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ABSTRACT

A survey was conducted to gather information about the kinds of formal and informal procedures colleges and universities follow to facilitate sharing of scientific equipment. The survey data represent weighted national estimates for 676 institutions, including all public and private universities, all medical colleges, and all four-year colleges with full-time equivalent enrollments of 2,000 or more students. The institutions that were surveyed were members of the Higher Education Panel of the American Council on Education. It was found that more than one-fourth of these institutions have established systems specifically designed to facilitate equipment sharing, and an additional 18 percent were planning to do so in the near future. The value of equipment in sharing systems was approximately 10 percent of that in property accounting systems. Three-fifths of the sharing systems have been in operation for two years or more, and in nearly two-fifths of the sharing systems, the total value of the scientific equipment inventory in each system was at least $5 million. Most of the sharing systems were computer based and administered centrally at the institutions. One-fourth of all institutions have informal sharing arrangements that are used extensively on their campuses. Survey respondents described formal sharing techniques other than those asked about in the survey questions. A sample questionnaire is included. (SW)

Shared Use of Scientific Equipment At Colleges and Universities, Fall 1978

Frank J. Atelsek and Irene L. Gomberg

HIGHER EDUCATION PANEL REPORT, NUMBER 44
AMERICAN COUNCIL ON EDUCATION

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AMERICAN COUNCIL ON EDUCATION

J. W. Peltason, *President*

The American Council on Education, founded in 1918, is a council of educational organizations and institutions. Its purpose is to advance education and educational methods through comprehensive voluntary and cooperative action on the part of American educational associations, organizations, and institutions.

The Higher Education Panel is a survey research program established by the Council for the purpose of securing policy-related information quickly from representative samples of colleges and universities. *Higher Education Panel Reports* are designed to expedite communication of the Panel's survey findings to policy-makers in government, in the associations, and in educational institutions across the nation.

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Any opinions, findings, and conclusions or recommendations are those of the authors and do not necessarily reflect the views of the sponsoring agencies.

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Acknowledgments

The Division of Science Resources Studies at the National Science Foundation sponsored this survey. Charles H. Dickens and Felix H.I. Lindsay of that Division developed the survey instrument, drawing on earlier NSF-sponsored conferences on sharing techniques. Also helpful were discussions with research administrators within the higher education community which grew out of the pre-test analysis of the survey.

Thanks are also due the Panel institutions that responded to the survey. Particularly appreciated were the efforts of the numerous respondents who took the time to tell us of distinctive features of the sharing systems on their campuses.

Highlights

- The survey data represent weighted national estimates for 676 institutions, including all public and private universities, all medical colleges, and all four-year colleges with full-time-equivalent (FTE) enrollments of 2,000 or more students.
- More than one-fourth of these institutions have established systems specifically designed to facilitate equipment sharing, and an additional 18 percent were planning to do so in the near future.
- The value of equipment in sharing systems was approximately 10 percent of that in property-accounting systems.
- Three-fifths of the sharing systems have been in operation for two years or more.
- In nearly two-fifths of the sharing systems, the total value of the scientific equipment inventory in each system was at least $5 million.
- Most of the sharing systems were computer based and administered centrally at the institutions.
- The average cost of operation was $14,000 per year, with almost two-thirds of the sharing systems being maintained at an average annual cost of more than $10,000.
- One-fourth of all institutions have informal sharing arrangements that are used extensively on their campuses.
- Survey respondents described formal sharing techniques other than those asked about in the survey questions. These included consortium arrangements between colleges as well as intercampus sharing within university systems; centralized equipment centers; and hierarchical priority-setting techniques that administrators use to assign priorities among requests for scientific equipment purchases.

Background

The survey gathered information about the kinds of formal and informal procedures colleges and universities follow to facilitate sharing of scientific equipment. These procedures have become increasingly widespread because rising costs of equipment and funding stringency in many science and engineering fields have combined to form a serious constraint on research.

Methods of sharing range from small-scale cooperative arrangements between departments to sophisticated institution-wide computer-maintained systems. These methods vary in the level at which they are administered, the value of equipment being shared, the length of time they have been in operation, and their overall degree of success.

The federal government, particularly the National Science Foundation and the National Institutes of Health, is seeking information on institutional sharing arrangements in order to develop programs to encourage optimal utilization of available scientific research equipment. Institutions may also benefit from this study. Knowledge of the procedures and methods used by other colleges and universities may help them develop their own plans for meeting faculty needs for scientific equipment.

Methods Summary

The Higher Education Panel is a continuing survey research program created in 1971 by the American Council on Education to conduct specialized surveys on topics of current policy interest to the higher education community and to government agencies.

The Panel is a stratified sample of 760 colleges and universities drawn from the more than 3,000 institutions listed in the National Center for Education Statistics' Education Directory. All institutions in this population are grouped in terms of the variables constituting the Panel's stratification design, based primarily on type

(university, four-year college, two-year college), control (public, private), and size (full-time equivalent enrollment). For any given survey either the entire Panel or an appropriate subset is used.

On August 31, 1978, the survey instrument (Appendix A) was mailed to the 545 universities and four-year colleges in the Panel. An examination of responses from four-year institutions with low enrollment indicated that their response rates were relatively low (between 64 and 74 percent) and that most neither had nor were planning to develop any system to facilitate the shared use of scientific equipment. Furthermore, many of these colleges were theological seminaries or other specialized institutions not involved in scientific activities. Therefore, the survey analysis was limited to universities, medical colleges, and other four-year institutions with FTE enrollments greater than 2,000 students.

Of the 439 Panel institutions thus defined as eligible, 372, or 85 percent of those surveyed, provided usable responses. Responses were institutionally weighted to represent the characteristics of all institutions in the eligible survey population. A comparison of the respondents and nonrespondents and the weighting methods are contained in Appendix B.

Findings

As of fall 1978, more than one-fourth (27 percent) of all institutions had established some system or procedure specifically designed to facilitate the sharing of scientific equipment, and an additional 18 percent had plans to establish such systems in the near future (table 1). Overall, somewhat greater proportions of public institutions than private institutions had sharing systems already in place or in the planning stage. And, as summarized in table A, universities were more likely to have a sharing system in place or planned than were four-year colleges.

Table A: Procedures for Facilitating the Shared Use of Scientific Equipment, Fall 1978

	Percent in Use	Percent Planned
Public universities	36	33
Private universities	28	28
Public four-year colleges	28	14
Private four-year colleges	19	10
Total	27	18

Since a property-accounting system could be adapted to serve as a vehicle for equipment sharing, institutions were also asked if they maintained such a system. Of the 676 colleges and universities represented by the survey; 83 percent maintained a formal accounting or control system for institutional property other than real estate. As with the sharing systems, such control systems were more likely to exist at public than at private institutions. Within each sector similar proportions of universities and four-year colleges reported having such systems (table B).

Table B: Percent of Institutions Having Formal Property-Accounting Systems, Fall 1978

	Public	Private
Universities	96	60
Four-year colleges	94	62

In public institutions the control systems were most often initiated in response to state requirements; in the private sector, control systems resulted from individual institutional requirements (table 2).

In most instances the procedures designed to facilitate the sharing of scientific equipment were closely linked to a more general property-accounting system. Among

Table C: Sharing Systems: Years in Operation, Fall 1978

Years in Operation	Universities		Four-Year Colleges	
	Public	Private	Public	Private
Number	(40)	(21)	(91)	(32)
Total percent	100	100	100	100
Less than one year	42	14	19	5
One to two	12	14	18	33
Two to five	27	14	12	33
More than five	19	58	51	29

the 184 institutions that had a sharing system in operation at the time of the survey, more than two-thirds described this system as an integral part of, or significantly coordinated with, a more general property-accounting system (table 3). Fewer than one-fourth of the institutions reported that their systems for sharing scientific equipment were basically independent of the more general property-accounting systems.

