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ABSTRACT

A project to help students assume more responsibility for the quality of teaching and learning is described. A three-credit-hour course in learning analysis (LA) exposed 875 students at six colleges to alternative teaching methods. Faculty members who were outstanding practitioners of various learning strategies (Keller Plan, audiotutorial, discussion method, media-oriented classes) prepared a learning unit in their discipline for presentation to freshman at the following schools: University of Nebraska at Omaha (UNO), the University of Nebraska-Lincoln, Chadron State College, Kearney State College, College of Saint Mary, and Doane College. The LA course represents a significant first effort to bring consumerism into the college classroom. A second feature was the development of Student Learning Scales (SLS), which are intended to supplement or replace existing teacher performance rating scales. The scales are focused on the achievement and motivations of learners rather than the actions of teachers. For the third project activity, faculty and a sample of students rated instructional methods using the Instructional Methods Survey. Evaluation reports for each of these three project activities are included, along with a report by D. Finkler titled "Learning Analysis: The UNO Experience, Semester 1." (SW)

Final Report on the Project— "Helping Students Become More Sophisticated Consumers of Their Own Education"

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Teaching and learning implies responsibilities on part of both students and faculty. The essence of this project is that students hold an important and heretofore ignored key to the improvement of teaching and learning. If we can help students become more analytical observers of their own learning reactions, they can assume more responsibility for the quality of their learning and they can improve the quality of teaching through monitoring their learning reactions to various teaching strategies, through becoming more knowledgeable consumers of education, and through becoming more competent evaluators of teaching effectiveness.

This project brought students and faculty together in a shared concern for the quality of teaching and learning. A 3-credit-hour course in Learning Analysis (LA) offered students at the University of Nebraska at Omaha, the Univeristy of Nebraska-Lincoln, Chadron State College, Kearney State College, College of Saint Mary, and Doane College the opportunity to experience learning under alternative methods of instruction. Faculty members who are outstanding practitioners of various learning strategies, e.g., Keller Plan, audio-tutorial, discussion method, media-oriented classes, etc., prepared a learning unit in their own discipline for presentation to freshmen.

The course in Learning Analysis represents a significant first effort to bring consumerism into the college classroom. The four objectives of LA were: (1) to provide students experience with a variety of disciplines and teaching methods, (2) to help students become more knowledgeable and analytic about their learning reactions in a variety of academic contexts, (3) to provide innovative teaching faculty the opportunity for sustained interaction, and (4) to create a demonstration laboratory used by faculty interested in learning about alternate teaching methods. A total of 875 students enrolled in LA at the six institutions that participated in the project. Although LA was very successful in achieving the first three objectives, the course format is too expensive to maintain without some external support. Alternate formats have been suggested and a self-instructional student manual applicable to a variety of settings is being prepared.

A second feature of this project was the development of Student Learning Scales (SLS). Ultimately the test of teaching lies in the effectiveness of learning. The Student Learning Scales are intended to supplement or replace existing teacher performance rating scales. They are unique in that evaluative attention is focused on the actions of learners rather than teachers. The rationale for the SLS is that ultimately the effectiveness of teaching is measured by the responses of learners. The SLS assess student outcomes in four goal or achieve-

ment centered domains important to higher education--"Analytic Thinking and Problem Solving," "Liberal Learning," "Social Learning," and "Writing Skills," and two student-centered domains--"Appropriateness of the Teaching Method for the Student" and "Motivation and Relevancy". High reliability, consistency of the factor structure, validity of student self-ratings, and criterion-group validity based on outcomes sought by courses in various disciplines have been demonstrated and cross-validated in three very different institutional settings. Course means on the six SLS factor scales can be evaluated either normatively or by comparison to instructor ratings of the importance of outcomes in each domain for a specific course.

The third activity of this Project, an Instructional Methods Survey (IMS), developed out of an interest in assessing the range of instructional alternatives available to students and comparing the instructional repertoires of faculty today to the results of a similar survey published by Umstaddt in 1954. The IMS consists of a comprehensive list (with brief descriptions) of 42 teaching and grading methods. All faculty and a representative sample of students at five midwestern colleges and universities were asked to rate each method according to how much they actually used or encountered it and then according to how much they would ideally like to use or encounter it. Some of the more interesting results showed that (a) most frequently used teaching methods are the same as those of 25 years ago (e.g., lecture, discussion, laboratory), (b) faculty teaching repertoires show development in use of more sophisticated audio-visual aids and more use of experiential and individualized modes of instruction, (c) students want a more varied instructional experience than they are currently receiving, (d) breadth of student instructional experience is inversely related to school size, (e) student satisfaction with the college learning environment is positively related to breadth of instructional experience, and (f) students would like to be able to choose among instructional alternatives for a given course in order to optimize their learning.

Finally, the Project staff has been very active in disseminating the results of the Project's activities with a number of publications and presented papers resulting from the Project. A Conference on Educational Choices was held in Omaha in May, 1979, to examine the themes of student consumerism, cognitive styles, and educational brokering. Attended by more than 250 people from all over the United States, this conference highlighted the work of the Nebraska Project.

For further information, please contact Dr. Trani, the Project Director.

HELPING STUDENTS BECOME MORE SOPHISTICATED CONSUMERS OF THEIR OWN EDUCATION

THE DEVELOPMENT OF STUDENT CONSUMERISM

Some educators are reluctant to use the word "consumer" in regard to students. In fact, there has been resistance to the idea of student consumerism by those who point out that education is not a consumer item, like a car or a haircut. One commentator, Elaine El-Khawas, has noted:

> There are serious drawbacks to an imagery based on students as consumers or receivers of an educational product or service. In large measure, consumerist rhetoric conjures up an image of unwitting victims pitted against unscrupulous villains bent on gaining a quick profit. The reality of postsecondary study is much different: Students are active participants in the learning process, not passive recipients of a service. A specific product cannot be expected; although the institution can provide opportunities for learning, the result for any particular student depends heavily on individual interest and effort. And most institutions conscientiously seek to provide good instructional and other services, even if actual performance falls short of that mark.

These objections notwithstanding, the student consumer movement continues to grow. An editorial several years ago in Change magazine summarized the developments in student consumerism. The students are older, more experienced, and have a greater sense of a right "to be informed of the facts of what they are buying for their education dollars, a right they hold as unassailable as that of breathing reasonably unpolluted air."

The consumer movement has had considerable success in the area of better information for students. The student consumer information sections of the Education Amendments of 1976, which became effective July 1, 1977, require accurate disclosure by educational institutions on such items as financial assistance, instructional programs, refund policies, estimated costs, facilities,

faculty, student retention, and employment prospects. These amendments insure the participation of the federal government in fostering consumerism among students, even if the exact effects of the amendments as yet remain unclear.

Most of the current efforts for student consumer protection have been concentrated on the areas of the recruitment of students, the advertising of academic institutions, financial policies, admission and graduation standards, and opportunities for employment upon graduation. Very little of the consumer movement has entered the classroom itself.

CONSUMERISM IN THE CLASSROOM: THE NEBRASKA PROJECT

How can the concept of consumerism enter the classroom without upsetting the delicate balance between student and faculty rights? One such attempt has just been completed in Nebraska.

A number of Nebraska universities and colleges have just completed a three-year project--supported in part by the Fund for the Improvement of Postsecondary Education--entitled "Helping Students Become More Sophisticated Consumers of Their Own Education." This project, originally conceived by K. Patricia Cross and coordinated by the University of Nebraska, brought consumerism into the classroom at those institutions.

BACKGROUND

Although students and faculty share responsibility for the effectiveness of the teaching-learning process, most of the current attention on the instructional process is directed toward "faculty development" and the "improvement of instruction." These efforts to improve the teaching side of the equation are faced with some common obstacles. The first hurdle is to gain recognition for the problem.

To date, campus approaches to raising faculty awareness have consisted largely of activities such as workshops, discussions of rewards for improved teaching, faculty senate resolutions and policy statements, administrative

statements regarding the importance of teaching tc the institution, and distinguished teaching awards--with attendant publicity. Most colleges and universities also provide offices for the improvement of instruction. Such offices, however, usually attract only a small minority of faculty members to their services, and on most campuses today, there is no feeling on the part of the majority of faculty that the improvement of teaching is a high-priority item on their institutions' agenda.

One might argue that since teachers appear satisfied with their teaching, perhaps the need for improvement is not as great as many think it is. There is evidence to refute such a simplistic answer. Research has shown that some of the new teaching strategies result in significantly improved learning for some students, and there is evidence that the improvement of teaching performance is possible.

There is also a need to help students analyze what is a good learning experience for them. If students are knowledgeable about various teaching alternatives and analytical about what methods work for them, they are likely to help create the first condition for change--faculty awareness of the expectations of knowledgeable learners. Faculty, thus, do not bear the full responsibility for the improvement of the teaching-learning process. Students themselves can assume more responsibility for the effectiveness of learning. In fact, there is some danger that in the present enthusiasm for faculty development, students may become the passive observers of efforts to improve instruction, and they may come to consider themselves the lofty judges of teaching performance instead of equal partners in the teaching-learning process.

As lifelong learning plays an increasingly critical role in American life, it is also important that students learn something about the activity involved

in learning and about their own cognitive styles and preferences. Increasingly, learners will be called on to make choices from an array of nontraditional alternatives--offered not only by established educational institutions, but by industry, government, community agencies, and communications media. Learning how to learn and to make the diagnoses and selections that serve needs at a particular time may be one of the most important lessons that colleges can teach.

Another problem area that exists in most improvement of teaching projects concerns the evaluation of effective teaching. There are charges that students are not always competent to evaluate teaching--that charismatic lecturers have an advantage in the ratings and that high graders are rated higher than low graders. In addition, some professors complain that teacher-evaluation forms are designed for traditional courses, and the innovator is penalized for offering instruction that cannot be adequately evaluated through present methods. There are elements of truth to these claims, and thus the problem of credibility of student ratings remains an issue with many faculty members. There is also a concern that the overemphasis on the action of teaching is underplaying the role of the action of learning.

PROJECT GOALS

The goal of the Nebraska Project was to improve both teaching and learning by helping students become more sophisticated consumers of their own education. In education, as in the larger society, there is reason to believe that consumers who know what they want will be highly effective in getting it.

The Nebraska Project also asked students to rate their learning reactions rather than the quality of teaching, thereby confronting the student with a task for which he or she is uniquely qualified. Moreover, attention was focused where

it should be--on the activity of learners rather than teachers--thereby rewarding attempts on the part of professors to experiment with better ways of presenting their material, and minimizing the temptation for immature learners to give high ratings to classes that make fewer demands on them. Since student learning is the ultimate criterion of teaching effectiveness, the use of student-learning scales, which have been developed as part of the Nebraska Project, might assist faculty members in analyzing their teaching effectiveness, as well as assist students in optimizing their individual approaches to learning.

Another problem addressed by the Nebraska Project concerns student choices of alternative instructional methods. Once students become knowledgeable consumers of education, they must be provided with adequate information about possible learning alternatives. In recent years, student ratings of courses and instructors have been made public in many colleges and universities. The rationale is that students should be able to choose the "best" courses. But research has shown over the years that there probably is no "best" way to teach or to learn; a method that proves useful for one student may not be helpful to another. Consumers have different needs at different times and in different subjects. The Nebraska Project attempted to prepare students to analyze different teaching methods so that they may, whenever possible, select the method that suits their needs at the time. And the Project also surveyed a number of institutions concerning teaching and grading methods, to see how much variety is available at those institutions.

Each component of the project will be analyzed separately in this final report, with a summary analysis at the end.

It is also appropriate to comment on the project staff, which has been very small throughout the three years of the project. The project director,

Dr. Eugene P. Trani, Assistant Vice President for Academic Affairs at the University of Nebraska, and the project evaluator, Dr. Deana Finkler, of the Department of Psychology at the University of Nebraska at Omaha, have been joined by several graduate students and one half-time secretary during the duration of the project. The only other members of the project were the team members who participated in the teaching of Learning Analysis on the campuses where the course was offered.

The Course in Learning Analysis

Overview. As lifelong learning becomes a larger part of American education, it becomes increasingly important that adults be able to make informed choices of and adaptations to the variety of learning alternatives available. The course in Learning Analysis (LA) represents a significant first effort to help students become more sophisticated consumers of their own lifelong education by becoming more knowledgeable and analytic about teaching and learning alternatives, their reactions to these alternatives, and the reasons for their reactions. The major premises of LA are: (a) that optimal learning experiences vary as a function of student goals, aptitudes, learning style, and background, and interact with subject matter and instructional characteristics, and (b) that students who are aware of the influence of these factors on their learning reactions can make more informed choices and adaptations and will be able to contribute greatly to the improvement of the teaching-learning process.

Goals. K. Patricia Cross, project originator, identified the following four goals for the course in LA: (a) to give students experience with alternate teaching strategies and disciplines, (b) to help students become more knowledgeable and analytic about their learning reactions, (c) to provide successful and innovative teaching faculty the opportunity to interact with colleagues from other disciplines having different teaching styles, and (d) to provide campus demonstration laboratories where faculty can see various instructional strategies in use.

Description and History. LA is a freshman-level three-credit hour course. It includes an introductory unit (2 weeks) on the principles of human learning, teaching methods in LA, and cognitive style, during which students explore their own and their peers' learning style preferences by taking and discussing a set of cognitive style measures (e.g., GEFT, a measure of field dependence/independence;

Kolb Learning Styles Inventory, etc.). The introductory unit is followed by three or four instructional units (each 3 to 4 weeks long) which vary in content and teaching method, during which students are responsible for learning the material presented and periodically discuss their learning reactions with the presenting instructor and LA coordinator. A brief summary unit (1 week) in which students and faculty discuss strategies for optimizing learning reactions in a variety of academic contexts concludes the course.

LA is taught by campus teams consisting of a coordinator responsible for the introductory and summary units and three or four teacher-demonstrators from different disciplines using different teaching methods. Team members were chosen by local campus selection committees on the basis of their reputation for teaching excellence and the diversity of content and methods they would bring to LA. A diverse group of institutions were involved in the teaching of LA. They are Chadron State College, the College of Saint Mary, Doane College, Kearney State College, the University of Nebraska-Lincoln, and the University of Nebraska at Omaha. LA was first offered in the Spring of 1977 at UNO and then sequentially elsewhere. During the five semesters in which LA was taught, 885 students were enrolled in the course. Table 1 presents the enrollment history, campus sequence, disciplines and methods used in LA.

