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ABSTRACT

In order for the Governors State University (GSU) to reach its stated objectives, a unique administrative environment was created which supports the creation of instructional materials based on competencies. Performance objectives are used to describe course content and the learning requirements for individual courses within a program, as well as to report student credit. The objectives force the professor to identify the content and requirements of a course, thus providing an explicit guideline for developing instructional materials. The instructional communication center is committed to use modern communications technology in the delivery of instruction. Economy-of-scale is achieved through mass dissemination. When cable becomes available, the cost of launching a university could plummet down through the creation of a central instructional communications center with outposts, instructional systems, learning packages and low-cost meeting places. Cable decentralizes instruction. This study concludes with recommendations for cooperation among universities and within regions to develop a more efficient system of higher education. (WCM)

One University's System for Generating Television Software

by Warland D. Wight

In a time of declining support, a critical problem for higher education is to develop systems by which software can yield more efficient and effective learning. The creation of such systems will significantly alter traditional systems of higher education.

Governors State University is an experiment in higher education which tests some of the administrative structures necessary for using the techniques and technologies of mass communications instruction. Its concepts and some of its operational systems permit an easy adoption of television in conjunction with other materials as a primary means of instruction. If its innovations can be maintained, GSU will evolve a model for the application of television in the university. It has already developed a unique administrative system by which software is developed.

This paper details the GSU concept, its operation, and its potential in relation to a comprehensive higher education system that uses television effectively. It concludes with recommendations for cooperation among universities and within regions to develop a more efficient system of higher education.

CURRENT PROBLEMS FOR HIGHER EDUCATION

Modern technology will be applied in higher education to accomplish the following: 1) to educate larger and more diverse populations than traditional instructional systems; 2) to reduce the capital investment required to expand higher education; 3) to reduce the cost of each student-generated credit; 4) to help solve learner and learning problems (droupout rates, inflexible scheduling, inefficient learning systems, and so on); 5) to move learning to the student, rather than force the student to learning; 6) to disseminate down-to-earth instructional programs based on performance objectives, which guarantee learning through evaluation and revision procedures.

GOVERNORS STATE UNIVERSITY

To reach some of the above objectives, Governors State University has created a unique administrative environment which supports the creation of instructional materials: First, all instructional programs are based on competencies. Performance objectives are used to describe course content and the learning requirements for individual courses within a program, as well as to report student credit. The use of performance objectives forces the professor to identify the content and requirements of a course; thus providing an explicit guideline for developing instructional materials.

Second, every year, each professor develops a Profesional Work Plan Agreement. It is written in performance language. From each college, at least four professors are released from instruction to work with a Coordinator of Instructional Development to develop an instructional package or system. The package usually contains video cassettes, a student guide, audio cassettes, and/or other mediated materials. It programs the student's time to provide for contact with the professor and other students.

Third, instruction is evaluated. All instruction is evaluated and the evaluation data are used in merit salary considerations. The instructional packages are tested with students as prototypes and usually revised on the basis of the test.

Fourth, a centralized-decentralized operational plan exists which supports instructional development. This plan places the Learning Resources Center and the Instructional Communications Center in a wing, Research and Innovation, which is separate from Academic Affairs. The Research and Innovation Wing is also responsible for implementing evaluation procedures. (Figure 1)

At the heart of the university's effort to develop learning packages is the Instructional Communications Center. This unit is primarily

