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A Survey of Comparative Costs of Selected Junior
College Vocational Laboratories for Vocational
Curriculum Planning Purposes in the Proposed East
Central Illinois Junior College
(TITLE)

BY

Robert A. Carrell

PLAN B PAPER

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE MASTER OF SCIENCE IN EDUCATION
AND PREPARED IN COURSE

Education 596

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY,
CHARLESTON, ILLINOIS

1966

YEAR

I HEREBY RECOMMEND THIS PLAN B PAPER BE ACCEPTED AS
FULFILLING THIS PART OF THE DEGREE, M.S. IN ED.

January 24, 1967
DATE


ADVISER

January 24, 1967
DATE


DEPARTMENT HEAD

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CHAPTER I

INTRODUCTION

"The principle of equal educational opportunity for all is no longer seriously argued in this country. And though the means for providing it has been hotly debated, even the issue of means is being resolved by necessity. The number of pupils arriving on the scene and the sheer bulk of information to be transmitted has, to a great extent, compelled both educators and the public to abandon debate in favor of action. In the new crisis atmosphere created by onrushing technology, educational progress and perhaps economic survival demands better, not just more, education for all."¹

"The public community college has emerged in recent years as one of the most vital forces in higher education. The past decade has seen unprecedented growth in this field, with more than a hundred new colleges established during that period. A variety of pressures has contributed to this growth. Ever-increasing numbers of students want to go to college. Changes in technology, the advent of automation, have resulted in demands from government and industry for technical and semiprofessional personnel with at least two years of college. Society is demanding that most young people be given an opportunity for education beyond high school--and the public junior college is providing the opportunity."²

¹Robert Bergquist, Computer Scheduling Educational Reform, (School Planning Laboratory, Stanford University), p. 3.

²Edmund J. Gleazer, Jr., Junior Colleges: An Introduction, American Association of Junior Colleges, Washington, D. C., p. 8.

To meet this challenge in the State of Illinois, House Bill number 1710, known as the Public Junior College Act, was approved on July 15, 1965. This act resulted in a mushrooming of activity to establish area junior colleges. Several will meet the requirements set forth in the act. Many will not. The communities that receive approval will be suddenly awakened to the fact that the problems to be surmounted are titanic in nature.³

"With the new concern for expanding opportunity for college experience and at the same time preparing men and women for jobs in two years or less, the pendulum of attention is swinging more vigorously toward the occupational in junior colleges."⁴

The swing toward the occupational seems to be a characteristic of the modern junior college. It is attempting to offer an expanded occupational curriculum beyond the high school by preparing young men and women for the world of work as well as for professional development. Unfortunately, there appears to be no method, formula, or divining rod that will insure success.⁵

The possibility of adequate universal guidelines being established for creation of vocational-technical programs that will meet today's needs seems remote at the present. This apparently provides an unparalleled opportunity for bold and imaginative planning and action realistically designed to develop programs and procedures which meet the needs of the students in the local community.⁶

It would appear that there is need for a re-evaluation of what has been

³Norman C. Harris, Technical Education in The Junior College: New Programs for New Jobs, American Association of Junior Colleges, Washington, D. C., 1964, p. 19.

⁴Edmund J. Gleazer, Jr., The Junior College, College and University Business, October, November, and December, 1964.

⁵Ibid.

⁶Ibid.

considered the goals of vocational-technical education in the past. The most common conception of vocational-technical education is that it consists of terminal courses leading to employment in a specialized area. If this point of view is accepted, then it would seem laboratories must be designed for each specific course. This appears sound theoretically, but the fact must be faced that in actual practice this is an uneconomical and unsound practice. Today, there is such a rapid advance in technical and related fields that job classifications are changing overnight. Jobs are disappearing from the labor market and new ones are appearing. A person entering into a job "today" is apt to find that job gone "tomorrow". Today, even with a booming economy, there is still a large number of unemployed,⁷ and, at the same time, there are large numbers of unfilled jobs because of a lack of trained persons.⁸

The Federal Manpower Program was established as an attempt to alleviate the shortage of skilled persons. Most of the persons enrolled in this program are taken from the unemployment compensation rolls. A major reason why they are on the rolls is because of a lack of saleable skills or because of a disappearance from the labor market of the skills they possess. They are placed in training programs that will give them skills which are saleable in today's labor market.⁹

With this situation developing it appears necessary to make careful consideration before developing a curriculum and facilities leading to strict specialization in vocational-technical education. It seems as though it is

⁷Bureau of Labor Statistics, Government Printing Office, Washington 25, D. C., October 1, 1966.