Characteristics of the Sharing Systems

Information was obtained about several descriptive characteristics of the sharing systems in use during fall 1978, including the following:

1. the length of time the systems have been operating
2. the total value of the equipment incorporated into the system
3. the minimum value for inclusion of an item in the system
4. the descriptive elements included in cataloging the items of equipment
5. the types of records used in operation of the system
6. the administrative level which maintains the system
7. provisions for updating information held within the system

These characteristics are briefly discussed below.

Time in Operation.

Approximately two-fifths of the sharing systems had been in operation for more than five years; one-fifth had been in operation from two to five years, another

one-fifth from one to two years, and the final one-fifth for less than one year (table 4).

Public institutions constituted 65 percent of the colleges and universities covered in the survey but a slightly larger proportion (71 percent) of the institutions with sharing systems now in use. As shown in table C, sharing systems in public universities and four-year colleges were more likely to be recently established than were those in private institutions.

The general property-accounting systems were somewhat older at public than at private institutions. Almost two-thirds (65 percent) of the public systems were more than five years old, whereas among private institutions just over half (53 percent) had been operating longer than five years.

Total Value of Equipment

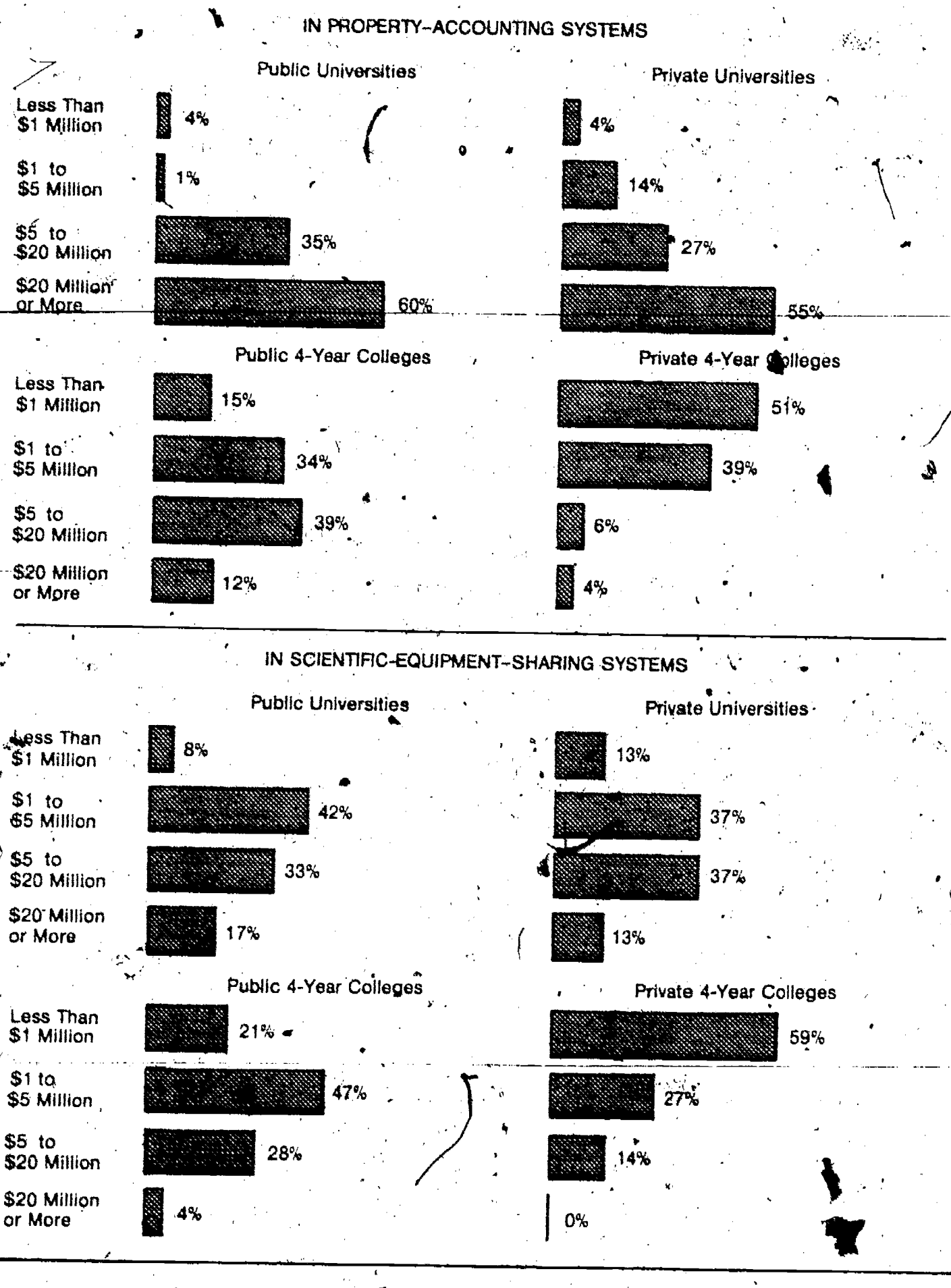
At the time of this survey, formal sharing systems covered more than $1 billion worth of equipment, with nearly nine of every ten dollars contained in the public sector. One-fifth of the institutions with sharing systems had equipment valued under $1 million, whereas nearly one-third had equipment valued at $10 million or more (table 5). The ranges of equipment values for public and private universities and four-year colleges are summarized in figure 1.

The total value of equipment in property-accounting systems was approximately $10.3 billion (table 6). Over half of this dollar value in equipment was reported by public universities and about one-third by public four-year colleges. Of the remaining 15 percent, 11 percent was reported by private universities and 4 percent by private four-year colleges. (It should be recalled that 74 percent of institutions which had property-accounting systems were in the public sector.)

Minimum Value for Inclusion

Property-accounting systems had lower minimum values for an item of equipment to be included than did equipment-sharing systems. The minimum dollar value was

Figure 1: Distribution of Institutions by Total Value of Equipment, Fall 1978



$200 or less for more than three-fourths of the property-accounting systems, but this was the minimum value for about one-half of the equipment-sharing systems (table 7).

Descriptive Content

In both types of systems the equipment record included the name of the item, its location, its technical description and acquisition cost, and the person responsible for the item (table 8). Additionally, many systems recorded the item's age, current market value and condition.

Type of Record

Most institutions maintained their equipment records as part of a computerized system (74 percent of the property-accounting systems and 59 percent of the sharing systems, table 9). Most of the other colleges and universities used file cards or other manually prepared paper records. In general, public institutions made more use of the computer for record keeping than did private institutions. Public universities in particular made heavy use of the computer (for 96 percent of their property-accounting systems and 68 percent of their equipment-sharing systems.)

Administrative Level

The preponderant majority of property-accounting systems (80 percent) and half of the equipment-sharing systems were administered at the institutions' central offices (table 10). Compared with property-accounting systems, proportionately twice as many equipment-sharing systems were administered at the departmental or school level (38 percent vs. 17 percent).

Provisions for Updating

Current information about newly acquired equipment is obviously an important feature of any system that seeks to facilitate the sharing of scientific equipment. Slightly more than half of the institutions with sharing systems indicated that all new equipment was added to the list or inventory only at time of acquisition (table 11). Such information was entered in a more timely fashion at public

institutions, where 68 percent of those with sharing systems recorded new equipment at time of acquisition; at private institutions only 10 percent did so.

Information about equipment already entered into the system was usually updated by physical inventory (table 12). In the equipment-sharing systems, such inventories were conducted annually in 41 percent of the systems and less frequently in 49 percent. In 10 percent of the sharing systems, updating was achieved by means other than a direct physical inventory. These methods included annual reviews of computer printouts, quarterly reports from deans of schools and colleges, and voluntary inputs from department heads and principal investigators.