Governors State University
Organization

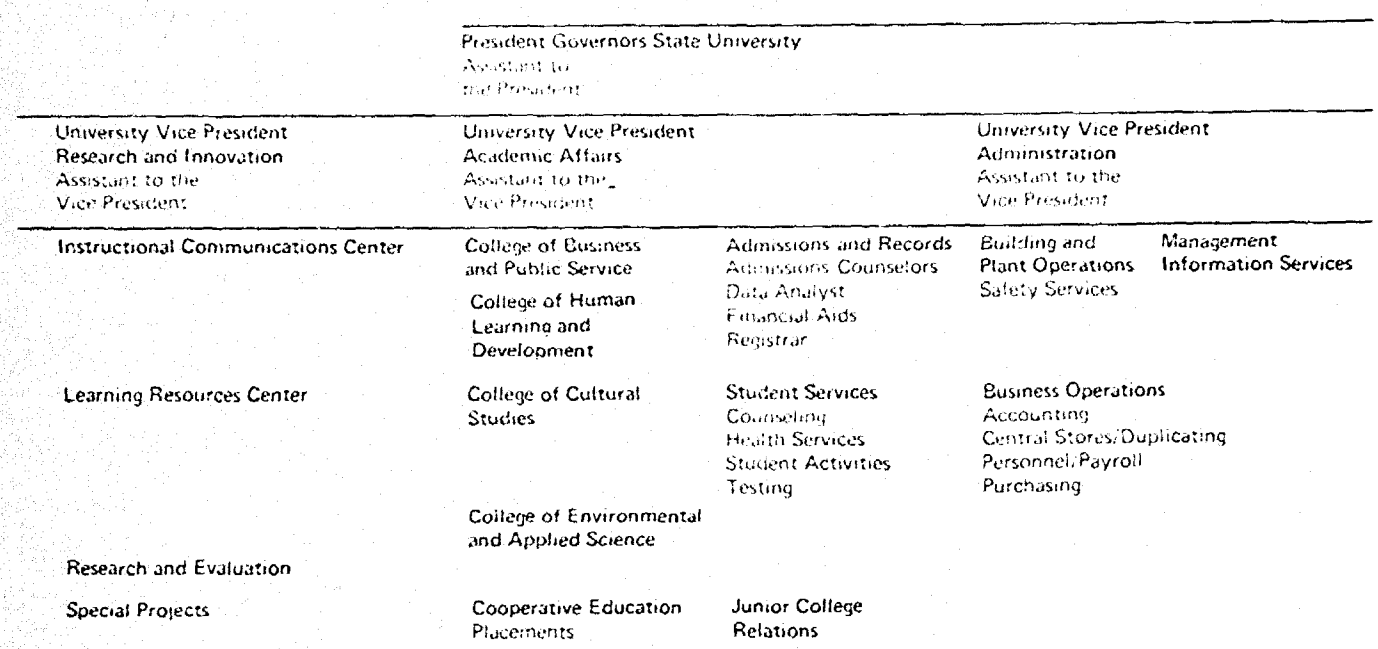

Fig. 1

responsible for stimulating and guiding the change from traditional means of instruction to the use of mass-dissemination systems of delivering instruction. The Instructional Communications Center (ICC) is a complex organization that combines many functions often dissipated throughout a university having a traditional organizational structure.

Most importantly, the Center provides instructional development support for faculty. Four Coordinators of Instructional Development are employed by this unit to work with faculty in developing instructional systems and packages. Each is attached to a different college. The Coordinator's Work Plan Agreement binds him/her to three primary responsibilities:

"1. To work with faculty and students in developing self-instructional modules (courses), instructional systems, and other instructional materials.

"2. To work with the College on curriculum and governance to implement the Instructional Systems Paradigm.

"3. To establish and maintain good relations with faculty members in the College and encourage and assist them in use of ICC services."

While this Work Plan Agreement was used during the first year to establish the credibility of instructional communications as a means of instruction, during the second year four faculty members in each college were contracted to develop an instructional system through the Faculty Work Plan Agreements. Secondly, the Instructional Communications Center produces media materials for the university: audio, film, graphics, photography and television. It produces instructional, public relations, and informative materials. Thirdly, it operates the electronic distribution network, which will include cable television channels this fall. Finally, it functions as a traditional audio-visual center by distributing and maintaining portable media equipment, film rental, and so on. The centralized-decentralized plan of operation provides service for faculty and students, maintains a consistency among media systems in use by the separate colleges, and guarantees that the instructional development effort will not be diverted to accomplish other goals. In short, the Instructional Communications Center represents a primary commitment by the university to use modern communications technology in the delivery of instruction. Any lesser commitment would blunt the ability of the university to interest the faculty in substantial production efforts.

While only one-quarter of the university's instruction is designated as being in the individualized software package format, all of it is supposed to be developed into instructional systems. The Instructional Systems Paradigm was adopted as official policy for university-wide application. It specifies how each college should identify instructional programs and how each professor should develop the necessary course work. In figure 2, the system is outlined.