LA team members were each given three semester hours of release time to prepare for LA during a planning semester or summer term, the cost of which was included in the FIPSE grant. Expenses for faculty salaries for the two to five semesters during which LA was taught were part of the institutional commitment each campus made to the project.

Three types of occasional problems were involved in implementing LA on six campuses. They were communication gaps caused by changes in campus administration, reluctance by some faculty curriculum committees to grant approval to an experimental course whose disciplinary content cut across several departments or colleges and whose common concern was the student as a learner, and facilitating communication between project staff and LA teams distributed up to 500 miles apart. Goodwill among faculty and administrators enthusiastic about the project and written documentation concerning intercampus accords facilitated solution of the first two problems. Frequent travel and phone calls with increasing reliance on written communication and on the coordinators for data gathering for evaluation facilitated solution of the third.

Evaluation. The goal of providing students with experience in alternative disciplines and teaching strategies was fully met. Table 1 documents the range of alternatives presented. Student responses to a course evaluation questionnaire substantiated the fact that LA presented teaching strategies which, with the exception of lecture, were new to many students. Furthermore, twice as many students reported increased as reported decreased interest in taking courses in the disciplines represented in LA.

The goal of helping students become more knowledgeable and analytical about their own learning reactions was also met. The LA coordinators and project evaluator developed a common evaluation plan which assessed this goal with data from written final examinations, course evaluations, and student discussions. Details of the results are available in the LA evaluation report. The objective indices of this goal showed that the students were able to assess their own learning style(s) accurately, to identify the major characteristics of preferred and non-preferred learning contexts for persons with different cognitive style profiles (e.g., choice of major and course preferences with appropriate rationales),

and to assess and explain the effectiveness of their own learning styles in different disciplinary and instructional contexts. Content analyses of the student responses showed that teaching method was the most salient dimension used by students in explaining course preferences. Subject matter or content and method considered together were less salient and instructor characteristics the least salient dimension used to explain preferences. These results are encouraging because they suggest that students are not only knowledgeable and analytical about teaching-learning alternatives, but may have also come to feel capable of learning in any discipline if the appropriate teaching-learning environment is available.

The students evaluated the course very favorably, would recommend it to friends, and over 80% of them reported that LA was "helpful" or "somewhat helpful" to them in planning ways to optimize future learning experiences or in developing coping strategies for non-preferred learning situations. Content analyses of suggestions offered by students describing adaptation strategies to non-preferred learning situations demonstrate a strong sense of student responsibility for their own learning outcomes but are disappointing because they did not, in general, integrate knowledge of cognitive style with the type of adaptation made. This result was not surprising since such strategies have not been articulated even in the research literature. The LA coordinators have developed a list of twelve categories of strategies for generating optimal matches or adapting to mismatches between student learning style and learning context which may be helpful to others interested in developing this topic (Table 2).

The goal of providing innovative and diverse faculty members the opportunity for sustained interaction was met by LA. Turnover among the LA teams has been low on five of the six campuses. Although the LA faculty have learned about each others'

teaching strategies through discussion and class visitation, their principal growth has been in appreciation of each others' values regarding what is important to learn and how it may best be learned. The openness, honesty, and mutual respect which emerged among members of disciplines who would otherwise have had little contact has been encouraging. Their interaction in LA has also led them to an increased focus on the student as an individual learner, an appreciation for team-taught courses in which efforts are planned to be integrated rather than only loosely coordinated, and for some faculty, a concern that their focus on individual differences in learning and their commitment to improving the quality of undergraduate instruction may not be broadly shared or supported.

The goal of using LA as a campus demonstration laboratory was a complete failure. Despite a concerted effort to attract colleagues to LA, the only occasional visitors were other LA faculty. This parallels the results of similar efforts by local campus Teaching-Learning Centers. Personal invitations to participate, often suggested as the only effective procedure, were not successful. Efforts to attract faculty and possible reasons for the failure of such efforts are elaborated in the LA evaluation report.

Summary and Conclusions. The course in LA was successful in helping students gain experience with a variety of disciplines and teaching methods. Students became aware of their learning style preferences in a variety of academic contexts and of how these preferences were related to their learning style and to characteristics of the instructional method used and subject matter presented, thus achieving the objectives of the project. LA students were not, however, very sophisticated in using their knowledge and skills for optimizing future learning experiences. The ultimate outcome of courses like LA depends, however, on how students use their knowledge of themselves as learners and of the kinds of learning alternatives which are possible to analyze future learning experiences, and to learn from their experience as learners.

The format used here to teach LA is too expensive to endure without some extended support. The most feasible alternate formats appear to be one-semester hour courses similar to the introductory unit using students' other courses as the experiential component, integration of LA material into existing education or psychology courses, mini-courses based on LA instructional units, and integration of LA material into orientation or academic counseling programs.

Outcomes. LA is continuing on one campus as several mini-courses and part of an education course. It may continue on another campus in a reduced format as a student skills development course. Several of the faculty have gotten involved in special projects as a consequence of LA and a teaching assistant development program has been implemented using the format of LA. Perhaps the most important derivative of LA, however, is a course manual being jointly prepared by two LA Coordinators, Drs. Royce Ronning from UN-L and Barbara Manning from UNO. The manual is self-instructional and is being written in a conversational and humorous style designed to appeal to lower division students. It is hoped that it can be used as the text for a course, an outline for a counseling program, or the basis of academic explorations by an individual student. Both a formative evaluation and a summative LA evaluation report are available to others desiring a more complete description of LA.

TABLE I

LA ENROLLMENT HISTORY, DISCIPLINES, AND TEACHING METHODS

Project Semester

CAMPUS	1 Fall '76	2 Spring '77	3 Fall '77	4 Spring '78	5 Fall '78	6 Spring '79	TOTAL
UNO	*	122	139	84	117	85	547
UN-L	-	*	86	39	33	19	177
KSC	-	-	*	12	17	12	41
CSC	-	-	*	32	19	8	59
Doane	-	-	-	*	16	19	35
St. Mary	-	-	-	*	26	-	26
		122	225	167	228	143	885

* Planning Semester

CAMPUS	DISCIPLINE	**TEACHING METHOD
UNO	Speech	Experiential
	Physics	Lecture-Demon.
	Math	Peer Discovery
	Short Story	Open Classroom
UN-L	Pyschology	Keller Plan
	Folklore	Lecture as Performance
	Speech	Gaming/Simulation
	Geography	Experiential
KSC	Business	Computer Simulation
	Crim. Justice	Lecture-Disc
	Adult Ed.	Instr. Design
	Speech	Interactive-Experiential

CAMPUS	DISCIPLINE	**TEACHING METHOD
CSC	Short Story	Lecture
	Budgeting or Insurance	Simulation
	Insulation	Experiential-Discovery
	Science or Pollution	Keller Plan
DOANE	History	Role Play
	Holocaust	Mediated Instr.
	Math	Inquiry
ST. MARY	Chemistry	Prob. Slvg.
	El. Ed	Open Classroom
	Pos. Reinf.	Participatory Lrng.
	Nursing	Lecture-Demon.

** Introductory units are all taught by faculty in education or educational psychology using informal lecture-discussion methods.

Table 2

CATEGORIES OF "COPING" STRATEGIES FOR MISMATCHES OR AVOIDING MISMATCHES BETWEEN STUDENT LEARNING STYLE AND LEARNING CONTEXT

1. Translators. Find a classmate who understands what is happening and what is expected of the students. Such translators can often be identified by observing the classroom interaction. Ask the translator to explain what is happening in class to you privately. If necessary, ask publicly in class for explanations. Often, other students will volunteer explanations and identify themselves as able translators, Reciprocate by volunteering to translate in other classes.

2. Modalities. Seek other modes of obtaining content information which are more appropriate for you. Some modes allow self-pacing and repetition (reading, tapes), others present visual displays or demonstrations (e.g., lecture, video-tapes), or permit interaction (e.g., some computer-based programmed instruction, small study groups, tutors).

3. Libraries. (overlaps modalities to some extent). Seek alternate sources and/or modalities for obtaining information. Read for enrichment and elaboration. Seek texts or references which present material at a level, pace, or style appropriate for you. Use library sources to help you overcome deficiencies in background. Look for alternate types of presentations, such as structured programmed instruction for the student who has difficulty providing structure or who prefers frequent feedback.

4. Provide Feedback to Instructors. Three ways of providing feedback to instructors were suggested. Two of them attempt to modify instructor behavior: (a) use environmental press (selective reinforcement) such as active participation, attention and eye contact to reinforce instructor behaviors which are helpful, (b) use confrontation or intimidation to change instructor behavior such as by public discussion of the learning situation or by more subtle non-verbal behaviors (e.g. inattention, not attending class, etc.). Note that confrontation may be threatening or non-threatening (e.g., "I have difficulty learning without explicitly stated objectives. Can you provide these for me?) in form. The third alternative seeks to change the learning situation for the student by negotiating an alternative. This approach may be private and individual or public and collective.

5. Compliance. "Grin-and-bear it." Study harder or study less and bear the consequences. Understand the situation as an unavoidable mismatch and endure it without loss to self-esteem.

6. Selection. Select courses, instructors, disciplinary content, and institution to optimize your learning experiences. Involved here are information-seeking strategies, deciding what to ask of whom or where to find information and how to evaluate it. If, for example, you seek friends' advice about a course or instructor, try to get descriptions of what goes on because your friend's preferences may reflect a different learning style than your own. Some sources of information are instructor oriented, others are institutional. One can try to obtain instructor exams or audit courses. One can also seek quality institutionally based information, e.g., class schedules which identify teaching methods or academic advisors who are familiar with your learning style profile. Another form of selection is how to take courses.

CLEP exams, and course challenges can be used to avoid courses or to minimize time spent on a course. Proposing independent study is another option occasionally available.

7. Exam-taking Skills. Develop such skills by previewing exams from exam files in the library, department, or from friends. Ask for early "no-count" exams to get information of the efficacy of your study skills and focus on the course. Write your own exam questions and share them with friends to see if you identify the same things as important.

8. Scheduling. Take short-term intensive (summer courses, mini-courses) or spaced practice (regular courses) learning programs. If not possible, consider using massed or spaced practice study programs on your own to prepare for exams.

9. Disaggregate and Restructure. Take apart a learning problem and put it together in a more familiar form. Examples might be listing the elements of a math or chemistry word problem and seeing if the elements relate to a previously learned formula or problem-solving strategy or learning to use the structure of a book or article (subtitles, chapter summary) to identify the main points and relationships to be learned. The opposite approach, "structure and then disaggregate" can also work, such as by trying to increase "meaningful reception" by identifying the most general (higher order) points and then those of lower order (note here that the opposite strategy may also work--list all the facts presented and then look for the organizing principle or greater gestalt).

10. Use your Cognitive Style to Advantage. Use your learning strengths to generate strategies to overcome difficulties. The field-dependent person (socially oriented, holistic thinker) might develop "brainstorming" techniques to use when stuck on how to solve a problem, the field-independent (analytic thinker, independent) might use scanning strategies to review a great deal of material potentially relevant to a problem. Both will have increased their resources for solving a problem, although each did so in different ways. Similarly, the field-dependent student might seek out friends or tutors who can, through discussion, provide structure for courses which seem to require it (e.g., science) and the field-independent student might seek out texts with analytical approaches to material not always formally presented (e.g., small group dynamics).

11. Deliberately Modify your Cognitive Style. If this is possible, at least on a short-term basis, it may be helpful to students to develop some flexibility of style for different situations. Field independents may discover, for example, the benefits of coping with initial frustration and learning from others in small group situations, especially if they are impressed with the quality of the ideas gained from others or of the work which the group produces which the individual alone could not have done as well. Similarly, the field dependent may find it advantageous to develop the scanning and organizational skills of the field independent for accomplishing some tasks efficiently and independently or to use programmed materials which impose structure on learning. Courses in structuring (e.g., study skills, outlining) are available.

12. Use People as Learning Resources. Translators are a type of human resource which might be included here. More traditional sources would be tutors or study groups or discussions with an instructor during office hours. This category is similar to Modalities or Libraries in that one seeks alternate presentations of material, here from experts or peers on the same basis as one uses a text, course manual, or study guide.

The Student Learning Scales (SLS)

Purpose and Perspectives. Development of the SLS was a major component of the Nebraska Project. K. Patricia Cross, project author, initially described them as follows:

> The SLS are designed to focus evaluative attention on the actions of learners rather than teachers. The rationale for SLS is that ultimately the effectiveness of teaching is measured in the response of learners. Instead of the familiar teacher-action items of 'The instructor makes course objectives clear,' or '...presented the material in an interesting manner,' the SLS might present a mirror image in the form of 'I knew what I was attempting to accomplish in this course,' or 'I was eager to learn more about the subject.' Since the SLS have the dual purpose of evaluating learning and improving teaching, analytical items that help instructors evaluate student reactions will be emphasized such as 'I made great gains in conceptual understanding,' or 'My intellectual curiosity was greatly stimulated.'

The emphasis of the SLS is on assessing outcomes of classroom learning experiences rather than assessing learning processes or instructor behaviors. They are intended to supplement the instructor's knowledge of his/her own teaching behavior and of student achievement and in doing so, to help improve instruction by assessing academically valued outcomes. There are four advantages to this emphasis on outcomes: (1) students evaluate that which they know well, their own learning responses, rather than that which they do not know well, (e.g., Professor's breadth of content knowledge), and may be helped through experience with SLS to take increased responsibility for their own outcomes; (2) faculty receive descriptions of student outcomes from the learners, helping them to assess teaching effectiveness and to become sensitive to unintended outcomes and to the quality of the student learning experience; (3) the potential uniqueness of each teaching-learning encounter and the multiple determinants of learner outcomes are recognized by the SLS in contrast to more traditional instructor evaluation instruments which focus evaluation on a consensually

valued set of instructor behaviors; (4) validity of the SLS may be assessed by comparing results from courses in various academic areas seeking similar or different student learning outcomes.

The SLS were developed according to a five stage model. Table 3 presents an outline of the schedule and tasks accomplished during the period of the project. A technical report describing in detail the activities and research results of Stages I-V is available as one of several evaluation reports prepared for the project. An early version of the report will be available from ERIC in about three months.

