

Instructional Development Project: Five-Semester Report on an Innovative Introduction to Psychology Course

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Statement of the Problem

Undergraduate programs in psychology have become a national phenomenon. While general enrollment trends in postsecondary education have shown a decrease, psychology programs have shown enrollment stability and many have experienced enrollment increases. The May, 1974 issue of the *APA Monitor*, a journal of the American Psychological Association, cited the growth in graduate school enrollments as 12.5 percent. This, in turn, indicated a growth in the undergraduate programs that prepare students for Psychology-related jobs, for graduate programs in psychology, and for graduate programs in related fields.

The same situation was true within the State University of New York (SUNY). All of the undergraduate psychology programs in SUNY have demonstrated enrollment stability and many have experienced increases. Furthermore, it should be noted that these increases represent both students major-

ing in psychology and nonmajors fulfilling other program requirements or taking elective courses.

At the State University College at Oneonta, the Psychology Department experienced an "enrollment crush." While general enrollment demand has remained consistently strong, the introductory and basic courses realized an enrollment growth of 20 percent—and this does not fully represent the enrollment demand for these courses. Psychology 100 is the introductory course for majors and non-majors in the Psychology program at Oneonta. It was taught as a multiple-section, three-lectures-per-week course. And it was the primary source of a dilemma affecting the total operations of the department and the scope and depth of the entire Psychology program.

There were six problems—academic and fiscal—associated with the Psychology 100 course. First and foremost was the "enrollment crush" affecting the discipline. Because the course was a typical multiple-section course, taught as lecture/discussion three times per week, the response to rising enrollment pressures had been to cautiously increase the size of the sections—regarded as a necessary evil. However, the department anticipated that sections would become so oversized that the academic quality of the course would be sacrificed. Preliminary plans were made for a course revision based on enrollment projections for the Fall of 1974. That enrollment projection was for 360 students to be taught in eight sections of 45 students each by four faculty members. (See Figure 1.) In the face of the "enrollment crush", this course actually served 515 students in the Fall of 1974—an unanticipated increase of more than 40 percent—taught in nine sections by five faculty members. (See Figure 2.) Note

that four sections ballooned from 45 students to 75 students and that another section and faculty member were added to keep from "overloading" still more sections. Also, note that the Psychology Department was augmented by a temporary, part-time instructor to help rectify the faculty deployment problem.

Second, the problem of accommodating increasing enrollments was compounded by the unavailability of funds to hire a corresponding number of new faculty. As with any institution that is coping with the "zero growth" phenomenon, (actual experience has been staff reduction) it is difficult to shift resources

Author Note

From the time of its inception this project has depended upon the efforts of many dedicated people. Sincere gratitude is due to the following:

Keith Bernhard, former assistant for instructional development at the Instructional Resources Center was co-author of the original proposal and provided outstanding leadership in the initial phase of the development process.

Mike Siegel, chairman of the psychology Department for his commitment of the resources of the department and the many hours he contributed to the development of the course in spite of an already demanding schedule.

Steve Gilbert and Robert Leslie, assistant professors of psychology who as two-thirds of the department's contribution to the development team gave unselfishly of their time and effort to make this project a reality.

The staff of the Instructional Resources Center who provided valuable technical assistance in the development of a variety of instructional materials.

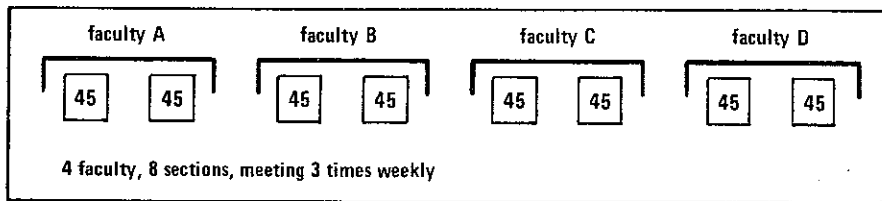


Figure 1. Anticipated course configuration Psychology 100, fall 1974 (total enrollment: 360)

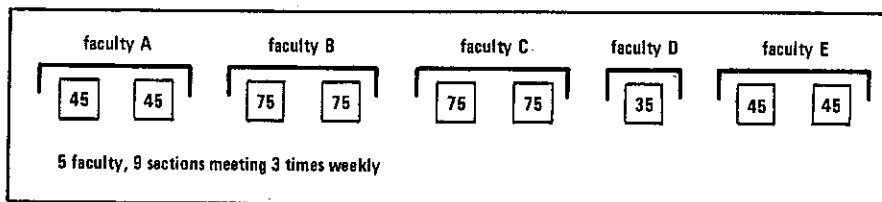


Figure 2. Actual course configuration Psychology 100, fall 1974 (total enrollment: 515)

internally (in this case, redeploying faculty lines between departments) when most operational regulations (in this case, tenure rights) are based on an assumption of continuous growth and, therefore, preclude steps that may be valuable in a "zero growth" situation. This phenomenon at the college level had manifested itself as a critical faculty shortage for the Psychology Department. In addition, the department's heavy investment of faculty time in Psychology 100 had limited the overall scope and depth of the psychology program at a time when enrollment trends dictated otherwise. Students majoring in psychology found that valuable courses and experiences were unavailable because faculty time was unavailable.

There was irony to the third problem. With the "enrollment crush" in the Fall of 1974, some section sizes were greatly enlarged. With 75 students to a section, they became, in effect, large-lecture sections. However, these sections were not large enough to use Lecture Hall facilities fully. So the effect had been that, in terms of facilities utilization and the academic suitability of large-lecture courses, more psychology faculty had actually been deployed in this course than may have been needed. (Of course, this point does not include logistical considerations, and it does not account for faculty sentiment. The psychology faculty had resisted offering a large-lecture, 350 students-per-section, three-lectures-per-week introductory course because many introductory courses

formulated this way and poorly conducted have prompted negative reactions from students).