⁸Ibid.

⁹John E. Cullerton, "The Director's Page," Illinois Labor Bulletin, Vol. 26, No. 4, 1965, p. 3.

imperative that an entirely new approach be made. The vocational-technical courses could be consolidated into broader educational areas so as to give a wider basic background in a particular area. Provision could be made for maintaining flexible programs in training and retraining that would provide for inter-industry mobility and for opportunity to cross the barrier of industrial occupational classifications.¹⁰

¹⁰Clifford Erwin, "An Investigation of Business and Industrial Employment Needs in Relation to Educational and Vocational Preparation in Selected Areas of Illinois" (unpublished Ph.D. dissertation, Department of Industrial Arts, University of Indiana), p. 93, 1963.

NEED FOR THE SURVEY

The Steering Committee of the proposed East Central Illinois Area Junior College was engaged in making a study of their building requirements and a tentative curriculum to be adopted for the Junior College. They had indicated the desirability of maintaining as nearly as possible a fifty-fifty (50-50) ratio between the academic areas and the vocational-technical areas.¹¹

Since the members of the committee were primarily persons employed in public education as teachers, principals, and superintendents, it was assumed that they were reasonably well informed in the needs and requirements of the academic areas or would have access to the wealth of information on this subject. However, when they began to consider the specific needs and requirements of vocational areas they found that information in this area which was applicable to the East Central Illinois Junior College was unavailable.¹²

While the Federal Vocational Act of 1963 had expanded the potential of vocational-technical education far beyond previous provision, study of the vocational master plan as developed by the State of Illinois Board of Vocational-Technical Education and Rehabilitation reveals only a broad comprehensive plan of areas to be covered rather than specifics as to curriculum.

In view of the lack of specific guidelines in the past, it has not proved feasible to attempt to pattern the vocational-technical requirements of East Central Illinois Junior College after existing junior college curriculums. An

¹¹Interview with Chairman of the Steering Committee, Mr. Clem Phipps, April, 1966.

¹²Interview with Chairman of the Curriculum Committee, Mr. Charles L. Jolly, June, 1966.

examination of the large complete collection of representative junior college catalogs in Eastern Illinois University's Department of Administration appears to justify the conclusion that existing junior colleges are apparently lacking in their offerings in this field. Also, of course, the requirements of a vocational-technical curriculum are held by junior college authorities to be largely determined best by the vocational-technical needs of the particular college community.¹³ The East Central Illinois Steering Committee now has the results of its comprehensive community-wide survey which gives a general indication of needed courses of study in the vocational-technical area.

The cost of laboratories for vocational-technical courses would apparently have a direct impact on the building and financing program, because they would seem to be extensive and expensive to equip if an adequate level of instruction were to be offered. Any curriculum planning would appear to be capable of greater success with the availability of dependable cost estimates in vocational-technical programs requiring substantially more expensive facility provisions than conventional academic programs. The usefulness of the cost information would seem to be increased.

¹³B. Lamar Johnson, Starting a Community Junior College, American Association of Junior Colleges, Washington, D. C., 1964, p. 10.

PURPOSE OF SURVEY

The purpose of this survey was to ascertain the comparative cost of equipping various vocational-technical laboratories for courses that had apparent possibilities for inclusion in the curriculum of the East Central Illinois Area Junior College according to the steering committee survey and the report of the Steering Committee Curriculum Study Committee.

The survey was also concerned with establishing an estimate on the per-pupil cost of equipping the laboratories.

DELIMITATIONS

This survey was concerned only with costs involved in relation to vocational-technical courses which typically required extensive laboratory facilities for instruction. The courses chosen were only those which had a possibility of inclusion in curriculum as determined by their inclusion in the survey of community needs, the survey of interest, and the recommendations of the Steering Committee as reported in their feasibility study. The study did not seek to justify inclusion or exclusion of any particular course.

The survey was only concerned with actual movable equipment in the laboratories. It did not consider building costs. Permanent built-ins, such as cabinets, lockers, storage shelves, and plumbing were considered as a part of the building costs.

