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ABSTRACT

Higher education is now and will increasingly be faced with requests for data from a variety of sources to which it is accountable. Such data may ultimately be used in decision-making regarding the appropriation of public and private resources. Comparisons of costs and other measures among institutions will be the byword. Thus it is important that potential areas of misunderstanding and misuse of information be fully understood both by those who provide the data and those who receive it. It is not implied that such requests for data are necessarily inappropriate; in fact, if used responsibily, data comparison can also be a valuable internal decision-making tool for the institution. This paper, then, is designed for both the potential requestors of data and the members of the higher education community who will be responding to such requests. The difficulties in routine data comparisons, some of which were experienced by a six-member data exchange group, are explained. Suggestions are made concerning ways in which data comparison can be handled meaningfully. A variety of actual examples are described in some detail, including problems of both definition and analysis. Further illustration is provided in an attachment. (Author/KM)

THE COMPARABILITY QUESTION: POTENTIAL USES AND MISUSES OF DATA

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THE COMPARABILITY QUESTION: POTENTIAL USES AND MISUSES OF DATA

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Higher education has long enjoyed a measure of freedom from external accountability which is envied by those who are outside the system and probably not fully appreciated by those within it. This priviledged position is now being penetrated on all sides by a variety of calls for accountability, usually in terms of specific data by which it is assumed that effectiveness and efficiency of operation can be determined.

The fiscal crisis now facing most public and private educational institutions has not been the sole reason for this cry for accountability, though it has probably had the greatest impact. Students are more aware of what and how they are taught and are often heard calling for greater relevance. Many state legislatures are looking more closely at public higher education in their states in terms of its content and conduct as well as its cost. At least one Governor is calling for faculty to increase teaching loads and the general question of the continuation of the tenure system as we know it today is being more frequently discussed. A major concern of all these groups is improvement of the educational experience through greater student-faculty contact--smaller classes, more accessibility to distinguished professors--and accomplishment of this at the lowest possible cost.

The common approach to the analysis and resolution of these issues has been to require more and more data by which complex systems can be quantified, summarized, and compared. This is understandable at a time when the consumer is increasingly concerned with getting the greatest value for his dollar. What is not fully understood is the extent to which such data, if not compiled and analyzed with the greatest care, can lead to totally inaccurate or inappropriate conclusions.

The purpose of this paper is to discuss, through actual examples, the difficulties encountered when attempting to make routine comparisons of data and to suggest how data comparison can be handled meaningfully. In so doing, I will also point out how such data can be potentially misunderstood and misused. It is not my intent to discount in any way the need for accountability itself. It is entirely appropriate that higher education should be accountable, albeit in different ways, both to those who benefit from its services and to those who finance its operations. There is also no question but that we will all benefit from such an effort, provided that it is conducted in a responsible, informed, and conscientious fashion.

The National Center for Higher Education Management Systems (NCHEMS) has now appeared on the scene to lead the field in the development of products intended to aid in the reporting process. Unfortunately, there is a temptation to use the results of these efforts as ends to themselves. Such a cookbook approach can more often lead to inappropriate conclusions than to informed judgments. This is particularly true when the result is a single number, such as a unit cost figure, which once obtained can be easily misused unless there is a full understanding of what is being presented and how it can and should be used.

Among the products developed by NCHEMS[2] are the Program Classification Structure which allows institutions to divide their programs into standard disciplinary units; cost finding principles which attempt to set standards for the determination of unit costs; RRPM (Resource Requirement Prediction Model) which has been mistakenly assumed by some people to be a model to develop unit costs for comparative purposes--instead of its real mission as an institutional planning model for internal use; and the Information Exchange Procedures project which is designed to attack the problem defined in its title. Such models are valuable to an institution's internal management, decision making, and evaluation. The danger is in assuming that such techniques can produce readily comparable results when applied to different institutions.

Thus far I have dealt with the question of data comparability in a general sense. I would now like to offer some specific examples of the problems involved in the selection, definition, and analysis of data to be exchanged or compared. The examples are primarily drawn from the experience of a six campus data exchange effort in which I was involved for over a two year period. The six campuses were all large state-supported institutions having broadly based programs of undergraduate and graduate instruction and research. In pursuing the initial goal of data exchange, we uncovered many unforeseen problems.

The first difficulties in data exchange are definitional. In our own effort we spent countless hours on the task of understanding the individual use of terms and then trying to produce meaningful decision rules on the classification of data.

A commonly used data element is the full-time equivalent student (student FTE). In our group, all institutions but one determined undergraduate student FTE by dividing student credit hours by 15; the other used a divisor of 15.5. Of course, greater variation will occur between institutions which have different requirements for graduation or different definitions of "normal progress." At the graduate level the problem of student FTE is vastly more complicated because of the differences in graduate programs and the manner in which graduate education is conducted and credited. For example, one institution in our exchange did not attach any credit value to doctoral work. As a result of these problems, we finally agreed to let each institution use its own method of calculating student FTE and to accompany data with a chart defining the method used. Obviously, anyone using these data must fully familiarize himself with these definitions and understand their differences before drawing conclusions.