Fourth, the "academic viability" sought in multiple sections of small-to-medium enrollment had been compromised by ballooning the enrollment in those sections far beyond the norm. Consequently, while more students had been able to enroll in a popular course and while operating costs had remained constant (actually realizing a net gain per student credit hour generated), faculty and students had become dissatisfied with the quality of the course in general—there had been a decrease in class dialogue, individual student needs attainment and student progress were not being monitored adequately, and there was little opportunity for the faculty member to vary the instructional experiences (e.g., actual laboratory sessions and clinical observations instead of lectures about laboratories and clinics).

The fifth problem was essentially academic. The Introductory Psychology course lacked uniformity across sections with a number of faculty members teaching the course. These faculty have academic specializations and biases, thus students in one section could encounter experiences and topics very different from students in another section. So that students may experience the full scope of the discipline in an adequate and acceptable way, a carefully defined syllabus had to be established.

Lastly, the department sought ways to assure that academic standards in

Psychology 100 could be maintained as enrollments fluctuated. The department was still projecting enrollment increases—based on national trends. However, enrollments would eventually taper off at some point, and the department wanted to be able to redeploy faculty contact hours without sacrificing instructional quality in the Psychology 100 course. This, of course, was essential to the well-being of the college as a whole.

To put some perspective on the fiscal conditions of the Psychology 100 course during the Fall 1974, a cost analysis was completed. These costs reflected actual personnel and instructional support costs only. These costs also represented a savings per student credit hour generated when compared to the operating costs originally anticipated. However, the faculty members were quick to point out that, with these net savings, there was also a sacrifice of academic quality. Therefore, any proposed revision of the Psychology 100 course had to do two things: it must provide for a savings to the department and it must provide for greater uniformity of content across multiple sections. The latter would be considered an improvement of the quality of the course.

Proposing a Solution

Parameters

Solutions were acceptable only when they adequately conformed to certain parameters. Because the Psychology 100 dilemma was complex and had costly ramifications for the Psychology Department, the essential parameters were outlined in advance. In this way, potential solutions could be evaluated with respect to these parameters. Similarly, the parameters themselves could be gauged for their utility and meaningfulness by comparing them against some reasonable and appealing solutions. Accordingly, the Psychology Department and the Office of Instructional Development collaborated in identifying three sets of parameters for potential solutions. These parameters pertain to the design, development, and implementation stages, respectively. (See box, page 22.)

With the 18 parameters in mind, many solutions could be proposed. It is important to note that the modes of instruction were not specified. Neither

Design Parameters

1. The instructional design for Psychology 100 must be representative of the discipline.
2. The design must accommodate individual student abilities, interests, and needs (within the limitations of an introductory course).
3. The design must accommodate one or more large-lecture sections of up to 385 students each (permitting full use of the Instructional Resource Center's (IRC) largest lecture hall, permitting expansion to meet the large enrollment demands that existed and permitting contraction should enrollment demands diminish).
4. The design must provide for ongoing evaluations of curriculum design, instructional performance of faculty and supportive materials and activities, and student performance (and other measures to ensure academic accountability).
5. The design must not cost more to develop and operate over a six-term interval (e.g., per student credit hour or FTE) than the traditional multiple-section, three-lectures-weekly format.
6. The design process must adhere to a cost-accounting procedure.

Development Parameters

1. A search of existing curricular/instructional systems and materials must be conducted before devising new (and untested) ones.
2. Developmental testing of all instructional materials must be included in the development process.
3. The faculty of the department must be informed about development activities at regular intervals.
4. Constructive feedback from all departmental faculty must be encouraged.
5. Local resources must be sought before seeking outside assistance.
6. A cost-accounting procedure during development must be maintained.

Implementation Parameters

1. The implementation of the developed course must be consistent with design specifications.
2. The developed course must be planned to operate for at least six terms (semesters).
3. Course revision processes must be included in implementation.
4. Provisions for the validation of "courseware" must be included in implementation.
5. Periodic reports on course implementation must be filed with the departmental faculty and the Office of Instructional Development.
6. A cost-accounting procedure must be maintained during implementation.

were logistical limitations. The design, development, and implementation of an academically sound, flexible, and responsive set of instructional experiences and activities were central to the formulation of these parameters. A course design that could achieve these within certain cost restrictions was fully acceptable.

A Solution

One such solution was composed of some large-lecture sessions, some traditional class discussion sessions, and some atypical laboratory and field experiences. This solution is shown in Figure 3. The design involves only three faculty members and draws upon 12 upper-division undergraduate students to serve as "teaching assistants" (TAs), tutors for self-instructional activities, laboratory assistants, "participant observer" evaluators, etc. (These students would be gaining course credit in Psychology 298, an internship in psychology).

From an academic perspective, this proposed configuration could accommodate the four major dimensions of the discipline—developmental psychology, clinical psychology, experimental psychology, and social psychology—as represented by the three faculty members. In addition, all students taking the Psychology 100 course would benefit from their contact with all three of the faculty members—particularly in the large-lecture sessions that would meet at least once per week. These would serve as motivational experiences, as opportunities to bring in guest speakers, as opportunities to deal with questions of general interest, etc. Also, the course would have the flexibility to involve students in self-instructional experiences, in laboratory experiences, and in small group discussions, as appropriate. Tentatively, groups of 44 students would be scheduled for self-instructional activities and tutoring. (In Figure 3, a third of the class time would be allocated for self-instructional and

related activities.) That is, students would draw upon self-instructional modules (likely housed in the new self-instructional facilities in the Library) complete them prior to laboratory sessions and other class meetings.

Small groups would be formed in the remaining third of the class time in a given week. These small groups meetings would accommodate just over 20 students. Small group meetings could be used for class discussions, laboratory experiences, and other special activities (where small-to-moderate group size is an advantage). Faculty members and student assistants would rotate their schedules so that each small group would meet with the faculty member every other week. In this way, each faculty member would meet with 88 students weekly, 176 students every two weeks.