No attempt was made to subdivide some of the broader areas. As an example, the metal area was considered as a whole rather than being delineated into machine shop, foundry, sheet metal, and welding because in standard educational practice these were included in one large comprehensive laboratory or in various combinations.

DEFINITIONS

An examination of course descriptions in junior college catalogs, revealed that there was a wide range of interpretations of courses having the same title. The laboratory needed for a particular course will vary with the comprehensiveness of the course. This made it necessary to develop course descriptions and scope for the various vocational-technical courses being considered so as to have guidelines on judging the adequacy of the laboratories.

The following was the definitions of courses used in the survey:

- Metal area--included in the laboratory for this area would be facilities for sheet metal, heat treatment of metals, machine shop, foundry, oxyacetylene welding and cutting, electric arc welding, and cutting, and metallurgy.
- Electricity area--includes general electricity, residential wiring, industrial wiring, electric motors (AC and DC), and automotive electricity.
- Electronics area--includes basic circuits, communications, radio and television, and computers.
- Drafting area--includes mechanical engineering and architectural drawing.
- Power Mechanics area--includes four-cycle engines, two cycle engines, diesel engines, hydraulic power, jet engines, gas turbine engines, and transmissions.
- Building Trades area--includes carpentry, cabinetmaking, residential, farm building, and industrial construction.
- Mechanical Trades area--includes plumbing, heating, air conditioning, and refrigeration.
- Agriculture area--includes ornamental horticulture, farm machinery, agri-business, grain, seed, and feed technology.
- Business area--includes secretarial, accounting, marketing and retailing, sales and advertising, business and industrial management, and finance.
- Health Occupation area--includes dental assistant, medical laboratory technician assistant, physical therapy, technical assistant, licensed practical nursing, x-ray technician, medical records assistant, nurses' aide, and hospital building maintenance.

- Junior College Feasibility Study--A study conducted to determine if proposed junior college district meets all the requirements of Article III, Illinois House Bill 1710.
- Junior College Steering Committee--A local citizen's committee appointed locally to conduct a feasibility study and to promote community interest in establishment of a public junior college district.
- Federal Manpower Program--A federally sponsored program for training or retraining persons referred by the employment office to give them marketable skills.
- East Central Illinois Junior College--A public junior college district to encompass all or parts of the following counties: Coles, Douglas, Edgar, Clark, Cumberland, Effingham, Shelby, and Moultrie.
- Illinois House Bill 1710--An act in relation to the establishment, operation, and maintenance of junior colleges and making an appropriation in connection therewith.
- Vocational-technical Education--having to do with those courses which are occupational or industrially oriented in nature,
- "Extensive" Laboratory Facilities--those that require large numbers of expensive machines and equipment and large areas to house them.
- Federal Vocational Act of 1963--authorized federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education and to develop new programs of vocational education for students and adults.
- Public Junior College--A two year institution of higher education offering a college parallel curriculum, vocational curriculum, adult education, guidance, and special services to a specified community.

METHOD AND TREATMENT OF DATA

Three methods of research were used in assembling data for this survey. The first method used was by letters of inquiry to universities, state department of education, and associations which were recognized as having done outstanding research and study on junior colleges.¹⁴ Letters of inquiry were sent to the following:

1. School Planning Laboratory
School of Education
Stanford University
Stanford, California
2. The University of Texas
College of Education
Austin, Texas
3. Mr. Ken Brunner
Junior College Coordinator
Department of Higher Education
Southern Illinois University
Carbondale, Illinois
4. University of Florida
College of Education
Gainesville, Florida
5. Mr. Robert O. Birkheimer
Junior College Division
Office of Superintendent of Public Instruction
Des Moines, Iowa
6. Department of Health, Education, and Welfare
Office of Education
Washington, D. C.

¹⁴Interview with Dr. Glenn Williams, Eastern Illinois University, June, 1966.

7. Edmund J. Gleazer, Jr.
American Association of Junior Colleges
Washington, D. C.
8. Mr. Kenneth G. Skaggs, Specialist
American Association of Junior Colleges
1315 16th Street, N. W.
Washington, D. C.
9. Mr. Bob H. Reed
Director, Facilities Information
1315 16th Street, N. W.
Washington, D. C.

The letters contained a brief description of the research area and a list of the proposed laboratories with blanks for inserting copies of equipment and the number of students the laboratory was designed for. (See appendix).