A related problem is the need to determine whether student FTE should be aggregated by student level or by course level. Within our group, there was considerable disagreement on this matter. Some felt that course level is the significant determinent of workload; others felt that higher level students create more workload for faculty regardless of the level of course being taken. An added problem was the fact that one campus did not identify course level and thus could not provide data in this form. In either case the choice can have significant effects on data, particularly when micro programs are being compared, and thus the use to which the data is to be put must be considered in reaching a decision.

Another definitional problem centered around the differences in University calendars and the time period for which data are to be exchanged. Among our six-campus group it was found that some used a quarter system, both with and without a summer quarter; some used a semester system; and one used a trimester system covering the full year. Because of these differences, we agreed to exclude summer enrollments from

the academic year. Annual data must also be defined as covering either a fiscal year, academic year, or calendar year. While student information is usually easily separated by academic years, financial information cannot always be treated in this way. For example, the campus mentioned above which used a year-round trimester system encountered enormous difficulties in attempting to exclude its summer component to make its "annual" data comparable with the other institutions.

The results of our deliberations over these and a myriad of other problems of the same nature were represented in twelve pages of definitions covering the data elements to be exchanged and spelling out institutional differences in detail. The complexity of meaningful data exchange is well illustrated by this document, which is attached in photoreduced form. Despite its length, this is an extremely concise example. By comparison, the second edition of NCHEMS' Data Element Dictionary: Student devotes 125 pages to 73 data elements; their comments give little idea of the problems we encountered and, of course, this is only one of five such dictionaries.[3]

Our next step in the exchange of data was identification of a series of academic units for comparison. Our initial intention was to select departments that were as nearly identical on all six campuses as possible, recognizing at the outset that programmatic differences may create difficulties in interpreting the data. Thus it was understood that, while most universities are organized into schools, colleges, and departments, not every field is represented at every institution. Furthermore, disciplines, departments or programs having the same name may not include the same subject matter. This is an important problem which is not readily apparent to the outside user of data. It is obvious that physics and English are different; it is not so obvious that two departments called "English" may vary on different campuses. In our own group it was found that some English departments included rhetoric and/or speech and some did not; thus English was rejected for comparison. Similarly, romance languages could not be used because in some cases French was included and in others it was not. At UCLA, for certain historical reasons, our Department of Linguistics includes instruction in several exotic languages not covered elsewhere. Some campuses identify a separate Department of Computer Sciences; at UCLA, instruction in computer sciences is included within engineering and cannot be separated. On the other hand, the same program may be called by different names at different institutions; environmental science on one campus might be ecology on another. There may also be differences between the way graduate and undergraduate programs are organized in some fields. After sifting through the known differences of this kind we were only able to select seven departments for inclusion in the initial data exchange. Later, when analysis of the data uncovered differences even among these departments, it was agreed to provide departmental profiles outlining the program and requirements for each. It was evident that even with careful preliminary screening for similarity, these seven departments also displayed a mixture of objectives, resources, and organization as they were represented on the various campuses.

As we continued our efforts, it became increasingly clear that meaningful data exchange required a full understanding of programmatic elements. Not only was it necessary to understand the individual programs being compared, but the institution within which they were set and the entire system of higher education as well. Institutional priorities, and commitments, outside pressures for change, and even national interests may all have an impact which is reflected in the data for a particular program at a particular point in time. The individuals involved in this effort were all high-level administrators in their respective universities involved in institutional

research and planning. In spite of this, we often found that further investigation was needed to supplement our knowledge of programmatic and organizational differences. Imagine, then, the difficulties that would be encountered by even the most conscientious outsider attempting to analyze our data.

The final step in this initial effort at data exchange was comparison and analysis of the results. Many of the differences which were observed were explained by closer examination of the programs being compared. Only a few of the many possible examples will be discussed here.

One measure compared was an unweighted student/faculty ratio. In the case of one department, the six institutions reported values of 11, 15, 15, 16, 17 and 34. Investigation of the differences here showed that the 34 was the result of misinterpretation of definitions, an occurance for which one must always allow. On the other hand, the small number was associated with a new program; a new program might easily be expected to have a smaller student/faculty ratio due to pre-staffing, in order to cover the field, before enrollments have reached their peak.

The student/faculty ratios in art departments were relatively consistant for all institutions except one, which had half the ratio of the others. In this case the department showing the lower value placed a relatively greater emphasis on art practice than on art history. Thus, classes were required to be taught in small studio sections and more faculty were needed to staff them. This also had the effect of reducing the budgeted support per faculty member to less than half the level observed in the other art departments. A somewhat higher student/faculty ratio at another institution, resulted from the high service load associated with a "general undergraduate art requirement."

In some cases, a department showed a high number of graduate students per senior faculty. While on the surface this appeared to be a commendable use of resources, it apparently resulted from the production of very few doctorates over a number of years. If the present group of students received their degrees within a short period of time, the data would be sharply reversed.