From a fiscal perspective the solution in Figure 3 had many advantages. First, while the course would be functioning with the equivalent of 38 weekly faculty

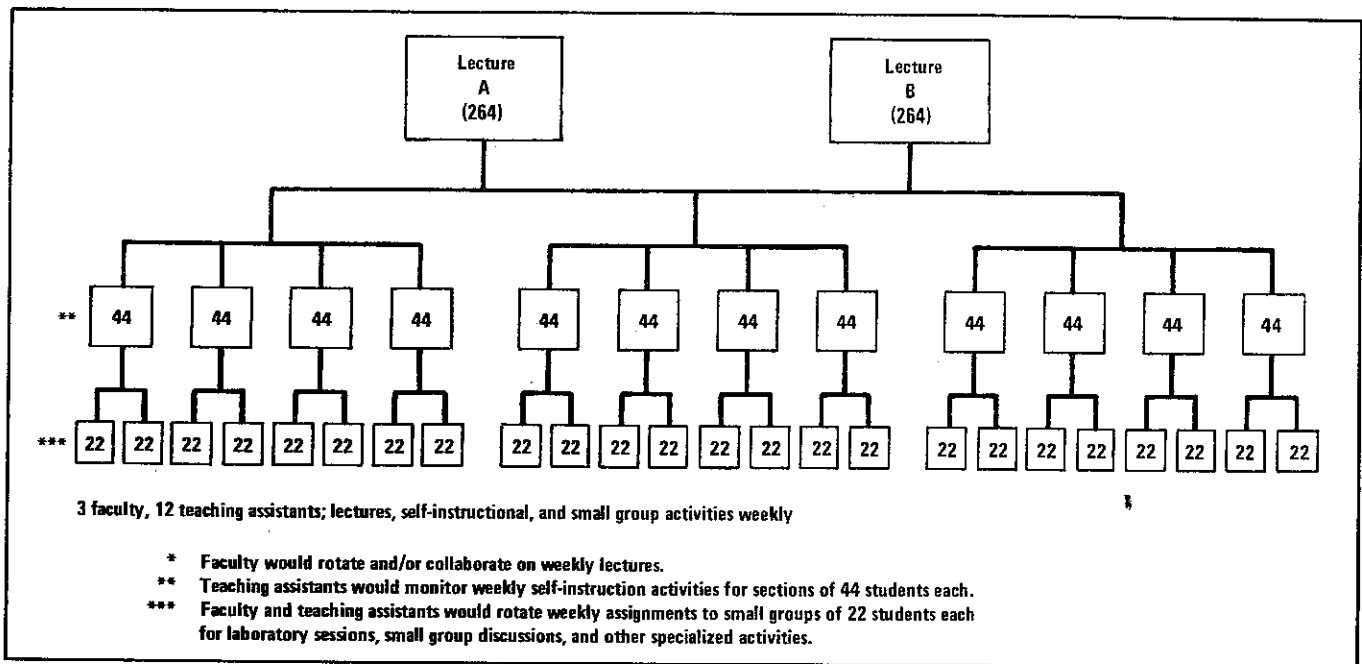


Figure 3. Proposed enrollment configuration. Psychology 100, fall 1975 (total enrollment: 528)

contact hours (WFCOH)—up from the 27 WFCOH actually deployed in the Fall 1974 configuration—the three faculty members would actually account for only 14 of those contact hours. This meant that, while the students in Psychology 100 gained increased personal contact in the course (e.g., for better monitoring of their performance), fully $1\frac{1}{2}$ faculty lines were being saved. This savings could be redeployed into other development projects for the Psychology Department, into offering up to four additional courses, or split between development projects and new courses, or put to different uses altogether. Second, this solution actually reduced overall operating costs. Furthermore, if the course was offered in this form for more than six terms and/or if the enrollment continued to rise, the overall cost per student credit hour generated was reduced. Given the Psychology Department's commitment to the course revision and given the enrollment trends affecting this course, decreases in student credit hours generated seem unlikely.

The Development Process

The Psychology Department recognized the need for revision of the academic program and improvements in instructional technique. The approach to this problem was to apply the processes of curricular/instructional devel-

opment. Curricular/instructional development is the systematic designing, developing, evaluating, and implementing of instruction. The subject matter of a course was carefully reviewed and sequenced, instructional designs were proposed (based on effective techniques to enhance communications and learning), instructional activities and instructional materials were factored into an "instructional system," and when appropriate, original instructional materials were produced and tested. Furthermore, an evaluation system was superimposed on the development process and on the developed course so that effectiveness was assured and so that revisions were likely to be both adequate and accurate. A sample model of the curricular/instructional development process is shown in Figure 4, from Syracuse University's Center for Instructional Development (1975).

In the case of Psychology 100, the three faculty members who would offer the revised course would be the "subject matter experts" on a "development team." In this way, experts in content and experts in process can work collaboratively on the project. A proposed timetable is summarized in Figure 5.

During the Fall semester 1974, the three psychology faculty members and personnel from the College's Office of Instructional Development began the design process for the course. Not only

was the course outline developed in detail, but an evaluation system was constructed. Furthermore, they began a preliminary search of existing instructional materials in accordance with the course outline specifications.

During the Spring semester, 1975, the evaluation system was applied (as appropriate) to the existing traditional course to gather baseline data. In addition, new instructional materials, faculty guides, and other materials were developed and tested. This activity required an extensive application of resources from the Psychology Department and the Instructional Resources Center.

"Final" revisions were completed during the summer of 1975, so that the course could be implemented in its new form in the Fall semester 1975. The involvement of the three faculty members in the development process was provided without remuneration, a deed exemplifying the firm commitment of the three to the project. Additional revisions were anticipated during the six-term lifespan of the course, but the course was in substantially final form by the Fall, 1975.

Costs and Resources.