Cost of Operation

The mean annual cost of operating the property-accounting systems covered in the survey was approximately $24,000. The cost attributed to the equipment-sharing systems was smaller, ranging between $500 and $60,000 and averaging about $14,000.[1] Table 13 gives additional detail of the cost differences at public and private universities and colleges.

Access to the Information

Survey respondents were asked who received complete copies of the inventories from the property-accounting and the equipment-sharing systems. For three-fourths of the property-accounting systems, the institution's purchasing officer was a recipient of the inventories (table 14). Between one-fourth and one-third of the property-accounting systems also provided the inventories to deans of schools and colleges, research administrators, and department heads. Dissemination of equipment inventories from the sharing systems was substantially broader, as shown in table D.

[1] In assessing these cost figures it should be noted that the respondents were asked to exclude the start-up costs (i.e., establishing the initial inventory) but to include salaries, space, movement of equipment, computer charges, etc.

Table D: Dissemination of Equipment Inventories, Fall 1978

Office or Officer Receiving Complete Equipment Inventories	Property-Accounting Systems (N=560)	Equipment-Sharing Systems (N=184)
Institution purchasing officer	73%	65%
Office of research administration	25	61
Equipment-sharing system officer	10	43
Deans of schools or colleges	32	65
Department head	34	43
Individual faculty or researchers	9	16

Success of Sharing Systems

About one in ten institutions described their sharing systems as considerably successful, but most others (46 percent) limited their evaluation statement to "fairly successful" (table 15). Only 1 percent felt their system was a failure. In the judgment of the respondents, more than one-fourth of the systems were still too early in their development to warrant an evaluation of their success or failure.

Other Devices for Sharing

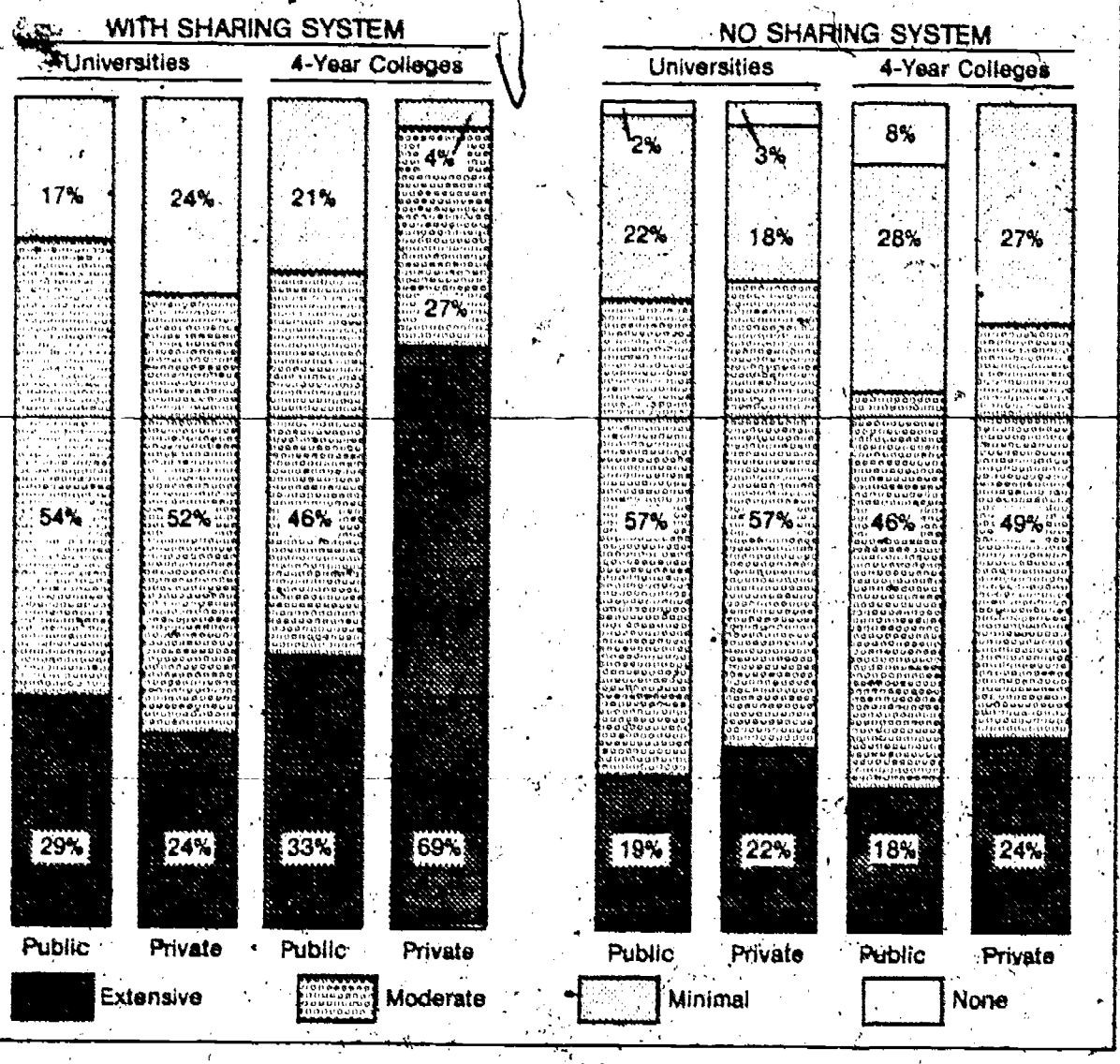
The absence of a formal sharing system on campus did not necessarily mean that scientific equipment was not shared or that duplicate purchases of equipment were inevitable. The survey inquired about some of the other means by which sharing took place and duplicate equipment purchases were avoided.

Informal Sharing

Survey respondents were asked about the degree to which equipment sharing occurred outside the framework of any formal system. Twenty-five percent stated that informal equipment sharing was extensive, 49 percent said that it was moderate, and 23 percent, that it was minimal. Only three percent reported no informal sharing.

The data also permit examination of the degree to which informal sharing was a substitute for or a supplement to formal sharing systems. Figure 2 suggests that a substantial amount of informal sharing took place in all institution settings, but

Figure 2: Informal Sharing of Scientific Equipment Among Institutions With and Without a Sharing System, Fall 1978



that informal sharing tended to be more extensive at institutions which also had a formal sharing system. This was especially so among private four-year colleges, where 69 percent of those with formal sharing systems also claimed extensive informal sharing (table 16). Only 24 percent of the comparable colleges without formal systems indicated they used informal sharing extensively.

Control Over New Purchases

Another device that may facilitate equipment sharing is the review often associated with processing research proposals and requests for purchase of scientific equipment. Survey respondents were asked to identify the officials who participated in the reviews that determine whether requested scientific equipment may already

be available on the campus. These review processes involved types of institution officials who would be alert to possible sharing arrangements.

To screen equipment purchases, well over half of the institutions involved the appropriate department head in reviewing research proposals (table 17). In addition, at two-fifths or more of the institutions, the dean of the school or college or the office of research administration also participated. The review process associated with actual purchase requests did not change significantly even when the acquisition of more expensive equipment was contemplated (table 18).

Other Methods of Control

Those 106 institutions that had no formal system either for property accounting or for equipment sharing were asked if they had some other means of avoiding unnecessary purchase of new scientific equipment. More than three-fourths reported having other means (table 19). The table below summarizes the level at which these methods operate at public and private institutions that have no formal system.