Similar situations occurred when support funds per budgeted faculty were compared. For physics, the results were especially interesting; the six campuses reported the following figures for this department: $12,000, $10,000, $5,000, $3,000, $14,000, and $11,000. The two campuses having extremely low levels of support per budgeted faculty in this case were associated with large extramurally funded programs. On the other hand, the campus reporting $10,000 per budgeted faculty was also known to have a large extramural program including a well-equipped radiation laboratory, yet it did not show the low support figure that might have been expected. Our examination also showed that this institution's program was ranked first among all physics departments in the country.[4]

At one institution the support level in law was forty percent above the others. In this case the departmental budget included provision for a law library; at the other institutions this was part of a separate library budget.

Psychology departments having a strong clinical emphasis characteristically had support levels as much as twice as high as those emphasizing the social sciences. Here four of the campuses reported support per budgeted faculty at $4,000; the other two reported $7,000 and $8,000. In the first case of higher support the department characterized itself as "having more of a laboratory science than social science

emphasis." The other was stated to be "associated with a large clinical program." In both cases, the higher figures were easily explained by the costs associated with the support of laboratories and special facilities, a reflection of programmatic differences.

Programmatic differences can affect data even when programs are aggregated by discipline. Another example compares disciplinary groups on two campuses of the same university.[5] For the biological sciences on one campus the support per FTE faculty was recently reported as $16,000 at the other it was $12,000; however, the second campus includes a vigorous health science program which is budgeted separately. In the same report the physical sciences on the first campus showed a support figure of $13,000, compared with $17,000 at the second. Here, the first campus benefited from a large externally-funded research facility.

The examples could go on indefinitely; the implications, however, are clear. While many legitimate differences will be observed when data are compared among institutions, many other differences are created by conditions not directly related to the data element being compared. This was recognized by the RRPM-1 Task Force of WICHE when they stated in a resolution published on March 9, 1971:

> "Institutions of higher education differ widely among themselves. They have different approaches to teaching, different degrees, different requirements for the same degree, different course mixes within a single institution to satisfy the requirements for the same degree, different course contents, different methods of awarding and computing credit hours, different support activities, different student/faculty ratios, different goals, and other differences too numerous to enumerate."[6]

An understanding of these differences, and consequently any meaningful comparison of data, can only be accomplished by persons intimately acquainted with the data collection procedures, the programs, the budgeting patterns, the organization, the objectives, and other important characteristics of the institutions involved.

One might think that the most meaningful comparison of data would be made in an unchanged environment at a single institution where various measures are compared for the same units over a period of time. However, such conditions never exist. Even in the least dynamic setting, change occurs and one cannot draw simple conclusions from data collected over time. On the other hand, given an understanding of the system and of the significance of differences between units and of changes which may be occuring, data comparison can be an important decision making tool for an institution. Inter-institutional comparisons are vastly more complicated, and must be undertaken only with the greatest understanding and care.

Universities will continue to be faced with a multitude of requests for cost analyses and other data. So long as resources for higher education remain scarce, those responsible for their allocation will continue to look for information to help them with their difficult decisions. It is likely that institutions will also be required to demonstrate that they are using their resources in the most efficient and effective manner possible.

Unfortunately, many people feel more secure when their decisions are based on quantitative rather than qualitative information. However, where higher education is concerned, considerations of quality are (or should be) of great importance. While qualitative considerations are usually understood to imply judgments that are more

subjective than objective, there is no reason for them to be uninformed or capricious. In addition, it must also be recognized that even when the end result is a number, an essentially subjective decision may have been made in the selection of the method for producing that number. Numbers are not magic. They do not tell the whole story any more than a picture of one side of the moon shows what is on the other side. Numbers can, however, be useful; if they are properly understood and interpreted they can be combined with other information to give a reasonably complete picture.

We cannot escape the fact that data will be collected and comparisons will be made. What we must seek to avoid is standardization and regimentation around formats and definitions designed by those far removed from the system in an attempt to assure "comparable data." Ultimately, we will have to live with resource allocations and other decisions that may be based on such efforts. However, it is essential that higher education not be reduced to the least common denominator.

We have found from practical experience that a number of conditions are absolutely essential to any meaningful exchange or comparison of data in higher education. At the outset, the effort must be designed and undertaken with the full participation of knowledgeable individuals representing all parties involves. Sufficient particulars must be provided to allow rational accomplishment of the task. Specifically, they must seek to:

Fully agree to the purpose of the comparison and the use to which the data will be put;

Insure that the data to be collected are consistant with the expressed purpose;

Define all terms explicitly and include detailed definitions with any data disseminated;

Provide profiles of each program to be compared, including information on all aspects of the program which may affect the data; and

Permit the providers of the data to review the results so that errors of fact or interpretation may be avoided.

Obviously, this is an ideal and not every condition can be met in every case even when undertaken with the best of intentions. Hopefully, a better understanding of the problems and concerns discussed here will help to establish a meaningful environment in which those involved in higher education and those to whom they are accountable can work together responsibly and responsively.

Attachment

NOTES

[1]Acknowledgment is due Miss Dee Cuenod, Miss Gertie Ewing, Mrs. Jeffrey Gilbert, Dr. Wayne Smith, Miss Corrine Verhulst (members of the UCLA Planning Office staff) and other members of our data exchange group for significant contributions which lead to the production of this paper.