Three sets of costs affected the total cost of the Psychology 100 Development project. The cost of designing the course (which involved personnel time

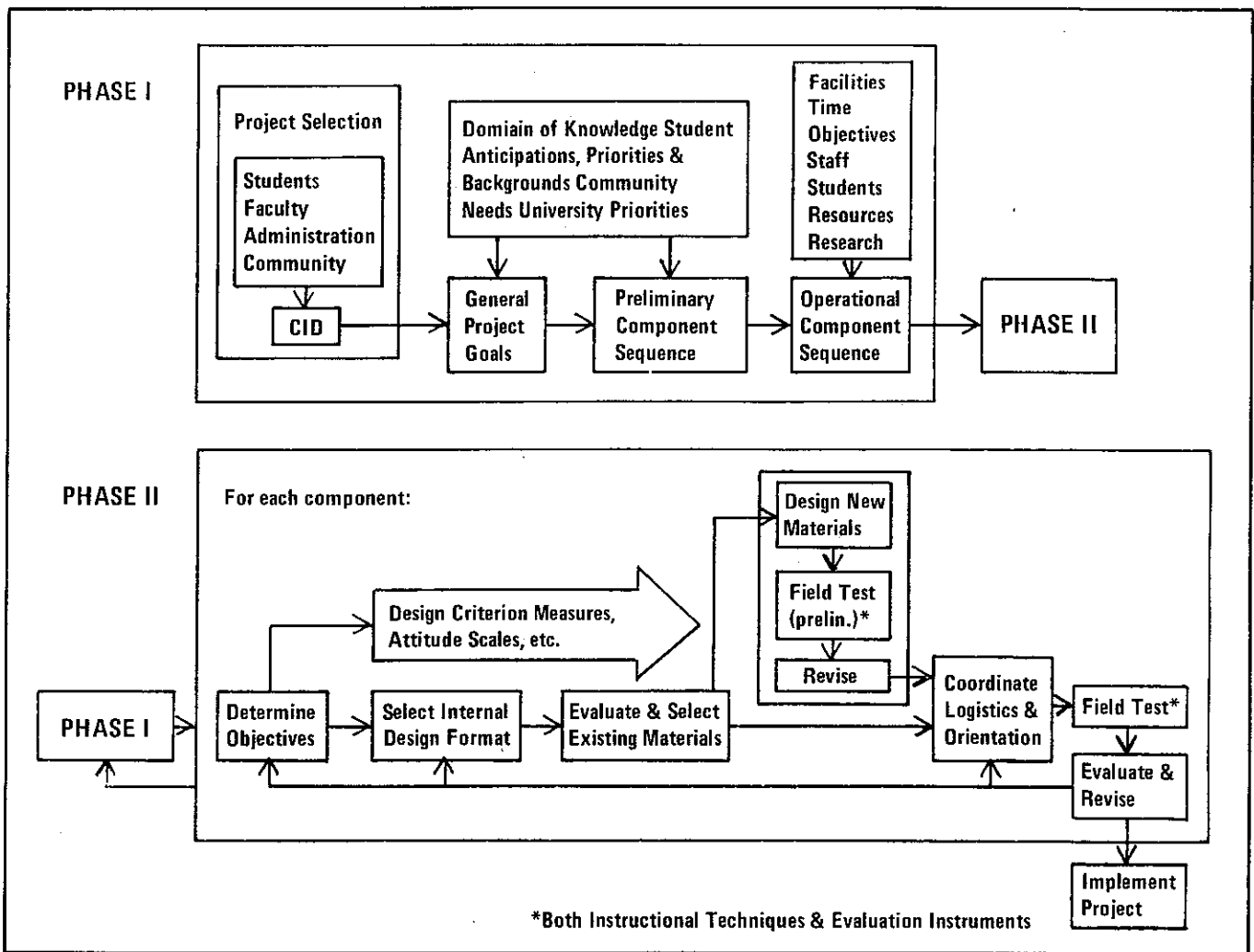


Figure 4. The Process for Instructional Development

Time frame	9/15-12/15	11/1-2/1	1/15-4/15	2/15-5/15	3/15-8/15
Function	DESIGN of Curricular, Evaluation System	MATERIALS Search and Review	DESIGN OF Instructional Prototypes	DEVELOPMENT, EVALUATION, REVISION of Materials	DUPLICATION of Materials
Personnel	3 Psychology faculty OID personnel	3 Psychology faculty OID personnel	3 Psychology faculty OID personnel IRC graphics, TV personnel	3 Psychology faculty OID personnel IRC graphics, TV personnel	IRC personnel

Checkpoints for the Psychology Faculty:
 11/15: Design; 2/1: Design and Materials Review; 3/15: Progress on Prototypes; 4/15: Progress on Materials Development; 5/15: General Review

Figure 5. Activities and time frames for the curricular/instructional development of Psychology 100

exclusively) was estimated at roughly \$3370. The cost of developing and testing the instructional materials and related materials (excluding facilities and equipment costs) was estimated at roughly \$17,730. The cost of implementing the course in its revised configuration, with some provision for minor modifications, was estimated at roughly \$15,080 per term. Therefore, the total cost for developing and implementing a revised Psychology 100 course for a period of six terms was roughly \$111,580. This represents a savings of \$29,600, when compared to what the course would cost if offered under the Fall 1974 configuration for six terms (\$141,580).

To realize these and other savings, the department had to invest faculty time in the rigorous curricular/instructional development of the Psychology 100 course. As indicated above, the total design and development costs associated with the project were estimated to be roughly \$21,100. This figure includes the faculty time needed to perform development duties, the time of Instructional Resources Center personnel to perform design and technical duties associated with the project, and the cost of project materials.

The college provided fiscal support to these activities, but only in part. The faculty time spent in the Fall 1974 (during course design) and the entire time spent by the Instructional Resources Center personnel throughout the project was underwritten by the college. Thus, the college's investment in the development of Psychology 100 was estimated at roughly \$9100. However, funding was required for the crucial period of materials, design, development, and testing during the Spring, 1975. It was at this time that the faculty became intensively involved in development duties. This was also the period when most course-related materials costs were incurred. With sufficient funds to hire replacement faculty for the three participating faculty, and with funds to support materials costs, the curricular/instructional development project in Psychology 100 was completed as outlined above. Therefore, the amount of funding requested was \$12,000.