Scale Development. Initial feasibility studies (Stages I and II) established that it was possible to develop scales which discriminated appropriately between desirable and irrelevant student outcomes in a wide variety of college and university courses. The research literature provided no precedent for this approach to evaluation, so a very broad and inclusive approach to scale development was adopted. 222 items reflecting student learning outcomes based upon various models of human learning (Bloom, Gagné), psychological theories of learners (operant, cognitive, humanist, psychoanalytical), teacher evaluation scales, and rational models of learning (i.e., skills, attitudes, and values relevant to higher education), as well as upon perspectives based on learning responses specific to instructional strategies (e.g., Keller Plan, lecture, discovery), to disciplinary goals (e.g., natural sciences, humanities), and to models of cognitive/learning styles (e.g., field independence-dependence) were developed.

This set of items was refined to the current set of forty-four through successive factor analytic, reliability, validity, and cross-validation studies

(Stages III-V). A six factor orthogonal structure was identified and found to be replicable across split-samples on an urban university campus (UNO) and at a state college campus (Chadron State College), and a private liberal arts college (Doane College). The factors reflected student learning responses in two student centered domains--"Appropriateness of the Instructional Methods Used in a Course for the Student" and "Motivation and Content Relevancy," and four achievement or goal oriented domains--"Liberal Learning, Social Learning Analytic Thinking and Problem Solving, and Writing Skills." Internal consistency reliability was found to be high for unit-weighted scales based on the six factor structure.

Validity studies demonstrated that both unit-weight scale scores and standardized true-factor scores discriminated appropriately between learner outcomes sought by different disciplines. Additional validity studies confirmed that the scale scores discriminated appropriately between outcomes considered very important to unimportant by instructors within individual courses and thus, that the student self-reports provided accurate assessments of learner outcomes. These validity studies have been duplicated several times. Details are in the technical report.

The unit-weighted factor scales, items and loadings, and reliabilities (αs, item-total correlations) for the Stage IV SLS are presented in Table 4. The results were cross-validated in Stage V. Each factor accounts for 33 to 7% of common variance and few items load on more than one scale. Details of the statistical procedures and criteria for item assignment are in the technical report. Table 5 presents the final version of the SLS as used in Stage V, including instructions to students and several items reflecting student characteristics weakly related to SLS factor scores and course and instructor evaluation.

SLS factor or unit-weighted scale scores may be interpreted in two ways. The traditional normative comparisons for course means are possible using either disciplinary (i.e. natural scienes, social sciences, humanities, education, fine arts, business) or institutional norms already established or generated for a specific institution. Student or course characteristics other than discipline have been found to have little practical impact on norms. Faculty may also use the Faculty Response Form (Table 5) to rate the relative importance of student outcomes in the domains measured by the SLS and compare class mean factor scores to these ratings.

Summary: Educational Significance of the SLS. The SLS have been demonstrated to have a consistent six factor structure in diverse academic settings, and both the validity of students' ratings of their own learning outcomes and criterion group validity based on the different goals of various academic disciplines have been cross-validated. Inspection of the domains in which the SLS assess student learning outcomes suggest that they are central to the college learning experience and to the values promoted by higher education.

The methods and samples used for development of the SLS resulted in scales based on commonalities among item scores for students enrolled in a heterogenous group of courses. As such, the SLS may be said to assess outcomes generic to many classroom learning experiences and thus, to be useful in many such settings. They also provide examples of many first-person statements reflecting student learning outcomes which faculty may use as models for writing additional items. Further development of the SLS for use in settings other than four year institutions may require such adapations of the item set.

The SLS' emphasis on outcomes and use of student self-ratings is similar in format to two other evaluation instruments--IDEA (Hoyt and Cashin, 1977) and part

of ICES (University of Illinois, 1978). These three recently developed evaluation tools are also similar in that they do not make assumptions about the goals appropriate to a specific classroom learning experience or the instructor behaviors which are desirable in every instance as do the traditional instructor performance rating scales. Indeed, the guidelines for interpreting SLS factor scores suggest that comparisons to the professor's own ratings of importance of the domains assessed by the SLS are equally as valid as the more usual normative comparisons.

The SLS also provide some insight into the nature and quality of the student learning experience and may serve to facilitate research into how course experiences influence student development. Examples and suggestions for research applications are presented in the technical report.

ICES has requested that the SLS be incorporated into the "student outcomes" section of this cafeteria-type instrument. The Project Director has agreed to share the SLS with ICES,which is available to all post-secondary institutions on a cost-only basis. The SLS may also be used directly and scored on the basis of unit-weighted factor scales or true standardized factor scores as described in the technical report.

Table 3

Achievements of the Five-Stage Model of Development for the SLS

Stage	Dates	Tasks
Stage I	Spring and Summer, 1977	(1) A model for the development of the SLS was created, and (2) a schema for identifying student learning reactions and writing items for potential use in the SLS was generated.
Stage II	Fall, 1977	(1) The feasibility of the concept of the SLS was tested using a limited item set in a small sample of university classes.
Stage III	Spring and Summer, 1978	(1) The SLS item set was generated and reduced, (2) two alternate versions of the SLS were formed, and (3) the initial factor analytic and validity studies of the SLS were conducted in a mixed sample of college and university classes.
Stage IV	Fall, 1978	(1) The SLS were improved by producing a shorter, more refined set of scales, (2) factor analytic, reliability, and validity studies of the new SLS were conducted in two diverse samples, an urban university and a rural state college, and (3) an exploratory study of the factor structure of the SLS and the relationship of achievement to subscale scores within a single university class was conducted.
Stage V	Spring and Summer, 1979	(1) Further cross-validation studies of previous findings were conducted in a small liberal arts college, as well as (2) exploratory studies of the relationship of student characteristics to factor scores, and, (3) establishment of relevant parameters for normative comparisons.

Table 4

The Student Learning Scales

I. Appropriateness of Instructional Method for the Student.

α = .89

Item	Factor Loading	Item-total Correlation*
I found the instructor's presentations clear and at a level appropriate for me.	.78	.75
I felt that the teaching method in this course was appropriate for me as a learner.	.75	.71
I thought that the relationships between the course objectives, content covered, and evaluation procedures were logical and consistent.	.71	.73
I understood the objectives of this course.	.70	.70
In this class, I felt sure that I was learning the important things in this field.	.68	.74
I was able to study effectively for this course.	.67	.67
I was able to follow instructions accurately for class assignments and exams.	.63	.56
I was rarely bored in this course.	.54	.56
I was unsure of what I was supposed to accomplish in this course.	-.54	.52
I did not understand the text books.	-.34	.36

II. Liberal Learning

α = .88

Item	Factor Loading	Item-total Correlation*
In this class I learned things which challenged my values and made me think about my point of view carefully.	.63	.61
I find myself more receptive to new ideas as a result of this class.	.59	.59
I am more willing to question traditional ideas and standards as a result of this class.	.58	.56
In this class, I was able to generate hypotheses (ideas, explanations) to explain new phenomena.	.55	.61
I have increased understanding of the importance of this field for solving human problems.	.55	.59
My intellectual curiosity was stimulated in this course.	.51	.64
In this class, I was able to make generalizations based on the facts that I learned.	.46	.57
When controversial issues were presented, I understood the opposing viewpoints and their implications.	.45	.48
I am able to integrate the facts I learned in this class into a larger perspective of the field.	.43	.59
I am able to propose ways of testing new ideas or hypotheses as a result of this class.	.43	.53

I was able to evaluate major theories or new ideas using well-thought-out criteria.	.37	.53
In this class, I've become more skilled at backing up my arguments with data and/or documentation.	.34	.51

III. Social Learning

α = .83

Item	Factor Loading	Item-total Correlation*
Working with other students in this class has been an important part of my learning experience.	.80	.67
I was able to work effectively with other people in this course.	.77	.64
I have enjoyed learning from the other students in this class.	.76	.69
In this class I have come to value open communication between people.	.60	.63
In this class I've come to understand how different people approach learning situations.	.41	.51
I have developed a greater awareness of other people's values in this class.	.35	.45

IV. Analytic Thinking and Problem Solving

α = .77

Item	Factor Loading	Item-total Correlation*
I am able to use graphs, charts, and other kinds of tables to interpret events and relationships in this field.	.61	.43
I could figure out the steps necessary to solve most of the problems in this course.	.60	.50
I can analyze theories in this field based on their logical consistency and support from data.	.53	.55
I've become more skillful in recognizing when problem-solving strategies I know apply to new situations.	.52	.50
I can state the general principles, rules, or formulas presented in this course.	.51	.55
In this course I have come to recognize the importance of the scientific method as a procedur- for learning about the world.	.48	.42
I am able to give examples or illustrations of most of the concepts introduced in this course.	.42	.46

V. Motivation and Relevancy

$\alpha = .77$

Item	Factor Loading	Item-total Correlation*
What I learned in this course was trivial and unimportant.	-.52	.57
I've learned p.actical things in this course which will apply to my work or profession.	.51	.51
I do not plan to take more courses in this field.	-.50	.41
I was not motivated to work in this class.	-.45	.49
I was eager to learn more about the subject.	.44	.59
I understand how this subject matter applies to the real world.	.36	.48

VI. Writing Skills

$\alpha = .69$

Item	Factor Loading	Item-total Correlation*
In this class, I was able to write essays (exams, papers, reports) which expressed my thoughts clearly and precisely.	.68	.55
I have further developed my writing skills in this class.	.66	.56
I was able to use the library effectively to help me with my class project or term report.	.43	.43

* Items with negative factor loadings were reverse scored for calculation of αs and corrected item-total correlations.

Table 5

Student Learning Scales

Instructions: Indicate the extent to which each of the following statements describes your learning experience in this course. If a statement does not apply to your course or was rarely true of you and you strongly disagree that it describes your experience, mark a "1" on the answer sheet. If it was only sometimes true of you and you disagree that it describes your experience, mark a "2" on the answer sheet. If it was frequently true of you, mark a "3". If it was most often true of you and you agree that it describes your experience, mark a "4". If it was almost always true of you and you strongly agree that it describes your learning experience, mark a "5" on the answer sheet.

Not applicable or Rarely True (0-10% of the time)	Sometimes True (11-30%)	Frequently True (31-70%)	Most Often True (71-90%)	Almost Always True (91-100% of the time)
1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

Remember that there are no right or wrong learning experiences. Each student and each course is unique and what you learn and how you learn may vary in different courses. Be sure to mark what is true of you in this course.

Write the name and number of this course (e.g. Biol. 100, Music 215) at the top of the answer sheet on the line labeled NAME. Do not put your name on the answer sheet. Be sure to mark your answers with a No. 2 pencil.

Student Learning Scales

1. I was able to follow instructions accurately for class assignments and exams.
2. I've learned practical things in this course which (will) apply to my work or profession.
3. I have developed a greater awareness of other people's values in this class.
4. I was able to evaluate major theories or new ideas using well-thought-out criteria.
5. I did not understand the textbooks.
6. In this class, I was able to write essays (exams, papers, reports) which expressed my thoughts clearly and precisely.
7. I am able to give examples or illustrations of most of the concepts introduced in this course.
8. I was eager to learn more about the subject.
9. I was able to use the library effectively to help me with my class project or term report.
10. I can analyze theories in this field based on their logical consistency and support from data.
11. In this class, I've come to understand how different people approach learning situations.
12. I have increased my knowledge of terms and definitions in this course.
13. In this class, I've become more skilled at backing up my arguments with data and/or documentation.
14. I do not plan to take more courses in this field.
15. When controversial issues were presented, I understood the opposing viewpoints and their implications.
16. I am able to use graphs, charts, and other kinds of tables to interpret events and relationships in this field.
17. Working with other students in this class has been an important part of my learning experience.
18. I was not motivated to work in this class.
19. I could figure out the steps necessary to solve most of the problems in this course.
20. In this class I learned things which challenged my values and made me think about my point of view carefully.
21. In this class, I was able to make generalizations based on facts that I learned.

22. I felt that the teaching method in this course was appropriate for me as a learner.

23. I find myself more receptive to new ideas as a result of this class.

24. I was unsure of what I was supposed to accomplish in this course.

25. In this course I have come to recognize the importance of the scientific method as a procedure for learning about the world.

26. I have enjoyed learning from the other students in this class.

27. I am able to integrate the facts I learned in this class into a larger perspective of the field.

28. My intellectual curiosity was stimulated in this course.

29. I have increased understanding of the importance of this field for solving human problems.

30. In this class, I was able to generate hypotheses (ideas, explanations) to explain new phenomena.

31. I was rarely bored in this course.

32. I understand how this subject matter applies to the real world.

33. I am able to propose ways of testing new ideas or hypotheses as a result of this class.

34. I thought that the relationships between the course objectives, content covered, and evaluation procedures were logical and consistent.

35. What I learned in this course was trivial and unimportant.

36. I am more willing to question traditional ideas and standards as a result of this class.

37. I understood the objectives of this course.

38. I was able to work effectively with other people in this course.

39. I can state the general principles, rules, or formulas presented in this course.

40. I found the instructor's presentations clear and at a level appropriate for me.

41. In this class, I felt sure that I was learning the important things in this field.

42. I've become more skillful in recognizing when problem solving strategies I know apply to new situations.

43. In this class I have come to value open communication between people.

44. I was able to study effectively for this course.

45. I have further developed my writing skills in this class.

46. What is your class status?

(1) Freshman (2) Sophomore (3) Junior (4) Senior

47. Was this course

(1) specifically required for your major

(2) required but a choice

(3) elective

48. What grade do you expect to receive for this course?

(1) A (2) B (3) C (4) D (5) F

49. Comparing all the courses you have had at Doane College, how would you rate this course?

(1) one of the best

(2) above average

(3) average

(4) below average

(5) one of the poorest

50. Comparing all the instructors you have had at Doane College, how would you rate your instructor?

(1) one of the best

(2) above average

(3) average

(4) below average

(5) one of the poorest

SLS FACULTY RESPONSE FORM

NAME: _____

COURSE TITLE AND NUMBER: _____

Instructions: The SLS subscales measure student outcomes in the six areas listed below. Your ratings of the importance of outcomes in each of these areas provides a way of validating the SLS at Doane College. Please rate the importance of each of the six types of student outcomes for your course. Some of the outcomes you may consider very relevant to your course goals, others may be of moderate or minor relevance and some may be irrelevant. Remember that the outcomes you value for students may vary over course levels, disciplines, etc. Please complete a faculty response form for each course in which you use the SLS and return the form with the SLS answer sheets.