[2]Publications describing each of these items are available from the National Center for Higher Education Management Systems at WICHE, P. O. Drawer P, Boulder, Colorado 80302.

[3]The other data element dictionaries are for course, facilities, finance, and staff.

[4]Kenneth D. Roose and Charles J. Andersen. A Rating of Graduate Programs, American Council on Education, 1970. This institution was ranked first for Quality of Graduate Faculty and fifth for Effectiveness of Doctoral Program and in each case ranked higher than any of the other programs compared.

[5]Derived from 1972-73 University of California Budget.

[6]Appendix A of "Report of RRPM Implementation at UCLA," UCLA Planning Office, September 1971.

ATTACHMENT

DECEMBER 1972

DATA EXCHANGE ELEMENTS

ELEMENT	DEFINITION	COMMENTS
I. STUDENT INFORMATION	Students are defined as regular session students (regardless of the hour of instruction). Extension, summer session, and summer quarter enrollments will be excluded (University of Michigan will exclude the summer trimester).	
A. Fall FTE Students	Data will be provided for by levels of lower Division (LD), Upper Division (UD), Graduate 1 (G1)--or all graduates other than advanced Doctorates--and Graduate 2 (G2)--or advanced Doctorate. (In the future an attempt will be made to exchange information on a year-average basis.)	
FTE Students	Will be determined in a manner consistent with each institution's own methods of calculating full-time equivalence. There is little variance at the undergraduate level. Student Credit Hours (SCH) are divided by 15, with the exception of Michigan where the divisor is 15.5. However, each institution has its own method for determining FTE at the G1 and G2 levels. (Refer to Schedule A.) The concepts for determining the two graduate levels appear to be fairly consistent, for all practical purposes.	Full-Time Equivalent Students The fall term was selected as the reporting period since all institutions readily available data. While year average [illegible]ore representative of it was not used [illegible]a. [illegible]e FTE data was not easily gathered at so[illegible]utions. FTE students were also weighted to provide a more appropriate measure of workload taking into consideration the relative mix of students by level. All institutions used some weighting system with very small variances in relative values so a standard set of weights was followed. Determination of a compatible definition of a full-time equivalent student was an early problem for the Data Exchange Group. This is usually more difficult at the graduate than at the undergraduate level. At the undergraduate level all institutions before determine student FTE by dividing student credit hours by 15; the other uses a divisor of 15.5. On the other hand, each institution uses a different method of determining graduate student FTE and this data can be properly interpreted only by someone familiar with each technique and its rationale. The Data Exchange Group finally agreed to allow each member institution to use its own manner of calculating full time equivalent students and provide a chart defining each method of determining graduate FTE (see Appendix D). For all practical purposes, the concepts for determining the two graduate levels appear to be fairly consistent.
Weighted FTE Students	Are obtained by multiplying Fall FTE Students as follows: LD times 1.0 UD times 1.5 G1 times 2.5 G2 times 3.5	
B. Fall FTE Students attributable to departmental majors	By level of student are that portion of FTE student workload generated in the department by students in its major program at the upper division or graduate levels, as opposed to the FTE student workload generated by non-majors. (This should not be confused with the amount of FTE generated in other departments by this department's majors.)	Workload Attrubutable to Departmental Majors In an effort to illustrate the effects of the major load or opposed to the service load on each department, the Data Exchange Group chose to exchange data on the workload attributed to departmental majors. FTE students attrubuted to departmental majors were reported along with the percentages of such FTE to the total FTE student workload. The percentage of SCH's attrubutable to departmental majors was also included as an important addition. These elements were substituted for headcount majors as being more meaningful and more descriptive of the nature of departmental workload.
C. Year-average Student Credit Hours	By level of course (as opposed to determining SCH by level of student) will be provided at the LD, UD, G1, and G2 levels. SCH registered will be used rather than SCH completed. (Most institutions count as of the 2nd or 3rd week of classes.) Year-average is determined by (I) adding the Fall and Winter (or Spring) semesters and dividing by 2, or (II) adding the Fall, Winter and Spring quarters and dividing by 3.	Student Credit Hours Student Credit Hours (SCH) must also be carefully defined in relation to the normal course load at an institution. Furthermore, if student credit hours are used as a base for data, this must be defined as either SCH registered or SCH completed. SCH are a function of the total credits required for graduation for undergraduate rates and perhaps arbitrary decision regarding the relative unit credit which will apply to specific courses, and the number of students enrolled. Hence, comparisons of SCH can be misleading where the total number of credits required for graduating varies; e.g., engineering programs typically require more credits than the social sicences. The problem of carry arising SCH at the graduate level aggravated by the fact that some of the institutions required credit for such things as research while others had no way at all of tabulating the total number of graduate level SCH.