The second method of research used consisted of investigating the resources in the library at Eastern Illinois University. The card file of Master's papers in the library at Eastern Illinois University was checked for possible studies made on this subject. The Phi Delta Kappa publication of doctoral theses listing for the past three years was checked for material on this subject. The Reader's Guide to Periodicals, The Industrial Arts Index, and the Education Index were also checked.

The third method of research was personal interviews of persons who had access to the information sought. Some were referred by the Office of Superintendent of Instruction and some by Mr. Clem Phipps, Chairman of the Steering Committee. The following persons were interviewed:

1. Mr. Orville Floyd
Vocational Agriculture Division
Board of Vocational Education and Rehabilitation
Office of Superintendent of Public Instruction
Springfield, Illinois

2. Mr. Allan L. Utech
Vocational Agriculture Education Division
Board of Vocational Education and Rehabilitation
Office of Superintendent of Public Instruction
Springfield, Illinois
3. Mr. Ralph Garrett
Technical and Industrial Education Division
Board of Vocational Education and Rehabilitation
Office of Superintendent of Public Instruction
Springfield, Illinois
4. Miss Louise Daly, R.N.
Director of Health Education Services
Technical and Industrial Education Division
Board of Vocational Education and Rehabilitation
Office of Superintendent of Public Instruction
Springfield, Illinois
5. Mr. Raymond Carrell
Chairman of Industrial Arts Department
Niles Township High Schools, North Division
Skokie, Illinois
6. Dr. Walter Klehm
Chairman, Industrial Arts Department
Eastern Illinois University
Charleston, Illinois
7. Mr. Clem Phipps
Chairman, Eastern Illinois Junior College Steering Committee
8. Gilbert Renner, President
Elgin Community Junior College
Elgin, Illinois
9. Mr. Charles Crites
Director, Manpower Retraining Center
Mattoon, Illinois
10. Mr. Dale Roberts
Director, Vocational Education
Community Unit No. 2
Mattoon, Illinois
11. Dr. James Giffin
Chairman, Department of Business
Eastern Illinois University
Charleston, Illinois

12. Dr. Glenn Williams
Eastern Illinois University
Charleston, Illinois
13. Dr. James Spencer
Associate Secretary, State Junior College Board
Springfield, Illinois

The data collected from these sources were analyzed and evaluated on the basis of their suitability and relevance to the proposed area laboratories as described previously under title of definitions. Cost of equipment for the laboratories most nearly meeting the definition was used as the estimate for that particular area laboratory. Dividing the total cost by the number of students for which the laboratory was designed gave the per-student cost of equipping the laboratory.

CHAPTER II

RESULTS OF THE SURVEY

It was discovered from the results obtained that it was not a common practice to separate equipment costs from building costs. Most estimates found were a per-square-foot building cost with the equipment cost included in this figure. It was impossible to isolate just the equipment cost. Since to arrive at this figure the equipment costs had to be determined, the best source of information was by personal interviews with persons who had been directly involved in the planning of building and laboratories.

RESULTS OF LETTERS OF INQUIRY

Returns on the letters of inquiry produced almost negative results. (See appendix). The most common reply was a suggested check with the State of Illinois Department of Education or to contact the various companies which sell the equipment.

Mr. E. L. Kurth, Associate Professor, Junior College Center, University of Florida, returned a document with his letter entitled, "Expansion Hartford State Technical Institute, Hartford, Connecticut." This document was a listing of laboratories to be included in this facility and the room size required for each. There was no information on equipment or cost.

The only other materials received from the letters of inquiry were booklets from the School Planning Laboratory of Stanford University. Titles of the booklets were as follows:

1. Planners and Planning
2. Facilities Planning--Vo-Tech/Continuing Information Program
3. Computer Scheduling Educational Reform
4. Horizontal and Vertical Circulation
5. A Study on Studying
6. Spectrum of Electronic Teaching Aids in Education
7. Parking Programs for Universities
8. Profile of Atlanta, Georgia Area Vocational-Technical School
9. School Scheduling by Computer

There was a wealth of information in these booklets, but none of them gave any information on laboratory equipment or cost of equipment.

There was no reply received from Mr. Robert O. Birkheimer, Office of Superintendent of Public Instruction, Des Moines, Iowa.