Subscales*	Ratings (check one for each subscale) Very important for this course	Moderately important for this course	Minor importance for this course	Irrelevant or unimportant for this course
1. Liberal Learning	____	____	____	____
2. Analytic Thinking and Problem Solving	____	____	____	____
3. Social Learning	____	____	____	____
4. Writing Skills	____	____	____	____
5. Motivation and Relevancy	____	____	____	____
6. Appropriateness of Instructional Method	____	____	____	____

* See descriptions of subscales on the back of this page.

SLS SUBSCALE DESCRIPTIONS

1. **Liberal Learning:** being open to new ideas, willing to question traditional perspectives, understanding controversial viewpoints and their implications, evaluating theories, integrating facts into a larger perspective of a field.

2. **Analytic Thinking and Problem Solving:** using graphs and tables to interpret relationships, solving problems, stating principles or formulas, analyzing theories, giving examples of concepts.

3. **Social Learning:** working effectively with and learning from other people, valuing open communication, developing awareness of others' values.

4. **Writing Skills:** developing organizational and writing skills, using the library effectively when writing term reports or class projects.

5. **Motivation and Relevancy:** being eager to learn more about a subject, perceiving what was learned as important to you, learning things which apply to your work or profession, motivated to work in a class, understanding how content applies to the real world.

6. **Appropriateness of Instructional Method for the Student:** students feel that the level of course, presentations, and texts are appropriate for them, could follow instructions for assignments and exams, knew what they were to accomplish, felt sure they were learning the important things in the field, were not bored, were able to study effectively for the course.

33

The Instructional Methods Survey

Objectives. The purpose of the Instructional Methods Survey (IMS) was to provide a description of teaching and grading methods used in higher education today. We were also interested in assessing the development of faculty teaching repertoires by comparison to the results of a similar survey published by Umstattd in 1954 and in assessing the breadth of student instructional experience as a baseline for future studies of the impact of the faculty development and student consumer movements. The IMS, a corollary to the Nebraska Project, developed out of our experience with LA and our concern for describing the availability of alternative teaching-learning environments since information about instructional methods is less readily available than is information about course content.

Method. In October, 1978 the IMS was administered to all faculty and to students in a ten percent random sample of undergraduate classes at five midwestern institutions: one private college (student population 900), two state colleges (2,000; 6,000), and two campuses of a state university (15,000; 22,000). The participating institutions were Union College, Chadron and Kearney State Colleges, and the Omaha and Lincoln campuses of the University of Nebraska. A total of 970 useable faculty and 4,433 student surveys were returned, representing an average institutional response rate of 56% of faculty and 68% of classes sampled.

The IMS consists of demographic information and a comprehensive list of methods items divided in three parts--24 teaching methods, 3 types of standards for the evaluation of student performance, and 15 types of tasks evaluated. Brief descriptions of each are provided. Faculty (students) were requested to rate each method according to how often they typically used (encountered) it and then according to how much they would ideally like to use (encounter) it, each on a five point Likert-type scale (never, rarely, occasionally, frequently, almost always.)

The survey forms, sample characteristics, administration procedures, test-retest reliabilities, tabular results, and statistical analyses are presented in detail in a report which is part of the Nebraska Project evaluation report series. A technical appendix to this evaluation report is also available.

Results and Discussion. Tables 6 and 7 present a summary of the results for the total faculty and student samples. Item response rates were greater than 89% for all but one item (#6) which was omitted from further analysis. The right hand columns of the tables present the rank orders based on item medians for each part of the survey. All methods were used by some faculty and experienced by some students.

Some of the more interesting results are listed below (all $ps < .01$):

(a) The most frequently used teaching methods by faculty are the traditional ones of formal and informal lecture, discussion, laboratory, and audio-visual aids, similar to results found by Umstaddt in his 1949 and 1950 surveys of similar institutions. The student responses show the same pattern. The least frequently used methods by faculty are those which require machine assistance (e.g., CAT, TV) or special materials for individualization (e.g., Keller Plan, auto-tutorial). Interestingly, over a third of the students have never been exposed to 14 of the 23 teaching methods (e.g., Keller Plan, simulation/gaming, experiential learning, auto-tutorial, discovery/inquiry).

(b) Students and faculty agree that they would ideally like to experience less formal lecture, similar amounts of informal lecture, and more of all other teaching methods. The greatest discrepancies between actual and ideal ratings for both groups occurred for individualized and experiential modes of teaching and learning.

(c) Institutional size or mission was not influential on faculty use of actual or ideal teaching and grading methods but disciplinary affiliation was moderately influential (Mdn. W=.60). School size and major did not affect the student learning experience. Recall that students take less than half of their courses in one department so that the effect of disciplinary affiliation on choice of faculty teaching strategies is diluted for students. The similarities among faculty and student instructional experiences across very diverse institutions and disciplines is more striking than are the differences.

(d) School size was not related to the size or breadth of faculty's actual teaching repertoires but faculty at smaller schools would ideally want larger repertoires than those at larger schools. Teaching repertoires increase with faculty age and decrease as the number of students taught increases. It is reassuring that age, to the extent that it serves as an indicator of experience, is related to the size of one's pedagogical repertoire and it is understandable that faculty who teach large numbers of students are limited in the methods they can employ. Students want a more varied instructional experience than they are currently receiving. Although more alternatives exist at larger schools, the student experience is inversely related to the opportunities, with students at smaller schools having and wanting broader instructional experience than those at larger schools.

(e) Faculty who use criterion-referenced evaluation standards relatively frequently may be identified as "innovators" in that they also use a wider range of teaching methods more frequently than do faculty using the more traditional evaluation standards.

(f) Student experience with oral evaluation tasks and with long essay exams and term papers is very limited. It appears that faculty reliance on multiple-choice,

short essay, and attendance tasks may be preventing students from obtaining useful feedback on their performances in important forms of oral and written communication.

(g) Students who are satisfied with their learning experiences report more breadth of instructional experience than do those who are dissatisfied. Only 3% of students reported that specific teaching methods were unimportant to them in their choice of courses, 57% would like to choose method according to the type of material presented, and 16% would choose the same method for all courses if possible because they feel they learn best by it.

(h) Comparisons of faculty's current teaching practices to those of 25 years ago is discouraging if one attends only to the similarities among most used methods and encouraging if one attends to the second tier of methods used. AV methods are more sophisticated and rank higher among methods used today. Experiential modes of learning were rarely used in 1950, except for laboratory, and rank in the middle third of methods used today. The many types of individualized instruction, especially those derived from operant principles, are used today by some faculty in all disciplines but were essentially nonexistent in 1950 except for independent study and tutorials. Also, the majority of teaching methods included in the IMS, all of which were used by some faculty, involve the student as an active learner and faculty dissatisfaction is directed towards reducing passive (formal lecture) and increasing active (experiential and operant-individualized) modes of learning.

Conclusions. It is apparent tha. faculty teaching repertories are enlarged as compared to 1950. The average faculty teaching repertoire includes, however, only a few of the more innovative strategies. National and local activities directed toward increasing faculty flexibility in teaching are relatively recent and their eventual impact has yet to be determined.

Students want more varied instructional experience and the opportunity to choose among teaching methods used in a course in order to optimize their learning experiences. Do they, however, recognize the relationship between satisfaction and breadth of instructional options available and are they capable of becoming a force for change? Perhaps, as K. Patricia Cross has suggested, educational institutions are in part responsible for not educating students to be "knowledgeable and analytic observors of their own learning reactions" so that they may become "gourmet learners", sophisticated consumers who will press for flexibility in choosing learning environments. We have not made information about learning environments easily accessible to students. Clearly, however, students want these options and the course in Learning Analysis has demonstrated that students can learn to evaluate them critically if they are available.

Table 6

FACULTY INSTRUCTIONAL METHODS SURVEY (N [illegible])*

ITEMS	TYPICAL USAGE			IDEAL USAGE		
I. Instructional Methods	Mean	Median	Rank by Median	Mean	Median	Rank by Median
1. Formal lect.	3.01	3.00	4	2.79	2.80	10
2. Informal lect.	3.80	3.87	1	3.86	3.90	1
3. Discussion	3.14	3.18	3	3.49	3.59	2
4. Laboratory	2.90	2.96	5	3.30	3.48	4
5. Field trip	1.94	1.84	12	2.62	2.70	12
6. Dir. conv. method	1.97	1.30	0	2.31	1.49	0
7. Guest instruc.	2.34	2.30	8	2.82	2.86	9
8. Tutorials	2.63	2.64	7	3.03	3.06	7
9. Peer-ass't. instr.	2.25	2.18	11	2.72	2.79	11
10. Indep. Study	2.84	2.89	6	3.11	3.12	5
11. Audio-vis. aids	3.24	3.25	2	3.54	3.58	3
12. Role-playing	1.71	1.45	14	2.14	2.11	19
13. Simul./gaming	1.84	1.50	13	2.40	2.46	14
14. Conting. contr.	1.63	1.26	16	2.21	2.05	20
15. Programmed instr.	1.53	1.27	15	2.26	2.23	15
16. Modular instr.	1.55	1.25	17	2.27	2.22	16
17. Keller Plan	1.32	1.12	21	2.08	1.95	23
18. Ind. presc. inst.	1.42	1.20	20	2.48	2.55	13
19. Disc./inq. learning	2.25	2.20	10	2.91	3.00	8
20. Field or exp. lrng.	2.36	2.21	9	3.00	3.08	6
21. Auto-tutorial	1.49	1.24	18	2.24	2.20	17
22. Comp.-mngd. instr.	1.11	1.05	23	2.05	1.96	22
23. Comp.-ass't. inst.	1.18	1.08	22	2.18	2.15	18
24. Television	1.42	1.23	19	2.05	2.01	21
II. Grading Methods						
A. Standards for Evaluation						
25. Absolute standards	3.47	3.79	1	3.44	3.67	1
26. Norm.-ref. grading	2.34	2.10	3	2.37	2.22	3
27. Crit.-ref. grading	2.77	2.78	2	3.36	3.47	2
B. Tasks to be Evaluated						
28. Multi. choice exams	2.85	2.87	4	2.79	2.86	7
29. Fill-in-blank exams	2.25	2.11	8	2.41	2.43	8
30. Recognition exams	1.71	1.36	13	2.21	2.22	12
31. Short essay exams	3.28	3.42	1	3.41	3.53	1
32. Long essay exams	2.56	2.50	7	2.87	2.91	6
33. Book Reports	2.02	1.79	10	2.35	2.33	9
34. Term or res. papers	3.08	3.16	2	3.29	3.32	3
35. Public performances	1.67	1.37	15	2.11	1.90	14
36. Class presentations	2.77	2.81	5	3.04	3.06	5
37. Oral exams	1.74	1.56	11	2.26	2.22	13
38. Discussion	2.77	2.81	6	3.03	3.07	4
39. Attendance	2.14	2.07	9	2.43	2.24	11
40. Lab reports	2.01	1.41	12	2.33	2.26	10
41. Journals	1.67	1.29	14	2.08	1.89	15
42. Problems	3.01	3.04	3	3.39	3.12	2

*1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = almost always

Table 7

Student Instructional Methods Survey (N=4433)*

ITEMS	TYPICAL USAGE			IDEAL USAGE		
I. Instructional Methods	Mean	Median	Rank by Median	Mean	Median	Rank by Median
1. Formal lect.	3.89	3.98	1	3.34	3.27	7
2. Informal lect.	3.44	3.39	2	4.07	3.99	1
3. Discussion	2.80	2.70	5	3.64	3.54	5
4. Laboratory	3.19	3.11	3	3.70	3.56	4
5. Field trip	1.83	1.63	15	3.11	2.97	14
6. Di. conv. method	4.22	2.98	0	5.10	3.72	0
7. Guest Instruc.	2.31	2.16	8	3.26	3.10	8
8. Tutorials	2.44	2.19	7	3.55	3.34	6
9. Peer-ass't instr.	2.24	2.10	9	3.14	3.00	12
10. Indep. Study	2.49	2.31	6	3.05	2.90	15
11. Audi-vis. aids	3.13	3.07	4	3.76	3.67	3
12. Role-playing	2.03	1.66	14	2.76	2.47	20
13. Simul./gaming	1.99	1.58	18	2.99	2.75	17
14. Conting. contr.	2.09	1.61	16	3.15	2.97	13
15. Programmed instr.	2.20	1.88	11	3.29	3.09	9
16. Modular instr.	2.05	1.59	17	2.98	2.73	19
17. Keller Plan	1.91	1.42	19	2.99	2.74	18
18. Ind. presc. inst.	1.73	1.35	20	3.29	3.08	10
19. Disc./inq. learning	2.18	1.83	12	3.26	3.02	11
20. Field or exp. lrng.	2.37	2.05	10	3.84	3.68	2
21. Auto-tutorial	2.20	1.74	13	3.10	2.79	16
22. Comp.-mngd. instr.	1.76	1.25	22	2.54	2.14	23
23. Comp.-ass't. inst.	1.74	1.24	23	2.65	2.29	22
24. Television	1.75	1.30	21	2.64	2.34	21
II. Grading Methods						
A. Standards for Evaluation						
25. Absolute standards	4.06	4.05	1	3.44	3.27	2
26. Norm.-ref. grading	3.45	3.38	2	3.46	3.36	1
27. Crit.-ref. grading	2.79	2.55	3	3.53	3.26	3
B. Tasks to be Evaluated						
28. Multi. choice exams	3.83	3.87	1	3.77	3.65	1
29. Fill-in-blank exams	3.23	3.13	5	3.12	2.98	6
30. Recognition exams	2.27	1.96	12	2.94	2.72	10
31. Short essay exams	3.36	3.27	3	3.49	3.30	3
32. Long essay exams	2.75	2.59	9	2.67	2.38	12
33. Book reports	2.36	2.06	11	2.68	2.38	13
34. Term or res. papers	3.03	2.91	6	3.00	2.82	9
35. Public performances	2.11	1.59	13	2.84	2.54	11
36. Class presentations	2.65	2.42	10	3.04	2.83	8
37. Oral exams	1.86	1.40	15	2.50	2.16	15
38. Discussion	3.09	2.89	7	3.32	3.08	5
39. Attendance	3.44	3.31	2	3.35	3.20	4
40. Lab reports	2.92	2.68	8	3.22	2.92	7
41. Journals	2.07	1.52	14	2.62	2.21	14
42. Problems	3.34	3.18	4	3.63	3.35	2

* 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = almost always.