ELEMENT	DEFINITION	COMMENTS
C. Year-average Student Credit Hours (cont.)		**Student Level versus Course Level** There was considerable disagreement as to whether workload data should be collected by student level or by course level. Some institutions believe course level to be the most significant measure, particularly when departmental workload is the objective. However, one member of the Data Exchange Group could not identify course level and thus coul not distribute data in this manner. Others who object to the use of course level point to the fact that courses are frequently open to students at different levels and contend that higher level students create more workload for faculty. Many disagree with this opinion, however, feeling that workload is determined by course level regardless of the level of the student. The solution agreed to by the Data Exchange Group provides both FTE students by student level and student credit hours by course level.
B. Fall Headcount Majors	Determinined by level of student standing will be provided for each department. If it is meaningful, interdepartmental or interdisciplinary majors should be assigned (or prorated) to a department. When this is the case, their inclusion should be footnoted and the major should be named or defined. If their inclusion at the departmental level is not possible they should be included in the summation of the appropriate school or college (or campus, if all else fails). When this is the case, these majors should be footnoted as included in the total but not in a particular department, and their numbers should be given by major and by level.	**Enrollment--Headcount Majors** One of the more common elements of data employed to describe an institution and its programs is headcount majors. However, in trying to use majors to indicate program size or departmental workload, this element was found too problematic to be useful. Students may not declare their major during thier lower division years and when they do, are very apt to change majors in the later years. Also when describing a department's program in gross numbers of majors, the problem of departments including varying majors detracts from the usefulness of the data. Other indicators provided to be more descriptive of departmental workload such as student credit hours, FTE students and SCH. However a distinction between workload generated by a department's majors as opposed to its service load was found to better express the nature of that workload. Headcount data by major therefore was temporarily abandoned in favor of an expansion of both FTE students and student credit hours to indicate those attributable to majors and the percentage represented. That is not to say that this data could not be useful for other purposes and in relationship to other data such as degrees granted and may be an indicator of program size.
E. Degrees Granted	Will be provided at the UG, G1 and G2 levels. This data should be for the full year. In the case of Law, the LLB and JD are considered equivalent to G1; the Master of Law and D. Science of Law are equivalent to G2.	**Degrees Granted** Degrees granted over the full year were easily agreed upon to be categorized at three levels; undergraduate, graduate 1, or masters and first professional (LLB and JD) and Grad 2, or doctoral degrees.
F. Postdoctoral Students	The number of postdoctoral students will be provided. An indication should be given as to whether or not the figure is for fall or year average.	**Postdoctoral Students** Early exchanges of data included counts of postdoctoral echolars, as further indication of faculty workload. But some record keeping was sporatic so that the validity of the data was suspect, the element was later abondened as of little value.
II. FACULTY AND TEACHING STAFF		
A. FTE Information	Differences in the definitions of Faculty and Teaching Staff are shown for the individual institutions in Schedule 8. The definitions agreed upon for use in data collection are listed below. (This means several institutions must modify their data to conform to the definitions.)	
B. FTE	Or (Full-time equivalent) has a value of 1.00 for a person who is employed (in instruction and departmental research) 100% of time for the full period of his responsibilities during a fiscal year. An "11-month," "12-month," or "fiscal-year" appointee should equal 1.00 FTE as would a "9-month," "10-month," or "academic-year" appointee. Anyone budgeted for actually working less than 100% of time or less than the full period for his responsibilities within a fiscal year would have his FTE prorated accordingly. Actual FTE should be provided on a "yearaverage" basis; that is, the pereentage of time worked in instruction and departmental research added together for each quarter and divided by 3, or added tonether for each semester and divided by 2 would equal the year-average FTE. (Michigan will adjust full-year FTE to exclude the summer trimestar.)	**Full-Time Equivalent Faculty** In order to collect data on budgeted and actual faculty, a common measurement was required; there was little disagreement that FTE (rather than headcount) should be that form of measurement and there was little disagreement on the definition of FTE. (See Appendix E) One FTE faculty generally represents an individual employed 100% for the full period of his responsibility, which may cover a nine, ten, eleven, or twelve month period depending on the particular program and institutional policy. However, FTE definitions of teaching assistants differ considerably. More institutions allocate and budget teaching assistant FTE separately; however, one does not. Instead, it allocates all positions as faculty FTE, then converts a certain number to be used for teaching assistants. Where they are separately allocated, one headcount teaching assistant usually equals .50 FTE when looking at total teaching staff. In the second case, 1.00 FTE faculty coverts to 2.00 FTE teaching assistants which equal four headcount teaching assistants. Thus, a summary of teaching staff FTE's which includes teaching assistants may not be meaningful.