Evaluation

For the curricular/instructional development project to be adequately assess-

ed, an evaluation system had to be functioning from the outset. This evaluation system had to be able to monitor the activities of the development process and the implementation of the courses that undergo development. Furthermore, the evaluation system had to use means that were suitable for application outside the sphere of developed courses—enabling some comparison between instructional experiences that have undergone development and those that have not.

The academic parameters affecting the evaluation of the curricular/instructional development process reflected a need for adequacy in the curriculum design, the need for appropriate standards of student performance, the need for appropriate criteria for determining the adequacy of instructional materials and the need to manage a development team's activities in a collaborative and responsible way. The fiscal parameters affecting an evaluation of the development process reflected the need for allocating resources to development activities in a prudent way.

Once the course had undergone development, the principal concern was to determine course effectiveness. Fiscal parameters were limited to maintaining the course operations within some predetermined fiscal limits. Once this was ensured, the issue of academic viability became central. In this respect, the academic parameters affecting course implementation reflected a need for ensuring student performance above some minimum standard, a need for accommodating student needs. A need for monitoring the effectiveness of instructional materials and instructional activities, and a need for examining the broader effects of the course on related courses, other faculty members, and on other disciplines.

In the Psychology 100 development project, the three faculty members were involved at the outset in the design of an evaluation system for the course. Subsequently, they became involved in the development of instruments and procedures that would provide data to answer questions about the viability of the course design, the course implementation, and the development process as it affected them. In addition, the Instructional Resources Center personnel were involved in the development and implementation of means by which their activities in the curricular/instructional

development process could be monitored. By using these instruments and procedures, the academic and fiscal parameters affecting the development of Psychology 100 could be used to evaluate the performance of the course, the development process, and, lastly to provide some means by which the viability of alternative instructional designs and development techniques could be predicted for future projects.

Anticipated Outcomes

Two types of outcomes were anticipated from the systematic curricular/instructional development of the Psychology 100 course: academic and fiscal. Some represented immediate gains while others pertained only to a longer term. Furthermore, the outcomes from this project were to fulfill two conditions: improved academic quality and decreased cost. That is, the anticipated outcomes would show "more for less." This is unusual and points up the severity of the Psychology Department's dilemma with the Psychology 100 course. The Psychology Department would have been equally satisfied if the revised course improved academic quality and costs remained the same.

There were at least seven academic outcomes anticipated from this project. First it was expected that the psychology discipline would be adequately and fully represented in the revised course. Second, there should be better coordination between the instructional materials used in the course and the instructional activities in the course. Third, there should be improved uniformity across class sections regarding course content and instructional experiences. Fourth, student performance in the course could be monitored more adequately. Fifth, student performance in the psychology program as a whole should improve, especially as students proceeded to more advanced courses. Sixth, due to fiscal gains outlined below, other courses could undergo rigorous curricular/instructional development as part of a "development cycle" to help revise the psychology program. And seventh, the psychology department should be able to offer more courses, particularly those courses that had been proposed but not offered.

The fiscal gains were equally as important, primarily because they permit

the continuation of a "development cycle" and the related fiscal flexibilities that are crucial to the college as a whole. There were at least five fiscal outcomes anticipated from this project. First, fewer actual faculty contact hours would be required to teach the course in the proposed format. Second, the revised Psychology 100 course should cost less per student credit hour than other large-enrollment, multiple-section courses. Third, the proposed format should accommodate enrollment fluctuations—up or down—without varying the course costs appreciably (e.g., without adding or dropping faculty to teach small sections). These first three gains represent increased fiscal flexibility. With increased fiscal flexibility, the fourth and fifth gains would be feasible.

Fourth, the revisions to Psychology 100 should permit the department to generate more student credit hours or FTE's—e.g., via new courses—without adding faculty to the department. And, fifth, the revisions to Psychology 100 should permit the department to invest some faculty hours in a cycle of curricular/instructional development. This would reduce the need for the department to seek outside funding to support a faculty member's "assigned time" to development and should result in a better overall program—academically and fiscally—for the Psychology Department.

According to the estimated development and operating costs for the course revision, the new Psychology 100 course could cost slightly more than \$9 per student credit hour. This would be a savings of more than 40 percent for each semester the course is offered. And the savings become even greater if the course is offered in this format for more than six terms. In addition, enough weekly faculty contact hours could be saved to account for better than one and one-third faculty lines or the equivalent of four additional courses. This might be considered a \$16,000 savings annually. However, if these faculty contact hours were invested by the department as "assigned time" to "curricular/instructional development for the design and development of one or more courses per semester, additional savings would begin to accrue, contingent upon the potential savings from these courses. In short, the external funding required to pursue development of this course might be regained within one year.

Method of Evaluation

It was hypothesized that the newly developed structure for presenting the Introduction to Psychology course would produce the following outcomes: (1) the direct cost for presenting the course would be reduced as compared to the cost of offering the course under the traditional structure, (2) because savings would result in redeployment of staff for the development and offering of additional courses at the upper division levels, the course under the new structure would provide for a broader educational experience, and (3) the course would foster the development of a more favorable attitude toward Introductory Psychology and the field.

The total direct costs for the Introduction to Psychology course were computed on the basis of two cost inputs: faculty salaries and the Psychology Department's instructional support budget. Faculty salaries, which are reported on an annual basis, were assigned to the course in the following manner. First, the annual salary for each of the three participating faculty members was divided in half to reflect the appropriate salary costs for a single semester. This amount was then divided by the total weekly faculty contact hours assigned to each individual during the term studied. This calculation provided a salary cost per faculty contact hour for each instructor for the semester.

