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ABSTRACT

A study was conducted to assess the relationship of competencies taught in the Wisconsin Vocational-Technical and Adult Education system Data Processing (DP) Diploma Programs to required on-the-job skills. DP graduates, their employers, and instructors were surveyed in order to obtain a comparative evaluation of the program, and a sample of employers and graduates were interviewed. Respondents were asked to rate a list of DP competencies in terms of importance on the job and adequacy of graduates' preparation. Results indicated: (1) keypunching and associated activities, social behavior, and verbal communications were most important on the job while computer languages were least important; (2) keypunching was ranked highest in terms of adequacy of preparation while computer languages were ranked lowest; (3) a high degree of agreement between respondent groups existed regarding competencies of importance on the job and preparation in school; (4) employers indicated a definite need for the skills acquired by DP graduates; and (5) respondents were generally very positive about the DP program, indicating it was basically well-structured and well-taught. Recommendations were made concerning skills needing more emphasis in the program and the provision of greater lab time and hands-on experiences. Survey instruments and related materials are appended. (JDS)

FINAL REPORT

DATA PROCESSING DIPLOMA PROGRAM CURRICULUM STUDY

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FOREWORD

This study was conducted with the intent that the information obtained could be applied throughout the State of Wisconsin to help the Vocational, Technical and Adult Education Districts upgrade their Data Processing Diploma programs. The need to keep our programs in step with the changing technology in the data processing field is being felt by all concerned with the training of technicians employed in these areas.

In general, it is constructive to look at what we are doing for our graduates and the people that employ them. This study attempts to obtain the perceptions of these groups and to draw some conclusions from the opinions these groups have of our present curricula and what they feel should be updated and revised in our programs.

In order to evaluate the effectiveness of the existing technical programs, a special concern was given to compile and compare the required skills as perceived by the employers and the acquired skills of the graduate employees.

This survey made no attempt to determine the degree of competency of the data processing employee in performing the tasks or the need for upgrading skills. It does indicate those competencies which are performed in addition to those competencies in which additional training is desired.

ACKNOWLEDGEMENTS

Appreciation is extended to the following people and groups who have helped to make this study possible:

The Data Processing Diploma Program instructors at the participating institutions for their assistance and support in the development of the survey instrument.

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Special gratitude is expressed to the many Data Processing Diploma program graduates, employers and instructors who responded with willingness and sincerity to the survey and made completion of this project possible.

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CHAPTER I

INTRODUCTION

The Problem:

Data Processing is a dynamic instructional area within the Wisconsin Vocational, Technical and Adult Education system. The rapidly expanding needs of the Data Processing industry makes it imperative that both instructors and administrators are continually aware of business and industries' needs in the viable job market where data processing students seek employment. One of the most important components of effective teaching is the adequacy of the curriculum, to insure that what is being taught meets the requirements of the employer.

The problem dealt with by this study is fundamentally a problem of communication. The major line of communication between instructor and employers is the state and district data processing advisory committees, which provide a constant source of evaluating and updating curriculum. Unfortunately, these committees do not encompass the majority of business and industry. Because of the limitations of the advisory committee evaluation with reference to time and experience, there is a need for a structured source of curriculum review to determine what skills are being demanded in the data processing job market.

Within the past five years there has not been, in the Wisconsin Vocational, Technical and Adult Education system, any research conducted to determine the adequacy of the data processing diploma curriculum in meeting the occupational requirements of employers. Because of the dynamics of the data processing field, there is a concern that school curriculums will not keep pace with industry demands and thus lead to complacency and/or eventual training for obsolescence. There is additional concern as to the type of jobs for which the Data Processing Diploma program is training students. There is a wide range of job opportunities within the program area, and it is important to know what type of jobs graduates are filling. Without on-going communication from graduates and their employers, the data processing diploma curriculum cannot be kept relevant to the needs of industry.

Objective

The primary objective of this project is to assess the effect of competencies taught in Wisconsin Vocational, Technical and Adult Education institutions with on-the-job demands. Through an evaluation of these competencies, conclusions may be reached which will lead to recommendations for improvement or updating of the Data Processing Diploma programs presently offered through the Wisconsin Vocational, Technical and Adult Education system.

The specific objectives of the study include the following:

1. To interview a sample of former students of the Data Processing Diploma programs throughout the State of Wisconsin and their respective employers to determine the strengths and weaknesses of the present program.

2. To survey a larger sample of former students and employers, via a mail questionnaire, to determine the strengths and weaknesses of the present program.

3. To survey the instructors in the Data Processing Diploma programs to obtain their input as to how the program may be improved.

4. To interpret the results of these interviews and surveys to reach conclusions and give direction for improvement of the Data Processing Diploma programs.

CHAPTER II

METHODOLOGY

The survey instrument was constructed following a review of the Data Processing Diploma program curriculum provided by the Wisconsin Vocational, Technical and Adult Education Districts presently offering this program. A competency list and rough draft of the survey instrument was developed. The survey instrument was finalized following a review by Data Processing Diploma program instructors and Wisconsin Board of Vocational, Technical and Adult Education consultants.

A mailing list was obtained of the 1973, 1974 and 1975 graduates of Data Processing Diploma programs. Graduates were mailed a survey instrument on which they were asked to identify their employers. It was acknowledged that not all of the graduates or their employers would participate in the study. Therefore, the actual number of respondents would represent some undetermined fraction of the total survey population and would not represent a true random sampling.

The first mailing to graduates was sent January 28, 1976 with two follow-up mailings. The first mailing to employers was sent March 26, 1976, with one follow-up mailing. The survey instrument was also sent to the 21 Data Processing Diploma program instructors, ten of which were returned after two mailings. Copies of the survey cover letters may be found in Appendix A.

The survey instrument consisted of a listing of forty competencies on which respondents were asked to react on a Likert-type scale regarding the importance of the competency on the job, and the adequacy of the preparation the graduate received at a technical institute. The category, Importance on Job, was ranked on a scale from one to three, while Preparation at School was ranked on a scale from one to five.

Each competency was listed under the general heading of Computer Concepts, Hands-on Experience, Courses or Skills. In some instances, information was desired on the same competency under different group headings. Therefore, the competency group heading has been indicated in those cases where confusion may occur.

In addition to the competency list, several open ended type questions were asked of graduates and employers. Instructors were sent only the competency list. Copies of the survey instruments are in Appendix B.

Interviews were conducted of non-respondents to the mailed survey instrument. Both graduates and their employers were interviewed using the same survey instrument and an additional interview guide. A total of 19 graduates and 19 employers were interviewed. Interviewing was restricted by the availability of graduates working in the data processing field. The interviewer's introductory letter and interview guide is in Appendix C.

Of the 144 graduates identified, a total of 83, or 58 percent, were contacted either by mail or by personal interview; 32 employers were contacted. Ten of the twenty-one instructors responded for a 48 percent response. Tables 1 and 2 give a breakdown of responses.

Table 1

Data Processing Diploma Program
Graduate Survey Response

	Total Graduates	Graduate Mail Response	Graduate Interview	Total Graduates Contacted	Percent Contacted
District One	39	22	4	26	67%
Western Wisconsin	35	15	4	19	54
Gateway	16	2	6	8	50
Waukesha County	3	2	1	3	100
Milwaukee Area	13	7	0	7	54
Moraine Park	38	16	4	20	52
Total	144	64	19	83	58

Table 2

Data Processing Diploma Program
Employer and Instructor Response

	Employer Mail Response	Employer Interviews	Total Employers Contacted	Total Instructors	Instructor Mail Response
District One	7	4	11	5	2
Western Wisconsin	3	4	7	3	2
Gateway	0	6	6	3	2
Waukesha County	1	1	2	3	2
Milwaukee Area	0	0	0	6	2
Moraine Park	2	4	6	1	0
Total	13	19	32	21	10

When the data had been collected, it was tabulated, analyzed and reviewed for purposes of evaluation. Statistical tabulations consisted of computing a mean and standard deviation for each competency. Correlations between areas of evaluation, e.g., Preparation at School and Importance on Job; and between groups of respondents, e.g., graduates, employers and instructors were done using Spearman's Rank Correlation Coefficient, adjusting for tied ranks.[1] All correlations were tested at the .01 level of significance. This gives assurance of 99 percent certainty that those correlations meeting this level of significance show true agreement and are not chance correlations. Tabulation of the open-ended questions consisted of simple descriptive statistics. Conclusions and recommendations were developed through an analysis of this data.

[1] N. M. Downie and R. W. Heath, Basic Statistical Methods, (New York; Harper and Row, 1965), p. 207.

CHAPTER III

GRADUATE RESPONSE

RESEARCH FINDINGS AND ANALYSIS

The survey instrument consisted of a competency list of forty items on which Data Processing Diploma graduates were requested to react on two different categories; Importance on Job and Preparation at School. Table 3 shows a comparison between these two categories.

Table 3

Data Processing Diploma Graduates
Comparison of Ranks of Importance on Job and Preparation at School[1]
N = 83

	Importance on Job		Preparation at School	
	Rank	Mean S.D.[2]	Rank	Mean S.D.
Keypunching	1	1.45 0.76	3	1.80 1.07
Keypunch: Level of Proficiency Required	2	1.47 0.76	6	1.97 1.10
Verifying	3	1.59 0.84	13	2.41 1.37
Punched Card	4	1.64 0.82	5	1.91 1.07
Social Behavior	5	1.66 0.64	12	2.36 0.95
Verbal Communications	6	1.67 0.70	11	2.34 1.01
Keypunch: Laboratory Assignments	7	1.68 0.86	4	1.83 1.15
Typing	8	1.74 0.85	2	1.78 1.15

[1]Some items may appear to have the same means and different ranks due to rounding the means to two decimal places after ranking.