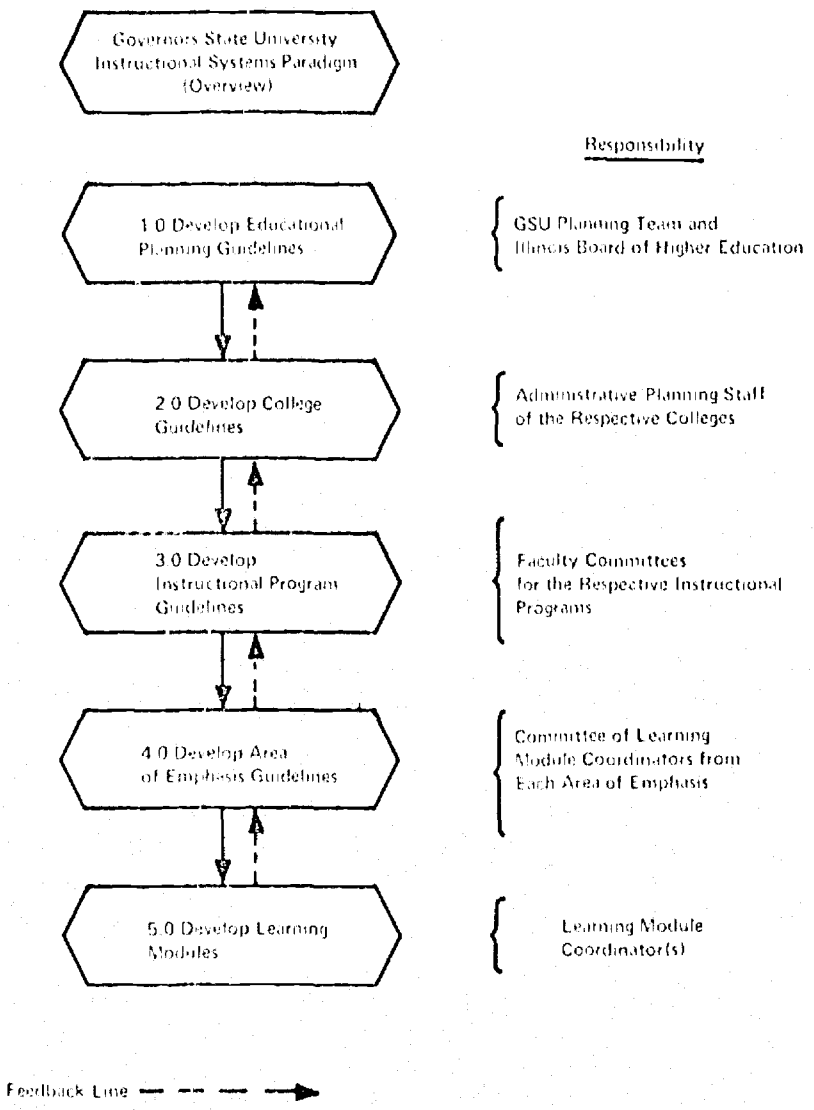
Governors State University
Instructional Systems Paradigm
(Overview)
Responsibility
1.0 Develop Educational Planning Guidelines
GSU Planning Team and Illinois Board of Higher Education
2.0 Develop College Guidelines
Administrative Planning Staff of the Respective Colleges
3.0 Develop Instructional Program Guidelines
Faculty Committees for the Respective Instructional Programs
4.0 Develop Area of Emphasis Guidelines
Committee of Learning Module Coordinators from Each Area of Emphasis
5.0 Develop Learning Modules
Learning Module Coordinator(s)
Feedback Line

Fig. 2

The important step for developing course work is step 5 that appears in Figure 3 I quote from the report, "The Learning Module (course) is a set of experiences which brings the student to the achievement of one or more specific and discrete competencies. Ideally, it is the smallest discrete 'package' of instructional strategies and materials in which all aspects of an individualized, performance-based criterion referenced instructional model can be identified. Such a model will include instructional objectives, materials and strategies for instruction and evaluation. A Learning Module will usefully approximate or include a single topic or concept belonging to a larger subject-matter context. A Learning Module at GSU, under current administrative procedures, will yield one or more GSU units of credit.

Developing of Learning Modules follow the establishment of the conceptual framework for the area of emphasis and the resulting specification of subject matter topics or concepts, performance characteristics and learning contexts that are appropriate to the area of emphasis. Development of Learning Modules then proceeds through the several discrete steps. (See Figure 3.)

The concept of an Instructional Systems Paradigm has been partly realized through the Profesional Work Agreement which contracts each professor to fulfill specific performance objectives.

The Work Agreements permit considerable flexibility in deploying the time and energies of faculty. (See Figure 4.) Time is allowed for developing self-instructional modules, for research and for developing unconventional learning experiences (such as cooperative education or extensive self-instructional learning). This flexibility is essential to effective use of cable television because faculty are given options and time to innovate as an expected part of their job.

The self-instructional module (SIM) is an ideal instructional system for use by cable television. It specifies competencies and objectives, provides a learning guide, and includes criterion tests and evaluation materials. The SIM is a coherent package of instruction which breaks through the limitations of traditional scheduling, permitting students to enter, learn, and exit at will. It deploys faculty time more efficiently by creating a faculty which produces learning materials, advises students, and concentrates on improving learning. Our faculty does not spend its time in repetitive lectures.