ELEMENT	DEFINITION	COMMENTS
B. FTE (Continued)	Data will be provided for the following groups: Senior Faculty Junior Faculty Sub-total Faculty Teaching Assistants or Teaching Fellows Other Teaching Staff Total Teaching Staff The definitions will differ slightly for budgeted as opposed to actual. Unless it presents a hardship or is impractical to provide, the teaching staff data should include the following definitions only for the following categories: (If exceptions to these definitions must be made, the data should be footnoted and fully explained.)	
C. Budget	Includes FTE paid from general, state funds used to finance instruction and departmental research activities which are budgeted for the Fall, Winter and/or Spring (Michigan will adjust full-time FTE to exclude the summer trimester. Illinois will use FTE on an academic year rather than fiscal-year basis unless data are exchanged for colleges (e.g., Agriculture) where fiscal year basis is more appropriate and is agreed upon in advance.) Budget data can be as of the beginning of the fiscal year, at the end of the fiscal year or at a mid-point, the important factor being that it reflects the most accurate picture of the budget. Budgeted Teaching Staff Senior Faculty: Professors, Associate Professors (including Acting Professors and Acting Associate Professors, if budgeted) Junior Faculty: Assistant Professors, Instructors, Lecturers, Clinical Professors, (all levels). (Berkeley & UCLA include Associate in _____.) Other Teaching Staff: Supervisors in Teaching Education, Adjunct (all levels), Clinical Psychology Supervisors.	budgeted Staff It was agreed that it would be relevant to consider both budget and actual faculty and teaching staff, but when budgeted staff was discussed it was readily apparent that there were a number of differences in the way institutions defined "budget." Several institutions budget all funds, including temporary or short-term funds (such as federal grants) as well as permanent, continuing funds; therefore, budget was defined to mean only those funds in support of faculty and teaching staff provided by the State for regular on-going instructional programs. Further, for the sake of ease of collection, the budgeted status could be considered at any convenient time of the year (the beginning of the fiscal year, the beginning of the academic year, the end of the year, etc.) which most properly reflected the "budget", as viewed by that institution. One institution did not budget teaching assistantships. Instead budgeted faculty positions were converted to provide for the actual hiring of teaching assistants. (Refer to subsequent section dealing with Full-Time Equivalent Faculty.) And it was found that some institutions adjust departmental budget to reflect actual staffing patterns, some do not.
D. Actual	Includes all FTE paid from budgeted and non-budgeted funds (i.e., regardless of fund source) that provide for instruction and departmental research efforts during the Fall, Winter, and/or Spring, in accordance with the payrolls, activity indicators, faculty workload surveys, or whatever other source that best represents the teaching resources of that department. Sabbaticals should be included under the proper teaching titles of the persons on sabbatical and in proportion to the percentage of pay while on sabbatical. A qualitative statement should be included with actual FTE data where a department (i) is subsidizing programs in other departments, or (ii) is being subsidized in its program by other departments. In Law, Junior Faculty and "other teaching" titles should be footnoted and defined specifically by title. Actual Teaching Staff Senior Faculty: Professors, Associate Professors, including Acting and Visiting titles. Junior Faculty: Assistant Professors, Instructors, Lecturers, Clinical Professors (all levels), including Acting, Visiting and Adjunct Assistant Professor titles, and Acting Instructor (when the appointee is not a student). (Berkeley & UCLA include Associate in ____ when appointee is not a student.) Other Teaching Staff: Supervisor in Teacher Education, Clinical Psychology Supervisor, Coordinator of Field Work (in Social Welfare), Field Work Supervisor (in Social Welfare). (UCLA will include any other academic titles if actually teaching such as Professional research, Artist in resident, and Dean.) Teach. Asst.: Teaching Assistant, Teaching Fellows, Acting Instructor (when the appointee is a part-time student). Berkeley & UCLA include Associate in ___ when appointee is a student.	Actual Staff It was agreed that actual faculty was a reflection of budgeted provisions actually filled, plus additional positions created by donations of faculty time to a department (other than that in which the person is budgeted) and those savings from sabbaticals and leaves that finance additional temporary positions. However, there were problems with this definition. Actual faculty may carry a connotation of faculty funded from extramural funds in addition to these financed from the budget. Faculty who are on sabbatical pose a special problem. The portions of their salaries which are paid during the sabbatical are represented in the actual salary figure. However, since they are not contributing to the teaching program, there was disagreement as to whether or not they should be included in the actual FTE figure. One opinion would exclude them; another would include them because their portion of the teaching effort must be absorbed by the remaining faculty. For the purpose of providing uniform data, the data exchange group included faculty on sabbatical in this data exchange. A related problem is the handling of FTE of faculty released from teaching responsibilities to perform administrative duties. A department having several such persons during a given period may appear to be greatly overstaffed in comparison with another if their FTE is included. However, as in the case of sabbaticals, exclusion of this data will also give an incomplete picture. An interchange of faculty between departments is a common occurance on many campuses. It may be done for a specific course or to provide staffing for interdisciplinary instruction. Often only a part of the faculty member's FTE is involved. These arrangements pose problems for both budgeted and actual faculty data. Some campuses are able to identify faculty used for such purposes and to include them appropriately. Others cannot make such identification.