[2]S.D.= Standard Deviation. A low standard deviation indicates a high consistency in the responses.

Table 3

Data Processing Diploma Graduates
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.	Rank	Mean S.D.
Keypunch: Program Drum Card	9	1.74 0.90	1	1.72 0.96
Card Punch	10	1.75 0.87	10	2.33 1.30
Card Reader	11	1.92 0.89	17	2.55 1.24
Office Practice	12	1.95 0.76	8	2.24 1.03
Operating Systems	13	2.03 0.85	22	3.31 1.07
Filing	14	2.06 0.86	15	2.49 1.28
Written Communications	15	2.11 0.83	16	2.49 1.09
Line Printer	16	2.13 0.94	21	3.21 1.20
Numerical Systems	17	2.14 0.81	19	2.97 1.23
Business Math	18	2.15 0.81	7	2.14 1.00
Record Keeping	19	2.17 0.85	9	2.30 1.11
Bookkeeping	20	2.20 0.90	14	2.42 1.15
Console Typewriter	21	2.22 0.86	20	3.09 1.12

Table 3

Data Processing Diploma Graduates
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.	Rank	Mean S.D.
Copy and Materials Reproduction	22	2.30 0.77	18	2.94 1.31
Key-to-Tape and/or Key-to-Disk (Hands-on Experience)	23	2.34 0.81	27	3.64 1.14
Magnetic Tape (Hands-on Experience)	24.5	2.35 0.83	28	3.72 1.16
Magnetic Tape (Computer Concepts)	24.5	2.35 0.83	30	3.81 1.03
Magnetic Disk and/or Magnetic Drum	26	2.40 0.84	32	3.83 0.98
Programming Languages	27	2.41 0.78	23	3.42 1.03
Software Packages (Computer Concepts)	28	2.42 0.81	26	3.62 1.05
Key-to-Tape and/or Key-to-Disk (Computer Concepts)	29	2.42 0.78	29	3.77 1.01
COBOL	30	2.43 0.81	24	3.51 1.27
Terminal Interaction	31	2.54 0.74	33	3.84 1.01
RPG	32.5	2.57 0.74	34	3.91 1.12
Software Packages (Hands-on Experience)	32.5	2.57 0.67	31	3.81 0.90

Table 3

Data Processing Diploma Graduates
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.	Rank	Mean S.D.
BASIC	34	2.58 0.72	25	3.53 1.33
ASSEMBLER	35	2.65 0.66	36	4.22 1.05
FORTRAN	36	2.66 0.68	35	3.94 1.18
RJE, CRT, and/or Teletype	37	2.67 0.62	37	4.23 0.98
OCR and/or MICR	38	2.75 0.57	40	4.44 0.98
PL/1	39	2.76 0.57	38	4.42 0.85
Card Strip Devices	40	2.84 0.42	39	4.43 0.81

A rank correlation was computed between Importance on Job and Preparation at School using Spearman's Rank Correlation coefficient. This correlation was computed to be 0.91, which indicates a very high correlation and is significant at the .01 level.

A review of the competencies reveal several items with a rank difference of five or more between Importance on Job and Preparation at School. Competencies with a negative difference indicates areas of possible undertraining, while those with positive differences indicate areas of possible overtraining. Table 4 lists these competencies.

Table 4

Data Processing Diploma Graduates
Competencies With a Difference in Rank of Five or More Between Importance on Job and Preparation at School

Competency	Rank Importance on Job	Rank Preparation at School	Difference in Rank
Verifying	3	13	-10
Operating Systems	13	22	-9
Social Behavior	5	12	-7
Card Reader	11	17	-6
Magnetic Disk and/or Magnetic Drum	26	32	-6
Magnetic Tape	24.5	30	-5.5
Verbal Communications	6	11	-5
Line Printer	16	21	-5
Typing	8	2	+6
Bookkeeping	20	14	+6
COBOL	30	24	+6
Keypunch: Program Drum Card	9	1	+8
BASIC	34	25	+9
Record Keeping	19	9	+10
Business Math	18	7	+11

Verifying and Operating Systems are two of the competencies which indicate a possible need for more emphasis; while Business Math and Record Keeping, although both ranked moderate in Importance, show areas which may not require as much emphasis.

The respondents were given an opportunity to write in additional competencies not included in the list. The graduates suggested that the following competencies on content should be included in the Data Processing Diploma program.

In the area of Computer Concepts, respondents suggested that JCL, BAL and OCL Statements be included in the program. Respondents indicated that Card Sorter, Decolator and OCL Statements be included in the Hands-on Experiences of students in the program.

Under Courses, respondents listed Accounting, Bookkeeping and Business Machines as additional areas of concern; and under Skills were listed Typing, Using a Line Printer, Accounting and Sorting, Reproducing, Decolating, Bursting and Intepreting.

Graduates were asked to provide their present job title. Ten different job titles were given, of which the two most common were, Keypunch Operator (32) and Computer Operator (12). Other job titles included Clerk Typist (4), Data Entry Operator (2) and one each Machine Operator, Data Input Operator, I/O Control Clerk, Key to Tape Operator, CRT Supervisor and Sorter and Collector. The response indicates that most graduates are working in the area for which they were trained, and many of them are working in above entry level positions.

The Data Processing Diploma program has different program titles throughout the state, although the most common title is Data Processing Machine Operation. In an attempt to determine which title would be most descriptive of the Data Processing Diploma program, graduates were asked which program title they felt was most descriptive of the program they graduated from. A majority of the respondents (43) indicated that Data Processing Machine Operator was the most descriptive program title, with Data Processing Clerk/Typist being the second most common response with ten respondents. Other responses were as follows: Data Processing-Data Entry/Preparation (9), Keypunch Operator (9), Data Processing-Data Entry (7), Clerk Typist with Data Processing Emphasis (1).

Graduates were asked if they felt their diploma was necessary in obtaining their present job. Respondents were almost evenly divided on their answers to this question, with 32 responding Yes, 28 responding No and 17 responding Don't Know. It appears that having the diploma gives a slight advantage in getting a job.

When asked about opportunities to advance on the job, 60 percent of the respondents felt the opportunities for job advancement were good or excellent. The breakdown of response is as follows: Excellent (10), Good (33), Poor (19) and None (10).

Graduates were asked which three areas, out of a list of seven, were most helpful in the program. Respondents marked Equipment (73), Instructors (64) and Textbooks (45) as being the three most helpful areas. Audio-visual areas were less frequently indicated, with a breakdown as follows: Field trips to local industry (13), Handouts (12), Film (7) and Other audio-visual materials (7). Six respondents indicated Other.

Graduates were also asked which three areas, out of the same list of seven, could be improved and how, with the following response: Field trips to local industry (53), Films (34), Equipment (28), Textbooks (21), Other audio-visual materials (21), Instructors (20), Handouts (20) and Other (10). Field trips to local industries were most indicated as the area which could be improved. Respondents wanted more field trips to show actual working conditions and practical applications in the Data Processing field. All audio-visuals were heavily indicated as areas needing improvement. Respondents felt that all audio-visual materials needed updating. Of the ten respondents who indicated Other, nine wrote in that more lab time is needed.

When asked if there were any areas they felt were not trained for which should be included in the program, the majority of respondents (43) indicated that there were none. The remainder of responses were varied, with four respondents indicating Programming Languages and Key-to-Disk; and three each responding Key-to-Tape, Computer Operations, Training on more up-to-date machines, Training on different types of machines and More practical experience. Most of the areas mentioned relate to a need for practical experience on a variety of equipment.

In giving comments regarding the Data Processing Diploma program, respondents indicated satisfaction with the program, with 26 respondents commenting that "this is a good program". The one major area of complaint was that there was not enough practical experience, or time spent on the computer during the program.

CHAPTER IV

EMPLOYER RESPONSE

RESEARCH FINDINGS AND ANALYSIS

Employers of graduates received the same competency list which graduates received. The employers were also requested to react on each competency regarding the importance of that competency on the job, and the adequacy of the preparation received at the Wisconsin Vocational, Technical and Adult Education Institute which the graduate attended. Table 5 gives a comparison between employers ranks on Importance on Job and Preparation at School for each competency.

Table 5

Data Processing Diploma Program Employers
Comparison of Ranks of Importance on Job
and Preparation at School[1]
N = 32

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.[2]	Rank	Mean S.D.
Keypunching	1	1.22 0.51	3	2.15 1.10
Verifying	2	1.33 0.62	5	2.27 1.04
Keypunch: Level of Proficiency Required	3	1.36 0.68	4	2.18 1.09
Punched Card	4	1.38 0.70	1	1.96 1.00
Social Behavior	5	1.56 0.71	7	2.67 1.05
Verbal Communications	6	1.65 0.75	10.5	2.83 0.89

[1]Some items may appear to have the same means and different ranks due to rounding the means to two decimal places after ranking.

[2]S.D.= Standard Deviation. A low standard deviation indicates a high consistency in the responses.