DISSEMINATION OF INFORMATION ABOUT THE NEBRASKA PROJECT

A major effort throughout the three year project at the University of Nebraska was dissemination of information concerning the project. Project staff prepared brief reports on various aspects of the project, which were mailed to FIPSE project directors and directors of Teaching and Learning Centers around the country. The project staff recieved more than 100 letters of response to these brief reports, asking for additional information which was also sent to each respondent. The respondents represented a group that was very diverse, both in terms of types and sizes of institutions and in terms of responsibilities--academic administrators, faculty development personnel, and faculty involved in innovative programs.

Additionally the project director, the project evaluator, and individual team members made appearances both throughout the University of Nebraska and at other institutions in Nebraska and in other states before faculty groups, student service organizations, student social organizations, college workshops, and national conferences describing the project. A number of professional presentations and publications have resulted from the project. A list of all the documents that have been prepared as part of the project is attached in this section.

Another major effort at dissemination was the National Conference On Educational Choices, which was conducted on May 24-25, 1979, at the Hilton Hotel in Omaha, Nebraska. Attended by more than 250 faculty members and administrators from 26 states and as far away as Hawaii, this conference proved to be extremely successful. The conference featured major addresses by Dr. K. Patricia Cross, Distinguished Research Scientist at Educational Testing Services, Berkeley, on "Educating College Students to Lifelong Learning";

Joan Stark, Dean of the School of Education at the University of Michigan, on "Student Consumerism"; Father Ernest Bartell, Director of the Fund for the Improvement of Post Secondary Education, on "Higher Education in the 1980's: A View from FIPSE"; Dr. Nathan Kogan, Professor of Psychology, New School for Social Research, on "Cognitive Styles: Implications for Education"; and Francis Macey, Director of the National Center for Educational Brokering, on "Educational Brokering Services: Aides in Making Informed Choices." Additionally, the Conference had 30 workshops, which featured prominent speakers from all over the country. A copy of the brochure for the conference is attached. The evaluations of the conference were very positive, with praise for all the major speakers and almost all of the workshops. A vast majority of those who filled out evaluations think that the conference is worth a follow-up. The general reaction was that the three themes of student consumerism, cognitive styles, and educational brokering did fit together nicely.

As a further attempt at dissemination, the University of Nebraska and the Nebraska Educational Television Council for Higher Education, who co-sponsored the Conference, will publish the five major addresses from the Conference. It is hoped that this publication, which is scheduled for October, 1979, will keep the interest in the subjects alive, while the possibility of a follow-up conference is explored.

Thus, in the dissemination area, there has been a good deal of information that has gone out on all components on the project conducted in Nebraska for the last three years.

SUMMARY

It is, of course, difficult to summarize three years of activity. There have been many accomplishments and some failures. As the report notes, we have

concluded that the course on Learning Analysis, while informative to students and faculty alike, is just too expensive to maintain. This conclusion has been reached by each of the schools and, therefore in the years ahead, they will try to incorporate as much of the material covered by the course and offer it through their Psychology and Ed Psych departments, their counseling offices, and their orientation and advising centers. We do believe we have made significant progress, nonetheless, in dealing with the concept of exposing students to a variety of instructional methods. We also believe we have made a lot of progress in the development of the Student Learning Scales, which are an alternative way to evaluate what is taking place in the classroom for each individual student. Further, we think the instructional and grading survey provides results that are both encouraging and discouraging for Nebraska, results which might well be typical of similar surveys should they be conducted around the country. Finally, we have had a successful dissemination, we think, of the ideas upon which the initial project was based. We think we have raised the consciousness both among faculty and students about the role of students as consumers in the instructional process in all the institutions who participated in the project and that alone is not a small feat.

PUBLISHED AND UNPUBLISHED MATERIALS RESULTING FROM THE NEBRASKA PROJECT

Technical Reports distributed by the University of Nebraska:

Brief Report #1: The University of Nebraska FIPSE Project "Helping Students Become More Sophisticated Consumers of Their Own Education."

Brief Report #2: FIPSE Project, May, 1977
Status report on the goals and accomplishments of the Nebraska project.

Brief Report #3: The Student Learning Scales, March, 1978
Status report on the goals, conceptual model, and initial feasibility study of the SLS.

The Course on Learning Analysis
Brief description of the objectives and format of LA.

LA: The UNO Experience, Semester 1 — May, 1977
Formative evaluation report written for the first LA team. Shared by permission of the UNO Coordinator and Teacher-Demonstrators with all other LA teams as a guide to the planning and first semesters of LA.

LA: The UN-L Experience, Semester 1 — January, 1978
Similar to the UNO evaluation report, but includes a political analysis of the campus environment as relevant information for understanding the development of LA at UN-L.

The Student Learning Scales, a Progress Report — June, 1978
Stages I-IV progress report on the goals and accomplishments of development of the SLS. It will be available as an ERIC report in about three months.

Technical Appendix to the Faculty Instructional Methods Survey — June, 1979
Complete data tables and statistical analysis for the Finkler and Welsh (1979) paper are presented.

Cross-Validation of the Student Learning Scales, a Report to the Faculty of Doane College — August, 1979
Stage V report on the SLS, cross-validation study conducted at Doane College.

ARTICLES

Trani, Eugene P., Cross, K. Patricia, Sample, Steven B., and Wiltse, John, "College Teaching and the Adult Consumer: Toward a More Sophisticated Student Body," Proceedings of the IEEE, LXVI (1978), 838-846, (invited paper, in a special issue on engineering education).

Trani, Eugene P.,"Consumerism in the Classroom: The Nebraska Experiment," in New Directions for the Student Consumer Movement (Washington, D.C.: American Association for Higher Education, Current Issues in Higher Education, 1978), 7-12.

REVIEWED PAPERS

Finkler, D., and Thompson, P., Classroom Use of a Verbal Measure of Information Rate. Paper presented at the American Educational Research Association, Toronto, 1978.
Documents the validity of the Mehrabian and Russell Verbal Measure of Information Rate as used by college students to describe the environmental load of four classroom instructional units. Previous validity studies did not include actual classroom applications.

Finkler, D., Thompson, P., and Walker, S. The Student Learning Scales, a Progress Report. Paper presented at the American Educational Research Association, San Francisco, 1979.

Thompson, P., and Finkler, D., Interrelationships Among Five Cognitive Style Tests, Student Characteristics, and Achievement. Paper presented at the American Educational Research Association, San Francisco, 1979.
Correlational study describing relationships among the GEFT, Kolb LSI, Grasha-Reichmann SLSQ, ANSIE, and Mehrabian SST and educationally relevant student characteristics such as major and GPA. Only the GEFT shows consistent interpretable correlations across campuses and over semesters.

Finkler, D., and Welsh, D., A comparison of Instructional Methods Used in Colleges and Universities: 1954-1978. Paper presented at the American Educational Research Association, San Francisco, 1979.
Compares results of a 1978 faculty survey of instructional practices to results of a similar survey published by Umstattd in 1954. Documents continued dominance of traditional teaching methods and increased range of faculty teaching repertoires including the more innovative individualized and experiential modes of instruction.

Finkler, D., Walker, S., Welch, D., and Thompson, P., Instructional Methodology in Higher Education: A Survey of the Student Experience. Submitted to the American Educational Research Association, Boston, 1980.
Results of a 1978 survey of student instructional experiences are presented. Documents similarities in instructional exposure across five schools and six major areas of study, student desire for increased breadth of instructional exposure, and provides a baseline for comparision to future studies of the impact on instruction of the student consumer and faculty development movements.

Finkler, D., and Welch, D., Changes in College and University Instructional Practices, 1954-1979. Presented at the Fifth International Conference on Improving University Teaching, London, 1979. Text published in full and available from I.U.T., the University of Maryland.

Finkler, D., Helping Students Become More Sophisticated Consumers of Their Own Own Education. I.U.T., London, 1979.
Presents an evaluation of student outcomes in the course in Learning Analysis showing that students became more knowledgeable and analytic about their own learning styles and learning reactions in a variety of academic contexts.

REVIEWED PAPERS (CONTINUED)

Trani, E., The Nebraska Experiment. Presented at the Annual Meeting of the American Association for Higher Education, Chicago, 1978. Describes the Nebraska Project, published in 1978 by the American Association for Higher Education.

WORKSHOPS

Finkler, D., Instruments for Instructional Evaluation: A Critical Review. Presented to the NETCHE TLC Coordinators, 1978.
Review and demonstration of major teacher performance rating scales.
Introduction of the SLS as an alternative approach to instructional evaluation.

Finkler, D., Coping Strategies Between Learning Styles and Learning Environments. The National Conference on Student Choices, Omaha, 1979. Tape and text available from NETCHE, Lincoln, Nebraska.
Presentation of twelve categories of "coping" strategies for optimizing cognitive style match-mismatch situations. The categories were developed by the LA coordinators and the project evaluator.

There were various other presentations by Dr. Trani and Dr. Finkler to faculty groups both at colleges and universities in Nebraska and at institutions in other states in which they described the Nebraska Project.

HELPING STUDENTS BECOME MORE SOPHISTICATED CONSUMERS OF THEIR OWN EDUCATION

The University of Nebraska

Evaluation Reports

1. Learning Analysis: Consumerism in the Classroom
2. The Student Learning Scales
3. The Instructional Methods Survey

LEARNING ANALYSIS: CONSUMERISM IN THE CLASSROOM

Student consumerism is a new theme in higher education today. Efforts to serve all students, especially the nontraditional students who have previously been underrepresented in higher education, have focused on improving access to colleges and universities and facilitating matches between student goals and institutional offerings. Efforts such as National Project I: Better Information for Student Choice, various brokering programs, and the Educational Amendments of 1976 which require institutional disclosure on such items as instructional programs, financial assistance, student retention and employment prospects, are examples of this new focus on the student as consumer (Stark, 1976).

The course in Learning Analysis (LA) brings consumerism into the classroom in an attempt to go beyond the institutional focus of most consumer efforts, in order to help students themselves optimize their learning experiences. As lifelong learning becomes a larger part of American education, it becomes increasingly important that adults be able to make informed choices of and adaptations to the variety of learning alternatives available. In Nebraska, for instance, it is possible to earn academic credit at the college level through participation in lecture-discussion courses at traditional four-year institutions, by completing individualized mastery programs at a two-year college, by correspondence through the University Continuing Education Division, by passing CLEP or course challenge examinations, or by completing open-air televison courses offered by the University of Mid America.. Choices of majors reflect similarly wide ranges. Non-academic learning opportunities are also offered by a variety of agencies and industries in an even greater variety of settings. Even if access to and information describing

such choices were readily available, how can the learner choose appropriately among the alternatives? Research has shown that there is no single optimal way to teach each subject to every learner. Optimal learning experiences vary as a function of student goals, aptitudes, learning style, and background, and interact with subject matter and instructional characteristics (Cross, 1976). If a student is aware of the influence of these factors on his or her learning reactions, then more informed choices and adaptations may be made. LA represents a significant first effort to help students become more sophisticated consumers of their own lifelong education by becoming more knowledgeable and analytic about teaching and learning alternatives, their reactions to these alternatives, and the reasons for their reactions.

LA's emphasis on the development of student knowledge and skills for choosing and adapting to various instructional alternatives parallels in many ways the instructional emphasis of most faculty development programs. Both types of programs have emerged in this decade from a renewed emphasis on the importance of quality undergraduate education. Both are concerned with developing participant consciousness about their contribution to improving the teaching or learning process. Both are concerned with development of learning alternatives--flexibility and growth of faculty teaching repertoires and student skill in choosing among and using these alternatives productively. Both recognize that the needs of individuals vary across persons and courses and that the parameters of the teaching-learning experience can be modified to meet these needs. Most importantly, both types of programs represent efforts to share current theoretical perspectives and empirical knowledge about the teaching learning process with those who are most intimately involved in teaching and learning. In doing so, they create access to a common vocabulary for teachers and students and begin to legitimize the

validity of discourse by the participants about the activities in which they are involved together.

This bridging of the communication gap between faculty and students may be the most important element in efforts to improve education. Faculty have not been trained to teach as they have been trained to be scholars. Nor are students expert in assessing their own learning needs simply by virture of having been students. As instructional development programs serve the need for faculty training, LA has attempted to help students become more knowledgeable and analytic about their own learning needs. LA has also provided a model of an environment in which faculty and student discussion of the teaching-learning process is not only legitimate but also valued by the participants.

K. Patricia Cross, project author, identified the following four goals of LA: (a) to give students experience with alternative teaching strategies and disciplines, (b) to help students become more knowledgeable and analytical about their own learning reactions, (c) to provide successful and innovative teaching faculty the opportunity to interact with colleagues from other disciplines having different teaching styles, and (d) to provide campus demonstration laboratories where faculty can see various teaching techniques demonstrated. The achievement of each of these goals is discussed in sequence in this chapter following the course description and developmental history of LA.

Course Description and Developmental History

LA is a freshman-level one-semester course. It includes an introductory unit (two weeks) on the general principles of human learning, teaching methods included

in LA, and cognitive style during which students explore their own and their peer's learning style preferences by taking and discussing a set of cognitive style measures (e.g. the Group Embedded Figures Test, a measure of field independence; Adult Novicki-Strickland Internal-External Scale, a measure of locus of control; Kolb Learning Styles Inventory, etc.). The measures used were chosen based on their research histories, educational implications, and ease of use in the classroom. The introductory unit is followed by three or four instructional units (each 3 to 4 weeks long) which vary in content and instructional method, during which students are responsible for learning the material presented and periodically discuss their learning reactions with the presenting instructor and the course coordinator. A brief (1 week) summary unit in which students and faculty discuss strategies for optimizing their own learning reactions in a variety of academic contexts concludes the course.

