



News

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From the President



Dennis Jones
NCHEMS President

I recently completed my 31st year at NCHEMS, as has Clara Roberts, without whom our organization would be a much less productive and smoothly-functioning enterprise. Much has changed over that period of time. Higher education has weathered significant enrollment cycles, from accommodating the baby boom in the late 60s and early 70s, through the decline of high school graduates a decade later, and now the need to respond to the “baby boom echo.” Student bodies—and their interests and needs—have become more varied and complex. Postsecondary education is of growing importance to society—and is thus more salient to the leaders elected by that society, who more and more recognize that economic competitiveness and quality of life are closely tied to levels of education attainment. And financial issues remain a constant concern for managers and policymakers because even in the best of times there are never enough resources to do all the good things that might be done. As a result, there is a constant demand for more appropriate approaches to the allocation and utilization of what resources are available.

NCHEMS has changed as well. When I came to NCHEMS, our funding came almost entirely from the federal government. That has long since ceased to be the case. The organization is much smaller and more entrepreneurial than it was in the (not necessarily) “good old days.” Our substantive agenda has changed continuously to keep pace with—and, we hope, to get ahead of—the state and institutional policymakers who look to NCHEMS for information, ideas, and guidance.

But the more things change, the more NCHEMS stays the same in some very important ways. Over the years, NCHEMS has been a magnet for a continuous stream of individuals who are intellectually gifted and innovative, but who are also extraordinarily aware that their best ideas would be of little benefit if they couldn’t be utilized in the environments in which educational decisionmakers must operate on a daily basis. Throughout my professional life, I have been blessed with the best colleagues imaginable. We at NCHEMS also gain great satisfaction from being able to deal with a continuously changing set of problems and challenges. There is little chance that staff members at NCHEMS will be bored—with either the variety or number of things that need doing.

Another constant has been NCHEMS’ consistent orientation to the development of information and the advocacy of its use in decisionmaking contexts. This particular area of endeavor continues to be a major component of NCHEMS’ project portfolio. As examples, NCHEMS staff:

- Have been deeply engaged in the development of the National Survey of Student Engagement, an instrument for collecting information from students about their academic experiences.

- Have been—and are—working closely with the Council on Higher Education Accreditation (CHEA) on a variety of projects concerning the information needed for quality assurance in a rapidly changing world.
- Have reentered the world of costing, one of the very early project areas for NCHEMS in its original incarnation. Now the focus is how to cost alternative forms of instructional delivery—especially those associated with the use of technology. The major article in this newsletter describes some of our work in this arena.

In addition, NCHEMS has just received a grant from the Ford Foundation to identify the information needed for policymaking on an ongoing basis. More specifically, we’re being asked to suggest ways in which particular key bodies of information that have become critical to decisionmakers can continue to be available in spite of the retirement or death of individuals upon whom all of us have come to rely—individuals such as Kent Halstead and the late Hal Hovey. This project represents a good opportunity to stand back, to take a holistic look at policy information needs, and to play an instrumental role in helping to ensure that needs are met.

Before concluding this letter, I would be remiss if I didn’t recognize some of the important accomplishments and milestones of staff members. Peter Ewell has received the Sidney Suslow Award from the Association for Institutional Research—an award indicating outstanding lifetime contributions to the field. His contributions will undoubtedly continue to accumulate. Finally, I offer my congratulations to John Clark and Paula Schild (formerly Paula Ries) on their recent marriages and welcome Cathy and Peter, their respective spouses, to the NCHEMS family.

The Costs of Teaching with Technology

The methods by which higher education institutions provide instruction are changing rapidly. The Internet, the World Wide Web, CD-ROM technology, and reliable high-quality interactive video now give faculty a growing range of classroom tools—allowing them to bring information resources, simulation capabilities, and other enhancements to their instruction. These advances have also created a veritable explosion of experiments, as well as a growing commitment to alternative modes of instructional delivery. Growing attention to this matter has in part been stimulated by several high-profile organizations demonstrating that there is a substantial market for instruction delivered in ways that most educational administrations and faculty would find unconventional, perhaps even unacceptable. The University of Phoenix and the British Open University are probably the most visible examples of such successful ventures.