RESULTS OF LIBRARY RESEARCH

The results from researching the library were also unrewarding. Evidently, this was a subject area in which there has been very little interest. There were no masters' or doctoral theses in this particular area. The conclusion could almost be drawn that educators have not considered this a respectable area of investigation. Periodical index research produced many magazine articles on school laboratories, but again these were primarily concerned with the size of laboratories and arrangement of equipment. No articles were found that gave a

description of the courses and objectives and then proceeded to lay out a laboratory that would achieve these objectives.

RESULTS OF PERSONAL INTERVIEWS

An article in the March, 1966, issue of Industrial Arts and Vocational Education magazine led to a personal interview with the author, Mr. Raymond Carrell, Chairman of Industrial Arts Department, Niles Township High School, North Division, Skokie, Illinois. This school district had recently completed a new high school facility. Included in this was a technically-current, instructionally-efficient industrial arts department. This department far surpasses the average high school industrial arts department in both space available and in equipment. They had the advantage of having more than an adequate amount of money available for this department. The department is equipped throughout with factory production equipment instead of the smaller facsimilies that are usually found in school laboratories. By any standards, they would serve as very functional Junior College laboratories with the exception of electricity-electronics. Mr. Carrell was able to furnish complete equipment costs for the five areas in which they have laboratories. Each one of the laboratories was designed for twenty-four (24) students.

Following are the costs of equipping each laboratory:

1. Mechanical and Architectural Drafting-----\$ 5,196.54
2. Auto Mechanics-----\$30,693.94
3. Electricity-Electronics-----\$13,339.50
4. Metals-----\$53,706.74
5. Woods-----\$15,803.33

The interview with Mr. Floyd and Mr. Utech of the State Vocational Agriculture Division was rewarding, but at the same time disappointing. They have both worked with five different junior colleges in the past two years on a curriculum for agriculture. Results from the courses that had been adopted were excellent, but the scope of this program was very narrow when measured against the potential for the field of agriculture. Since these had been successful, they advised that all future junior colleges that are established should have these courses. The costs of equipping laboratories were based on the state reimbursement for the equipment. Total costs were as follows:

1. Ornamental Horticulture-----\$ 8,000.00
This does not include the cost of a greenhouse which is considered an absolute necessity. Two of the Junior Colleges were leasing greenhouses until they could construct their own.
2. Farm Machinery-----\$12,000.00
This does not reflect the cost of tractors, machines and engines that were donated or loaned by the farm machinery companies. These companies have been very cooperative with the Junior Colleges and have been very liberal in their support.
3. Agri-business-----\$ 8,000.00

Mr. Floyd had surveyed a course outline in Feed, Seed and Grain Technology issued by the U. S. Office of Education. The recommendation for equipping a laboratory for this course ranged from \$32,000.00 to \$39,000.00. Mr. Floyd considered this a very unrealistic figure. The itemized list of equipment contained several very expensive testing machines which he did not consider necessary. He seems to be more oriented to a high school agriculture program than to a college level program. His estimate for this program ranged from \$6,000 to \$7,000. For a college level program the \$32,000 seemed more realistic.

Miss Louise Daly, R. N., Director of State Health Education Services, stated that several areas in the health education field had recently been upgraded from two year courses to four year college degree courses. This seriously curtailed courses that could be offered in a junior college. The courses that could be offered in a junior college would be in the area of technician assistants. Because of the high cost of equipment and because of the short time that it takes for this equipment to become obsolete, she recommended that no laboratories be established for them. Instead, these courses should be cooperative, with classroom instruction being offered in the junior college and practical or laboratory work being carried on in hospital facilities of the community. The only programs that could justify having a laboratory were the dental assistant course and the licensed practical nurses program. Estimated costs for equipping laboratories for these courses were as follows:

1. Dental Assistant (10 students--used equipment)-----\$20,000 to \$25,000
2. Licensed Practical Nurse (10 students)-----\$ 2,000
This equipment would be for the classroom. Part of this course would be taught in community hospital facilities.