Departmental support consists of three items. First is the department budget for supplies, telephone, travel, etc., which represents general funds to be expended by and for the members of the department. The second item is the salary of the full-time department secretary. The third item considered is the portion of the salary of the department chairman commensurate with the fraction of his time devoted to administrative responsibilities. This fraction has varied from one half to three quarters in the five semesters during which the model course has been offered.

The monies allocated to each of these three items were combined to reflect an annual support budget, then divided in half, as were the faculty salaries to provide a semester department support budget. This figure was subsequently divided by the total full-time equivalent (FTE) faculty positions assigned to the department for the semester. The quotient derived represents an equal appor-

tionment of the department support budget on a per faculty basis. Further division of this figure by each individual's weekly faculty contact hour total provides a support dollar cost per weekly contact hour for each faculty member in the department.

At this point at one's disposal are the weekly faculty contact hour costs from the salary and support categories. These amounts, when combined, represent the total direct weekly faculty contact hour costs for an individual faculty member.

This dollar figure, when multiplied by the number of weekly faculty contact hours each instructor is assigned to the Introductory Psychology course, represents the total direct departmental cost per individual faculty members responsibility to this course. Summing these figures provides the total direct cost to the department for the offering of the "Intro" course for a specified semester. To these costs must be added a share (one sixth) of the amortized instructional development cost incurred in 1974-75 and the single semester operational support expenditure. The sum of all calculations is the total direct cost of the basic psychology course.

The total direct cost is then divided by the total course semester credit hours (enrollment \times 3 credits per course) to attain a cost per semester credit hour (SCRH). When multiplied by 15, the number of student credit hours of one full-time equivalent (FTE) undergraduate student, the cost per FTE student is established.

Besides the financial aspects, two formal techniques were used to evaluate the cognitive and affective attitudes of the students in the new course. First a questionnaire was administered two weeks prior to the end of each semester. This instrument was designed to measure students' feelings about eight course related issues: (a) study guides, (b) Monday (large lecture) presentations, (c) midweek and Friday presentations, (d) course structure, (e) teaching assistants' performance, (f) teachers' performance, (g) area examinations, and (h) overall evaluation of the course.

Second, the Undergraduate Program of Counseling and Evaluation Field Test in Psychology (UPCEP) was given to a random sample of 52 students culled from sections of the traditional course during its last semester of operation, and to random samples of approximately the same number of students near the end of four of the five semesters

of the new course. The UPCEP, administered by Educational Testing Service, presents approximately 16 multiple choice questions in each of nine categories: clinical, physiology, sensation and perception, learning and motivation, methodology, applied, personality and social, and cognitive and complex processes.

Informal evaluation was based upon observations by instructors involved, recording of comments from students, observations of instructors not involved, and observations by instructional development personnel.

Results

The anticipated outcomes of the new Psychology 100 course were realized with much satisfaction.

Cost Analysis

The total direct cost of offering the new course in the new format was greatly reduced. Table 1 reveals the

Table 1. Cost per Student Credit Hour Psychology 100

Semester	Enrollment	Teaching Mode	
		Traditional	Experimental
F 1974	515	15.23	-
F 1975	486	18.19	13.81
S 1976	417	20.85	14.50
F 1976	498	17.27	12.65
S 1977	329	27.29	19.63
F 1977	493	18.62	12.54

total direct cost per student credit hour for the course as it would have been if the course were offered in the traditional manner (column 1) as in the Fall of 1974 with five instructors involved,

Table 2. Development Costs Psychology 100

Research Foundation (SUNY)	Expended
Salaries and Wages	4,716.00
Fringe benefits	699.18
Equipment	3,343.81
Supplies	2,904.62
Travel - Domestic	43.75
Miscellaneous (duplicating, etc.)	285.80
Expended Total:	\$11,993.16
Local Investment	
Salaries and Wages	6,689.37
Supplies	903.11
Duplication	37.41
Expended Total:	\$ 7,629.89
Total Development Cost:	\$19,623.05
Development cost amortized per semester:	\$ 3,271.00

and actual cost incurred under the new format (column 2). The actual cost includes the amortization cost for six semesters stemming from the investment of \$19,676 in the development process (Table 2). The savings per student credit hour under the new format ranged from \$4.38 to \$7.66 for the five semesters. The average savings for the five offerings of the course was \$5.82 per student credit hour. These dollar savings represent gains of 24.1 percent to 32.7 percent or an average savings of 30.6 percent. The greater cost per student credit hour in the spring semesters is attributable to the normally lower course enrollment during those periods. It is to be noted that each time the course is offered beyond the contracted six semester period, the cost per student credit hour for all previous semesters will be reduced as the amortization cost is treated by a larger divisor.

New Course Offerings

The savings derived from the employment of fewer people in the new Psychology 100 course were transformed into development of additional courses. This provides for a more comprehensive psychology major and increased FTE production by the department. Table 3 lists the new courses made possible by redeployment of staff and the enrollment figures for each by semester. No existing courses were sacrificed in the effort. Since the Spring 1976 semester, the new courses have been responsible for production of more than 130 additional FTE's for the Psychology Department.

Table 3. New Courses Offered

Course Title	Semester/Enrollment				
	Sp. 1976	Fall 1976	Sp. 1977	Fall 1977	Sp. 1978
Psych 237 - Biofeedback, Meditation, Self Regulation	-	-	-	57	42
Psych 257 - Psychology of Human Sexuality	78*	58*	56*	62*	-
Psych 265 - Topics in Social Psychology: Attitudes and Behavior	-	66*	22	69*	71
Psych 266 - Topics in Social Psychology: Interpersonal Process	-	18	66*	64*	60
Psych 267 - Psychology Perspectives of Advertising	-	-	75*	-	74
Psych 270 - Psychotherapy and Behavior Change	-	32	-	35	133
Int-D 214 - Aggression in Man and Animals	-	-	45	-	-
Total:	78	174	264	287	380
*Multiple Sections					

The table does not include Psych 297, Teaching Assistantship in Psychology which enrolled 12-15 students for each of five semesters.