Diversification in instructional delivery also reflects increased responsiveness to client expectations and needs. Clients of higher education are increasingly place-bound, largely because effective performance on the job and as a member of society requires learning throughout life. Once they settle into work and family obligations, most people have a limited ability to go to the providers of higher education. If they are to be reached, the providers will have to go to them. These place-bound adults are expanding the domain regarding **where** learning opportunities will be delivered. But at the same time, all clients are pressing educational providers about **when** these opportunities will be offered. Many colleges and universities now find that many of the students who enroll in their distance-delivered courses are simultaneously enrolled in on-campus courses. This fact points to time, rather than place, as being the critical variable for many of today's students.

Whatever the motivation, the volume of instruction being delivered either (a) off-site, or (b) on-site but with considerable technology enhancements, has reached a level at which both educational and managerial questions about cost and effectiveness cannot be avoided. While

a single faculty member meeting with a defined group of students in face-to-face interaction remains the modal form of instruction, alternative forms of instructional delivery that either involve no direct personal interaction, or in which technology plays a major adjunct role, are rapidly expanding. Among academics, debates continue to rage about the effectiveness—or quality—of these alternative approaches to instruction. This debate will surely continue, but it is too late to turn back. Recent history suggests that both the variety of offerings and the number of individuals willing to avail themselves of them will increase dramatically. These alternatives, in short, are entering—and in some circumstances, becoming—the “mainstream.”

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As alternative forms of delivering and augmenting traditional instruction become widespread, they cease to fly under managerial radar. In the past, such alternatives were often treated as “experimental” approaches to delivering instruction. As such, they were frequently ignored by academic managers. Alternatively, they were seen as “demonstration projects,” funded through special allocations of resources, often drawn from sources outside the institution. Although mounting such projects as “experiments” often entails a fiduciary interest in accounting for associated costs, these interests are typically limited to those associated with responsibly reporting costs incurred to a funder in the context of a grant or contract. As new forms of delivery enter the mainstream, however, decisionmakers are understandably asking a new set of questions. Chief among them are:

1. What are the **per student costs** associated with alternative forms of instructional delivery? And

how do the costs of alternative methods compare to those associated with more traditional, face-to-face classroom instruction?

2. Under what conditions, if any, do alternative mechanisms become **cost-effective**? For example, are there particular levels of enrollment at which certain instructional methods become noticeably more cost-effective than other approaches?

In order to address such questions, the Western Cooperative for Educational Telecommunications (WCET) received a FIPSE grant to support the development of a set of procedures for calculating the costs of alternative forms of instructional delivery. The actual development of the costing procedures was subcontracted to NCHEMS. Work has been completed on these procedures, and they have been tested at nearly twenty institutions. The procedures will be available in printed form—and on the Web—in the very near future. This article is too short to allow a complete description of the costing methodology that resulted from this project. There is space, however, to describe some of its major attributes.

The basic purposes of the new costing methodologies proposed are straightforward:

- Make all instructional delivery modes explicit.
- Consider the full range of costs associated with each mode so that valid comparisons can be made.
- Provide decisionmakers with information about the conditions under which different delivery modes have a comparative advantage.

The finished manual contains:

- A proposed common data structure.
- Definitions of the data categories and elements identified as necessary within this structure.
- Specifications of the conventions and common procedures required for entering data into the suggested data structure.

Key Features of the Proposed Procedures

Based on Analytic—Not Accounting—Procedures

The costing procedures we developed are analytic procedures, not accounting procedures. The objective is not to create a record-keeping system (although one result may certainly be to influence the content and structure of record-keeping systems). Rather the agenda is to suggest the kinds of analytic conventions and approaches that can be used to organize data in ways that help inform internal decisionmaking.

Applicable to All Kinds of Delivery

The procedures constructed are applicable to all kinds of instructional delivery, from the most traditional face-to-face instruction to courses delivered over the World Wide Web. Indeed, a primary objective is to calculate the costs associated with delivery methods that many would consider “non-traditional” in order to compare them to those associated with delivery in a regular classroom setting.

Addresses Both Method and Scale

Because the primary consideration is managerial utility, the project needed to develop a costing framework that captures data on both instructional methods and the results of scaling their use up or down. Such data shed light on the question of whether there are conditions under which a seemingly cost-effective approach loses its comparative advantage vis-à-vis other approaches (and vice versa). In order to understand cost behavior in ways that have managerial meaning—and to protect against charges of inappropriate comparison—the methodology was therefore constructed to explicitly recognize distinctions among disciplines, levels, delivery methods, and specific variations in costs per student that result from shifting enrollment levels.