Dr. James Giffin, Chairman, Department of Business, Eastern Illinois University had done some research in both recommended curriculum and cost of equipping laboratories in a junior college. His recommendations are as follows:

1. One typewriting-stenographic laboratory equipped to accommodate the typewriting and dictation needs of 30 to 35 students: tables, chairs, typewriters (manual) and dictation machines-----\$ 8,500.00
- Same laboratory with electric typewriters-----\$13,750.00
- Also desirable would be an electronic dictation console-----\$ 3,000.00

2. One laboratory equipped for retail merchandising, display, sales promotion, customer relations, and floor selling-----\$ 3,000.00
 3. One office practice room equipped as a model office, with typewriters, duplicators, adding and calculating machines, one fairly complex bookkeeping posting machine and card punch-----\$ 8,000.00
 4. One electronic shorthand laboratory equipped with multiple channel dictation outlets and student stations, together with tape player and manual typewriters-----\$10,000.00
- With electronic typewriters-----\$15,650.00

Mr. Charles Crites, Director of Manpower Retraining Program was unable to furnish costs of the metals, auto mechanics, or welding laboratories as these had been equipped primarily with government surplus property. However, the electronics laboratory had been equipped with all new equipment. This equipment was the latest and most advanced electronic teaching equipment available and was the type that should be available in a junior college electronics laboratory. Cost of equipping this laboratory for 36 students was \$31,301.44.

Since Eastern Illinois University was including a power mechanics laboratory in the Industrial Arts Building, Dr. Walter Klehm, Chairman, Industrial Arts Department was contacted. The power mechanics course offered by Eastern will be only a course designed to teach operation and repairs of small two-cyclé gasoline engines commonly found on lawnmowers. This type of course, often offered at the junior high school level, had not the vocational concept of power mechanics desired for the high school and junior college programs. Cost of equipping this laboratory was \$7,500.00. Power mechanics as envisioned by most proponents of this field more nearly approached the one described previously in the section of definitions. A laboratory for

a course of this dimension would cost in the range of \$45,000.00 to \$50,000.00.

The American Association of Junior Colleges sent a copy of equipment costs for community college laboratories that had been prepared by the Department of Community Colleges, State Department of Education, Raleigh, North Carolina. Their estimates were very close to those that came from other sources. It also contained some estimates, particularly in the trade and industrial area, that were unobtainable from other sources. Following are a listing of those:

1. Air conditioning and Refrigeration-----\$27,770
2. Auto Body Shop-----\$ 6,124
3. Commercial Art-----\$13,095
4. Materials testing-----\$45,395
5. Photography-----\$ 1,780
6. Masonry-----\$ 4,735

The personal interviews with the other people listed did not produce any results. They had not approached the problem in this manner. They could not quote the per foot building cost and had not broken it down into components.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

From the results of this study it was found that there is a wide interpretation of areas to be covered by vocational-technical courses at the junior college level. Most people are oriented to the high school level of vocational-technical courses so it was difficult for them to visualize the requirements of a vocational-technical course at a college level. They were underestimating the capacity and capability of this level of student. They were also concerned only with immediate training needs in this area without any attempt to project into the future. There should be much serious research in the area of vocational-technical education in the very immediate future or the junior college vocational program in Illinois is defeated before it starts.

The cost estimates given here were based on a vocational-technical program at a junior college level as nearly as it can be determined with available information. Following is the list of laboratories and cost estimates that appear most logical for the proposed East Central Illinois Junior College:

	<u>Total Cost</u>	<u>Cost Per Pupil</u>
1. Metals	\$53,706.34	\$2,237.76
2. Electricity	13,339.50	555.81
3. Electronics	31,301.41	1,043.38
4. Drafting	5,196.54	217.48
5. Power Mechanics	45,000.00	1,800.00

CONTINUED		<u>Total Cost</u>	<u>Cost Per Pupil</u>
6.	Auto Mechanics	\$30,693.94	\$1,278.91
7.	Building Trades	15,803.33	658.43
8.	Agriculture		
	Ornamental Horticulture	8,000.00	200.00
	Farm Machinery	12,000.00	600.00
	Agri-Business	8,000.00	200.00
	Grain, Feed, Seed Technology	32,000.00	1,600.00
9.	Business		
	Typewriting-Stenographic		
	With manual typewriters	8,500.00	283.00
	With electric typewriters	13,750.00	458.33
	Retail Merchandising	3,000.00	100.00
	Office Practice	8,000.00	266.00
	Electronic Shorthand		
	With manual typewriters	10,000.00	333.33
	With electric typewriter	15,650.00	521.66
10.	Health Occupation		
	Dental Assistant	20,000.00	1,000.00
	Licensed Practical Nursing	2,000.00	200.00
11.	Mechanical Trades		
	Air Conditioning and Refrigeration	27,770.00	1,851.00
	Masonry	4,735.00	236.00
	Materials Testing	45,395.00	3,026.00
12.	Auto Body Mechanics	6,124.00	510.00
13.	Commercial Art	13,095.00	695.00
14.	Photography	1,780.00	296.00

Since the above costs were established in the past two years, they do not reflect price increases that occurred during this period. An average rise of approximately five per cent (5%) should be added to make them more realistic.