ELEMENT	DEFINITION	COMMENTS
B. Actual (Continued)		Actual Staff (Continued) It was easier for some institutions to provice "actual" information on staffing, if "time-reporting" or "faculty activity surveys" were routinely employed by the campus. Some members of the Data Exchange Group could not distribute faculty effort by instructional level nor could a breakout of research and public service functions be made in many cases. Any distribution of faculty effort may be largely dependant on institutional policy. Where there are guidelines or policies regarding teaching load or percentage of time to be devoted to non-instructional activities, there is usually more complete record-keeping to insure implementation of the policy. Anyone using faculty effort data should have a clear understanding of the applicable policy and of the method of data collection used. Although data on budget and actual faculty and teaching staff were considered quite valuable, it was found that considerable knowledge of individual programs and of institutional budget and academic policies was necessary before proper comparisons could be made and data interpreted. Classification of Teaching Titles One of the first problems the Data Exchange Group considered was whether the various teaching titles were comparable in terms of academic requirements. Did full professors and associate professors hold tenure; what were the requirements for appointment to this series; which titles were responsible for the supervision of graduate students, the conduct of courses at the undergraduate level, etc.; were the titles teaching associate instructor, and teaching assistant the same and if not, how did they vary? It was concluded that most titles carried the same meaning and had the same academic requirements, and (ii) differences between certain titles were minor, although each participant should be aware of these differences. Therefore, a schedule was devised that reflected these similarities and differences, by institution (see Appendix). It is believed that this is a necessary instrument for understanding the data to be exchanged, just as a similar schedule was found necessary for portraying student differences. (Refer to section dealing with students.)
III. FINANCIAL INFORMATION		
A. I&R Financial Data	Defined as those funds that provide for academic salaries, nonacademic salaries, hourly staff salaries (both academic and nonacademic), supplies, equipment (including capital equipment that is not a part of the construction costs of a new building), and professional services. Financial information should be provided, if available, in three categories: (1) budgeted, general funds related to instruction and departmental research, (2) actual expenditures of these budgeted, general funds related to instruction and departmental research, and (3) actual expenditures of all funds (regardless of source) related to instruction and departmental research.	Instruction and Research Financial Data The Data Exchange Group intended that all funds directly attributable to the instruction and departmental research effort be recorded, and that they be recorded in such a way that those departments having a high proportion of academic personnel in the higher paying ranks not unduly influence the financial figures. For this reason, financial data was divided between those funds supporting academic salaries and those other funds supporting the whole teaching program (or what was called academic salaries and 'support' funds, respectively). In order not to complicate the support level, funds relating to capitalization and to fringe benefits were excluded. There was considerable discussion about the importance of other funds that indirectly support the instructional program, but for purposes of this data element, indirect support was excluded. An example of this was found in one institution where the support level for Law was forty percent above the others; this was attributable to the fact that the given department's budget included the budget for their law library, which was part of a separate library budget at other institutions. These dollars were ultimately excluded for purposes of this exchange.
B. Support Funds in Instruction and Departmental Research	Are those categories of costs that support academic salaries. They are defined as nonacademic salaries, hourly staff salaries, supplies, (including telephone, Xerox, etc.) equipment and professinnal services, as amplified in III, A, above. Fringe Benefits should not be included in I&R financial data.	Support Funds Comparison of support funds also caused a variety of problems, once definitions were agreed upon. This was another instance where detailed knowledge of the program was required in order to evaluate the data. For example, it was found in the Psychology departments that those having strong clinical emphasis support levels that were twice as high as those with a greater social science emphasis. In order to provide a greater understanding of the program structure, "Departmental Profiles" were developed, which it was hoped would provide basic information that allow more information conclusions to be drawn from the data . (See Appendix for an example of the Departmental Profile.)