Table E: Levels at Which Equipment Purchases are Screened at Institutions with No Formal System, Fall 1978

Levels of Operation	Public (N=21)	Private (N=85)
Purchasing office	41%	22%
Office of research administration	29	10
Other central institution office	0	15
Office of dean of school or college	30	36
Department head	41	53
Other	0	8

Other Sharing Techniques

This survey is, of course, a limited one and could not incorporate the full range of techniques for equipment sharing at colleges and universities. Correspondence

received from survey respondents referred to a variety of sharing techniques that may not be fully reflected in the data of this report, including the following:

1. Consortium arrangements between different institutions.

2. Inter-campus sharing within university systems.

3. Research cost centers. A major midwestern university enclosed a selected list of more than forty kinds of facilities and equipment approved for sharing among sponsored research projects.

4. Equipment centers. A respondent at another midwestern university wrote that the institution shares "centralized facilities which are used extensively by people from a number of departments," such as the ~~nuclear reactor and electron microscope laboratory.~~

5. Priority setting for purchase of equipment. "...(A)ll special equipment purchases start with departmental priorities, are judged and given school priorities, ...are judged and arranged in campus priorities, ...are further judged..by all deans in committee, and are (finally) approved by the chancellor. The system has worked effectively."

It should also be noted that a number of respondents doubted that formal, computerized systems to facilitate sharing of scientific equipment would be cost-effective on their own campuses or would be much of an improvement over their current sharing techniques. This was principally because of small campus size, existing cooperative arrangements, and the absence of a sizable research equipment inventory.

TABLES

Table 1

Institutions Maintaining or Planning a Scientific Equipment-Sharing System (SESS), by Type and Control of Institution
(In Percentages)

Status of SESS	All Institutions Total (N=676)	All Institutions Public (N=437)	All Institutions Private (N=239)	Universities Public (N=112)	Universities Private (N=74)	Four-Year Colleges Public (N=325)	Four-Year Colleges Private (N=165)
SESS already in operation	27.2	30.0	22.2	35.7	28.4	28.0	19.4
SESS planned to be in operation							
by December 1978	1.1	1.3	.6	3.1	0	.7	.9
by July 1979	1.2	1.2	1.1	2.1	1.7	.9	.8
by December 1979	4.9	5.8	3.1	11.4	10.0	3.9	0
by January 1980 or later	5.6	6.6	3.8	12.5	6.7	4.6	2.5
no response	4.8	3.6	7.3	4.0	10.0	3.4	6.1
No plans for SESS	55.2	51.5	61.9	31.2	43.2	58.5	70.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: On this and subsequent tables, subtotals may not add exactly to their respective totals due to weighting and rounding.

Table 2

Institutions Maintaining a Formal Accounting or Control System for Property Other Than Real Estate, by Source of Requirement and Type and Control of Institution
(In Percentages)

Source of Requirement	All Institutions Total (N=676)	All Institutions Public (N=437)	All Institutions Private (N=239)	Universities Public (N=112)	Universities Private (N=74)	Four-Year Colleges Public (N=325)	Four-Year Colleges Private (N=165)
Number with formal accounting or control system	*560*	*413*	*147*	*108*	*44*	*305*	*103*
State requirement	52.1	67.1	10.0	56.8	2.8	70.8	13.0
System requirement	15.8	15.4	16.9	22.1	19.4	13.0	15.8
Institutional requirement	30.4	16.0	70.7	17.9	69.4	15.3	71.2
Other	1.7	1.5	2.5	3.2	8.3	.9	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3

Relationship of Scientific Equipment-Sharing System (SESS) to Property-Accounting System (PAS), by Type and Control of Institution
(In Percentages)

Relationship	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Number of institutions with an SESS	*184*	*131*	*53*	*40*	*21*	*91*	*32*
SESS is an integral part of the PAS	32.9	35.2	27.6	40.0	29.4	33.2	26.6
SESS is coordinated to a significant extent with the PAS	35.3	34.0	38.1	40.0	47.1	31.5	32.6
SESS is entirely or mostly independent of the the PAS	23.5	24.0	22.5	17.1	5.9	26.9	32.6
Too early to determine	4.7	5.8	2.2	2.9	5.9	7.0	0
Not applicable (no PAS)	3.6	1.0	9.5	0	11.8	1.4	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of institutions planning an SESS	*119*	*81*	*38*	*37*	*21*	*44*	*17*
SESS will be an integral part of the PAS	37.9	38.2	37.1	29.0	53.3	46.3	12.2
SESS will be coordinated to a significant extent with the PAS	12.3	12.4	12.1	22.6	20.0	3.5	0
SESS will be entirely or mostly independent of the PAS	9.3	9.6	8.5	12.9	6.6	6.7	11.3
Too early to determine	40.5	39.8	42.2	35.5	20.0	43.6	76.5
Not applicable (no PAS)	0	0	0	0	0	0	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 4

Length of Operation of Property-Accounting System and Scientific Equipment-Sharing System, by Type and Control of Institution
(In Percentages)

Length of Operation	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
Less than one year	3.7	2.8	6.2	4.4	14.7	2.2	2.7
One but less than two years	5.9	3.4	12.9	3.3	5.9	3.4	15.8
Two to five years	28.3	28.6	27.6	15.4	35.3	33.3	24.4
More than five years	62.1	65.2	53.3	76.9	44.1	61.0	57.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Less than one year	21.1	26.0	8.9	42.3	14.3	18.9	5.4
One but less than two years	18.8	16.0	25.7	11.5	14.3	18.0	33.0
Two to five years	19.3	16.8	25.7	26.9	14.3	12.4	33.0
More than five years	40.8	41.2	39.8	19.2	57.1	50.8	28.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5

Percentage Distribution of Institutions by the Estimated Total Value of Equipment Included in the Property-Accounting and Scientific Equipment-Sharing Systems, and by Type and Control of Institution

Total Value	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
Less than $.5 million	10.6	7.8	18.5	4.0	0	9.1	26.4
$.5-.9 million	7.8	4.1	18.2	0	4.5	5.6	24.1
$1.0-1.9 million	11.3	12.3	8.4	0	9.1	16.6	8.1
$2.0-4.9 million	15.7	13.2	22.8	1.3	4.5	17.5	30.6
$5.0-9.9 million	14.5	16.1	9.8	5.3	22.7	20.0	4.2
$10.0-19.9 million	16.8	21.8	2.8	29.3	4.5	19.2	2.1
$20.0-29.9 million	6.3	6.5	5.8	8.0	9.1	6.0	4.4
$30.0-49.9 million	7.6	7.4	8.2	17.3	27.3	3.9	0
$50 million or more	9.3	10.7	5.5	34.7	18.2	2.2	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Less than $.5 million	18.6	13.2	33.4	0	12.5	21.4	59.1
$.5-.9 million	2.3	3.2	0	8.3	0	0	0
$1.0-1.9 million	14.5	17.2	6.9	25.0	12.5	12.4	0
$2.0-4.9 million	27.2	27.7	26.0	16.7	25.0	34.5	27.2
$5.0-9.9 million	6.7	4.2	13.8	0	25.0	6.8	0
$10.0-19.9 million	22.6	26.0	13.0	33.3	12.5	21.5	13.6
$20.0-29.9 million	5.7	5.3	6.9	8.3	12.5	3.4	0
$30.0-49.9 million	2.3	3.2	0	8.3	0	0	0
$50 million or more	0	0	0	0	0	0	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6

Estimated Total Value of Equipment Included in the Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution

Institutional Category	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
Total value (in millions of dollars)	10,276.4	8,707.6	1,568.9	5,303.4	1,158.0	3,404.1	410.8
Percentage distribution	100.0	84.7	15.3	51.6	11.3	33.1	4.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Total value (in millions of dollars)	1,030.2	907.1	123.1	499.6	63.7	407.5	59.4
Percentage distribution	100.0	88.1	11.9	48.4	6.2	39.6	5.8

Table 7

Percentage Distribution of Institutions by the Minimum Value of Equipment for Inclusion in the Property-Accounting and Scientific Equipment-Sharing Systems, and by Type and Control of Institution

