACOM 230-10	1	2
Total	49	100

TABLE IV

THE TYPES OF DATA PROCESSING INSTITUTIONS
IN TAIWAN AMONG THOSE RESPONDING
TO THE QUESTIONNAIRE

Type of Institutions	Number of Institutions		Percent of Total	
Public:				
Administrative Institution	7		15	
Military Institution	6		14	
Governmental Enterprise	9		20	
Educational Institution	8	30	17	66
Private:				
Enterprise	8		17	
Educational Institution	8	16	17	<u>34</u>
Total	46		100	

Price of the Data Processing
Installation in Taiwan

According to data in Table V, eighteen (67 percent) of the responding institutions rent the data processing installation, while nine (33 percent) of the institutions buy the installation.

TABLE V

NUMBER OF RESPONDING INSTITUTIONS WHO
BUY OR RENT DATA PROCESSING
INSTALLATIONS IN TAIWAN

Buy or Rent Computer	Number of Institutions	Percent of Total
Buy	9	33
Rent	18	67
Total	27	100

An analysis of responses in Table VI shows that the average purchase price of data processing equipment paid by the institutions was NT\$8,914,480 (US\$222,862). The total purchase price of data processing installations in five educational institutions was NT\$17,595,325 (US\$439,883). The EDP installation purchase price of one military institution was NT\$49,104,45 (US\$122,761). The great difference in purchase price between these two institutions was due to the fact that all makes and models of five educational institutions were IBM 1130 (the memory capacity in each installation was only 8K 16-bit words), while the only model of machine used in military institutions was CDC Cyber 72 (its memory capacity is 64K 24-bit words).¹

¹IFu-Chow Wang, The Development of Computers in Taiwan (Taipei, Taiwan, Chinese society of Electronic Data Processing, 1972), pp. 3-4.

TABLE VI

THE PURCHASE PRICE OF DATA PROCESSING
EQUIPMENT IN RESPONDING
INSTITUTIONS IN TAIWAN
(UNIT: NT DOLLAR)

Type of Institution	Number of Institutions	Amount
Administrative Institutions	1	\$5,100,720
Enterprises	2	8,429,822
Educational Institutions	5	17,595,325
Military Institutions	1	49,104,455
Total	9	\$80,230,322
Average Purchase Amount		\$8,914,480

From the data presented in Table VII, the average amount of rent paid for the installations, per year, in the various institutions was NT\$4,764,493 (US\$119,112). The total amount of rent for data processing in seven responding enterprises was NT\$41,990,472 (US\$1,049,761). The total amount of rent in five responding military institutions was NT\$20,016,411 (US\$500,411).

TABLE VII

AMOUNT OF RENT FOR DATA PROCESSING INSTALLATIONS
IN RESPONDING INSTITUTIONS
(UNIT: NT DOLLAR)

Type of Institution	Number of Institutions	Amount (Per Year)
Administrative Institutions	3	\$17,664,804
Enterprises	7	41,990,472
Educational Institutions	3	6,089,124
Military Institutions	5	20,016,476
Total	18	\$85,760,876
Average Rent Per Year		\$4,764,593

The Number of Working Hours of the
Data Processing Installations

Table VIII denotes the number of working hours per month utilized for data processing on equipment in the twenty-seven institutions that responded to this question. There were eight (30 percent) institutions who utilized the data processing equipment from 201 to 300 working hours per month. Eight (30 percent) of the institutions utilized the equipment between 101 and 200 working hours. Four (15 percent) of the institutions utilized the equipment between 401 and 500 working hours. Both ~~the~~ working hours over 600

and under 100 hours were in two (7 percent) of the institutions, respectively.

TABLE VIII

THE AVERAGE NUMBER OF WORKING HOURS PER MONTH
UTILIZED FOR DATA PROCESSING ON
INSTALLATIONS IN RESPONDING
INSTITUTIONS

Number of hours	Number of Institutions	Percent of Total
Over 600 hours	2	7
501 to 600 hours	1	4
401 to 500 hours	4	15
301 to 400 hours	2	7
201 to 300 hours	8	30
101 to 200 hours	8	30
Under 100 hours	2	7
Total	27	100

Purpose of Use of Data Processing
- Installations

Data reported in Table IX show that nine (33 percent) of the responding institutions used the installations for general office administrative purposes or for training purposes. Six (23 percent) of the institutions used the installations for industrial purposes. Three (11 percent)

of the institutions used the installation for research purposes.