Table 5

Data Processing Diploma Program Employers
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.	Rank	Mean S.D.
Keypunch: Program Drum Card	7	1.67 0.83	2	2.08 1.06
Office Practice	8	1.68 0.80	10.5	2.83 1.03
Record Keeping	9	1.87 0.81	12	3.05 1.07
Typing	10	1.88 0.82	8	2.70 0.97
Keypunch: Laboratory Assignments	11.5	1.91 0.90	6	2.57 1.16
Written Communications	11.5	1.91 0.85	17.5	3.24 0.89
Key-to-Tape and/or Key-to-Disk (Hands-on Experience)	13	1.95 1.00	33	3.94 1.39
Line Printer	14.5	2.00 0.90	17.5	3.24 1.41
Filing	14.5	2.00 0.72	9	2.76 1.26
Key-to-Tape and/or Key-to-Disk (Computer Concepts)	16	2.04 0.98	20	3.39 1.46
Operating Systems	17	2.12 0.88	24.5	3.50 1.10
Card Reader	18	2.20 0.89	15.5	3.18 1.42
Business Math	19	2.23 0.75	14	3.15 0.88

Table 5

Data Processing Diploma Program Employers
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

Competency	Importance on Job Rank	Importance on Job Mean S.D.	Preparation at School Rank	Preparation at School Mean S.D.
Console Typewriter	20	2.26 0.87	21	3.41 1.33
Copy and Materials Reproduction	21	2.27 0.77	13	3.10 1.07
Card Punch	22	2.29 0.90	15.5	3.18 1.47
Terminal Interaction	23	2.35 0.86	27	3.73 1.22
Magnetic Disk and/or Magnetic Drum	24	2.38 0.86	19	3.29 1.27
Magnetic Tape (Hands-on Experience)	25	2.40 0.88	28.5	3.76 1.25
Bookkeeping	26	2.41 0.73	24.5	3.50 1.15
Magnetic Tape (Computer Concepts)	27.5	2.45 0.83	23	3.47 1.25
RJE, CRT, and/or Teletype	27.5	2.45 0.83	22	3.46 1.33
COBOL	29	2.47 0.77	32	3.92 1.26
Software Packages (Computer Concepts)	30	2.52 0.79	28.5	3.76 0.97
RPG	31.5	2.58 0.69	31	3.85 1.41
Software Packages (Hands-on Experience)	31.5	2.58 0.77	34	4.06 0.93

Table 5

Data Processing Diploma Program Employers
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

	Importance on Job		Preparation at School	
Competency	Rank	Mean S.D.	Rank	Mean S.D.
Numerical Systems	33.5	2.65 0.67	26	3.69 1.08
ASSEMBLER	33.5	2.65 0.75	38	4.67 0.65
OCR and/or MICR	35	2.69 0.70	40	4.80 0.42
Programming Languages	36	2.74 0.65	35	4.20 0.94
BASIC	37	2.88 0.50	36.5	4.36 1.03
FORTRAN	38	2.94 0.24	36.5	4.36 0.81
Card Strip Devices	39	2.95 0.23	30	3.82 1.17
PL/1	40	3.00 0.00	39	4.70 0.67

A rank correlation was computed between Importance on Job and Preparation at School using Spearman's Rank Correlation Coefficient. The correlation between these categories is 0.90 which is significant at the .01 level. This correlation is very high and indicates a high degree of agreement.

Although a review of the competencies shows several areas with a rank difference of five or more between Importance on Job and Preparation at School, most of these competencies have a rank difference of six or less. The one competency with a considerable difference in rank is Key-to-Tape and/or Key to Disk. Employers rank this competency quite high in Importance, but do not seem to feel graduates are adequately prepared in this area. Table 6 gives those competencies with a difference in rank of five or more.

Table 6

Data Processing Diploma Program Employers
Competencies With a Difference in Rank of
Five or More Between Importance on Job and Preparation at School

Competency	Rank Importance on Job	Rank Preparation at School	Difference in Rank
Key-to-Tape and/or Key-to-Disk (Hands-on experience)	13	33	-20
Operating Systems	17	24.5	-7.5
Written Communications	11.5	17.5	-6
OCR and/or MICR	35	40	-5
Magnetic Disk and/or Magnetic Drum	24	19	+5
Keypunch: Program Drum Card	7	2	+5
Business Math	19	14	+5
RJE, CRT and/or Teletype	27.5	22	+5.5
Keypunch: Laboratory Assignments	11.5	6	+5.5
Filing	14.5	9	+5.5
Card Punch	22	15.5	+6.5
Numerical Systems	33.5	26	+7.5
Copy and Materials Reproduction	21	13	+8
Card Strip Devices	39	30	+9

Within the list of competencies, the respondents were given an opportunity to write in competencies not included in the list. Those competencies written in under the heading Computer Concepts were Mini Cobol and Transmission. Under Hands-on Experience, respondents again indicated Transmission; and under Courses, Credit Control and MICR for Banking were written in.

In addition to the competency list, employers were asked several open-ended type questions. These questions, with the tabulated responses are in Appendix E.

Employers were asked what position the graduate of the Data Processing Diploma program held in that company. The most common response was Keypunch Operator, with 17 responses. Computer Operator, with four responses, was second most common, with two responding Data Clerk and two Data Entry Operator. There was a wide range of job titles given, from Clerk Typist to Programmer, but by far the most frequent job title is Keypunch Operator.

In an effort to determine what importance, if any, the data processing diploma had in helping the graduate obtain a job, employers were asked to what extent a diploma is a factor in hiring. The majority of employers (21) indicated that a diploma is helpful but not required, while six respondents indicated that a diploma is required for the position. Five respondents indicated either that the diploma was not needed at all, or that they preferred applicants to have actual work experience. It appears from this response that, while in most cases a diploma is not needed, it is a positive factor in the hiring of employees.

When asked what the opportunities for job advancement were, the majority of employers (22) responded good or excellent, while nine responded poor. Most employers seem to feel quite positive about job advancement.

Employers identified only one area which they felt was not included in the educational program. This area was MICR training, more basic computer training. Most respondents either did not answer this question, or answered "none". Apparently there was general agreement with the areas of instruction listed in the survey instrument.

Employers were asked for any comments regarding the Data Processing Diploma program. These comments showed little general agreement. Four respondents indicated that they felt it was a good program, and three respondents felt key-to-disk was important. These were the major response areas, with other comments ranking from "need more on keypunch" to "accounting knowledge is helpful".

The employers' interview included several additional questions. Employers were asked if there was a need for the skills acquired through the data processing program, and all of the employers interviewed responded that there was a need for these skills.

A large majority of employers stated that they encourage employees to take advantage of the Data Processing Diploma program, with 13 of the 19 interviewed responding that they do encourage employees to take advantage of this program.

When asked what the strong areas of the graduates were, two major areas were identified. The first was an attitude, initiative, competence and willingness to learn; and the second strong area was a skill, keypunching. Good work attitudes were especially stressed as being a strong point in data processing graduates.

Employers were also asked what areas could use improvement and how they could be improved. The largest response was that no areas needed improvement, with the employers answering "none". Of those who did state an area needing improvement, three responded "speed and accuracy" and two "bookkeeping". More practice and training was felt to be the best method of improvement.

The final question asked if the employer would hire other graduates of the data processing program. Seventeen of those interviewed responded with a definite yes, and there was a marked feeling of satisfaction with Data Processing Diploma program graduates.

CHAPTER V

INSTRUCTOR RESPONSE

RESEARCH FINDINGS AND ANALYSIS

A copy of the competency list was sent to instructors of the Data Processing Diploma program. Of the 21 instructors who received the survey instruments, ten were returned for a 48 percent response. Because of this low response rate, both in actual numbers and percentage, the value of the following information is limited. This information is presented to attempt to show trends in instruction and to offer some basis of comparison between graduates, employers and instructors. Table 7 shows a comparison of instructors' rank of competencies regarding Importance on Job and Preparation at School.

Table 7

Data Processing Diploma Program Instructors
Comparison of Ranks of Importance on Job
and Preparation at School[1]
N = 10

	Importance on Job		Preparation at School	
Competency	Rank	Mean[2] S.D.	Rank	Mean S.D.
Punched Card	1	1.11 0.33	1	1.71 0.95
Keypunch: Program Drum Card	2.5	1.44 0.73	2.5	1.86 1.07
Keypunch: Laboratory Assignments	2.5	1.44 0.73	2.5	1.86 1.57
Magnetic Tape (Computer Concepts)	7	1.56 0.73	13	2.71 0.95
RJE, CRT, and/or Teletype	7	1.56 0.53	9	2.43 1.27

[1]Some items may appear to have the same means and different ranks due to rounding the means to two decimal places after ranking.

[2]S.D.= Standard Deviation. A low standard deviation indicates a high consistency in the responses.

Table 7

Data Processing Diploma Program Instructors
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

Competency	Importance on Job Rank	Importance on Job Mean S.D.	Preparation at School Rank	Preparation at School Mean S.D.
Keypunch: Level of Proficiency Required	7	1.56 0.53	4.5	2.00 0.82
Card Reader	7	1.56 0.53	16	2.86 0.90
Line Printer	7	1.56 0.53	25.5	3.29 0.76
Console Typewriter	7	1.56 0.53	25.5	3.29 0.95
Verbal Communications	7	1.56 0.53	16	2.86 0.69
Verifying	11	1.63 0.74	7.5	2.33 1.63
Magnetic Disk and/or Magnetic Drum	13.5	1.67 0.87	18.5	3.00 1.00
Operating Systems	13.5	1.67 0.71	21	3.14 1.07
Written Communications	13.5	1.67 0.50	10.5	2.57 0.79
Keypunching	13.5	1.67 0.71	4.5	2.00 1.00
Magnetic Tape (Hands-on Experience)	17	1.78 0.67	29.5	3.43 0.79
Card Punch	17	1.78 0.67	21	3.14 1.21
Typing	17	1.78 0.67	13	2.71 1.11

Table 7

Data Processing Diploma Program Instructors
Comparison of Ranks of Importance on Job
and Preparation at School
(Cont.)