A diverse group of private and public, large and small, colleges and universities noted for their interest in student and faculty development were involved in in the teaching of LA. They are Chadron State College, the College of Saint Mary, Doane College, Kearney State College, the University Nebraska-Lincoln, and the University of Nebraska at Omaha. LA was first offered in the Spring of 1977 at UNO and then sequentially at the other institutions. During the five semesters in which LA was taught, 885 students enrolled in the course.

LA is taught by campus teams consisting of a Coordinator who teaches the introductory and summary units and three or four faculty from different disciplines using a variety of instructional methods. The members of the LA teams were chosen by local campus selection committees on the basis of their reputation for teaching excellence and the diversity of disciplines and instructional methods they would bring to LA. Table 1 presents the enrollment history, campus sequence, disciplines and methods used in LA at the participating institutions. The members of each LA team were given three semester hours of release

time to prepare for LA during a planning semester or summer term prior to teaching LA. Salary expenses for the planning semester were covered by the F.I.P.S.E. grant. Costs for faculty salaries for the two to five semesters during which LA was taught were part of the institutional committment which each campus made to the project.

TABLE I

LA ENROLLMENT HISTORY, DISCIPLINES, AND TEACHING METHODS

Project Semester

CAMPUS	1 Fall '76	2 Spring '77	3 Fall '77	4 Spring '78	5 Fall '78	6 Spring '79	TOTAL
UNO	*	122	139	84	117	85	547
UN-L	-	*	86	39	33	19	177
KSC	-	-	*	12	17	12	41
CSC	-	-	*	32	19	8	59
Doane	-	-	-	*	16	19	35
St. Mary	-	-	-	*	26	-	26
		122	225	167	228	143	885

* Planning Semester

CAMPUS	DISCIPLINE	**TEACHING METHOD
UNO	Speech	Experiential
	Physics	Lecture-Demon.
	Math	Peer Discovery
	Short Story	Open Classroom
UN-L	Pyschology	Keller Plan
	Folklore	Lecture as Performance
	Speech	Gaming/Simulation
	Geography	Experiential
KSC	Business	Computer Simulation
	Crim. Justice	Lecture-Disc
	Adult Ed.	Instr. Design
	Speech	Interactive-Experiential

CAMPUS	DISCIPLINE	**TEACHING METHOD
CSC	Short Story	Lecture
	Budgeting or Insurance	Simulation
	Insulation	Experiential-Discovery
	Science or Pollution	Keller Plan
DOANE	History	Role Play
	Holocaust	Mediated Instr.
	Math	Inquiry
ST. MARY	Chemistry	Prob. Slvg.
	El. Ed	Open Classroom
	Pos. Reinf.	Participatory Lrng.
	Nursing	Lecture-Demon.

Early efforts at student recruitment for LA focused on attracting entering freshmen by using brochures mailed to new students, presentations during orientation programs, contact with freshmen advisors, and presence of LA faculty during registration. These efforts were successful in attracting large numbers of students to the course but were considered unusual by the faculty and gradually withdrawn, letting LA attract students by the usual word-of-mouth procedures. Enrollment eventually stabilized on four campuses. A particular problem in maintaining enrollment was that LA was an elective and counted for breadth requirements needed for graduation only at one campus. Three-quarters or more of the students enrolled have been freshmen and nearly half have not declared their major. Those who have a major came from a variety of disciplines. Faculty perceptions suggest that at the university campuses, students enrolled in the early semesters were not motivated to perform and were seeking an easy course. Attendance records, classroom attention patterns, and fail rates support this perception. In later semesters, however, enrollment decreased but more motivated, higher achieving students have been enrolling and the early problems were no longer present. At two of the smaller campuses, LA faculty believed that the course attracted poorer students than did other freshmen courses.

There were numerous problems involved with coordinating LA across campuses. The original grant proposal anticipated participation by five schools. Difficulty in choosing among institutions interested in participating led the Project Director to request funding for seven instead of five schools, which was granted. One private university requested omission from the project, however, when several changes in their administrative staff occurred. The new administrators felt over-extended and unable to meet the prior commitment to the project. Thus, the six schools listed above participated in teaching LA. There were additional bureaucratic or administrative difficulties at several of these schools. Delay in

receiving course approval for LA at one campus caused a change in the campus sequence. A change in administrative staff led to confusion about the length of campus commitment to LA at another campus which fortunately was concluded satisfactorily for the continuance of LA. At a third campus, the registrar changed the course scheduling procedure just prior to registration which caused many student enrollment conflicts with LA and, subsequently, a drop in enrollment sufficient to cancel the course. At two schools, some department chairs did not understand that LA was to be part of their faculty members' regular course load without reimbursement beyond the planning semester. This type of confusion was also resolved satisfactorily by either rescheduling courses or permitting temporary overloads. Lastly, LA course approval varied across campuses from immediate acceptance carrying social science credit to temporary elective approval for some departments.

The problems involved in coordinating LA across six campuses were, thus, of two types--communication gaps caused by changes in administrative staff or reluctance by faculty curriculum committees to grant full approval to an experimental course whose disciplinary content cut across several departments or colleges. Some faculty on these committees were uncomfortable granting college credit to a course whose common focus was the student as a learner as contrasted, for example, with other interdisciplinary courses where the common focus was a content theme. We see this type of difficulty as evidence that some faculty maintain a disciplinary orientation antagonistic to experimentation in higher education and to the sharing of responsibility for teaching-learning outcomes with other faculty and with the students themselves. Indeed, we were occasionally told that LA was seen by faculty as a remedial course or as a counseling activity and that, as such, it did not belong in a college catalog. These misperceptions

seem to be typical of many experimental programs, especially those which are interdisciplinary and/or focus on student development.

An additional type of problem associated with multi-campus programs should be identified here, that of facilitating communication across campuses and with the project staff. Identification of the program elements which were helpful and/or disruptive for experienced LA teams and communication of this information to the new LA teams was important. Here, the goal of accomodation to the rapid project schedules and the geographical dispersion of the campuses was accomplished by frequent campus meetings and phone conversations between the project evaluator and the Coordinator of the current planning team. Also, an intensive formative evaluation including data from attendance at planning meetings, class observations, interaction analyses, faculty and student interviews, review of planning and course documents (minutes, outlines, etc.), and student grades, exams, and cognitive style profiles was conducted for each of the first two LA teams with frequent coordinator-evaluator discussion. A written evaluation report was given to each team. The first LA team permitted their report to be shared with other teams to help them anticipate their own LA experience. The first two LA teams held a day retreat or several meetings to discuss the report, their own reactions to a semester of LA, and to plan for their remaining semesters of LA. Less intensive formative evaluations were conducted for the benefit of the remaining four teams, using formal and informal meetings with the evaluator, coordinators, and faculty members to discuss the results. As we acquired experience with LA, we were able to anticipate the nature of the team experiences and problems they would face. Some of these experiences were shared in an early meeting of all LA faculty held after the first two campuses had begun teaching LA. Others were shared in several coordinators meetings held at various locations in the state. LA team members, thus, had several opportunities to meet.

Names were distributed in writing to all LA teams and they were encouraged by the staff to consult with each other directly. In addition, responsibility for data gathering shifted during the course of the project from the evaluator to the Coordinators and more reliance on written communication was made as more teams began teaching LA and the project moved into a summative as compared to a formative mode of evaluation.

Several problems were shared by all LA teams--difficulties in scheduling five faculty for the same class hour to teach LA, especially at the university campuses where multiple sections were offered, a need to restructure LA as described in the project proposal in order to develop more continuity for the student learning experience, a need perceived by the majority of LA faculty to focus more on the student learning experience and accept less time spent on disciplinary content, and a need to facilitate communication among team members. Common elements in the solutions of these problems involved introducing all the LA faculty to the students during the introductory unit, the presence of the Coordinator or other faculty as participants and/or discussants during the content units, the development of a summary unit in which, optimally, all faculty participated, the involvement of the faculty in more discussion with students of their learning experience during the instructional units, and frequent team meetings during the planning and first teaching semesters. Additionally, some LA teams implemented student journals with faculty feedback, several individual conferences with students throughout the semester, or unit evaluations as ways of focusing on student experiences and facilitating continuity.

MEETING THE GOALS OF LA:

(A) GOAL: To Give Students Experience with Alternative Teaching Strategies and Disciplines.

This objective was fully met. Table I presents a list of the disciplines and teaching strategies presented in LA at the six participating institutions. They range from physics to short story and peer discovery to Keller Plan. Futhermore, student responses to a course evaluation questionnaire administered on all campuses during the last two semesters of LA substantiated the fact that LA was presenting teaching strategies, which, with the exception of lecture, were new to many students. Students also reported whether their interest in taking courses in the disciplines presented in LA increased or decreased. Depending on the unit, 0 to 60% reported increased and 4 to 67% reported decreased interest. Twice as many students, however, reported increased as reported decreased interests, an unexpected benefit of their exposure to alternative disciplines.

(B) GOAL: To Help Students Become More Knowledgeable and Analytical about Their Own Learning Reactions.

Procedures for evaluating and grading students in LA were determined separately by each campus team. They are quite variable and cannot therefore be used as a basis for evaluating student outcomes in LA. Accordingly, the six Coordinators and the project evaluator developed a common plan for evaluating student outcomes which was implemented in the fall semester, 1978. Results from the two semesters during which this evaluation was conducted are included here.

In interpreting the goal of helping students become better consumers of their own education by being more knowledgeable and analytical about their own learning reactions, the coordinators agreed upon the following objectives as indices of this goal: the students' being able to assess their own learning style(s), being able to identify the major characteristics of preferred and non-preferred learning contexts for persons with different cognitive style profiles and being able to assess the effectiveness of their own learning styles in different contexts. It was decided that these objectives could be evaluated by asking students to identify their own learning styles, to identify and explain learning context preferences for several polarized examples of persons and contexts, and to identify and explain their own preferences among LA units. A final examination which included these tasks was written and used by LA classes.

The Coordinators were also interested in exploring the students' skills in planning optimal "matches" or "coping" strategies for adapting to "mismatches" between student learning style, subject matter, and teaching-learning environment. They felt, however, that such skills went beyond the immediate objectives of LA and that it was unreasonable to evaluate individual students on these skills because little is known about them. While specific adaptations can be suggested for a particular individual in a particular learning situation, there is no articulated set of principles for generating such strategies. Accordingly, it was decided to ask students to explain their LA unit preferences and to suggest strategies for dealing with least preferred units, and to perform a content analysis of these responses in order to document the kinds of strategies suggested. The Coordinators also discussed the topic and generated a list of twelve categories of strategies included later in this chapter. A common course evaluation form specific to the goals of LA was also used and the results included here as additional indicators of student outcomes in LA.

Five schools completed the final examination and course evaluation during the Fall semester of 1978 and four schools completed them during the Spring semester of 1979. Results for each campus were essentially similar so only the aggregated results for each semester are presented here.

Table 2 presents the questions, scoring procedures, and results of the final examinations. NS vary over items because campuses used different measures of cognitive style (item #1) or because of omissions by individual students. Reliabilities in scoring small random samples of exams averaged 86% agreement for the Fall, 1978 and 88% agreement for the Spring, 1979 responses, including content analyses of explanations given for responses.

FINAL EXAMINATION IN LEARNING ANALYSIS

(a) Based on your test scores in LA, how would you characterize yourself on the following measures of cognitive style? Place a check mark on the line best representing your own style for each measure. e.g. Group Embedded Figures Test.

Field Dependent — Somewhat FD — Neither FD nor FI — Somewhat FI — Field Independe

% of Students

Results: Measure	Score* =	Fall, 1978 Opts.	1/2 pt.	1 pt.	N	Spring, 1979 Opts.	1/2 pt.	1 pt.	N
GEFT		11	25	64	141	14	27	58	83
ANSIE		20	20	60	121	24	44	32	72
KOLB (CE-AC)		25	25	50	134	19	34	47	83
(AC-RO)		29	14	57	136	25	28	47	83
Style		38	2	60	123	25	16	59	83

* 1 point= accurate self-appraisal, 1/2 point - test score and self-appraisal in same direction but one is more extreme than the other.

(b) Based on your experiences in LA and elsewhere, do you think that your cognitive style test scores accurately describe you as a learner?

Fall, 1978	Yes	42%	Somewhat	55%	No	3%	N=154
Spring, 1979	Yes	29%	Somewhat	66%	No	5%	N= 83

(a) In the next paragraphs you will be introduced to Janet and Tom, college students at Optimal U., and to some courses which they are considering taking Carefully consider the information presented and then answer the questions which follow: e.g. Janet is a freshman. She is a field-dependent thinker has a somewhat external locus of control, uses strong concrete experience and low reflective observation learning modes, and is a diverger. Tom.....

(a) Based on what you know about Janet and Tom, in what disciplines do you think each of them would enjoy majoring and be an effective learner. Li several choices if possible for each of them.

% of Students

Results	Score* =	Fall, 1978 Opts.	1/2 pt.	1 pt.	2 pts.	N	Spring, 1979 Opts.	1/2 pt.	1 pt.	2 pts.
Janet		12	13	11	64	157	15	30	14	41
Tom		17	21	14	55	157	13	22	12	53

** 2+ pts. = 2 or more appropriate responses, 1 pt. = 1 appropriate resonse, 1/2 pt. = 1 appropriate response among one or more inappropriate respor

(b) Given the following four course choices, which of them would Janet and Tom each prefer to take and which would each most dislike taking? Fill in the blank with the letter referring to the appropriate courses and explain your choice.

e.g. A: Large introductory art history lecture demonstration course. The instructor rarely allows time for student questions. He is enthusiatic about his subject matter and generally well-organized. Exams are primarily multiple-choice. Grades are given A through . based on the class distribution curve.

B: Self-paced chemistry laboratory.....

C: Independent study in psychology.....

D: Small group experiental course in speech-communication.....

% of Students

Results	Course Choice**	Fall, 1978 A	B	C	D	N	Spring, 1979 A	B	C	D	N
	Janet prefers:	29	8	14	49	168	45	15	6	33	85
	Janet dislikes:	21	45	25	9	168	21	35	31	12	85
	Tom prefers:	13	56	22	9	169	14	48	28	10	85
	Tom dislikes:	38	7	14	41	169	44	9	11	36	85

** B or D choices are optimal matches or mis-matches for method and content with cognitive style profile. A or C choices may be justified as a match to either content or method only.