Focus on Direct Costs

The methodology deliberately focuses on direct costs of instruction as well as the direct costs of associated support activities where these can be identified. It does **not** attempt to allocate indirect costs like administration and physical plant operating and maintenance back to instruction in order to achieve a “full” instructional cost. This choice was made 1) because it is direct costs that are managed, and 2) to avoid the effort involved in allocating costs to obtain results that are seldom of managerial utility.

Recognizes Both Student- and Course-Related Costs

The model that underlies the proposed costing schema recognizes two distinct kinds of costs:

- Course-related costs, which include the (capital and operating) costs associated with offering the course, regardless of the numbers of students enrolled in the course.
- Student-related costs, which embrace the (capital and operating) costs that vary in accordance with the numbers of students enrolled in the course.

Multiple Units of Analysis

The proposed methodology was designed to accommodate a range of perspectives in calculating costs. These include the course, the organizational unit, and the method of delivery.

Grounded in Activity-Based Costing Methodologies

Costing in higher education has historically been done at the program level using a familiar set of functional categories such as instruction, research, public service, academic support, student services, institutional support, operation and maintenance of physical plant, and scholarships and fellowships. These are the categories in which data are reported to the federal National Center for Education Statistics (NCES) and they are incorporated into nearly all audit reports. The proposed procedures respect these standard categories. But the new methodology moves beyond these broad functions to include an additional level of detail (“activities”) that better describes how instruction is actually being delivered. For example, the “instruction” function is disaggregated, or “unbundled,” to reflect the following distinct activities, each with its associated costs:

- Curriculum Planning
- Materials Acquisition/Development
- Information Delivery
- Tutoring/Mediation
- Assessment

This notion of “unbundling” the instruction function was addressed in more detail in the last NCHEMS newsletter.

Costs Borne by Others

The proposed procedures yield the costs to the providing institution of alternative modes of instructional delivery. However, there are numerous instances in which some of the costs associated with the delivery of a given course are borne by others. For example:

- Students may be required to own their own computers, and thereby bear a (potentially substantial) portion of the technology costs.
- Other institutions may serve as “receive sites” and thus provide space, equipment, and a variety of support services at no cost to the institution delivering the course.
- A state agency may “own” the communications network and provide free access to it for all institutions.

In each of these cases, particular goods and/or services supplied by others do not enter into the institutional cost calculation because they are free to the institution. But they do represent an exposure to risk for the institution. The cost equation for the institution could change dramatically because of third-party actions. For example, a partner institution may begin to charge for the services it provides or a state agency may decide to recover its costs from the institutions using its network through new access charges. The proposed costing procedures recognize these instances as free goods, but also requires that their implicit costs be

estimated. With these data it is possible to calculate actual current costs to the institution and the costs that would be incurred if the ground rules changed.

Treatment of Capital Costs

Use of technology in the classroom generally carries with it new levels of investments in capital. Typically, this includes not just the costs of acquiring equipment and technology, but also the development of materials and courseware that allow the technology to be utilized effectively. Historically, costing methodologies have treated these kinds of investments as annual expenditures or have ignored them (e.g., the annualized costs of facilities were seldom calculated and incorporated into the cost-per-credit-hour figures that are the typical result of most costing exercises). The increasingly significant role played by factors of production that have multi-year life spans means that specific attention must be given to handling capital items in a different way.

Early Results

While it is far too early to suggest that the results found in the pilot test phase of this project are definitive, they are tantalizing. At the very least, early results suggest that:

- Modes of delivery that rely on technology consistently cost more than face-to-face instruction. This may reflect, more than anything, the fact that none of the test cases had sufficiently large enrollments to reach the point where economies of scale became evident.
- The added costs of video-based courses are typically those associated with communications—the telecommunications costs of linking send and receive sites.
- The added costs of Web-based courses lie in the added investment in materials development.
- The more time invested in courseware planning, the less the cost of courseware development. Obviously there are limits, but planning does seem to pay.

A manual and related materials resulting from this project—Excel spreadsheets and a simulation model (the Bridge model developed by Frank Jewett)—will be on the Web soon. We encourage you to visit <www.nchems.org> for the links to both the methodology and emerging findings.

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