TABLE IX

PURPOSES FOR WHICH DATA PROCESSING INSTALLATIONS
WERE USED IN RESPONDING INSTITUTIONS

Purposes of Data Processing Installation	Number of Institutions	Percent of Total
General Office Administration	9	33
Industry	6	23
Training	9	33
Research	3	11
Total	27	100

The Educational Background of Employees
in the Institutions of Taiwan Having
- Data Processing Equipment

The twenty-seven responding institutions employed 1,564 people according to the data in Table X. The average number of employees in each institution was fifty-eight. There were 864 (55 percent) male employees and 702 (45 percent) female employees working in the data processing centers of the responding institutions.

An analysis of Table XI reveals that of the 1,564 total employees, 986 (63 percent) of them held a bachelor's degree,

TABLE X

NUMBER OF EMPLOYEES IN RESPONDING INSTITUTIONS
HAVING DATA PROCESSING EQUIPMENT

Sex	Total Number of Employees	Percent of Total	Average Number of Employees
Male	864	55	32
Female	702	45	26
Total	1,564	100	58

TABLE XI

EDUCATIONAL LEVEL OF EMPLOYEES IN INSTITUTIONS
WHO RESPONDED AS HAVING DATA
PROCESSING EQUIPMENT

Educational Level	Number of Employees	Percent of Total
Doctorate Degree	6	0.4
Master's Degree	152	9.6
Bachelor's Degree	986	63.0
Graduate of High School	420	27.0
Total	1,564	100.0

152 (9.6 percent) employees held the master's degree, and six (0.4 percent) employees held a doctorate degree. Four hundred twenty (27 percent) of the employees had only a high school education.

A majority of the employees received their educational training within **Taiwan**, as shown by the data in Table XII. There were 1,117 (78 percent) of the employees who received their training within Taiwan, while 347 (22 percent) of the employees received training outside of Taiwan.

TABLE XII

THE SOURCE OF EMPLOYEE TRAINING IN THE
RESPONDENT INSTITUTIONS HAVING
DATA PROCESSING

Where trained	Number of Employees	Percent of Total
Within Taiwan	1,117	78
Outside Taiwan	347	22
Total	1,564	100

Time Spent in Present Positions by Employees
of Respondent Institutions Having
Data Processing Equipment

The data in Table XIII show that the data processing employees of responding institutions have held their present positions for a various numbers of years. However, 673 (43 percent) of the employees have held their present positions for one year or less. Three hundred seventy-five (24 percent) of the employees have held their present positions for two years, 250 (16 percent) of the employees for three

years, and 109 (7 percent) of the employees for over five years. Ninety-four (6 percent) of the employees have held their present positions for four years, while sixty-three (4 percent) have been employed for five years.

TABLE XIII

NUMBER OF YEARS DATA PROCESSING EMPLOYEES
HAVE WORKED IN PRESENT POSITIONS
IN RESPONDING INSTITUTIONS

Years in Present Position	Number of Employees	Percent of Total
One	673	43
Two	375	24
Three	250	16
Four	94	6
Five	63	4
Over five	109	7
Total	1,564	100

Job Titles in Respondent Institutions
---Using Data Processing Equipment

The data reported in Table XIV show that there were seven different job titles for data processing employees in the responding institutions. Of these seven different job titles, 386 (24 percent) of the employees had a "programmer" title, 321 (21 percent) of the employees had a "computer

operator" title, and 293 (18 percent) of the employees had a "peripheral equipment operator" title. Two hundred and two (13 percent) of the employees had the job title of "data console operator," and 151 (10 percent) of the employees had an "assistant electronics specialist" title. So programmer, computer operator, and peripheral equipment operator were the most frequently used job titles.