The student selects competencies and contracts for a definite program which is made up of independent studies, traditional courses, and instructional modules. Each module is a precise and explicit set of learning experiences designed to make the student competent at a specified task relevant to his/her program competencies. The objectives are stated in terms of the performance expected by the student within a module (course). Learning experiences stimulate reflection, group discussion, and creative thinking. Simulation games and exercises initiate the application of learning. Criteria tests guarantee performance. In short, students

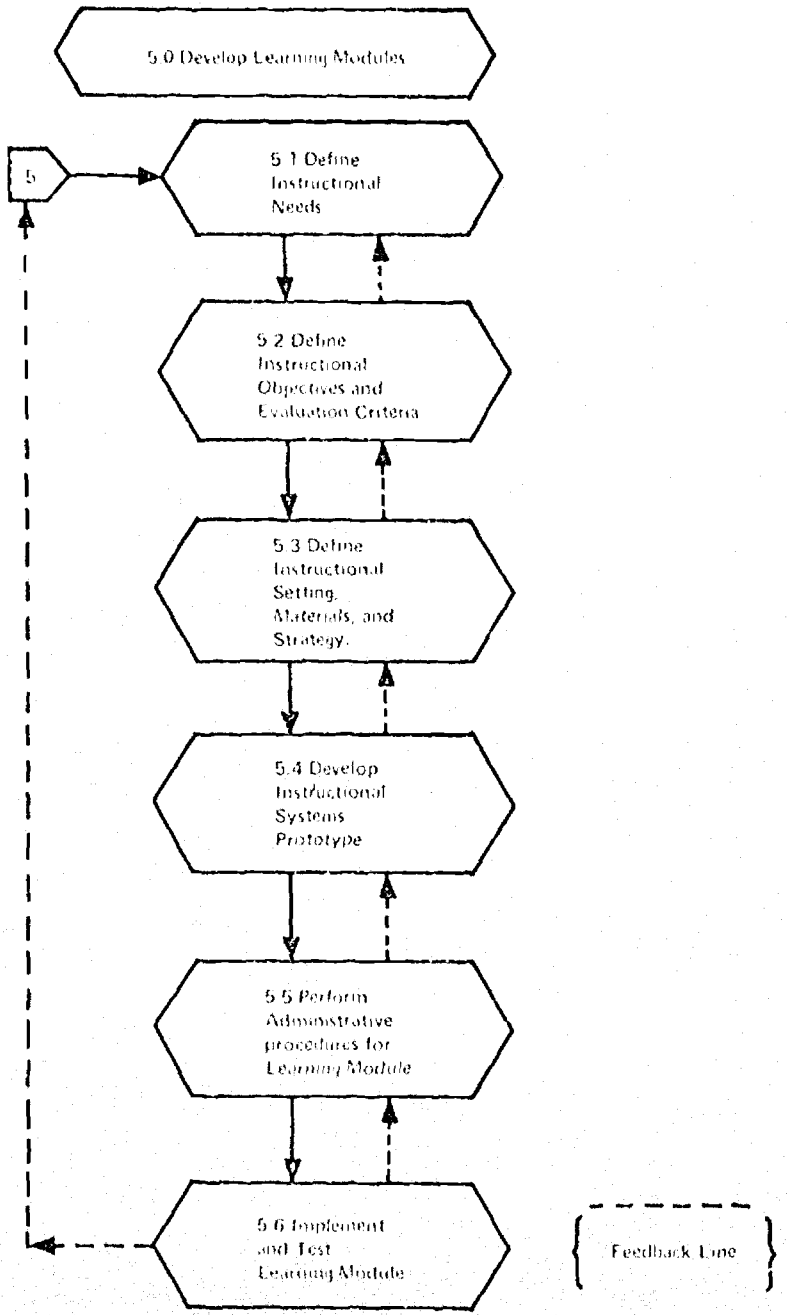
5.0 Develop Learning Modules
5
5.1 Define Instructional Needs
5.2 Define Instructional Objectives and Evaluation Criteria
5.3 Define Instructional Setting, Materials, and Strategy.
5.4 Develop Instructional Systems Prototype
5.5 Perform Administrative procedures for Learning Module
5.6 Implement and Test Learning Module
Feedback Line

Fig. 3

experience the learning system working for them. They learn because learning depends on their performance.