Competency	Importance on Job Rank	Importance on Job Mean S.D.	Preparation at School Rank	Preparation at School Mean S.D.
Terminal Interaction	19.5	1.88 0.35	16	2.86 1.57
Bookkeeping	19.5	1.88 0.64	7.5	2.33 0.52
Social Behavior	21	1.89 0.33	13	2.71 0.49
Programming Languages	23.5	2.00 0.87	25.5	3.29 1.25
Record Keeping	23.5	2.00 0.71	10.5	2.57 0.79
Business Math	23.5	2.00 0.71	6	2.29 0.76
COBOL	23.5	2.00 1.00	25.5	3.29 1.80
Key-to-Tape and/or Key-to-Disk (Computer Concept)	27	2.11 0.60	34	3.83 0.75
Software Packages (Computer Concept)	27	2.11 0.60	32	3.57 0.98
RPG	27	2.11 0.78	21	3.14 1.21
Filing	29	2.13 0.83	28	3.33 1.03
ASSEMBLER	31	2.22 0.97	32	3.57 1.62
Office Practice	31	2.22 0.67	18.5	3.00 0.82

Table 7

Data Processing Diploma Program Instructors
Comparison of Ranks of Importance on Job
and Preparation at School

(Cont.)

Competency	Importance on Job Rank	Mean S.D.	Preparation at School Rank	Mean S.D.
Copy and Materials Reproduction	31	2.22 0.44	29.5	3.43 1.13
Numerical Systems	33.5	2.33 0.71	23	3.17 0.75
Software Packages (Hands-on Experience)	33.5	2.33 0.50	35	3.86 0.69
OCR and/or MICR	35.5	2.44 0.53	39.5	4.17 1.17
Key-to-Tape and/or Key-to-Disk (Hands-on Experience)	35,5	2.44 0.53	36	4.00 1.26
PL/1	37.5	2.67 0.50	37.5	4.14 1.57
BASIC	37.5	2.67 0.50	32	3.57 1.51
Card Strip Devices	39	2.78 0.44	39.5	4.17 0.98
FORTRAN	40	3.00 0.00	37.5	4.14 1.57

A rank correlation was computed between Importance on Job and Preparation at School. This correlation is 0.77 which is significant at the .01 level.

A review of the competencies shows several areas with a difference in rank of five or more between Importance on Job and Preparation at School. These are listed in Table 8.

Table 8

Data Processing Diploma Program Instructors
Competencies With a Difference in Rank of Five or More
Between Importance on Job and Preparation at School

Competency	Rank Importance on Job	Rank Preparation at School	Difference in Rank
Line Printer	7	25.5	-18.5
Console Typewriter	7	25.5	-18.5
Magnetic Tape	17	29.5	-12.5
Card Recorder	7	16	-9
Verbal Communications	7	16	-9
Operating Systems	13.5	21	-7.5
Key-to-Tape and/or Key-to-Disk (Computer Concept)	27	34	-7
Magnetic Tape	7	13	-6
Magnetic Disk and/or Magnetic Drum	13.5	18.5	-5
Software Packages (Computer Concept)	27	32	-5
BASIC	37.5	32	+5.5
RPG	27	21	+6
Social Behavior	21	13	+8
Keypunching	13.5	4.5	+9
Numerical Systems	33.5	23	+10.5
Bookkeeping	19.5	7.5	+12
Office Practice	31	18.5	+12.5
Record Keeping	23.5	10.5	+13
Business Math	23.5	6	+17.5

Instructors show much greater disagreement between Importance on Job and Preparation at School than either graduates or employers. Competencies which show the greatest difference in rank are Line Printer and Console Typewriter, which are both ranked high in Importance and low in Preparation. On the other hand, Business Math is ranked low in Importance and high in Preparation.

CHAPTER VI

COMPARISON OF GRADUATE, EMPLOYER AND INSTRUCTOR RESPONSE

RESEARCH FINDINGS AND ANALYSIS

A comparison was made of the three responding groups to identify areas of agreement and competency ranks between graduates, employers and instructors.

Table 9

Data Processing Diploma Program
Graduates, Employers and Instructors
Comparison of Ranks of Importance on Job
and Preparation at School

	Importance on Job Rank			Preparation at School Rank		
Competency	Graduate N=83	Employer N=32	Instructor N=10	Graduate N=83	Employer N=32	Instructor N=10
Keypunching	1	1	13.5	3	3	4.5
Keypunch: Level of Proficiency Required	2	3	7	6	4	4.5
Verifying	3	2	11	13	5	7.5
Punched Card	4	4	1	5	1	1
Social Behavior	5	5	21	12	7	13
Verbal Communications	6	6	7	11	10.5	16
Keypunch: Laboratory Assignments	7	11.5	2.5	4	6	2.5
Typing	8	10	17	2	8	13

Table 9

Data Processing Diploma Program
Graduates, Employers and Instructors
Comparison of Ranks of Importance on Job
and Preparation at School
(Cont.)

	Importance on Job Rank			Preparation at School Rank		
Competency	Graduate N=83	Employer N=32	Instructor N=10	Graduate N=83	Employer N=32	Instructor N=10
Keypunch: Program Drum Card	9	7	2.5	1	2	2.5
Card Punch	10	22	17	10	15.5	21
Card Reader	11	18	7	17	15.5	16
Office Practice	12	8	31	8	10.5	18.5
Operating Systems	13	17	13.5	22	24.5	21
Filing	14	14.5	29	15	9	28
Written Communications	15	11.5	13.5	16	17.5	10.5
Line Printer	16	14.5	7	21	17.5	25.5
Numerical Systems	17	33.5	33.5	19	26	23
Business Math	18	19	23.5	7	14	6
Record Keeping	19	9	23.5	9	12	10.5
Bookkeeping	20	26	19.5	14	24.5	7.5
Console Typwriter	21	20	7	20	21	25.5
Copy and Materials Reproduction	22	21	31	18	13	29.5
Key-to-Tape and/or Key-to-Disk (Hands-on Experience)	23	13	35.5	27	33	36

Table 9

Data Processing Diploma Program
Graduates, Employers and Instructors
Comparison of Ranks of Importance on Job
and Preparation at School
(Cont.)

	Importance on Job Rank			Preparation at School Rank		
Competency	Graduate N=83	Employer N=32	Instructor N=10	Graduate N=83	Employer N=32	Instructor N=10
Magnetic Tape	24.5	27.5	7	30	23	13
Magnetic Tape	24.5	25	17	28	28.5	29.5
Magnetic Disk and/or Magnetic Drum	26	24	13.5	32	19	18.5
Programming Languages	27	36	23.5	23	35	25.5
Software Packages (Computer Concepts)	28	30	27	26	28.5	32
Key-to-Tape and/or Key-to-Disk (Computer Concepts)	29	16	27	29	20	34
COBOL	30	29	23.5	24	32	25.5
Terminal Interaction	31	23	19.5	33	27	16
RPG	32.5	31.5	27	34	31	21
Software Packages (Hands-on Experience)	32.5	31.5	33.5	31	34	35
BASIC	34	37	37.5	25	36.5	32
ASSEMBLER	35	33.5	31	36	38	32
FORTRAN	36	38	40	35	36.5	37.5
RJE, CRT, and/or Teletype	37	27.5	7	37	22	9

Table 9

Data Processing Diploma Program
Graduates, Employers and Instructors
Comparison of Ranks of Importance on Job
and Preparation at School
(Cont.)

	Importance on Job Rank			Preparation at School Rank		
	Graduate	Employer	Instructor	Graduate	Employer	Instructor
Competency	N=83	N=32	N=10	N=83	N=32	N=10
OCR and/or MICR	38	35	35.5	40	40	39.5
PL/1	39	40	37.5	38	39	37.5
Card Strip Devices	40	39	39	39	30	39.5

Correlations were computed between graduate, employer and instructor responses and between Importance on Job and Preparation at School. Table 10 gives these correlations.

Table 10

Data Processing Diploma Graduates, Employers and Instructors
Rank Correlations
N = 125

	Importance on Job	Preparation at School
Graduate/Employer	0.88	0.86
Employer/Instructor	0.64	0.62
Graduate/Instructor	0.73	0.78

	Importance on Job/Preparation at School
Graduate	0.91
Employer	0.90
Instructor	0.77

All correlations were significant at the .01 level. There were consistently high correlations among all groups, however, the lowest correlations were shown to be between employers and instructors.

A review of the competencies reveals several areas with a difference in rank or ten or more between graduates, employers and/or instructors. Tables 11 and 12 show those competencies as ranked on Importance on Job and Preparation at School.

Table 11

Data Processing Diploma Program Graduates, Employers and Instructors Competencies With a Difference in Rank of Ten or More on Importance on Job

Competency	Rank Graduate	Rank Employer	Rank Instructor
Keypunching	1	1	13.5
Social Behavior	5	5	21
Office Practice	12	8	31
Filing	14	14.5	29
Numerical Systems	17	33.5	33.5
Record Keeping	19	9	23.5
Console Typewriter	21	20	7
Key-to-Tape and/or Key-to-Disk (Hands-on Experience)	23	13	35.5
Magnetic Tape (Computer Concepts)	24.5	27.5	7
Magnetic Disk and/or Magnetic Drum	26	24	13.5
Key-to-Tape and/or Key-to-Disk (Computer Concept)	29	16	27
RJE, CRT and/or Teletype	37	27.5	7

There is high agreement between graduates and employers on the importance of the competencies on the job; while less agreement is shown between instructors and either graduates or employers. Instructors rank the competencies Console Typewriter, Magnetic Tape and RJE, CRT and/or Teletype more important than do graduates and employers; and rank Keypunching, Social Behavior, Office Practice, Filing and Key-to-Tape and/or Key-to-Disk (Hands-on Experience) less important than do graduates and employers.

Employers rank Record Keeping and Key-to-Tape and/or Key-to-Disk (both headings) higher than graduates or instructors. Graduates place greater importance on Numerical Systems, and less importance on RJE, CRT and/or Teletype than do either employers or instructors.