TABLE XIV

JOB TITLES OF DATA PROCESSING EMPLOYEES
IN RESPONDING INSTITUTIONS

Job Title	Number of Employees	Percent of Total
Programmer	386	24
Computer operator	321	21
Peripheral equipment operator	293	18
Systems analyst	121	8
Data console operator	202	13
Electronics specialist	90	6
Assistant electronics specialist	151	10

CHAPTER III

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was made to delineate the current status of electronic data processing in Taiwan, Republic of China. The study was conducted (1) to present the information concerning the status of electronic data processing development in Taiwan from 1964 to 1973, (2) to determine the various kinds of data processing equipment and the type of work completed on the equipment, (3) to determine the educational background of the employees and the job titles given these employees in such institutions, and (4) to formulate recommendations which would assist the governmental offices, the educators, and the institutional administrators in making decisions regarding the future plans for electronic data processing development in Taiwan.

The method of collecting data for the study was the normative-survey method of research. The questionnaires and cover letter explaining the purposes of the study were sent to forty-six data processing centers in Taiwan. For the purpose of presenting the complete information concerning the status of electronic data processing, "telephone interviews" were conducted with nineteen noo-

responding institutions by relatives of the researcher who live in Taiwan.

After the questionnaires were received by the researcher, they were tabulated and analyzed along with the data obtained from the telephone interviews with the non-responding institutions by relatives of the researcher. The assembled data represents the results of the questionnaires and telephone interviews.

Conclusions

Data processing installation was first introduced in Taiwan in 1964. From 1964 to 1973, forty-six institutions utilized forty-nine electronic data processing installations. The difference between the number of institutions and number of installations results from three institutions who had two data processing installations each in their centers. Ninety percent of the forty-six institutions used ninety percent of the total installations between the years of 1967 and 1973.

There were fifteen models of data processing equipment available in Taiwan. The predominant make of installation used in the data processing centers in Taiwan was the IBM (International Business Machines). The most frequently appearing model was the IBM 1130. The newest model, however, was the IBM 370/135.

Sixty-six percent of the data processing centers were in public institutions and 34 percent were in private institutions. Educational institutions were the largest users of electronic data processing equipment.

Of the twenty-seven responding institutions, 67 percent rented the installations, and 33 percent bought the installations. The average purchase price of the installations was NT8,914,480 (US\$222,862), and the average **amount** paid for renting the installation per year was NT\$4,764,493 (US\$119,112). Purchasing installations were more economical than renting in some centers because the **amount** paid for renting equipment for two years was greater than the purchasing price.

The working hours used for the data processing per month was found to be under 300 hours, for the centers which responded to the questionnaire. Only 11 percent of the reporting institutions used the installation over 500 hours per month. In most of the institutions, the installations were not utilized to their fullest extent.

The installations were used most for general office administrative purposes and for training purposes. One third of the responding institutions used the **equipment** for these purposes.

The average number of employees in each institution who used data processing equipment was fifty-eight persons. Seventy-three percent of the employees held at least a

bachelor's degree, while only 27 percent of the employees had just a high school education. Most of the employees received their job training in Taiwan.

A majority (83 percent) of the employees have been in their present positions for three years or less. This reflected that the job flow rate in Taiwan data processing centers was very high.

Seven different job titles were given data processing employees in the responding institutions. Of these seven different job titles, programmer, computer operator, and peripheral equipment operator were the most frequently used job titles.

Recommendations

1. Training Computer Specialists and Establishing Software Services

(1) To train well-qualified computer personnel, the government should set up research departments in the large-scale computer installations of government agencies and hold one to three-month seminars, at regular intervals, on systems analysis and design, to which young staff members and more experienced programmers would be invited. Thus, middle-level staff in various organizations would acquire knowledge of systems analysis, and experience in computer operation. After a period of time, talented people would surely emerge and become specialized systems analysts.

(2) At the same time, college and university computer departments should be set up for practical computer technical training on a long-range basis.

(3) Along with the development of computer applications, the government should plan to develop a software industry and to set up regulations governing the screening of professional systems analysts for the purpose of maintaining a high technical level among computer specialists.

2. Encouragement for Joint Use of Data Communications Systems --- -- ----

Because the price of data processing installations is very high and the working hours of the equipment in educational institutions and research centers are very low, it is recommended that the government should initiate significant policies for the development of computer applications by establishing data communication systems and encouraging the joint use of computers by several enterprises for the purpose of fully utilizing the equipment and avoiding unnecessary waste.

3. Assistance in the Research on Applying Chinese Characters to Computer Use

Application of Chinese characters to computers would be of vital importance to Taiwan. For the time being, digits and the English alphabet are used to represent the Chinese characters. But it is almost impossible to represent names and addresses in Chinese with these digits and numbers.