APPENDIX A

Questionnaire

Following is a list of vocational-technical courses which are being considered for inclusion in the curriculum of the proposed Mattoon, Illinois area Junior College. The information that is needed by the steering committee is an estimate of cost of equipping each laboratory and the number of students the laboratory is designed for. I would appreciate any help you might give me on any of them. Thank you.

	Estimated Cost of Equipment	No. of Students designed for
1. Agriculture Engineering Technician	_____	_____
2. Mechanical & Architectural Drafting (with drafting machines)	_____	_____
3. Power Mechanics	_____	_____
4. Metals	_____	_____
5. Electronics-Electricity	_____	_____
6. Building Construction Technology	_____	_____
7. Plastic Fabrication	_____	_____
8. Home Economics--Institutional	_____	_____
9. Air Conditioning and Refrigeration	_____	_____
10. Fluid Mechanics	_____	_____
11. Digital Computer Technology	_____	_____
12. Graphic Arts	_____	_____
13. Photography--Commercial	_____	_____
14. Data Processing	_____	_____
15. Secretarial	_____	_____
16. Office Practice	_____	_____
17. Dental Technician	_____	_____
18. Medical Laboratory Technician	_____	_____
19. Mechanical Technology	_____	_____

- | | | |
|--------------------------------------|-------|-------|
| 20. Commercial Art | _____ | _____ |
| 21. Retailing and Merchandising | _____ | _____ |
| 22. Auto Mechanics | _____ | _____ |
| 23. Woodworking | _____ | _____ |
| 24. Materials Testing and Processing | _____ | _____ |

CONFIDENTIAL
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APPENDIX B

Letters of Response

AMERICAN ASSOCIATION OF JUNIOR COLLEGES

1315 SIXTEENTH STREET, N.W., WASHINGTON, D.C. 20036 PHONE 462-4031

EDMUND J. GLEAZER, JR.
Executive Director

WILLIAM G. SHANNON
Associate Executive Director

August 4, 1966

Mr. Robert A. Carrell, R. R. #1, Charleston, Illinois

MR. CARRELL, please excuse the delay in replying to your letter of July 10, Facilities Information is a new project which I am in the process of organizing. Just as I was getting oriented to the task, my secretary left. I have been traveling during the air line strike. Among my many tales of woe, I'm afraid your letter temporarily got misplaced in the confusion.

We do not yet have a well organized file on equipment costs but I think I can give you some help. I am enclosing a document which we recently received from North Carolina which should at least serve as a starting point. Perhaps other state departments of education have similar data. California, Florida, and New York probably have a greater backlog of experience in junior college development than most other states. You might write to at least those three.


Last week I had occasion to visit two of the finest junior colleges in your area, both of which have some well equipped laboratory facilities. These are Flint Community College in Flint, Michigan and Henry Ford Community College in Dearborn, Michigan. I also visited one of your outstanding colleges in Illinois at Rockford, Rock Valley College. Rock Valley is in the process of building a new campus. The Henry Ford and Flint campuses have been in operation for some time. I also visited three new campuses currently under construction in St. Louis, Missouri.

I don't know what kind of equipment statistics these institutions might have but it might be helpful for you to write or even visit some of them. The attached sheet will give you additional information on these institutions.

As you may know, the junior college movement is a relatively young but fast growing segment of higher education, and organized statistics of any kind for planning purposes are hard to come by. In this respect, you might do a real service to the junior colleges of the future if you could make a copy of your thesis available to this office.

For your information, I am sending some AAJC publications of a general nature which may be of interest to you. In case they have not seen them, you may wish to bring them to the attention of your steering committee.

If I can be of further assistance, please do not hesitate to call on me.


Bob H. Reed
Director, Facilities Information

BHR/ebs



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

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July 27, 1966

Mr. Robert A. Carrell
R. R. #1
Charleston, Illinois

Dear Mr. Carrell:

Reference is made to your letter under date of July 10, 1966, to the Division of Vocational Education requesting costs of equipping laboratories, which has been referred to me for reply.