Written rationale for appropriate choice:

% of Students

	Fall, 1978 Content	Method	C+M	Blank or Inappropriate	Cognitive Style Only	N	Spring, 1979 Content	Method	C+M	Blank or Inappropriate	Cognitive Style Only	N
Janet	9	55	18	17	0	148	2	51	21	24	1	84
Tom	8	49	26	17	0	148	0	53	29	17	1	83

3. (a) List the content area and teaching method of the instructional units you experienced in LA. Put a ✓ by the unit you most enjoyed and an X by the unit you most disliked. Explain why you enjoyed or disliked these units considering such things as you study behavior, the grading system, your cognitive style(s), and your preference for the content, teaching method, and instruction.

Fall, 1978, Frequencies

UNO Unit	P*	D*	UN-L Unit	P	D	Chadron Unit	P	D	Doane Unit	P	D	Saint Mary Unit	P	D
Speech	50	33	Psych.	7	16	Sh. Story	4	0	History	3	2	Fou. Reinf.	14	2
Physics	24	11	Folklore	9	6	Budgeting	2	0	Holocoust	7	0	Nursing	2	8
Math	14	23	Speech	7	5	Insulation	1	4	Math	3	8	El. Ed.	4	12
Sh. Story	8	45				Science	0	2				Chem.	6	4

Spring, 1979, Frequencies

UNO Unit	P	D	UN-L Unit	P	D	Chadron Unit	P	D	Kearney Unit	P	D
Speech	40	2	Psych	2	5	Sh. Story	3	1	Crim. Just.	1	1
Physics	16	7	Folklore	6	0	Insurance	0	1	Adult Ed.	2	1
Math	13	10	Speech	5	1	Insulation	0	2	Speech	1	1
Sh. Story	3	46	Geog.	1	8	Pollution	1	0	Business	1	2

Most Frequent Type of Rationale Given: Fall, 1978

Basis for Rationale	17 Preferred Units	15 Disliked Units	Total
Method	10	8	18
Content	6	7	13
Instructor and Content	1	0	1

Frequencies of Types of Rationales Given: Spring, 1979

Basis for Rationale	Preferred Units	Disliked Units	Total
Method	47	44	91
Content	12	5	17
Content and Method	16	13	29
Instructor	31	11	42
Unclear if content or method	3	6	9

(b) If you had to take a course similar to your most disliked unit, what could you do to make the experience better and improve your effectiveness as a learner? List as many strategies or behaviors as you can and explain why they would be helpful. (See text for results).

* = Prefers ** = Dislik

The results of the final examinations indicated that the majority of students were able to appraise their cognitive style accurately according to their test score profiles. Only 3% (Fall, 1978) or 5% (Spring, 1979) of the students reported that their profiles provided inaccurate assessments of their learning style; 42% (Fall) and 29% (Spring) reported their profiles as accurate; and 55% and 66% as somewhat accurate self-descriptions (See Table 2, item #1). The measures of cognitive style used in LA are those most researched and applied to educational settings but they are not, as a group, as well validated as more traditional psychometric instruments, thus, these numbers are not surprising. The students were also able to suggest appropriate majors and optimal course choices when given the cognitive style profiles of two hypothetical students, indicating that they understood the implications of cognitive style for matching discipline and learning environment preferences. The students' explanations of course choices were content analyzed and identified as relating primarily to the teaching method or learning environment, to the subject matter or content presented, or to both areas. The most salient dimension on which choices were based was method, the next most salient was a combination of method and content. Content alone was rarely referred to as the sole basis for course choices. (See Table 2, item #2). These results are encouraging because they suggest that the students may have come to feel capable of learning in any discipline if the appropriate teaching-learning environment is available. This possibility is enhanced by the students' appraisals of their own preferred and non-preferred LA units in which they do distinguish among units so that it is apparent that their emphasis on methods rather than content did not result from a lack of discrimination.

When students were asked to identify and explain their most and least preferred LA instructional unit, there was great variability of responses over units. They did not always prefer high or low structure methods or certain content

areas and were able to articulate well the reasons for their preferences. In general, characteristics of the teaching-learning environment related to teaching method were more salient for students than were characteristics of the subject matter or the instructor as a determinant of preferences. In the experiential speech unit, for example, the dominant reason given for preferring it was that the students enjoyed learning by interacting with others. Similarly, the dominant reason given for disliking the open classroom short story unit was that there was not sufficient structure provided. (See Table 2, item #3).

On the course evaluation, the great majority of students evaluated the course favorably (79%, Fall, 1978; 78%, Spring 1979), would recommend it to their friends (89%, 84%), found LA helped them to assess their own learning styles (84%, 80%), found LA helpful (23%, 23%) or somewhat helpful (61%, 65%) in developing coping strategies for non-preferred learning situtations, and found LA helpful (40%, 34%) or somewhat helpful (43%, 56%) in planning ways to optimize future learning experiences.

The results above indicate that LA was successful in achieving the course objectives. Students were able to identify their preferred cognitive learning style(s), to make appropriate choices of preferred courses and majors based on learning style profiles, and to identify and explain their own choice of preferred/non-preferred instructional units. Futhermore, students reported that they enjoyed their experience in LA, would recommend it to their friends, found it helpful in assessing their own learning style and somewhat helpful in planning optimal and adapting to future learning experiences.

Adaptation Strategies. Content analysis of suggestions offered by students describing adaptation strategies to their least preferred LA units identified five major categories of responses. The most frequent type of responses (81

of 262 suggestions in the Fall, 1978; 68 of 175 suggestions in the Spring, 1979) involved increased effort on the student's part such as increased studying, taping lectures and writing notes from the tapes, setting goals for a course or providing structure where needed, disciplining oneself to a study schedule, or asking more questions for clarification. The second most frequent type of response suggested seeking help, either from the instructor (33, Fall; 42, Spring) or from other students (27, Fall; 23, Spring). Such interpersonal suggestions might involve study groups or consultation. The third most frequent type of response (50, Fall; 20, Spring) involved generating a positive attitude and increased interest in the course. One of the less frequent categories of response involved minimizing involvement in the class situation (27, Fall; 10, Spring) such as by dropping the course, taking it as an independent study or doing one's work outside the class, or minimizing contact by working only during class, by avoiding class or by disassociating psychologically. The other infrequent response category involved specific efforts to change the instructor's behavior or the learning environment (24, Fall; 8, Spring) by requesting changes such as increased feedback, more specific objectives, or a less rapid pace. The student suggestions on how to cope with a mismatch situation demonstrate a strong sense of responsibility by the students for their own learning outcomes. It is not known if non-LA students would respond similarly. The most unique although infrequent responses were those which indicated direct attempts to change the learning environment. The student responses lacked, however, the creativity of the responses generated by the LA Coordinators when given a similar question (See Table 3). They are disappointing because they did not in general integrate knowledge of one's cognitive style with the type of adaptation made. The responses were not surprising, however, because this type of issue was difficult even for the LA Coordinators and little class

time was devoted to it. It is hoped that the categories of strategies generated by the Coordinators may serve to stimulate others exploring cognitive-learning styles and their educational implications into futher explorations of the kinds of adaptations which are possible. When presented at the National Conference on Educational Choices, this list of matching and adaptation strategies generated much discussion and copies of Table 3 had to be duplicated several times to supply the demand for it.

CATEGORIES OF ADAPTATION STATEGIES FOR "COPING" WITH MISMATCHES OR AVOIDING MISMATCHES BETWEEN STUDENT LEARNING STYLE AND LEARNING CONTEXT

1. Translators. Find a classmate who understands what is happening and what is expected of the students. Ask the translator to explain what is happening in class to you privately or ask publicly in class for explanations. Often, other students will volunteer explanations and identify themselves as able translators. Reciprocate by volunteering to translate in other classes.

2. Modalities. Seek other modes of obtaining content information which are more appropriate for you. Some modes allow self-pacing and repetition (reading, tapes), others present visual displays or demonstrations (lecture, video-tapes), or permit interaction (some computer-based programmed instruction, small study groups, tutors).

3. Libraries. (overlaps modalities to some extent) Seek alternate sources for obtaining information. Read for enrichment and elaboration. Seek texts or references which present material at a level, pace, or style appropriate for you. Use library sources to help you overcome deficiencies in background. Look for alternate types of presentations such as structured programmed instruction for the student who has difficulty providing structure or who prefers frequent feedback.

4. Provide Feedback to Instructors. Three ways of providing feedback to instructors are suggested. Two of them attempt to modify instructor behavior: (a) use environmental press (selective reinforcement) such as active participation, attention and eye contact to reinforce or modify instructor behaviors, (b) use confrontation to change instructor behavior such as by public discussion of the learning situation. Note that confrontation may be threatening or non-threatening in form (e.g., "I have difficulty learning without explicitly stated objectives. Can you provide these for me?). The third alternative seeks to change the learning situation for the student by negotiating an alternative. This approach may be private and individual or public and collective.

5. Compliance. "Grin-and-bear-it." Study more or study less and bear the consequences. Understand the situation as an unavoidable mismatch and endure it without loss to self-esteem.

6. Selection. Select learning environments, instructors, and disciplinary content to optimize your learning experiences. Involved here are information-seeking strategies, deciding what to ask of whom or where to find information and how to evaluate it. If you seek friends' advice about a course or instructor, try to get descriptions of what goes on because your friends' preferences may refelect a different learning style than your own. You can also try to obtain instructor exams or audit courses, or seek quality institutionally based information (class schedules which identify teaching methods) or academic advisors who are familiar with your learning style profile. Another form of selection is how to take courses. CLEP exams, and course challenges can be used to avoid courses or to minimize time spent on a course. Proposing independent study is another option occasionally available.

7. Exam-taking Skills. Develop skills by reviewing exams from exam files in the library, department, or from friends. Ask for early "no-count" exams to get information on the efficacy of your study skills. Write your own exam questions and share them with friends to see if you identify the same things as important.

8. Disaggregate and Restructure. Take apart a learning problem and put it togeter in a more familiar form. Examples might be listing the elements of chemistry problem and seeing if the elements relate to a previously learned formula or problem-solving strategy, or using the structure of a book or article (subtitles, chapter summary) to identify the main points and relationships to be learned. The opposite approach, "structure and then disaggregate" can also work, such as by trying to increase "meaningful reception" by identifying the most general (higher order) points and then those of lower order.

9. Scheduling. Take short-term intensive (summer courses, mini-cources) or spaced practice (several meetings per week) learning programs. If not possible, consider using massed or spaced practice study programs on your own to prepare for exams.

10. Use your Cognitive Style to Advantage. Use your learning strengths to generate strategies to overcome difficulties. The field-dependent person (socially oriented, holistic thinker) might develop "brainstorming" techniques to use when stuck on how to solve a problem, the field-dependent (analytic thinker. independent) might use scanning strategies to review a great deal of material potentially relevant to a problem. Both will have increased their resources for solving a problem, although in different ways. Similarly, the field-dependent student might seek out friends or tutors who can, through discussion, provide structure for courses which seem to require it (science) and the field-independent student might seek out texts with analytical approaches to material not always formally presented (small group dynamics).

11. Deliberately Modify your Cognitive Style. If this is possible, at least on a short-term basis, it may be helpful to develop some flexibility of style for different situations. Field independents may discover, for example, the benefits of coping with initial frustration and learning from others in small group situations, especially if they are impressed with the quality of the ideas gained from others or of the work which the group produces which the individual alone could not have done as well. Similarly, the field dependent may find it advantageous to develop scanning and organizational skills for accomplishing some tasks efficiently and independetly or to use programmed materials which impose structure on learning. Courses in structuring (study skills, outlining) are available.

12. Use People as Learning Resources. Translators are a type of human resource which might be included here. More traditional sources would be tutors or study groups of discussions with an instructor during office hours. This category is similar to Modalities or Libraries in that one seeks alternate [illegible] experts or peers on the same basis as one uses a text, course

When the responses to item #3 on the final examination (See Table 2) were tabulated for the Spring, 1979, data as a function of degree of student field dependence/independence, several interesting observations could be made. When explaining their rationale for choice of preferred and non-preferred instructional units, field dependent students referred to teaching method as frequently as did field independent students, but field dependents referred less often to both content and method than did field independents ($\bar{X}_{FD}$=.29, $\bar{X}_{FI}$=.47) and also less often to instructor characteristics ($\bar{X}_{FD}$=.25, $\bar{X}_{FI}$=.60). When suggesting strategies for coping with least preferred courses, field dependents offered a greater number of strategies than did field independents ($\bar{X}_{FD}$=2.66, $\bar{X}_{FI}$=2.11), primarily in domains involving changing the learning environment ($\bar{X}_{FD}$=.16, $\bar{X}_{FI}$=.02) and obtaining help from other people ($\bar{X}_{FD}$=1.0, $\bar{X}_{FI}$=.84), and fewer suggestions involving independent effort ($\bar{X}_{FD}$=.83, $\bar{X}_{FI}$=.95). While the data collected here are inadequate for statistical analysis of what is admittedly a post-hoc observation, they are consistent with our expectations about such students and suggest that future studies of student adaptations to non-preferred learning contexts may show that they vary as a function of field dependence/independence. Other investigators may find such explorations fruitful.

(C) GOAL: <u>To Provide Successful and Innovative Teaching Faculty the Opportunity to Interact with Colleagues form other Disciplines Having Different Teaching Styles</u>.

LA has been very successful in establishing and sustaining the opportunity for LA team members to interact through formal and informal discussion of LA related activities and through the opportunity for class visitation and participation. Some LA faculty on all of the six campuses have visited several of the other LA instructional units and all team members have shared information and ideas. about their teaching strategies, gaols, and grading philosophies during

planning and coordination meetings as well as at the meetings of all LA team members or at coordinators meetings. Turnover among LA faculty has been low. Only five of the twenty-five faculty involved were replaced during the three years of the grant. Most of these replacements occurred when faculty left a campus to go elsewhere.

Their LA experience has had considerable impact on the involved faculty primarily in two areas. Although the team members have learned about each other's teaching strategies, their principal growth has been in appreciation of each other's values regarding what is important to learn and how it may best be learned. The openness, honesty, and mutual respect which has emerged among members of disciplines who would otherwise have had little contact has been encouraging. Similarly, their appreciation for the difficulty of freshmen transitions to college and for student's values as compared to the traditional academic values, has led them to an increased focus on students as individual learners. This emphasis on individual or student-centered, as contrasted with disciplinary-centered, learning was reflected in LA as team members accomodated to the student's needs to integrate the principle themes of LA over the content units and time spent covering content was yielded to discussion with the students of their learning reactions.