Table 12

Data Processing Diploma Program Graduates, Employers and Instructors Competencies With a Difference in Rank of Ten or More on Preparation at School

Competency	Rank Graduate	Rank Employer	Rank Instructor
Filing	15	9	28
Bookkeeping	14	24.5	7.5
Copy and Materials Reproduction	18	13	29.5
Magnetic Tape (Computer Concept)	30	23	13
Magnetic Disk and/or Magnetic Drum	32	19	18.5
Terminal Interaction	33	27	16
RPG	34	31	21
RJE, CRT and/or Teletype	37	22	9

In comparing ranks on Preparation at School, instructors again show less agreement than do graduates and employers. Instructors ranked Magnetic Tape, Terminal Interaction, RPG and RJE, CRT and/or Teletype higher in preparation than did graduates or employers. Filing and Copy and Materials Reproduction were ranked lower in preparation by instructors than by the other two groups.

Employers ranked Bookkeeping lower in preparation than did graduates or instructors; and graduates ranked Magnetic Disk and/or Magnetic Drum and RJE, CRT and/or Teletype lower in preparation than employers or instructors.

Great disagreement between groups of respondents was shown on the ranks of the competency RJE, CRT and/or Teletype, both on Importance on Job and Preparation at School.

A comparison of graduate and employer competency ranks shows that both graduates and employers ranked eight competencies among the ten highest ranked on Importance on Job, and also agreed on eight of the ten lowest ranked competencies on Importance on Job. These competencies are:

Highest Ranked on Importance on Job:

- Keypunching
- Keypunch: Level of Proficiency Required
- Verifying
- Punched Card
- Social Behavior
- Verbal Communications
- Typing
- Keypunch: Program Drum Card

Lowest Ranked on Importance on Job:

- Card Strip Devices
- PL/I
- OCR and/or MICR
- FORTRAN
- ASSWMBLER
- BASIC
- Softward Packages (Hands-on Experience)
- RPG

There was also high agreement between ranks on Preparation at School. Graduates and employers agreed on seven out of ten of both the highest ranked and lowest ranked competencies on Preparation at School. These competencies are:

Highest Ranked on Preparation at School:

- Keypunching
- Keypunch: Level of Proficiency Required
- Punched Card
- Keypunch: Laboratory Assignments
- Typing
- Keypunch: Program Drum Card
- Office Practice

Lowest Ranked on Preparation at School:

Card Strip Devices
PL/I
OCR and/or MICR
FORTRAN
ASSEMBLER
BASIC
Software Packages (Hands-on Experience)
RPG

Only graduates and employers ranks were compared, as it was felt that the number of instructor responses was not great enough to be significant.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to assess the relationship of competencies taught in the Wisconsin Vocational, Technical and Adult Education Districts Data Processing Diploma Program to required on the job skills.

It was felt that the best sources of information regarding the effectiveness of the Data Processing Diploma Program curriculum would be graduates and instructors of the program and employers of graduates. Therefore, the findings of the study are based on data received from these three sources.

Conclusions

In reviewing the findings with respect to the objectives of the study, the following conclusions are made:

1. The following competencies were identified as being ranked most and least important on the job by graduates and employers.

   Highest ranked on Importance on Job:

   Keypunching
   Keypunch: Level of Proficiency Required
   Verifying
   Punched Card
   Social Behavior
   Verbal Communications
   Typing
   Keypunch: Program Drum Card

   Lowest ranked on Importance on Job:

   Card Strip Devices
   PL/I
   OCR and/or MICR
   FORTRAN
   ASSEMBLER
   BASIC
   Software Packages (Hands-on Experience)
   RPG

2. The following competencies were identified as being ranked highest and lowest in Preparation at School. It should be noted that a competency ranked low in preparation may also be ranked low in importance and does not necessarily indicate a need for increased emphasis.

Highest ranked on Preparation at School:

Keypunching
Punched Card
Keypunch: Laboratory Assignments
Typing
Keypunch: Program Drum Card
Office Practice

Lowest ranked on Preparation at School:

Card Strip Devices
PL/I
OCR and/or MICR
FORTRAN
ASSEMBLER
Software Packages (Hands-on Experience)
RPG

3. The difference in rank between Importance on Job and Preparation at School for graduates and employers was calculated and ranked. The cumulative difference in ranks in the top 12.5 percent and the lowest 12.5 percent were then used to identify competencies which may need a re-evaluation of emphasis. (Table 9)

Competencies which may need more emphasis in training:

Key-to-Tape and/or Key-to-Disk (Hands-on Experience)
Operating Systems
Verifying
Verbal Communications
Social Behavior

Competencies which may need less emphasis in training:

Business Math
Keypunch: Program Drum Card
Copy and Materials Reproduction
Card Strip Devices
BASIC

4. Instructors show disagreement between ranks on Importance on Job and Preparation at School on several competencies. The correlation shown by instructors between these categories is considerably lower than the correlations of graduates and employers between Importance on Job and Preparation at School. (Table 8)

5. The following two competencies show a wide discrepancy in rank between graduates, employers and instructors on both Importance on Job and Preparation at School. (Table 9)

   Key-to Tape and/or Key-to-Disk (Hands-on Experience)
   RJE, CRT and/or Teletype

6. Correlations between Importance on Job and Preparation at School, and between graduate, employer and instructor respondents are consistently high; indicating a high degree of agreement between groups, although instructors showed the lowest correlations throughout.

7. A majority of respondents, 72 percent, are employed in the Data Processing field, and opportunities to advance on the job appear to be good.

8. Graduate respondents indicate that Data Processing Machine Operator is the most descriptive title for the program.

9. A diploma from a Wisconsin Vocational, Technical and Adult Education District is not necessary in most cases in obtaining a job, although the majority of employers state it is helpful. This indicates that a graduate of the Data Processing Diploma program may have a valuable edge in obtaining a job in today's job market.

10. Comments regarding areas the graduate was not trained for which should be included in the program are widely varied. The majority of respondents, both graduates and employers, indicated that there were no areas of training not covered in the program.

11. Employer respondents indicate a definite need for the skills acquired in the Data Processing Diploma program. The majority of employers encourage their employees to take advantage of this program, and intend to hire graduates of the program in the future.

12. The need for more time spent on operating equipment, and the need for more types of equipment for students use was suggested by numerous respondents.

13. Comments regarding the Data Processing Diploma program were very positive indicating that the Wisconsin Vocational, Technical Data Processing Diploma program is basically well structured and well taught.

Recommendations

Based on the results of the study, the following recommendations are made:

1. That training emphasis on the following competencies be evaluated and adjusted to fit the needs of employers.

   Competencies which may need more emphasis:

   Key-to-Tape and/or Key-to-Disk (Hands-on Experience)
   Operating Systems
   Verifying
   Verbal Communications
   Social Behavior

   Competencies which may need less emphasis:

   Business Math
   Keypunch: Program Drum Card
   Copy and Materials Reproduction
   Card Strip Devices
   BASIC

   Competencies which show a discrepancy in ranks:

   Key-to-Tape and/or Key-to-Disk (Hands-on Experience)
   RJE, CRT and/or Teletype

2. That instructors review competencies based on how important a competency is on the job, and adjust training in that area accordingly; especially in competencies ranked high in Importance on Job and low on Preparation at School.

3. That efforts be made to provide students with a greater variety of equipment for hands-on experience.

4. That more laboratory time be made available to students to increase the amount of practical experience.

5. That the program title, Data Processing Machine Operation be adopted throughout the Wisconsin Vocational, Technical and Adult Education system for this diploma program.

Appendix A

Survey Cover Letters

GRADUATE
First and Second Mailing

GATEWAY TECHNICAL INSTITUTE

Kenosha Campus
District Office:
3520 - 30th Avenue
Kenosha, Wi. 53140
Phone: (414) 658-4371

Racine Campus
1001 South Main Street
Racine, Wi. 53403
Phone: (414) 637-9881

Elkhorn Campus
E. Centralia St. & Hwy. H
Elkhorn, Wi. 53121
Phone: (414) 723-5390

Keith W. Stoehr
District Director

January 23, 1976

Dear Graduate:

Gateway Technical Institute is conducting a statewide curriculum research study of the Wisconsin Vocational Technical Adult Education Data Processing Diploma Programs. The purpose of this study is to determine if the present programs are fulfilling the needs of industry in preparing people for employment, and will assist us in revising and updating our programs to keep them relevant to actual work experiences.

As a graduate of a Data Processing Diploma Program, your assistance would be of great value. We would appreciate it if you would take a few minutes to complete the enclosed questionnaire. By doing so, you would be helping your school to keep in touch with the actual work experiences of Data Processing Diploma graduates.

In an effort to obtain a well-rounded view of the relevancy of these programs, we would like to also send your Supervisor/Employer a copy of this questionnaire. Because we value a positive, open relationship with our graduates, we will send this questionnaire on to your Supervisor/Employer only with your permission. That permission will be considered granted if you will:

1) Sign your name in the space provided below.

2) Write the name and address of your immediate Supervisor/Employer in the space provided.

3) Return the bottom portion of this letter in the stamped, self-addressed envelope provided, along with your completed questionnaire.

This study is designed to evaluate the Data Processing Machine Operation Programs and will not be used as a personal evaluation of our graduates. All information will be kept strictly confidential.

Thank you for your time and your cooperation.

Sincerely,

Lauren DeVuyst

Lauren DeVuyst
Research Assistant
Research and Planning Services

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Enclosures

Please fill in the following information and return with your completed questionnaire.

_____ Signature of Graduate

_____ Name of Supervisor/Employer

_____ Business Address

_____

If you prefer not to have your Supervisor/Employer receive this questionnaire, please indicate your reason below.

_____ I am unemployed at present
_____ I am self-employed
_____ Other _____

_____

GRADUATE
Third Mailing

March 12, 1976

Dear Gradxate:

HELP!!! We're looking for a MISSING EVALXATION FORM! The pxrpose of this stxdy is to keep in toxch with the employment reqxirements of Data Processing Machine Operators.