Minimum Value for Inclusion	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*580*	*413*	*147*	*108*	*44*	*305*	*103*
Less than $50	18.2	20.0	13.2	11.0	9.4	23.3	14.9
$50-100	26.7	31.2	14.1	26.4	6.3	33.0	17.7
$101-200	32.5	32.7	32.0	33.0	25.0	32.7	35.2
$201-300	14.2	12.3	19.4	20.9	28.1	9.2	15.5
$301-400	3.3	2.1	6.7	6.6	15.6	.4	2.7
$401-500	0	0	0	0	0	0	0
$501 or more	5.0	1.6	14.5	2.2	15.6	1.4	14.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Less than $50	10.4	12.1	6.6	4.3	8.3	16.2	5.2
$50-100	8.6	10.8	3.6	8.7	8.3	11.9	0
$101-200	31.4	34.4	24.3	8.7	8.3	48.2	36.4
$201-300	20.8	15.0	34.4	17.4	25.0	13.7	41.6
$301-400	6.6	6.3	7.2	13.0	16.7	2.7	0
$401-500	0	0	0	0	0	0	0
$501 or more	22.2	21.5	23.9	47.8	33.3	7.4	16.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 8

Information Recorded for Equipment in the Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution
(In Percentages)

Information Item	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
Name of item	98.4	99.2	96.2	99.4	97.5	99.1	95.7
Technical description	58.4	58.6	57.8	49.7	63.1	61.7	55.5
Person responsible for equipment	62.8	64.9	56.9	57.3	60.2	67.6	55.5
Availability	0	0	0	0	0	0	0
Actual acquisition value	82.6	86.2	72.5	88.6	91.8	85.4	64.2
Market value at time of acquisition	30.6	30.7	30.4	22.7	11.5	33.5	38.5
Location	92.9	92.0	95.4	92.9	94.6	91.6	95.7
Condition	36.4	33.0	45.7	29.2	45.9	34.4	45.7
Age or year of manufacture	63.0	64.9	57.6	61.6	66.0	66.0	54.1
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Name of item	91.4	97.3	76.7	95.9	99.9	98.0	61.6
Technical description	61.4	64.1	54.9	61.4	66.6	65.3	47.2
Person responsible for equipment	65.0	62.9	70.1	72.9	83.2	58.5	61.6
Availability	41.1	41.0	41.2	46.0	25.0	38.8	51.7
Actual acquisition value	56.2	63.2	38.8	76.7	74.9	57.3	15.3
Market value at time of acquisition	15.5	19.1	6.9	15.3	8.3	20.7	5.4
Location	83.3	82.1	86.3	92.0	91.5	77.8	82.8
Condition	38.0	44.3	22.4	49.8	33.3	41.8	15.3
Age or year of manufacture	47.3	57.1	22.9	61.4	49.9	55.2	5.4

Table 9

Method of Keeping Records for Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution
(In Percentages)

Methods	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
File cards or other manually prepared paper records	23.4	15.5	45.5	3.2	31.4	19.9	51.6
Computerized system	73.6	83.2	46.6	95.7	65.7	78.8	38.4
Personal knowledge of the program manager	.9	.9	.9	1.1	2.9	.9	0
Other	2.1	.3	7.0	0	0	.5	10.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
File cards or other manually prepared paper records	26.0	25.6	27.2	16.1	21.4	29.8	30.8
Computerized system	58.6	63.7	44.6	67.7	57.1	61.9	36.8
Personal knowledge of the program manager	9.3	8.5	11.4	12.9	21.4	6.6	5.1
Other	6.1	2.2	16.9	3.2	0	1.7	27.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 10

Levels at Which Property-Accounting and Scientific Equipment-Sharing Systems Are Administered, by Type and Control of Institution
(In Percentages)

Administrative Levels	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
College or university system office	23.4	24.5	20.3	26.8	14.3	23.6	22.9
Institution's central office	79.6	83.1	69.9	83.5	80.3	82.9	65.5
School or department	16.6	17.0	15.4	16.1	14.3	17.3	15.8
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
College or university system office	15.4	15.8	14.5	26.0	28.5	11.4	5.4
Institution's central office	50.0	50.8	48.1	77.9	64.1	39.0	37.6
School or department	37.7	27.4	63.0	40.8	49.9	21.5	71.6

Table 11

Occasions for Adding New Equipment to Inventories of Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution (In Percentages)

Occasions	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property-accounting system							
Number with provisions for adding new equipment	*552*	*409*	*143*	*107*	*44*	*308*	*99*
Only at time of acquisition	67.7	68.1	66.5	66.3	64.7	68.7	67.3
More frequently than annually	19.1	21.5	12.0	26.1	26.5	19.9	5.7
Annually	10.3	8.6	15.4	6.5	5.9	9.3	19.6
Less frequently than annually	2.9	1.8	6.0	1.1	2.9	2.1	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number with provisions for adding new equipment	*182*	*129*	*53*	*38*	*21*	*91*	*32*
Only at time of acquisition	51.4	67.9	9.8	60.0	15.4	71.3	6.0
More frequently than annually	29.0	21.0	49.2	24.0	61.5	19.7	40.9
Annually	13.8	11.2	20.7	16.0	15.4	9.0	24.2
Less frequently than annually	5.8	0	20.3	0	7.7	0	28.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 12

Provisions for Updating Information on Equipment in the Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution (In Percentages)

Provisions	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property accounting system							
Number with provisions for updating information on equipment	*512*	*388*	*124*	*104*	*42*	*284*	*82*
By physical inventory made: annually	61.8	70.3	35.1	70.6	40.6	70.1	32.3
less frequently than annually	32.7	25.5	55.2	23.5	43.7	26.3	60.8
By other means	5.5	4.2	9.8	5.9	15.6	3.6	6.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number with provisions for updating information on equipment	*173*	*126*	*47*	*41*	*18*	*85*	*29*
By physical inventory made: annually	41.2	48.6	21.2	57.7	40.0	43.9	10.6
less frequently than annually	49.0	44.5	61.2	26.9	30.0	53.4	78.7
By other means	9.8	7.0	17.6	15.4	30.0	2.7	10.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 13

Percentage Distribution of Institutions by the Estimated Annual Cost of Operating Property-Accounting and Scientific Equipment-Sharing Systems, and by Type and Control of Institution

Annual Cost	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property accounting system							
Number of institutions	*560*	*413*	*147*	*108*	*44*	*305*	*103*
Less than $2,000	12.8	5.4	33.6	0	0	7.3	48.1
$2,000-5,000	4.0	4.8	1.8	0	5.9	6.5	0
$5,001-10,000	9.1	8.6	10.5	1.6	5.9	11.1	12.5
$10,001-20,000	17.6	16.8	19.6	8.2	23.5	19.9	17.9
$20,001-30,000	17.0	18.3	13.4	9.8	23.5	21.3	9.0
$30,001-50,000	18.1	21.9	7.4	26.2	17.6	20.4	3.0
More than $50,000	21.4	24.2	13.7	54.1	23.5	13.5	9.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Less than $2,000	12.1	12.5	10.7	*	*	*	*
$2,000-5,000	14.2	15.2	10.7	*	*	*	*
$5,001-10,000	9.6	9.3	10.7	*	*	*	*
$10,001-20,000	35.1	38.7	21.5	*	*	*	*
$20,001-30,000	16.5	15.2	21.5	*	*	*	*
$30,001-50,000	2.6	0	12.4	*	*	*	*
More than $50,000	9.9	9.2	12.4	*	*	*	*
Total	100.0	100.0	100.0	*	*	*	*

*Insufficient response rate to present detail.