ELEMENT	DEFINITION	COMMENTS
C. Budget	Includes items paid from general, state funds used to finance instruction and departmental research activities which are budgeted for the Fall, Winter, and/or Spring. Budget data can be as of the beginning of the fiscal year, at the end of the fiscal year or at a mid-point, the important factor being that it reflects the most accurate picture of the budget.	Budget Problems discussed in the section pertaining to budgeted faculty and teaching staff are relevant to this section as well. In addition, there may be differences in the manner in which funds are received from the State. Funds for student support may or may not be included. In some cases, the budgeted figure may not even represent actuality, as in California where a budgetary savings target is regularly imposed representing funds which cannot be spent. Because Michigan uses a year-round, tri-mester system, it encountered enormous difficulties in attempting to exclude its summer component to make its "annual" data comparable with the other institutions.
D. Actual	Expenditures are those funds expended for (i) the same period of time as those in the budget, and (ii) the support of instruction and departmental research activities. They should be provided in two ways: (1) Actual Expenditures of budgeted, general funds. (2) Actual Expenditures of all funds, regardless of fund source, including budgeted and non-budgeted funds.	Actual Data on actual expenditures was provided in two ways: (1) actual expenditures of budgeted funds that support the instructional program, and (II) actual expenditure of all funds that support the instructional program. Some institutions had difficulty in providing (i) above as records were not readily available in this format. This may be a good place to mention that one of the advantages in participating in this experiment in data-exchange resulted in the discovery of problems of record-keeping within our own institutions and the improvement thereupon. For example, despite the importance of extramural funding, it is difficult or perhaps even impossible to obtain a clear picture of the amount available for a given time period because of differences in the lengths of grants and in the manner of receiving and using funds. A three year grant for one million dollars, for example, may appear on the books in a single installment or it may be paid yearly or quarterly, vastly affecting the support level shown for a single year. Some facilities and equipment bought with grant funds may be owned outright while others remain the property of the granting agency until expiration of the contract period. While all such support contributes greatly to an institution's educational program, different accounting procedures and other arrangements make simple comparisons essentially worthless.
E. Other Support Funds	Supporting the I&R program are defined as funds from directly related organized, commissioned or sponsored research, applicable institutes and Bureaus, and public service that provide academic salaries or other support costs. These should be itemized as to the following whenever possible: (1) Budgeted general funds, (2) Other budgeted funds, and (3) Non-budgeted funds, (These funds should not be included in the figures provided for "Support" funds in instruction and departmental research. They will be requested separately.)	Other Support Funds Extramural sources may represent an important part of an institutions funding which is not seen in the budget. In many cases, resources of an organized research program contribute heavily to the effectiveness of related academic programs although the dollar value of this contribution is not shown. To include such funds in the data to be compared brings forth a whole new set of problems. Although the Data Exchange Group recognized the importance of attempting to analyze all sources of funds that support an instructional program, the problems became to sizeable to handle in the limited time-frame of the Exchange Group. Several institutions, through complex cost accounting structures were able to relate nearly all funds to given programs, while most of the participating institutions could only make very rough estimates. These estimates dealt in a very gross way with problems such as (i) how to prorate an Organized Research Institute's budget among several disciplines and then between several departments, in order to determine that portion applicable to a particular teaching program, and (ii).
IV. CLASS SIZE AND COURSE INFORMATION		
A. Class Size	Data will be provided for LD, UD, and G by type of instruction. Type of instruction is defined as follows: Lecture: Primary course or seminar (SUNY and Illinois will include sections) Section: Subdivision of the course including quiz sections Lab: Subdivision of a course or a lab course itself. Individual Study: As title indicates An indication should be made as to whether or not the figure is for fall or year-average.	Class Size and Course Information The Data Exchange Group for a period of time included as further expression of workload information on class size. Class size intervals or ranges and averages were displayed by level of instruction and by method of instruction (lecture, lab, quiz section, etc.). Number of courses offered were also gathered but more to illustrate the breadth of each departments programs than to represent workload. The expression of these seemingly similar data elements however are fraught with difficulty. It was found that each element must be defined and understood within the context of the individual program as well as the policy of the institution. Course numbering systems often differ among institutions and among departments within an institution, as do methods of identifying additional

ELEMENT	DEFINITION	COMMENTS
A. Class Size (Continued)		Class Size and Course Information (Continued)
		sections or secondary sections of a course. For example, one institution might consider a three quarter (ABC) sequence in Economic Theory as three courses, where another institution might offer a two quarter sequence in Fundamentals of Economic Theory, a three quarter sequence in Economic Theory and a seven quarter sequence in Advanced Economic Theory for a total of three courses. A mere summation of these courses neither indicates workload, nor breadth. This example only serves as an illustration of the complexity of the problem, and the fine detail required to understand and interpret data.
B. Class Size Intervals	(or ranges) should be reported according to each institutions own method of collecting this data.	
C. Average Class Size	Should be based on the actual size of classes rather than an average of the ranges. Each institution should provide a short statement as to the method of calculating average.	
D. Number of Courses Offered	Should be the number of "course numbers" in the Schedule of Classes. Data should be provided for only primary sections, defined as the total number of courses taught including lectures, seminars and labs, and studio when they are the main course format. This does not include quiz, discussion, lab or studio when they are a secondary portion or subdivision of a course, (e.g., lecture with discussion--only the lecture is counted as a primary section). Do not double count. Count A, B, C, sequences individually (e.g., History 101 A, B would equal 2 courses when 101 A deals with History from 1485-1603 and History 101 B deals with 1603-1714). An indication should be made as to whether or not the data is for fall or full academic year offerings.	A distinction between primary courses and secondary sections was thought useful but found to be extremely problematic. For example some labs are primary while others are secondary sections associated with a primary lecture. This distinction could not always be made. One institution could not distinguish course level in its data. Because of the complexities involved the fine detail of both data and knowledge required and questionable value, the Data Exchange Group decided to abandon these data elements.
F. WORKLOAD		
A. Weekly Contact Hours	By level of course and by level of teaching staff, are the number of hours a member of the teaching staff is in contact each week with students in a formal classroom setting.	Weekly Contact Hours As a more specific measure of teaching staff, workload, weekly contact hours were added as an element to arrayed by level of course and by level of teaching staff. Since this element was only recently added, at this writing sufficient review has not been made to enable the Group to be certain of the best method of reporting this element or indeed if its meaningful. For example ratios of weekly contact hours per FTE teaching staff may be of more value than merely the raw data.
B. Independent Study Enrollments	By level of course and by level of faculty, is a formal program of study for which credit is given and as agreed upon between the faculty member and the study prior to that course of study.	Independent Study Enrollments Since weekly contact hours were not identifiable for independent study type of courses by all institutions, enrollments in such courses was chosen as an element which must be taken into consideration when viewing teaching staff workload. Here too ratios may turn out to be more valuable than only the data.