This message may be a little hard to read becaxse the q is missing on oxr typewriter. The other 44 keys are fxnctioning properly, bxt one key makes a big difference. Oxr sxrvey is mxch like the typewriter. If we're to have a meaningfxl sxrvey, yox are important.

Yox are only one person, bxt one person can really make a difference jxst as only one key made a disaster oxt of this message! Yox can make yoxr contribxtion to the improvement of employment preparation of Data Processing Diploma stxdents simply by mailing yoxr completed evalxation form today.

Thank yox.

Sincerely,

Laxren DeVxyst
Research Assistant, Research and Planning

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Please fill in the following information and retxrn with yoxr completed qxestionnaire.

Signatxre of Gradxate

Name of Sxprevisor/Employer

Bxsiness Address

If you prefer not to have yoxr Sxpervisor/Employer receive this qxestionnaire, please indicate yoxr reason below.

_____ I am xnemployed at present
_____ I am self-employed
_____ Other _____

EMPLOYERS

First Mailing

March 26, 1976

Gateway Technical Institute is presently conducting a statewide curriculum study of the Wisconsin Vocational Technical Adult Education Data Processing Diploma Programs. As an employer of Data Processing Machine Operators, your participation in this study would be of great value in determining the job requirements in this field.

The person identified below is an employee of your company and is a graduate of a Wisconsin Data Processing Diploma Program. This person has received and completed this questionnaire and has given us permission to contact you.

You can make a significant contribution to our study by completing this questionnaire and returning it promptly. All information will be treated confidentially; no individual or company names will be disclosed. A stamped, self-addressed envelope is enclosed for your convenience.

Thank you for your time and assistance.

Sincerely,

Lauren DeVuyst
Research Assistant
Research and Planning

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EMPLOYERS

Second Mailing

GATEWAY TECHNICAL INSTITUTE

Kenosha Campus
District Office:
3520 - 30th Avenue
Kenosha, Wi. 53140
Phone: (414) 658-4371

Racine Campus
1001 South Main Street
Racine, Wi. 53403
Phone: (414) 637-9881

Elkhorn Campus
E. Centralia St. & Hwy. H
Elkhorn, WI. 53121
Phone: (414) 723-5390

Keith W. Stoehr
District Director

April 12, 1976

In case you did not receive our earlier letter, this second copy of our survey instrument is designed to obtain suggestions from you for improving the Data Processing One Year Diploma programs in the Wisconsin Vocational Technical Adult Education system.

Many of the employers of our graduates have already returned their forms. However, your response is important if we are to have a meaningful survey. You can make your contribution to the improvement of employment preparation of data processing students simply by mailing your completed evaluation form today.

Thank you.

Sincerely,

Lauren Devuyst

Lauren Devuyst
Research Assistant
Research and Planning

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INSTRUCTORS

First Mailing

GATEWAY TECHNICAL INSTITUTE

District Office:
3520 - 30th Avenue
Kenosha, WI 53140
Phone: (414) 658-4371

Racine Campus
1001 South Main Street
Racine, WI 53403
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Elkhorn Campus
E. Centralia St. & Hwy. H
Elkhorn, WI 53121
Phone: (414) 723-5390

WGTD
91.1 FM Radio
Kenosha, WI 53140
Phone: (414) 552-9483

Keith W. Stoehr
District Director

March 31, 1976

Gateway Technical Institute is presently conducting statewide curriculum studies of the Wisconsin Vocational Technical Data Processing Associate Degree Programs and the Data Processing Diploma Programs. The purpose of these studies is to determine the relevancy of these two programs to actual work experiences of our graduates.

As a Data Processing instructor, your participation in these studies would be of great value in determining the expected job requirements of our graduates in the Data Processing field.

Enclosed are two survey instruments which have been sent to Data Processing graduates and their supervisors/employers. One questionnaire is relating to the Data Processing Diploma Program. The second questionnaire, which was developed in cooperation with District One--Eau Claire, is regarding the Data Processing Associate Degree Program.

You can make a significant contribution to these studies by completing both of the questionnaires and returning them promptly. All information will be treated confidentially. A stamped, self-addressed envelope is enclosed for your convenience.

Thank you for your time and assistance.

Sincerely,

Lauren DeVuyst

Lauren DeVuyst
Research Assistant
Research and Planning

LD:cl

Enclosures

INSTRUCTORS

Second Mailing

GATEWAY TECHNICAL INSTITUTE

Kenosha Campus
District Office:
3520 - 30th Avenue
Kenosha, Wi. 53140
Phone: (414) 658-4371

Racine Campus
1001 South Main Street
Racine, Wi. 53403
Phone: (414) 637-9881

Elkhorn Campus
E. Centralia St. & Hwy. H
Elkhorn, Wi. 53121
Phone. (414) 723-5390

Keith W. Stoehr
District Director

April 12, 1976

Dear Mr. Shealer:

In case you did not receive our earlier letter, this second copy of the Data Processing Diploma Program Curriculum Study is designed to determine the relevancy of the Data Processing Diploma programs to actual work experiences of our graduates.

Your contribution is important if we are to have a meaningful survey. Please complete the enclosed questionnaire as you best perceive the role of the Data Porcessing employee.

This study is an effort to help you keep in contact with employers of Data Processing graduates. In order to draw valid conclusions, we need to hear from every Data Processing instructor in the Wisconsin VTAE system. Please mail us your completed survey today.

Sincerely,

Lauren DeVuyst
Research Assistant
Research and Planning

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Enclosures

Appendix B

Survey Instrument

DATA PROCESSING DIPLOMA PROGRAM

CURRICULUM EVALUATION QUESTIONNAIRE

Directions: Please circle two numbers for each item, one to the left of the item and one to the right. To the left, indicate the degree of importance placed upon an understanding of these items on the job, and to the right, indicate how well you feel you were prepared in each area.

If you are not working in the data entry field, please complete the following as it best applies to you.

Importance on job			How important is a knowledge, understanding and/or an ability to perform each of the following concepts or activities?	How well do you feel your school prepared you in this area?				
High	Moderate	Low	Computer Concepts	Excellent Preparation		Adequately Prepared		Unprepared
1	2	3	Punched Card	1	2	3	4	5
1	2	3	Key-to-Tape and/or Key-to-Disk	1	2	3	4	5
1	2	3	Magnetic Tape	1	2	3	4	5
1	2	3	Magnetic Disk and/or Magnetic Drum	1	2	3	4	5
1	2	3	Card Strip Devices	1	2	3	4	5
1	2	3	RJE, CRT, and/or Teletype	1	2	3	4	5
1	2	3	Operating Systems	1	2	3	4	5
1	2	3	Software Packages	1	2	3	4	5
1	2	3	Numerical Systems	1	2	3	4	5

Importance on job			How important is a knowledge, understanding and/or an ability to perform each of the following concepts or activities?	How well do you feel your school prepared you in this area?				
High	Moderate	Low	Computer Concepts	Excellent Preparation		Adequately Prepared		Unprepared
1	2	3	FORTRAN	1	2	3	4	5
1	2	3	COBOL	1	2	3	4	5
1	2	3	PL/1	1	2	3	4	5
1	2	3	ASSEMBLER	1	2	3	4	5
1	2	3	RPG	1	2	3	4	5
1	2	3	BASIC	1	2	3	4	5
1	2	3	OCR and/or MICR	1	2	3	4	5
1	2	3	Other _____	1	2	3	4	5
			Hands on Experience					
1	2	3	Keypunch: Program Drum Card	1	2	3	4	5
1	2	3	Keypunch: Laboratory Assignments	1	2	3	4	5
1	2	3	Keypunch: Level of Proficiency Required	1	2	3	4	5
1	2	3	Key-to-Tape and/or Key-to-Disk	1	2	3	4	5
1	2	3	Magnetic Tape	1	2	3	4	5
1	2	3	Card Reader	1	2	3	4	5
1	2	3	Card Punch	1	2	3	4	5

Importance on job			How important is a knowledge, understanding and/or an ability to perform each of the following concepts or activities?	How well do you feel your school prepared you in this area?				
High	Moderate	Low		Excellent Preparation		Adequately Prepared		Unprepared
			Hands on Experience					
1	2	3	Line Printer	1	2	3	4	5
1	2	3	Console Typewriter	1	2	3	4	5
1	2	3	Software Packages	1	2	3	4	5
1	2	3	Programming Languages	1	2	3	4	5
1	2	3	Other _____	1	2	3	4	5
			Courses					
1	2	3	Typing	1	2	3	4	5
1	2	3	Record Keeping	1	2	3	4	5
1	2	3	Office Practice	1	2	3	4	5
1	2	3	Written Communications	1	2	3	4	5
1	2	3	Verbal Communications	1	2	3	4	5
1	2	3	Business Math	1	2	3	4	5
1	2	3	Social Behavior	1	2	3	4	5
1	2	3	Copy and Materials Reproduction	1	2	3	4	5
1	2	3	Other _____	1	2	3	4	5
			Skills					
1	2	3	Keypunching	1	2	3	4	5
1	2	3	Verifying	1	2	3	4	5
1	2	3	Terminal Interaction	1	2	3	4	5
1	2	3	Filing	1	2	3	4	5
1	2	3	Bookkeeping	1	2	3	4	5
1	2	3	Other _____	1	2	3	4	5