THE RESULTS

Higher Education must obtain an economy-of-scale through mass dissemination. At GSU, a by-project, piecemeal approach to instructional development was taken initially because few faculty had done instructional development before. The Instructional Communications Center had to "sell" their services. Since the adoption of the Instructional Systems Paradigm, a careful process is used to develop instruction because demand soon outstripped the ICC's ability to produce. High demand and stable content areas receive priority. Instructional development is not cheap. It takes time and resources. The ICC employs 8 production people, 4 Coordinators of Instructional Development and technicians. By June, 1974, the staff will be 25. The economy-of-scale occurs when a single faculty member can serve a large number of students. It takes careful planning and high quality production to make it work. Figure 5 shows our estimates for developing one program through this means.

While wide use of SIMs permits a large population with different schedules to gain access to higher education, the traditional system of scheduling breaks down. (See Figure 5) Most universities charge fees and schedule according to a fixed time period, (a quarter, session, or semester). Use of instructional systems with a competence-based program contract, supports fee payment by competencies and breaks down the traditional schedule. The time and thought that goes into developing an instructional system has resulted in an extensive evaluation of instruction and revision. The revision process depends on the quality of evaluation measures. While competencies and performance objectives are explicit, evaluative procedures are still primitive. Thus, revision depends on the professor and coordinator collecting their own data and interpreting the results, because reliable and valid evaluation measures are not available.

The student completion rate of course work is another serious problem. GSU is on a two-month session schedule. Students seem unable to complete the work of two intensive modules in a session. While most modules are completed within three sessions, most are only scheduled for one session. Open-ended SIMs resulted in higher incompletion rates. So we assessed a definite schedule of deadlines to reduce the incompletion rate to fit the session time period.

The Open University in England uses broadcast television to fix a schedule of deadlines for students. Instruction via cable ought to be pre-scheduled rather than student-scheduled.

GSU built a 400,000 square-foot edifice at a cost of almost $2,000,000 below the state's allocation. The economy was achieved by using interior landscaping in place of walls. When cable becomes available,

Fig. 4

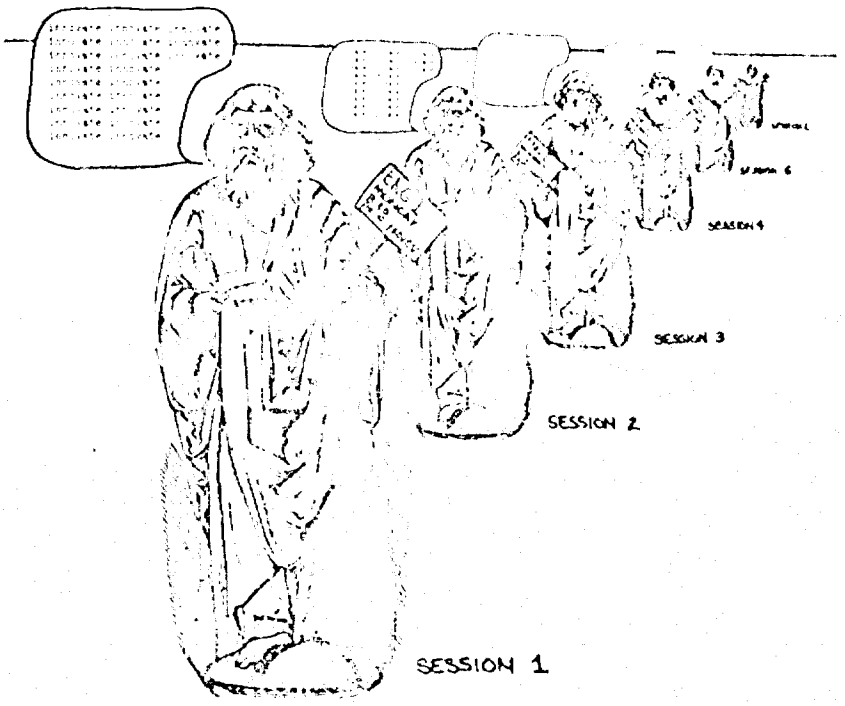

Fig. 5

the cost of launching a university could plummet down through the creation of a central Instructional Communications Center with outposts, instructional systems, learning packages and low-cost meeting places. Cable decentralizes instruction.

RECOMMENDATIONS FOR ACTION

To utilize cable television as a means of solving current problems in higher education requires cooperation and action among existing universities. The following recommendations are suggested to initiate that cooperation:

1. Universities should evaluate their total higher education efforts to determine program compatibility among institutions, effectiveness of learning programs for students, and ways to cooperatively develop future resources for compatability and efficiency.
2. Higher education should develop plans for pooling learning resources and making them available on a regional basis.
3. Guidelines for statewide educational use of cable television should be established which guarantee equipment compatibility, university access within a region, and inter-connection of facilities.
4. The rights and responsibilities of professors hired to create SIMs and other material for regional distribution ought to be determined.