Student Evaluation of Course

A study of the responses to the questionnaire assessing student reaction to the course is revealed in Figure 6 which shows evaluations of eight dimensions of the new course over 5 semesters of operation. The evaluations are plotted on a scale from 0 to 1, with 0 representing "very poor," .5 representing "so-so" or "average", and 1 representing "extremely good."

The results of the questionnaire are quite consistent with our impressions of the course. The first two semesters showed essentially the same evaluation in that the course was rated as an average or a "so-so" course. By the end of the third semester, the new course was taking on a new personality.

Most of us felt that the serious problems of the first two semesters were resolved. TA's conducted their classes in a professional manner, demonstrations were appreciated and worked, and complaints about the fairness and difficulty of the tests were rectified. The success of the third semester operation of the course was most welcome and seemed to justify our previous efforts and expectations.

The fourth semester showed a slight regression from that of the third semester. The decrease in 8 of the 8 curves was a result of introducing "new" instructors into the course.

We now were cycling instructors into

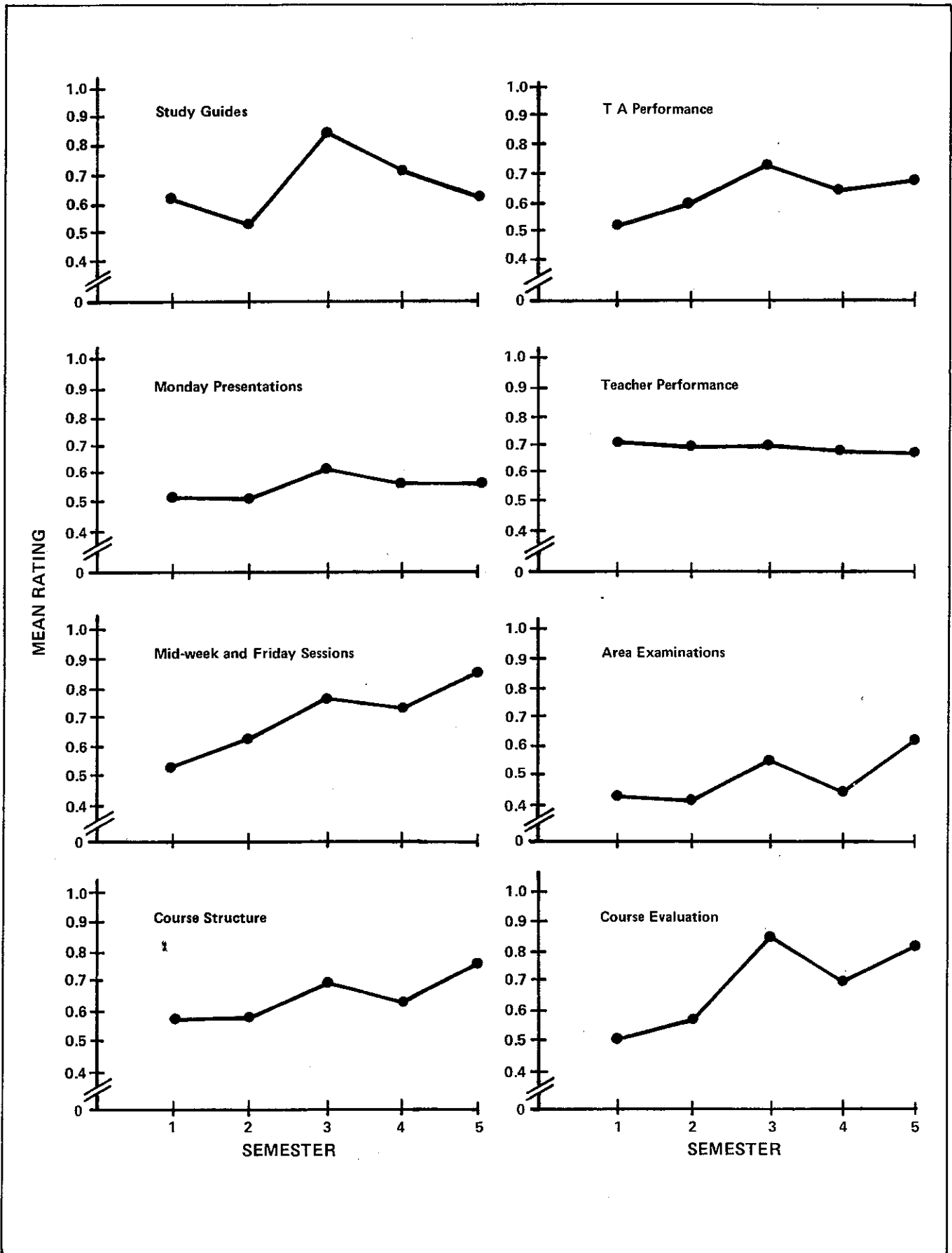


Figure 6. Questionnaire results assessing student reactions to the new course

the course who were unsure about their own participation in the new course. For some, the design of the new course conflicted with personal teaching styles and philosophies concerning the use of preplanned materials, common exams across sections, and especially, teaching assistants.

The solution to the fourth semester was to convey to the new members that the course is an evolving entity, where planned activities and examinations may be modified or substituted if the instructors so desired.

The fifth semester showed a dramatic improvement from the fourth semester. In seven of the eight areas examined, the evaluations for the fifth approximated or bettered the third semester, the previously high semester. The apparent regression for study guides merely reflects a change in emphasis in the use of the study guides. The guide no longer served as the primary focus but is now viewed as complimentary to the text.

Thus the results of the questionnaire supported the impression of the instructors. When the course was working well, during the third and fifth semesters, it was obvious to those involved.

UPCEP Score Gains

The differences in (UPCEP scores) psychological test scores of students in four of the five semesters of the new course from those from the last semester of the traditional course are shown in Table 4. The results show mean changes over the nine subjects of +5.70 percent, +3.67 percent, +3.26 percent, and -.19 percent for the four semesters. During the first two semesters, students showed improvement on 8 and 7 (of the nine) subtests, respectively.