GRADUATE SURVEY

1. What is your present job title?

_____ Keypunch Operator

_____ Data Clerk

_____ Clerk/Typist

_____ Other _____

2. Which program title would be most descriptive of the Vocational-Technical program you graduated from?

_____ Data Processing Machine Operator

_____ Data Processing - Data Entry

_____ Data Processing Clerk/Typist

_____ Data Processing Clerk

_____ Data Processing - Data Entry/Preparation

_____ Keypunch Operator

_____ Other _____

3. Was your diploma necessary in obtaining your present job?

_____ Yes _____ No _____ Don't know

4. What is your opportunity to advance on the job, to further utilize your training?

_____ Excellent _____ Poor

_____ Good _____ None

5. Which three areas did you find to be most helpful in this program?

_____	Instructors	_____	Films
_____	Equipment	_____	Handouts
_____	Textbooks	_____	Other audio-visual materials
_____	Field trips to local industry		
_____	Other _____		

6. Which three areas could be improved?

_____	Instructors	_____	Films
_____	Equipment	_____	Handouts
_____	Testbooks	_____	Other audio-visual materials
_____	Field trips to local Industry		
_____	Other _____		

7. How do you feel the above three areas could be improved?

1) _____

2) _____

3) _____

8. Are there any areas you were not trained for which you feel should be included in the program? What are they?

_____

_____

9. We would appreciate any comments you may have concerning this program:

_____

_____

_____

EMPLOYER SURVEY

1. What position does the graduate of the Data Processing Diploma Program hold in your company?

_____ Keypunch Operator

_____ Data Clerk

_____ Clerk Typist

_____ Other _____

2. To what extent was the diploma a factor in hiring the individual for the position?

_____ Required for the position

_____ Helpful but not required

_____ Need actual work experience instead

_____ Prefer to train ourselves

_____ Not needed at all

3. In your company, what is the opportunity of job advancement for the graduate of this program to further utilize his skills?

_____ Excellent _____ Poor

_____ Good _____ None

4. Are there any areas this employee was not trained for which you feel should be included in the educational program? What are they?

_____

_____

5. We would appreciate any comments you would care to make concerning this program: _____

_____

Appendix C

Interview Procedure

February 23, 1976

Dear Sir:

Gateway Technical Institute is in the process of conducting a statewide curriculum study of its Data Processing Diploma Program. The purpose of this study is to determine the relevancy of the Wisconsin Vocational Technical Adult Education Data Processing Programs to actual work experiences of graduates of this program.

As an integral part of this study, Gateway is conducting interviews of graduates and their immediate supervisors/employers. Mr. Robert Myers, as the principal interviewer for this project, would appreciate having a few minutes of your time to assist him in determining the educational needs of students enrolled in Data Processing Programs.

Sincerely,

William J. Becker

William J. Becker
Assistant Director
Research and Planning

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GRADUATES

1. What is your present job title?

___ Keypunch Operator

___ Data Clerk

___ Clerk/Typist

___ Other _____

2. Which program title would be most descriptive of the Vocational-Technical program you graduated from?

___ Data Processing Machine Operator

___ Data Processing - Data Entry

___ Data Processing Clerk/Typist

___ Data Processing Clerk

___ Data Processing - Data Entry/Preparation

___ Keypunch Operator

___ Other _____

3. Was your diploma necessary in obtaining your present job?

___ Yes ___ No _____ Don't know

4. What is your opportunity to advance on the job, to further utilize your training?

___ Excellent ___ Poor

___ Good ___ None

5. Which three areas did you find to be most helpful in this program?

_____ Instructors _____ Films

_____ Equipment _____ Handouts

_____ Textbooks _____ Other audio-visual materials

_____ Field trips to local Industry _____ Other _____

6. Which three areas could be improved?

___ Instructors
___ Equipment
___ Textbooks
___ Field trips to local Industry
___ Films
___ Handouts
___ Other audio-visual materials
___ Other _____

7. How do you feel the above three areas could be improved?

1) _____

2) _____

3) _____

8. Are there any areas you were not trained for which you feel should be included in the program? What are they?

_____

_____

9. We would appreciate any comments you may have concerning this program:

_____

_____

_____

EMPLOYERS/SUPERVISORS

1. What position does the graduate of this program hold in your company?

   ____Keypunch Operator

   ____Data Clerk

   ____Clerk/Typist

   ____Other - Please specify:_____

2. To what extent was the diploma a factor in hiring the individual for the position?

   ____Required

   ____Helpful but not required

   ____Prefer actual work experience

   ____Prefer to train ourselves

   ____Not needed at all

3. In your company, is there a need for the skills the student acquires through this program?

   ____Yes

   ____No

   ____No opinion

4. Do you encourage employees to take advantage of this program?

   ____Yes

   ____No

   ____Probably will in the future

   ____Not likely to in the future

5. In your company, what is the opportunity of job advancement for the graduate of this program, allowing him to further utilize his skills?

   ____Excellent

   ____Good

   ____Poor

   ____None

6. What were the strong areas of this employee/graduate?

7. What areas could use improvement?

8. How could these areas be improved?

9. Would you hire other graduates of the program?

10. Comments

Appendix D

Tabulation of Graduate Response

Tabulation of Graduate Response

1. What is your present job title? (N=79)
   - 32 Keypunch Operator
   - 0 Data Clerk
   - 4 Clerk Typist
   - 42 Other:
     - 12 Computer Operator
     - 2 Data Entry Operator
     - 1 Machine Operator
     - 1 Data Input Operator
     - 1 I/O Control Clerk
     - 1 Key to Tape Operator
     - 1 CRT Supervisor
     - 1 Sorter and Collector
     - 1 Not specified
     - 14 Employed out of data processing field
     - 5 Unemployed
     - 3 Student

2. Which program title would be most descriptive of the Vocational-Technical program you graduated from? (N=79)
   - 43 Data Processing Machine Operator
   - 7 Data Processing - Data Entry
   - 10 Data Processing Clerk/Typist
   - 0 Data Processing Clerk
   - 9 Data Processing - Data Entry/Preparation
   - 9 Keypunch Operator
   - 1 Other:
     - 1 Clerk typist with D.P. Emphasis

3. Was your diploma necessary in obtaining your present job? (N=77)
   - 32 Yes
   - 28 No
   - 17 Don't know

4. What is your opportunity to advance on the job, to further utilize your training? (N=72)
   - 10 Excellent
   - 33 Good
   - 19 Poor
   - 10 None

5. Which three areas did you find to be most helpful in this program? (N=79)
   - 64 Instructors
   - 73 Equipment
   - 45 Textbooks
   - 13 Field trips to local industry
   - 7 Film
   - 12 Handouts
   - 7 Other Audio-visual materials
   - 6 Other:

1 Open lab
1 Six week keypunch course
1 On the job training
1 Homework - RPG and BASIC Programs
1 People running the computer full time
1 Working at your own pace

6. Which three areas could be improved? (N=77)
20 Instructors
28 Equipment
21 Text books
53 Field trips to local industry
34 Films
20 Handouts
21 Other audio-visual materials
10 Other

7. How do you feel the above three areas could be improved: (N=76)

Instructors:
3 Better communication with students
3 Some instructors are unprepared to teach
2 Classes could be made more interesting
2 Instructors should take more interest in teaching
1 Should spend more time with students
1 Need more knowledge of programming
1 Should make material more understandable
1 Need to go back to school
1 Need more instructors for individualized training
1 Teacher lectured too much
1 Should spend more time on D.P. Courses
1 Need more knowledge and experience on different types of machines

Equipment: (N=28)
14 Need more up to date equipment
8 Need more variety in equipment
5 Need more equipment
3 Need more experience on equipment
2 Use of different in-put devices
1 More with line printer
Need:
1 Large computer
1 Key to disc
1 129 machines
1 Sorter
1 Collator
1 Card reader

Textbooks: (N=21)
- 7 Should be easier to understand
- 4 Need to be updated
- 2 Should use texts more
- 2 Should cover more on keypunching
- 2 Didn't use texts
- 1 Texts were very boring

Field Trips (N=53)
- 30 Should have more field trips
  - 8 To show students working conditions
  - 2 To see other applications
  - 1 Should go to larger industries
  - 1 Should go to different types of companies
  - 1 Should go in small groups
- 8 Had few or no field trips
- 2 Students should have hands-on experience

Films: (N=34)
- 7 Should be more up to date
- 7 Films should be more informative
- 6 Should have more films
- 3 Didn't have films
- 2 Should be more creative and interesting
- 1 Films should not be so childish
- 1 Should not have cartoon type films
- 1 Films were very poor

Handouts: (N=20)
- 5 Could have more handouts
- 3 Handouts should be more informative
- 2 Do not need handouts
- 2 Should be easier to understand
- 1 Use handouts and equipment they describe together

Other audio-visual materials: (N=21)
- 6 Should use more audio-visual aids
- 2 Some were too complicated
- 2 Did not have any
- 1 Should be more up to date

Other: (N=10)
- 9 Need more lab time
- 1 Need two year Computer Operator course

8. Are there any areas you were not trained for which you feel should be included in the program? What are they? (N=82)

3 Need training on more up to date machines
3 Need training on different types of machines
3 Need more practical experience
1 Would like more classes with D.P. majors
43 None

Need more on:

4 Programming languages
4 Key to disk
3 Key to tape
3 Computer operations
2 Programming
2 IBM system
1 RPG
1 Program cards
1 Terminals
1 Spelling
1 Line Printer
1 Changing a keypunch machine
1 Computer console
1 Column locate indicator on keypunch
1 Alpha keys
1 SPO
1 Human relations
1 Accounting
1 Verifying

9. We would appreciate any comments you may have concerning this program: (N=62)

26 This is a good program
11 Need more practical experience
8 Need more time on computer
6 Program should be longer
5 Too many general education courses
3 Too much theory
3 Need more on reading from source documents
3 Employers prefer on the job training
2 Too much keypunching
2 Need more variety in equipment
2 Program offers background in more than one area
2 Not enough demands made on students

Appendix E

Tabulation of Employer Response

Tabulation of Instructor Response

Mailed Survey Question:

1. What position does the graduate of the Data Processing Diploma Program hold in your company? (N=32)
   - 17 Keypunch Operator
   - 2 Data Clerk
   - 1 Clerk Typist
   - 12 Other:
     - 4 Computer Operator
     - 2 Data Entry Operator
     - 1 Distribution Clerk
     - 1 Senior Keypunch Operator
     - 1 Bookkeeping supervisor
     - 1 Programmer
     - 1 Keytape Transmission Operator
     - 1 Keypunch Operator/Control Clerk

2. To what extent was the diploma a factor in hiring the individual for the position? (N=32)
   - 6 Required for the position
   - 21 Helpful but not required
   - 3 Need actual work experience instead
   - 1 Prefer to train ourselves
   - 1 Not needed at all

3. In your company, what is the opportunity of job advancement for the graduate of this program to further utliize skills?
   - 5 Excellent
   - 17 Good
   - 9 Poor
   - 0 None

4. Are there any areas this employee was not trained for which you feel should be included in the deucational program? What arc they?