Table 14

Recipients of Complete Copies of Equipment Inventories for Property-Accounting and Scientific Equipment-Sharing Systems, by Type and Control of Institution (In Percentages)

Recipients	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Property accounting system							
Number of institutions	*580*	*413*	*147*	*108*	*44*	*305*	*103*
Purchasing officer	73.0	73.1	72.6	57.2	51.8	78.7	81.6
Office of research administration	25.3	28.3	16.8	27.5	38.0	28.6	7.6
Equipment-sharing system officer	10.0	10.1	9.7	14.9	17.3	8.4	6.4
Deans of schools or colleges	32.1	35.4	22.9	32.1	20.7	36.5	23.8
Department heads	34.5	36.6	28.8	36.6	34.6	36.6	26.3
Individual faculty or researchers	9.1	7.5	13.7	5.7	17.3	8.1	12.1
Scientific equipment-sharing system							
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Purchasing officer	65.4	69.8	54.8	49.9	45.4	78.4	60.8
Office of research administration	60.9	58.9	65.6	66.6	90.9	55.6	49.2
Equipment-sharing-system officer	43.4	47.0	34.5	54.1	54.5	43.9	21.5
Deans of schools or colleges	64.6	69.6	52.3	54.1	36.3	76.4	62.6
Department heads	42.9	37.7	55.7	54.1	27.3	30.6	74.3
Individual faculty or researchers	16.0	14.5	19.6	25.0	18.2	9.9	20.6

Table 15

Self-Evaluation of the Success of the Scientific Equipment-Sharing System, by Type and Control of Institution (In Percentages)

Level of Success	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Number of institutions	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Considerable success	10.3	10.6	9.6	11.4	17.6	10.3	4.3
Fair success	46.1	43.7	52.2	22.9	41.2	52.8	59.3
No success	1.3	0	4.6	0	11.8	0	0
Too early to determine	27.1	29.7	20.6	48.6	17.6	21.4	22.5
Not applicable	15.2	16.0	13.1	17.1	11.8	15.5	13.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 16

Informal Sharing of Scientific Equipment, by Type and Control of Institution
(In Percentages)

Degree of Informal Sharing	All Institutions			Universities		Four-Year Colleges	
	Total	Public	Private	Public	Private	Public	Private
Institutions with scientific equipment-sharing systems							
Number	*184*	*131*	*53*	*40*	*21*	*91*	*32*
Extensive	37.3	31.6	50.7	28.6	23.5	33.0	69.0
Moderate	45.5	48.9	37.3	54.3	52.9	46.5	26.8
Minimal	17.3	19.5	12.0	17.1	23.5	20.6	4.2
None	0	0	0	0	0	0	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Institutions without scientific equipment-sharing systems							
Number	*492*	*305*	*186*	*72*	*53*	*234*	*133*
Extensive	20.4	18.6	23.5	19.0	22.5	18.4	23.9
Moderate	49.6	48.4	51.7	57.1	57.5	45.7	49.4
Minimal	25.6	26.6	24.1	22.2	17.5	27.9	26.7
None	4.3	6.5	.7	1.6	2.5	8.0	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 17

Persons Reviewing Research Proposals to Determine if Required Scientific Equipment is Already Available, by Type and Control of Institution
(In Percentages)

Reviewers	All Institutions			Universities		Four-Year Colleges	
	Total (N=676)	Public (N=437)	Private (N=239)	Public (N=112)	Private (N=74)	Public (N=325)	Private (N=165)
For equipment costing less than $10,000							
Project proposer	64.8	58.4	76.5	67.7	80.0	55.3	74.9
Department head	56.5	55.4	58.7	54.0	56.7	59.3	59.6
Dean of school or college	43.1	45.3	39.3	38.3	38.3	47.6	39.7
Office of research administration	40.0	47.9	25.5	42.9	35.0	49.6	21.2
Other academic officer	7.2	6.9	7.7	1.1	5.0	8.9	9.0
Other administrative or business officer	5.1	5.0	5.1	4.5	6.7	5.2	4.4
Not applicable	4.1	5.3	1.9	5.6	0	5.1	2.7
For equipment costing more than $10,000							
Project proposer	59.0	54.7	66.8	62.2	76.7	52.1	62.4
Department head	55.7	53.2	60.4	43.7	60.0	56.4	60.6
Dean of school or college	45.8	45.8	45.7	40.4	43.3	47.6	46.8
Office of research administration	45.9	53.9	31.2	56.8	43.3	52.8	25.8
Other academic officer	7.4	7.2	7.7	2.2	5.0	8.9	9.0
Other administrative or business officer	5.9	6.3	5.1	8.7	6.7	5.5	4.4
Not applicable	4.1	5.0	2.4	3.3	1.7	5.6	2.7

Table 18

Persons Reviewing Requests to Purchase Scientific Equipment, by Type and Control of Institution (In Percentages)

Reviewers	All Institutions Total (N=676)	All Institutions Public (N=437)	All Institutions Private (N=239)	Universities Public (N=112)	Universities Private (N=74)	Four-Year Colleges Public (N=325)	Four-Year Colleges Private (N=165)
For equipment costing less than $10,000							
Project proposer	50.4	47.2	56.4	56.7	64.4	43.9	52.9
Department head	58.5	56.1	63.0	47.3	48.3	59.1	69.5
Dean of school or college	44.8	44.2	45.8	36.6	35.8	46.8	50.3
Office of research administration	26.1	29.0	20.9	29.5	28.6	28.8	17.5
Purchasing office	31.2	35.5	23.3	37.8	26.8	34.8	21.7
Other academic officer	4.9	4.9	4.8	2.4	5.4	5.8	4.6
Other administrative or business officer	5.8	5.1	7.1	4.7	8.9	5.3	6.3
Not applicable	2.5	2.2	3.1	5.9	3.6	.9	2.9
For equipment costing more than $10,000							
Project proposer	47.2	45.5	50.4	53.0	62.6	43.0	44.9
Department head	56.3	54.6	59.5	44.0	50.1	58.2	63.7
Dean of school or college	50.0	47.8	54.2	42.9	41.1	49.5	60.0
Office of research administration	32.0	35.2	26.2	41.7	34.0	33.0	22.7
Purchasing office	32.6	35.1	27.8	32.2	30.4	34.4	26.7
Other academic officer	5.3	5.7	4.8	4.5	5.4	6.1	4.5
Other administrative or business officer	6.6	6.4	7.0	9.0	8.9	5.5	6.2
Not applicable	3.1	3.2	3.0	4.5	3.6	2.7	2.8

Table 19

Institutions with Methods for Avoiding Unnecessary Purchase of New Scientific Equipment, by Type and Control of Institution (In Percentages)

Level of Operation	All Institutions Total	All Institutions Public	All Institutions Private	Universities Public	Universities Private	Four-Year Colleges Public	Four-Year Colleges Private
Number of institutions with no formal property-accounting or scientific equipment-sharing systems	*106*	*21*	*85*	*3*	*26*	*18*	*59*
Purchasing office	25.3	40.5	21.5	33.3	19.0	41.9	22.6
Office of research administration	13.3	28.5	9.6	33.3	14.3	27.5	7.5
Other central institution office	12.1	0	15.1	0	9.5	0	17.5
Office of dean of school or college	34.5	29.9	35.7	0	42.9	35.6	32.6
Department head	50.4	40.6	52.9	66.7	47.6	35.6	55.2
Other	6.0	0	7.5	0	19.0	0	2.4
No method	22.7	30.5	20.8	33.3	28.6	29.9	17.4

APPENDIX A: Survey Instrument

AMERICAN COUNCIL ON EDUCATION
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WASHINGTON, D. C. 20036

HIGHER EDUCATION PANEL
(202) 833-4757

August 31, 1978

Higher Education Panel Survey No. 44
Shared Use of Scientific Equipment

This is the forty-fourth survey of the Higher Education Panel, "Shared Use of Scientific Equipment," sponsored by the National Science Foundation. The purpose of this survey is to gather information about the arrangements colleges and universities make to facilitate sharing of scientific equipment.