The third semester (during which a second textbook and study guide packet were used) showed improvement on only 4 subtests. The results show, however, that the mean improvement achieved on these four subtests was 11.42 percent or more than three times the value of the mean change for the four subtests on which students did not improve, i.e., -3.25 percent. For the fifth semester (during which a third textbook and study guide packet were used) mean improvement approximates 0 percent.

In sum, the UPCEP results suggested that students in our new course performed at least as well on an objective test as students in the last semester of our traditional course. These gains ap-

peared to be independent of how well students liked our new course. In light of the economic advantages of the new course structure, the evidence that the course could be made both challenging and attractive to students, and the consistently positive UPCEP results, we feel confident in concluding that our new course has met its objectives.

Observations and Comments

Though the project has been considered a success it is not to be believed that the roadway was entirely smooth. Resistance to innovation is as common in higher education as it is in any other element of our society. Differences in educational philosophies and teaching styles gave rise to some conflict within the Psychology Department. Though causing disruption in departmental harmony for some time, the polarization could be considered somewhat of a plus from the standpoint of the instructional developer who was assured that the personnel who became engaged in the redesign project were strongly committed.

There was concern on the part of the psychology and other departments for the manner in which the administration would deal with generated savings. Fear of success in the project leading to loss of staff were soon allayed by the administration.

During the first semester of the new course there were problems centered about testing procedures, grading models and ill-prepared teaching assistants. Students complained that Psychology 100 required more study than any

other course. Testing procedures were revised, grading models established, and better screening procedures for teaching assistants greatly reduced problems during the second semester. Additional modifications all but eliminated difficulties beyond the second semester.

Informal evaluation via discussion with students, teaching assistants and faculty associated with Psychology 100 has revealed some very positive outcomes of the course.

Students expressed belief that, following their Psychology 100 experience, they were "doing better" in other related courses and they felt more comfortable with psychological concepts. They demonstrate a broader understanding of experimental methodology as reflected in their ability to design an experiment and facility for interpreting and evaluating the results of the experiment.

Many students rated Psychology 100 as the most interesting course offered at the college because of its uniqueness, characterized by varying class size—large lecture, small discussion groups, and the use of teaching assistants. It was felt that the course fosters an atmosphere for inquiry as students expressed increased feeling of freedom to ask questions.

Teaching assistants have demonstrated greater breadth and depth in their understanding of the field of psychology. Psychology 100 provided an opportunity for psychology majors to gain experience in teaching which was

Table 4. Mean percentage of UPCEP subtest (difference) scores achieved by students in four semesters of the new course as compared with the traditional approach. Actual scores for the traditional semester are contained in the parenthesis.

Subtest	Semester			
	1	2	3	5
Clinical	(34.09) +10.15%	+10.56%	+20.94%	+ 1.11%
Physiology	(48.03) - 0.12%	- 9.63%	- 4.47%	- 4.66%
Sensation/Perception	(32.00) + 8.78%	+ 1.26%	- 8.20%	- 3.53%
Learning/Motivation	(20.00) + 2.43%	+ 2.17%	- 1.29%	- 7.81%
Methodology	(41.06) 0.74%	- 0.39%	- 1.05%	+ 0.06%
Applied	(18.74) + 3.07%	+ 8.36%	- 1.23%	+ 2.12%
Personality/Social	(22.66) +11.82%	+ 8.28%	+14.90%	+ 9.24%
Developmental	(36.60) + 5.42%	+ 1.52%	+ 5.28%	- 2.69%
Cognitive	(32.20) + 8.98%	+10.88%	+ 4.49%	- 2.62%
Mean	+ 5.70%	+ 3.67%	+ 3.26%	- 0.19%
There was no test administered in the 4 semester				

not readily available previously. One outcome for the students was increased confidence when addressing large groups.

The T.A.'s expressed a preference for the planned activities of the new course because of their comprehensiveness and completeness. They especially enjoyed the opportunity to assist beginning students in the field.

Students having the teaching assistant experience express desire to become more deeply involved with other aspects of the curriculum such as independent study and research activities. These students have also scored higher on standardized advanced tests, thus improving their chances for acceptance to graduate schools.

Faculty associated with the new course favor it for a variety of reasons. They note that the structured nature of the course's management system relieves them from much of the mundane aspects of teaching allowing more time for innovative presentation of material and for meeting the individual needs of students. The course offers a favorable balance of the areas across the disci-

pline. Participating faculty are thus compelled to retain sight of the total field of psychology avoiding a complete retreat to an area of specialization. Teachers in a course so structured as Psychology 100 show an increased awareness of a greater variety of successful activities and teaching techniques outside of their normal behavioral repertoire. This has given teachers a feeling of improved competence and greater self confidence.

Conclusions

We have traced the development of an innovative approach to the teaching of Introductory Psychology. Through five semesters the new course has more than met our personal expectations and the objectives initially delineated. Cost analyses have shown that in its new format the course could be offered more economically than it could in the traditional manner and with improvement in quality.

Our experience showed that the success of a new course is not only determined by financial factors but also by

the acceptance of those who are teaching the course and those who are the recipients. Both students and faculty have rated the course positively, preferring it over the traditional course.

The new course with its flexible and unique structure offers an opportunity for more involvement and greater appreciation of the material under discussion.

A powerful residual effect from the new course is the instructor savings factor. Large numbers of instructors are no longer tied to the course but have been set free and encouraged to develop new courses, at the upper level with no sacrifice of existing courses. We have shown accelerated growth in FTE count and an expanded curricular offering to better meet the specialized needs of our students.

In summary, we believe that careful attention and close monitoring of a course can increase its longevity. Our experience is also that a course can be economically efficient, pedagogically successful, and fun to teach. The work is considerable, but the benefits are very real.