   MICR training, more computer training (basic)

5. We would appreciate any comments you would care to make concerning this program: (N=20)
   - 4 This is a good program
   - 3 Key to disk is important
   - 1 Accounting knowledge
   - 1 Graduates should learn how to ask questions
   - 1 Need to work on more data machines
   - 1 Need more on keypunch
   - 1 Need more practical experience
   - 1 Keypunch and computer operations should be separate
   - 1 Public relations course would be helpful
   - 1 Need more bookkeeping knowledge
   - 1 Graduates tend to be nervous under supervision
   - 1 Technical schools are more practical than 4 year colleges
   - 1 We hire only experienced keypunchers
   - 1 Need more on RPG
   - 1 Some general education should be eliminated
   - 1 Results of this study should be seen by students

Additional Interview Questions:

Additional Interview Interview Questions:

3. In your company, is there a need for the skills the student acquires through this program? (N=19)
   - 19 Yes
   - 0 No
   - 0 No Opinion

4. Do you encourage employees to take advantage of this program? (N=19)
   - 13 Yes
   - 4 No
   - 1 Probably will in the future

6. What were the strong areas of this employee/graduate? (N=19)
   - 6 Competent, steady, good work attitude
   - 5 Keypunching
   - 3 Speed, accuracy
   - 2 Basic understanding of job
   - 1 Knew keyboard
   - 1 Training
   - 1 Easy to train
   - 1 Training in computers
   - 1 Hands on experience
   - 1 Operating training

7. What areas could use improvement? How could these areas be improved? (N=19)
   - 3 Speed and accuracy
   - 2 Bookkeeping
   - 1 Math and accounting skills
   - 1 Programming drum cards
   - 1 Program cards, alpha fields
   - 1 Understanding of JCL and how computer works
   - 10 None

9. Would you hire other graduates of the program? (N=19)
   - 2 Definitely
   - 15 Yes
   - 1 Probably
   - 1 Only if from top of class

Appendix F

Respondents' Comments

Graduate Comments

Very satisfied.

The program was very good in preparing me for a keypunch job. Thank you for the experience you did give me.

I enjoyed the program. It was well planned and I would influence everyone who plans to attend a vocational school, to seriously think about taking this program.

I felt it was a good program, I did get a good job and from that point I feel it was worthwhile.

This was a very good program except that when I went out looking for a Keypunch Operator job, all employers wanted to know the speed and accuracy I had achieved in school. I couldn't tell them because we were not given a small card, like other schools, telling us this information.

They should make the Data Preparation course I was enrolled in, into a two year course because we really pushed to learn a lot in a short time. I felt kind of slighted because in my DP I and II courses we only spent a few days on key-to-tape, 129 keypunch, in computer operations and a couple weeks on programming, one day on CRT's and how they work, two weeks on the TC500. One thing that got to me was that in my Introduction to Data Processing course was when we wrote our programs in COBOL we were told to write them from hand outs with no prior background.

I would not have my position if it were not for your school. Thank you!

When I was hired all they wanted was someone who knew something about the machines. I was trained on the job by the manufacturers themselves of the equipment we are using.

Without it I wouldn't have my present job.

The program was organized and informative, teachers were very willing to help students and because of this background I am considering coming back to school as a part time student in the Computer Programming field.

The program did teach me many vital things of great importance.

Too much emphasis was placed on IBM 29 keypunching. Experience in anything else was up to student initiative. Students need to see and study many types of equipment to see how it works and the similarities. Other than that, I have much affection for the vocational school's program. They tried hard to teach me, and I tried hard to learn, and both are better.

It is a pretty good program and helpful in my line of work.

A good program.

I thought it was a good program - gives you a background on more than on thing! This is good - because jobs are scarce.

Some areas that should have been emphasized more - and others shouldn't have been emphasized so much.

One thing, have actual material for students to punch, inventory statements, etc. - Have different types of entry - from different companies, so students are actually trained on an IBM or UNIVAC even Honeywell machines, that way the company can almost be guarenteed of gals trained on their machines. Have students make their own programs and learn to punch alpha and numeric interlocking.

The training was excellent for a keypunch operator on an old machine but not training on the newer keypunches that are used now. Could have used a little more training in computer operation and languages. Could of used training in key tape machines.

Too many general courses.

More variety of keypunch work from different firm.

Too many general courses.

129 keypunch or more advanced. Was not prepared for low pay and poor job advancement. I think most of the classes could have been optional, that we had to take in the course, such as English or Speech.

More on verifying. More work on keypunch machine.

I would of liked to learn more about copy machines.

I was pleased with the program but I wish we got to work more with the computer - instead of the keypunch machine.

Make sure you have a job in mind before you go into the field.

I liked the program and it really helped me in finding a job.

Very good, except for not enough machines for class and not having the different machines available, eg. collator, sorter, card reader, etc. Business math class is held back by those with poor math ability.

Very bad at keypunch as got a lowpaying job for three months then moved on. Accounting background very helpful. Later felt that program was very helpful. Need more work on picking information off of various forms and source documents.

Should have much more practice during course.

Spent too much time on theory and not enough on actual practice.

I would like to have someone from a Business Office come in to explain (No. 2) and the different functions of each phase of D.P. I thought six hours a week of text book was too much and essay writing and not enough actual work on office equipment and procedures. I did enjoy taking the course nevertheless. Now all I need is experience.

Excellent program. Helped me a lot to get the job I have now.

Felt that the course was to advantage but that more could have been learned if there hadn't been a change of teachers midway through the second semester.

Good skills, but need more exposure to actual working conditions from actual business offices.

It was okay except you really didn't get much of a chance to use the equipment to get more familiar with it for when you did get a job.

Less general courses.

Too much time spent on accounting class and other classes and not enough time spent working on computers.

Although for my present job as keypuncher/varifier I didn't need any previous schooling; I found my job easier to learn because I had the schooling than trying to learn on the job training.

More hands on experience would have been better.

Very good schooling.

Good program because you can go in two directions, D.P. or general clerical - good job market and only takes one year.

This program is too short, and not enough demands made on the student. Not enough selection in computer related classes.

Not enough time to spend on computer.

It was a good course.

Have more machine work.

It was rather simple and what I learned in the D.P. field, I had already had some knowledge of it before.

We had hardly any experience on the computer.

Any high school grad. could get the same job with the same pay; training on the job.

In class all your data is all in a row. On the job you never read any data straight across until the computer print-out. You should teach punchers to scan material and to decipher various hand writing because that's where ½ your speed comes in.

I really enjoyed the keypunch part and other office work areas. I wasn't too crazy about the computer work itself.

One whole semester was spent on textbooks and studying and last semester was working with the computer itself - I think more time should be used on the computer and less on the testbook.

Employers think there is not enough practical training involved. Disappointed that there was no more time spent running computer and unit record equipment. Lack of information on equipment. Too much keypunching.

I enjoyed technical school very much. It prepared me for the outside world and taught me to work on my own and not to depend on everyone else to do the hard work for me.

I thought it was a waste of my time. I was told my qualifications were only that equal to a secretary.

I wish it would be a two year course more operating and programming course so a person could become either an operator or a programmer as they wish.

Should be a two year program.

Did not get into operating the equipment enough.

Leave the time spent on programming out. More stress put on computer operations.

Did all right.

I feel consideration should be taken in expanding Data Processing to a two year course and the classes should be orientated to Data Processing instead of so much general office.

There is too much to learn in too little time.

Employers Comments

We plan to use more graduates of technical schools

Overly tense, otherwise good. Try to observe students while practicing by standing behind them to help overcome nervousness.

Most new people start on night shift which is unsupervised. Accounting knowledge is helpful.

Should learn to ask questions, make sure they understand instructions.

Seems to be a good course. Need more work on other data machines to increase their employment possibilities.

Technical schools are more practical training than 4 year colleges.

The course should apply to more of the keypunch machines and not all the business machines, and not all the software and parts of the computer.

We prefer to hire only experienced keypunchers though this graduate is very capable.

I think the idea of an interview is a good thing and I hope the results will be seen by the students in the future.

Forms to be used are not important. Key to disc is more important, key to tape to cassette.

Be a good idea of schools had at least one key to disc machine (3741 IBM)

Should teach RPG language, 96 column cards. Know access to key to disc. Systems, 3 cardless systems. Should have much more practical practice, less theory. Eliminate some of the general education courses.

Work on different types of documents, should separate keypunch and computer operations.

Public relations course would be good.

Measuring levels of class

Need more bookkeeping knowledge. Scheduling and timing of processing.

This graduate is a good worker and seemed to have a basic idea of how to operate a computer.

We don't do data processing work here, only type forms for keypunching.

Good

The program isn't designed to teach programming languages, that's why I rated preparation in that area low.