One of the factors limiting the productivity of science and engineering faculty members is the lack of timely availability of scientific equipment needed for conducting research. In addition, the quality of graduate science education is dependent upon the availability of appropriate scientific equipment for dissertation research. This constraint on the output and quality of research has become more serious in recent years as the cost of research equipment has risen. Obviously more research can be accomplished with available funds if the purchase of new equipment can be reduced by the shared use of suitable equipment.

To increase the availability of scientific equipment when and where it is needed, some institutions have initiated formal methods for sharing equipment. These methods range from sophisticated institution-wide computer-oriented equipment assistance to small-scale cooperative arrangements. The federal government, particularly the National Science Foundation and the National Institutes of Health, encourages the sharing of scientific research equipment. These agencies need information on institutional sharing arrangements to develop program alternatives related to optimal utilization of available scientific research equipment. Information on the methods and procedures presently used by colleges and universities for shared use should also be beneficial to local institutions in meeting more adequately the needs of faculty members for scientific equipment. Institutions can profit through knowledge of the experience of others.

Upon completion of the questionnaire, please return it to your HEP representative for forwarding to us by September 22, 1978.

Thank you for your cooperation.

American Council on Education

OMB#099-R0265 exp. 6/81

Higher Education Panel Survey No. 44

Shared Use of Scientific Equipment

1. AT YOUR INSTITUTION, WHO REVIEWS RESEARCH PROPOSALS TO DETERMINE WHETHER SCIENTIFIC EQUIPMENT REQUIRED MAY ALREADY BE AVAILABLE ON THE CAMPUS?
(Check (√) all that apply in each column.)

	Equipment Costing: Under $10,000	$10,000 or more
Project proposer (proposed principal investigator)	___	___
Department head	___	___
Dean of school or college	___	___
Office of research administration (Include anyone with central institutional responsibility for research)	___	___
Other (please specify)_____	___	___
Not applicable	___	___

2. AT YOUR INSTITUTION, WHO REVIEWS REQUESTS FOR PURCHASE OF SCIENTIFIC EQUIPMENT TO DETERMINE WHETHER THE EQUIPMENT MAY ALREADY BE AVAILABLE ON THE CAMPUS?
(Check (√) all that apply in each column.)

	Equipment Costing: Under $10,000	$10,000 or more
Principal investigator	___	___
Department head	___	___
Dean of school or college	___	___
Office of research administration (Include anyone with central institutional responsibility for research)	___	___
Purchasing office	___	___
Other (please specify)_____	___	___
Not applicable	___	___

3a. DOES YOUR INSTITUTION MAINTAIN A FORMAL ACCOUNTING OR CONTROL SYSTEM FOR INSTITUTIONAL PROPERTY OTHER THAN REAL ESTATE?

___YES ___NO

3b. If "Yes," please indicate the source of the requirement for this system.
(Check (√) the single most appropriate answer.)

___ State requirement affecting institutions of higher education

___ College or university system requirement

___ Required by administration of individual institution

___ Other (specify)_____

4a. DOES YOUR INSTITUTION HAVE A SYSTEM OR PROCEDURE WHICH IS SPECIFICALLY DESIGNED, AT LEAST IN PART, TO FACILITATE THE SHARED USE OF SCIENTIFIC EQUIPMENT?

___YES ___NO

4b. If answer to question 4a is "No," please answer the following:

IS YOUR INSTITUTION NOW DEVELOPING PLANS FOR A SYSTEM OR PROCEDURE INTENDED TO FACILITATE THE SHARED USE OF SCIENTIFIC EQUIPMENT?

___YES ___NO

If the answer to the above is "Yes," BY WHAT DATE DO YOU EXPECT THE SYSTEM TO BE IN OPERATION?

MONTH AND YEAR_____

5a. If "Yes" in 4a or 4b: HOW IS (WILL BE) THE EQUIPMENT SHARING SYSTEM RELATED TO THE INSTITUTIONAL PROPERTY ACCOUNTING SYSTEM REPORTED IN QUESTION 3?
(Check (√) the single most appropriate answer.)

___ It is (will be) an integral part of the property accounting or control system.

___ It is (will be) coordinated to a significant extent with the property accounting or control system.

___ It is (will be) entirely or mostly independant of the property accounting or control system.

___ Too early to determine.

___ Not applicable (Answered "No" in Question 3a.)

5b. If "Yes" in 4a , MAY WE RELEASE TO THE NATIONAL SCIENCE FOUNDATION INFORMATION ABOUT YOUR SYSTEM IN IDENTIFIED FORM? The Foundation may wish to contact your institution for more information about your system and would appreciate having the name, address, and telephone number of the person to whom these inquiries should be directed.

___NO. Please do not release information identified with this institution.

___YES. Inquiries should be directed to:

Name:_____

Title:_____

Address:_____

_____

_____

Telephone:_____

6. DOES INFORMAL SHARING OF SCIENTIFIC EQUIPMENT TAKE PLACE AT YOUR INSTITUTION?

___Yes, extensively

___Yes, to a moderate degree

___Yes, but only minimally

___No

If you answered "Yes" to either Question 3a or Question 4a , please complete Questions 7 through 17.

If you answered "No" to both Question 3a and Question 4a , please skip Questions 7 through 17, but answer Questions 18 and 19.

The following questions apply both to formal institutional property accounting systems (Question 3a) and to systems which are specifically designed, at least in part, to facilitate the shared use of scientific equipment (Question 4a). The latter type of system is referred to in the following questions as a "Scientific Equipment Sharing System."

Note: Institutions which have only one of the two systems should answer only in the column appropriate to the system. Institutions which have one system which is designed to serve both property accounting purposes and equipment sharing purposes should give answers in both columns. Institutions which have a separate system for each purpose should likewise answer in both columns. If your institution has more than one Property Accounting System or more than one Scientific Equipment Sharing System, such as separate systems for the School of Engineering or the Medical School, the answers to Questions 7 through 17 should be based on the system which includes the most equipment as measured in terms of acquisition cost.

7a. WHICH OF THE FOLLOWING ITEMS OF INFORMATION ARE RECORDED FOR EACH PIECE OF EQUIPMENT IN EACH SYSTEM?
(Check (√) all that apply in each column.)

Information item	Property Accounting System	Scientific Equipment Sharing System
Name of item	___	___
Technical description	___	___
Person responsible for the equipment	___	___
Availability (the portion of time the equipment may be available to others)	XXXX	___
Value:		
Actual acquisition	___	___
Market value at time of acquisition	___	___
Location of equipment	___	___
Condition of equipment	___	___
Age or year of manufacture	___	___

7b. IS THERE PROVISION FOR UPDATING INFORMATION ON EQUIPMENT IN EACH SYSTEM, SUCH AS THE PERSON RESPONSIBLE, AVAILABILITY, LOCATION, OR CONDITION OF THE EQUIPMENT?

___YES ___NO

If "Yes," how:
(Check (√) one in each column.)

	Property Accounting System	Scientific Equipment Sharing System
By physical inventory:		
Made annually	___	___
Made less frequently than annually	___	___
By other means (please describe briefly)	___	___

8. IN WHAT FORMAT ARE THE RECORDS KEPT?
(Check (√) single most appropriate item in each column.)

Type of record	Property Accounting System	Scientific Equipment Sharing System
File cards or other manually prepared paper records	___	___
Computerized system	___	___
Personal knowledge of the program manager or coordinator	___	___
Other (Please specify)_____	___	___

9. AT WHAT LEVEL ARE THE SYSTEMS ADMINISTERED?
(Check (√) all that apply in each column.)

Level	Property Accounting System	Scientific Equipment Sharing System
College or university system office	___	___
Central office at your institution	___	___
School or department	___	___

10. DO THESE SYSTEMS HAVE PROCEDURES FOR ADDING NEW EQUIPMENT TO THE LIST OR INVENTORY?

___YES ___NO

If "Yes," when:
(Check (√) one in each column.)