The publication Facilities and Equipment in Trade and Industrial Education Programs available from Industrial Materials Laboratory, Trade and Industrial Education, Ohio State University, College of Education, Columbus, Ohio, and the publication Modern School Shop Planning available from Prakken Publications, Inc., Ann Arbor, Michigan, will provide you with much of the general information you seek regarding equipment for laboratories.

Lists of equipment may also be obtained from equipment manufacturers, professional magazines, jobbers, and some State departments. Prices will vary depending upon geographic location and purchasing power.

We are happy to have been of assistance to you in this matter.

Sincerely yours,

[Redacted signature]

Nicholas A. Osso
Facilities Specialist
Program Planning and
Development Branch

Southern Illinois
University

CARBONDALE, ILLINOIS 62901

Department of Higher Education

July 26, 1966

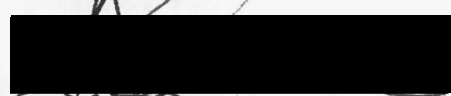
Mr. Robert A. Carrell
R. R. # 1
Charleston, Illinois

Dear Mr. Carrell:

This is in response to your letter dated July 10. I am sorry that I cannot provide the information you seek on "the cost of equipping laboratories for vocational courses in a junior college."

My suggestion is that you get in touch with suppliers of laboratory equipment. I believe you will find this the surest source of information.

Sincerely,



Ken August Brunner
Professor of Higher Education
Coordinator, Junior College
Programs and Services

jg

THE UNIVERSITY OF TEXAS

COLLEGE OF EDUCATION

AUSTIN 78712

PROFESSOR AND CONSULTANT IN
JUNIOR COLLEGE EDUCATION

GREENWOOD 1-3655

July 22, 1966

Mr. Robert A. Carrell
R. R. #1
Charleston, Illinois

Dear Mr. Carrell:

Your letter to the Director of the Texas Education Agency has been referred to me for reply.

Since requirements differ somewhat in different states, I think your best source of information would be the vocational education division of the State Department of Education in your state. Men in the vocational education division have quite a bit of material on this as to the size of rooms, laboratories, classrooms and the like, for these different vocational programs. They also have some information on estimated cost of such equipment. If not, these supply houses for this kind of equipment can give you very good estimates on it.

Any estimates I would give you on the size of rooms might not fit what the vocational education division of the State Department of Education would require in your state.

With kindest personal regards, I am

Cordially yours,

[Redacted signature]

C. C. Colvert
Professor and Consultant in
Junior College Education

CCC:ks
Enclosure

UNIVERSITY OF FLORIDA
GAINESVILLE

COLLEGE OF EDUCATION

July 26, 1966

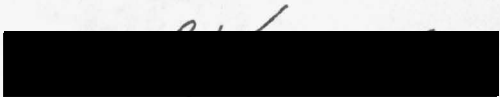
Robert A. Carrell
R. R. #1
Charleston, Illinois

Dear Mr. Carrell:

Thank you for your complimentary letter of July 10 which has been referred to me for reply. You have a large order for which there is not quick or easy reply because so much of the cost factor is dependent upon local conditions and advisory committee recommendations and should be based upon the educational specifications used.

The U.S. Office of Education has a "Basic Planning Guide for Vocational Technical and Adult Education facilities," Bulletin #OE-80040. This will be helpful.

Yours truly,


E. L. Kurth
Associate Professor
Junior College Center

PS I am enclosing a document from Conn. I use as a reference. It may be helpful.

ELK

ELK:cjo



SCHOOL PLANNING LABORATORY

SCHOOL OF EDUCATION · STANFORD UNIVERSITY · STANFORD, CALIF. · PHONE 321-2300 EXTENSION 2123

July 29, 1966

Mr. Robert A. Carrell
R. R. #1
Charleston, Illinois

Dear Mr. Carrell:

In reference to your letter dated July 10, 1966 requesting Vo-Tech information for a Junior College, we currently have very little in the way of literature that would aid you. However, we are forwarding, under separate cover, what we think may interest you. I suggest that for accurate pricing and specifications you contact the manufacturers of this equipment; they are usually most happy to assist new schools.

When you conclude your research paper we would be happy to receive a copy as Vocational training is increasing throughout the country.

Thank you for your inquiry.

Sincerely,

A solid black rectangular box redacting the signature of Robert Lamp.

for Robert Lamp
Research Associate

RL/rh

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