These restrictions have obviously constituted obstacles in the development of wide computer application in Taiwan. The government officers, the educators, and the data processing centers should cooperate and assist in the research on applying Chinese characters to computer use.

4. Increase in Salaries of the Employees in Data Processing Centers

Since there is a high job turnover in data processing centers in the responding institutions, it is recommended that the government and the data processing center administrator should seriously consider increasing the salaries of the employees as an incentive to stay on the job and to attract new employees.

APPENDIX

APPENDIX A

Cover Letter

209 W. Kansas
Pittsburg, Ks.
66762 U.S.A.

Institution Name
Street Name
City, Taiwan
Rep. of China

Dear Sir:

As a research study for partial fulfillment of the requirements of the Master's degree in business administration at Kansas State College of Pittsburg, I am contacting a lot of institutions in Taiwan which have the installation of an electronic computer to determine the current status of the electronic data processing in Taiwan.

I would certainly appreciate your assistance with this study by completing the enclosed questionnaire. Questions are constructed so that it will take a minimum amount of time to answer them. All information will be confidential and will be used only to compile data for this study.

I would appreciate your cooperation in completing and returning the questionnaire at your earliest convenience. Thank you for your assistance.

Respectfully yours,

Liang-Chen Huang

APPENDIX B

QUESTIONNAIRE

Directions: Please indicate your answer by short answer or by placing a check mark in the space provided. Please answer all of the questions.

1. Name of the institution

2. Type of institution (please check one of the following)

(1) Public Administrational Institution

(2) Public Military Institution

(3) Public Government Enterprises

(4) Public Educational Institution

(5) Private Enterprise

(6) Private Educational Institution

3. The date of electronic computer installation

4. The type of computer utilized (please indicate company name and the series number.)

5. The number of the computers in your institution

6. The price of the computer if purchased

7. The rent per year of the computer if rented

8. The **average** number of working hours per month of the computer (**please** check one of the following)

- 1) over 600 hours
- 2) 501 to 600 hours
- 3) 401 to 500 hours
- 4) 301 to 400 hours
- 5) 201 to 300 hours
- 6) 101 to 200 hours
- 7) under 100 hours

9. The main purposes of data processing installation

10. The educational background of the employees in your institution

(1) Number of employees (indicate the number)

male _ _ _ _ _ female _____

(2) The educational level (indicate the number)

- a. Doctorate degree
- b. Master's degree ----
- c. Bachelor's degree-e---
- d. Graduate high school
- e. Other

(3) The source of the employee training (indicate the number)

- a. within Taiwan _____
- b. outside of Taiwan

11. Time spent in present position of employee in your institution (indicate the number)

- 1) one year
- 2) two years
- 3) three years
- 4) four years
- 5) five years
- 6) over five years

12. The job title of employees in your institution

13. Any additional remarks

THANK YOU FOR YOUR COOPERATION

BIBLIOGRAPHY

BIBLIOGRAPHY

- China Yearbook, 1972-1973. Taipei, Taiwan: China Publishing Company, 1973.
- Davis, Keith. Human Relations at Work, 1967.
- Electronic Data Processing Quarterly: Vol. 1 & 2. No. 1 - 4. Taipei, Taiwan, Chinese Society of Electronic Data Processing, 1968. Printed in Chinese.
- Encyclopedia Americana; The. Vol. 2. New York: Americana Corporation, 196 .
- Laurie, Edward James. Applications of Domestic Digital Computing Systems in Businesses and Schools of Business in the United States (unpublished Doctoral dissertation, University of California, Los Angeles, 1959).
- Rodgers, Harold A. Dictionary of Data Processing Terms. New York: Funk and Wagnalls, 1970.
- Sackman, Harold. Computer, Systems Science, and Evolving Society. New York: John Wiley & Sons, Inc., 1967.
- Tarpey, Elizabeth. Data Processing Training in Selected NABTE Institutions, (unpublished Master's thesis, Southern Illinois University, 1967).
- Wang Fu-Chow. The Development of Computers in Taiwan. Taipei, Taiwan, Chinese Society of Electronic Data Processing, 1972.
- Wu Wrong-Jun. Basic computer Principles. Taipei, Taiwan: Culture Book Co., 1969. Printed in Chinese.