	Property Accounting System	Scientific Equipment Sharing System
Only at the time of acquisition	___	___
More frequently than annually	___	___
Annually	___	___
Less frequently than annually	___	___

11. HOW LONG HAVE THE SYSTEMS BEEN IN OPERATION SUBSTANTIALLY IN THEIR PRESENT FORM?
(Check (√) one in each column.)

	Property Accounting System	Scientific Equipment Sharing System
Less than one year	___	___
One but less than two years	___	___
Two to five years	___	___
More than five years	___	___

OVER

12. WHAT IS THE MINIMUM VALUE FOR INCLUSION OF EQUIPMENT IN:

a. The Property Accounting System $_____ (estimate if necessary)

b. The Equipment Sharing System $_____

13. WHAT IS THE TOTAL VALUE OF EQUIPMENT NOW INCLUDED IN:

a. The Property Accounting System $_____ (estimate if necessary)

b. The Equipment Sharing System $_____

14. WHAT IS THE ANNUAL COST OF OPERATING THESE SYSTEMS? (Do not include the original inventory cost but do include salaries, space, movement of equipment, computer charges, etc.)

a. The Property Accounting System $_____ (estimate if necessary)

b. The Equipment Sharing System $_____

15. WHO ARE PROVIDED COMPLETE COPIES OF EQUIPMENT INVENTORIES?
(Please check (✓) all that apply in each column.)

Office or Officer	Property Accounting System	Scientific Equipment Sharing System
Institution purchasing officer	___	___
Office of research administration (include anyone with central institutional responsibility for research)	___	___
Equipment sharing system officer	___	___
Deans of schools or colleges	___	___
DEPT HEAD		
Individual faculty or researchers	___	___

16. IF DEANS OF SCHOOLS OR DEPARTMENT HEADS ARE NOT PROVIDED COMPLETE COPIES OF SCIENTIFIC EQUIPMENT INVENTORIES, ARE THEY PROVIDED INVENTORIES OF SCIENTIFIC EQUIPMENT ASSIGNED TO THEIR RESPONSIBILITY?

___YES ___NO ___NOT APPLICABLE

17. HOW WOULD YOU DESCRIBE THE DEGREE OF SUCCESS OF THE EQUIPMENT SHARING SYSTEM TO DATE?

___Considerable success ___Too early to determine
___Fair success ___Not applicable
___No success

If you answered "No" in Question 3a and Question 4a (Institution does not have a formal property accounting system or a system specifically designed, at least in part, to facilitate the shared use of scientific equipment), please answer the following.

18. DOES YOUR INSTITUTION HAVE A METHOD FOR AVOIDING UNNECESSARY PURCHASE OF NEW SCIENTIFIC EQUIPMENT THAT ALREADY MAY BE AVAILABLE?

___YES ___NO

19. If "Yes" in question 18, at what level does the system operate?

___Purchasing office
___Office of research administration
___Other central institution office
___Office of dean of school or college
___Department head
___Other (please specify) _____

Thank you for your assistance.
Please return this form by September 22, 1978 to:
Higher Education Panel
American Council on Education
One Dupont Circle, N.W.
Washington, D.C. 20036

Please keep a copy of this survey for your records.
Person completing form

Name _____

Department _____ Phone _____

If you have any questions or problems, please call the HEP staff collect at (202) 833-4757.

APPENDIX B: Response Analysis and Weighting Methods

Of the eligible Panel institutions, 85 percent provided usable data before the deadline for questionnaire returns. Higher-than-average response rates were recorded for public universities and for institutions with FTE graduate enrollments of 1,000-3,000 (89 percent each). Institutions with the lowest FTE enrollments--a total of 1,000 or fewer, and 200 or fewer graduate students--had the lowest response rates (73 percent and 76 percent, respectively).

Characteristic	Respondents (N=372)	Nonrespondents (N=67)	Response Rate
Total	100.0	100.0	84.7
Control			
Public	69.9	64.2	85.5
Private	30.1	35.8	82.4
Full-type			
Public universities	26.3	17.9	89.1
Private universities	16.1	16.4	84.5
Public four-year	43.5	46.3	83.9
Private four-year	14.0	19.4	80.0
Census Region			
East	26.0	36.9	80.0
Midwest	25.2	21.5	86.9
South	31.7	27.7	86.7
West	17.1	13.8	87.5
Total FTE enrollment			
<1,000	5.1	10.4	73.1*
1,001-4,999	29.6	32.8	83.3
5,000-9,999	34.1	28.4	87.0
>10,000	31.2	28.4	85.9
Graduate FTE enrollment			
<200	19.6	34.3	76.0*
201-1,000	41.1	32.8	87.4
1,001-3,000	30.4	20.9	89.0
>3,000	8.9	12.0	80.5

*Rate falls more than 10 percent below the overall response rate.

Weighting

Survey responses of the Panel members were statistically adjusted to represent the characteristics of the 676 colleges and universities in the eligible population. The data were weighted, within each of the ten stratification cells listed below, by the ratio of the number of institutions in the population to the number of Panel institutions which responded. Weights were computed separately for each data item to allow for a varying number of responses to the survey questions. The resulting cell and item weights were applied to the responses of each institution, and the weighted data were then aggregated into the broad institutional categories used in the survey analysis. Thus all data represent independently computed population estimates. Because each data element was weighted separately, sub-totals generally approximate, but may not add exactly to, their corresponding totals.

Stratification Design

Stratum	Panel Respondents	Represented Population
1. Public Ph.D. Universities	98	112
2. Private Ph.D. Universities	60	74
3. Public Medical Schools	22	30
4. Public Black Four-Year Colleges (FTE > 3000)	9	13
5. Public Nonblack Four-Year Colleges (FTE > 8750)	81	107
6. Private Medical Schools	13	18
7. Private Nonblack Four-Year Colleges (FTE > 8750)	9	13
8. Public Four-Year Colleges (FTE 3700 - 8750)	34	77
9. Public Four-Year Colleges (FTE 2000 - 3700)	16	98
10. Private Four-Year Colleges (FTE 2000 - 3700)	30	134

Other Reports of the Higher Education Panel
American Council on Education

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Atelsek, Frank J. and Gomberg, Irene L. **Foreign Area Research Support Within Organized Research Centers at Selected Universities, FY 1972 and 1976.** Higher Education Panel Report, No. 32, December, 1976.

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Atelsek, Frank J. and Gomberg, Irene L. **Production of Doctorates in the Biosciences, 1975-1980: An Experimental Forecast.** Higher Education Panel Report, No. 34, November 1977.

Gomberg, Irene L. and Atelsek, Frank J. **Composition of College and University Governing Boards.** Higher Education Panel Report, No. 35, August, 1977.

Atelsek, Frank J. and Gomberg, Irene L. **Estimated Number of Student Aid Recipients, 1976-77.** Higher Education Panel Report, No. 36, September, 1977.

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Atelsek, Frank J. and Gomberg, Irene L. **Scientific and Technical Cooperation with Developing Countries, 1977-78,** Higher Education Panel Report, No. 40, August 1978.

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Atelsek, Frank J. and Gomberg, Irene L. **Young Doctoral Faculty in Science and Engineering: Trends in Composition and Research Activity,** Higher Education Panel Report, No. 43, February 1979.

Single copies of the above reports may be obtained from the Higher Education Panel, American Council on Education, One Dupont Circle, Washington, D. C. 20036.