The Coordinator's evaluations of the team's LA experiences emphasized two positive aspects similar to those above. First, the opportunity to participate in a real team effort in which activities were planned to be integrated by all participants rather than the more typical team-taught effort in which all participants are assigned blocks of time only loosely coordinated, and second, the mutual reinforcement for focusing on individual differences among students which, for some faculty, had been previously ignored or for which colleagial reinforcement had been missing.

The Coordinators also expressed the following concerns as a result of their LA experience: that the administrative and scheduling aspects of LA were very bothersome and occasionally lacking administrative support; that their personal commitment to concern for individual differences in learning is not broadly shared by colleagues; that the instruments available for assessing individual differences in cognitive style are only weakly, if at all, related to achievement; that their own concern for improvement of instruction is not shared by many other faculty or that faculty preceptions of "good teaching" vary so widely that only the most general of efforts are possible; and that administrative support for efforts at improving the quality of undergraduate teaching and learning is weak. Lack of faculty interest in using LA as a resource for teaching improvement was cited as an example of the kind of apparent apathy they perceived in their colleagues.

(D) GOAL: <u>To Provide Campus Demonstration Laboratories Where Faculty Can See Various Techniques Demonstrated</u>.

This aspect of LA was a complete failure. Despite numerous efforts by LA faculty to involve their colleagues as observers or participants in specific LA units, none participated as learners and most who participated as occasional observers were themselves LA faculty. LA team efforts to involve other faculty included presentations to the faculty, newsletters, and personal invitations. LA faculty participation varied across campuses and was most frequent on the smaller, more student-centered campuses and less frequent on the larger campuses. This failure of LA to attract faculty parallels the results of several other efforts by local campus Teaching-Learning Centers to establish demonstration classrooms. Three obvious reasons for the failure may be cited. One concerns the existing taboo about entering another professor's classroom and the perceived

threat of implied reciprocity when doing so. The second is the oft-cited busy schedules of college professors. The third refers to lack of faculty effort to expand their teaching repertories when few apparent extrinsic rewards are available for doing so.

SUMMARY: LOOKING AHEAD

The course in Learning Analysis was successful in helping students gain experience with a variety of disciplines and teaching methods. Students became aware of their learning style preferences in a variety of academic contexts and of how these preferences are related to their learning style and characteristics of the instructional method used and subject matter presented; thus achieving the objectives of the project. LA students are not, however, very sophisticated with respect to using this information for optimizing future learning experiences and they reported honestly that they course was only somewhat helpful to him in doing so. They are willing to take responsibility for their own outcomes, to work hard, and to seek help from instructors and peers. They cannot be faulted, however, for lacking skills in generating adaptation strategies which have not been articulated even in the research literature. We do not know for example, what the outcomes of "capitalization, compensatory, remedial, or challenge" (Messick, 1974) matches between learning style and teaching style or subject might be. The categories of strategies provided by the LA Coordinators which might be used to generate such matches provide some suggestions on how we might help students explore these possibilities. The ultimate outcome of courses like LA depends, of course, on how students use their knowledge to analyze future learning experiences, to learn from their experience as learners.

The format used here for teaching LA is probably too expensive to endure without external support. The most likely alternative formats appear to be

(1) one-semester hour courses similar to the introductory unit of LA using the students' other courses as the experiential component, (2) integration of LA material into existing courses such as introductory education or psychology, (3) mini-courses based on LA instructional units, and (4) integration of LA material into orientation or academic counseling programs.

Some derivative of LA can already be seen. LA will be taught as a two-semester hour non-team-taught course for education or general education credit at the College of Saint Mary this fall. One or two of the content units will become mini-courses at the same campus. The one-hour course format may be taught by the Teaching-Learning Center as one of several student skill development courses at Kearney State College. Two faculty at Doane College are involved in special projects, a team-taught course and an internship, as a result of their LA experience. A faculty member at UNO designed an instructional development program for new faculty and graduate assistants using the format of LA.

Perhaps the most important derivative of LA unit, which is readilty shared is a LA manual which is in preparation by two of the LA Coordinators, Drs. Royce Ronning from UN-L and Barbara Manning from UNO. The LA manual is designed to be self-instructional and is written in a conversational and occasionally humorous style designed to appeal to lower division students. It can be used as the text for a course, as an outline for a counseling program, or as the basis for academic explorations by an individual student.

REFERENCES

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Messick, S., In Cross above, page 127

Stark, J., Promoting Consumer Protection for Students, New Directions for Higher Education, No. 13, 1976, Jossey-Bass

SPIN-OFFS

"Secondary Analysis of the Faculty and Student Instructional Methods Surveys"
Proposed Masters thesis by Mike McGee (UNO) reanalyzing the IMS with data from six schools and posing some new questions.

"Instructional Methods Survey, the View from the Two Year College"
Proposed Ph.D dissertation by Patricia Thompson (UN-L) extending the IMS to two year colleges where greater proportions of non-traditional students are enrolled than in the schools in the original sample.

Ronning, R., and Manning, B., Manual for Learning Analysis (In preparation)
Self-instructional guide to the material of LA. Useful as a text for one-to-three-credit hour courses, a guide for orientation or academic counseling programs, or as a self-instructed course of study.

LEARNING ANALYSIS:

THE UNO EXPERIENCE, SEMESTER 1

Preface: Purpose of the Report

This report has been written during the formative stage of the F.I.P.S.E. project "Helping Students become More Sophisticated Consumers of Their Own Education." It focuses upon the course in Learning Analysis as it was first presented at the University of Nebraska at Omaha and is intended to provide information which will help guide the course designers at UNO and on other campuses associated with the project. As a formative appraisal, the report's distribution is limited to the Project Director, Consultants, Evaluator, and the UNO Coordinator and Teacher-Demonstrators, with the exception of Section III D which may be shared with other campus project teams.

This report was prepared by myself with the assistance of Pat Thompson, Graduate Assistant on the project, and the helpful cooperation of the UNO faculty and students involved in L.A. 100. Where opinions are expressed, they represent a synthesis of data, interviews, and observations for which I alone am responsible.

D. Finkler

Preface: Purpose of the Report

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I. Introduction

A. Brief Description of the Project

In the summer of 1976, the University of Nebraska received a three-year grant from the Fund for the Improvement of Post-Secondary Education, U.S. Department of H.E.W., to fund the project titled "Helping Students Become More Sophisticated Consumers of Their Own Education". As originated by Dr. K. Patricia Cross (Senior Research Psychologist, E.T.S.) while a Visiting Professor at the University of Nebraska, the project was to have four components--a course in Learning Analysis (L.A.), Student Learning Scales, a national conference, and revision of the University of Nebraska undergraduate schedules to identify the teaching method used in each course. Only the first three components above were funded by F.I.P.S.E. The project was to involve four universities and colleges but recently increased funding by F.I.P.S.E. allows its expansion to seven Nebraska universities and colleges.

Originally planned for initiation on the Lincoln campus of the University of Nebraska but simultaneously presented for faculty approval during the summer of 1976 on both the Lincoln and Omaha campuses of the University, the course in L.A. was readily approved at UNO and only recently given approval at UN-L. The source of the project proposal and its identification with the Central Administration of the University posed complex political problems which hindered its ready acceptance at UN-L. The Project Director should be recognized here for his fine interpersonal skills and patience during what was a difficult period at UN-L vis à vis the issues of allocating resources to improve instruction and of faculty and campus autonomy. The leadership of Dean Newton, College of Arts and Sciences, and the relatively high degree of interest in and activity

involving innovative and improved teaching by the UNO faculty facilitated L.A. course acceptance on the Omaha campus. Accordingly, permission was requested from F.I.P.S.E. and granted to allow UNO to proceed with L.A. as the initiating school, the other six campuses to follow in sequence over the three year period.

The course in Learning Analysis was approved as a credit/no credit elective offered by the College of Arts and Sciences. It was listed in the course schedule as L.A. 100, a freshman level course.

B. Administrative Structure and Procedures: Implementation

The central staff of this seven school project consists of the Project Director (1/2 time), Evaluator (3/4 time) and graduate assistant (1/2 time), with secretarial services provided by the Central Administration. Clerical tasks are facilitated at UNO by the College of Arts and Sciences and Department of Psychology secretaries on an occasional basis. The Project Director was named in the original proposal and took responsibility for the project during the summer. The graduate assistant began in September, 1976 and, after a rigorous search procedure was conducted, the Evaluator joined the project in November, 1976. Responsibility for advising the Project Director in his choice of Coordinator and Teacher-Demonstrators at UNO was taken by the Dean of the College of Arts and Sciences who assigned Assistant Dean Buchalter and a representative group of faculty to the task. Their efforts in soliciting nominations, requesting applicants, and interviewing candidates were conducted in consultation with the Project Director and were both thorough and efficient.

Criteria developed by the advisory group for choosing the UNO Teacher-Demonstrators and Coordinator included diversity of both teaching style and discipline as well as the previously established criteria of teaching excellence and interpersonal cooperation. The faculty advisory group

took great pains to acquaint themselves with the options (discipline, teaching style) available and with each faculty member who was nominated. It is in large part the result of their efforts and their visibility that the L.A. course has been seen by faculty at UNO as an effort of the UNO faculty and not resented as imposed from without. Ownership of the project at UNO is clearly local, although as the project extends to other campuses, interteam efforts should be directed at establishing a larger, shared perspective among the participating schools.

A less desirable outcome of the shared local responsibility for establishing the L.A. course at UNO was a failure to communicate all aspects of the financial support available and departmental and faculty obligations to L.A. course support. Part of this communication failure seems to have resulted from the rapid time frame within which the team had to be chosen and their schedules rearranged to make participation possible. Another element concerns the fact that negotiations to free the five team members occurred during the summer months among two deans, five department chairpersons, and five faculty. Well into the planning semester, it became clear that at least two chairmen and two faculty did not realize that the project funded faculty release time only during the planning period and that local units were responsible for faculty release time to L.A. thereafter. It would be helpful to future teams if a local person is made responsible for coordinating all negotiations and provided guidelines by the Project Director. Packets including either the entire project proposal or summaries (such as "The Course in Learning Analysis") of the project including a statement of departmental and faculty responsibilities should be provided by the Project Director or local representative for distribution to all applicants and their department chairpersons.

Other aspects of course implementation--team structure, the planning semester, soliciting course enrollment, etc., are described below in Section II as more pertinent to course development than to administrative structure.

Other aspects of structure which ought be mentioned are that each of the central staff and team members had never worked together before and that the project proposal left many aspects of their roles undefined and open to development. While the opportunity to shape a project may benefit from some structural ambiguity, the Evaluator and UNO Coordinator have both expressed concern about their responsibilities, the former with respect to her role in consulting with the local team and the latter with respect to responsibility for acquiring materials and for advertising the course to promote enrollment. Team members have also expressed ambiguity concerning both these roles although they said that the persons filling them were accessible and helpful. It is unclear, for example, whether the local coordinator is to be a directive leader and/or a team member. While role definitions may vary over campuses, they should either be clarified by the Project Director before teams are chosen or negotiated explicitly as the team is chosen or early in the planning period.

C. Evaluation Procedures

The information on which this report is based derives from numerous sources. They are listed below:

(1) Observation of and notes taken at the UNO weekly team meetings during the planning stage and at the occasional meetings during the first semester of L.A.

(2) Conversations with each of the individual team members conducted informally during the planning stage and two formal semi-structured

interviews conducted with each team member during the first semester of L.A., the first at about five weeks into the course and the second during the fourteenth week of the course.

(3) Observations from occasional attendance in L.A. and from video tapes of all sections taken at the end of the first or beginning of the second content unit. The video tapes were 20 minute class segments begun after the first ten minutes of class. Interaction analyses of the tapes were prepared by the UNO Office for the Improvement of Instruction. Tapes and I.A.'s were shared with the teaching team about half-way through the course. Videotapes of the fourth content unit were also taken but the I.A.'s are not completed yet and thus not available for use in this report.

(4) Student data collected during the course includes the Student Report Form, Preferred Learning Experience Essays and Content Area Preferences, Cognitive Styles, Achievement scores in content units, student journals and faculty ratings of and comments on the journals, final exams, course grade (CR/NC) and A.C.T. data. The A.C.T. data were available for 59 of the 116 students enrolled. A report on the A.C.T. data was prepared and shared with the team members about two-thirds of the way into the course.

(5) Personal semi-structured interviews with 21 volunteer students from all L.A. sections, 15 conducted face-to-face by the Evaluator and 6 conducted by telephone by the graduate assistant. These interviews were conducted during the first two weeks of the last content unit. A summary of the results is in the appendix.

(6) Course evaluations designed by the Coordinator and tabulated by the Evaluator. These evaluations were given during the final. A summary

tabulation by section and overall sections, as well as the original student responses, were shared with the teaching team at an informal meeting to prepare semester grades.

Copies of all interview schedules and data collection forms were given to each member of the teaching team in case any of them wished specific data or summaries prepared for their own use. Only one request, for follow-up information on content area preferences, was received. The Coordinator included this information in the course evaluation form.

Written protocols were recorded during the student interviews and second faculty interviews. Summaries of these protocols were prepared by the graduate assistant to help avoid bias by the Evaluator. These summaries are available upon request.

The evaluation presented in Section II and summarized in Section III is an integration by the Evaluator of all the above sources of data. A formal technical report seems inappropriate for use at the formative stage of the project although all data and data summaries are available upon request. Also, the two week interval between the end of the course and the team meeting precludes preparing a very elaborate technical report. Recommendations offered are a compilation of suggestions brought forth by students in L.A., the UNO Coordinator and Teacher-Demonstrators, and the Evaluator. <u>They are intended only as suggestions for discussion by the teaching team</u>. Questions of appropriateness, feasibility, and probable outcome are most reasonably considered by those who are directly responsible for the course in Learning Analysis on their own campus.

II. The Course in Learning Analysis

A. The Teaching Team consists of the Coordinator and Teacher-Demonstrators chosen to represent diverse disciplines and teaching styles so that the L.A. course would not be identified as, for example, "a science course" or "a discussion course." The Coordinator is Professor Barbara Manning, an educational psychologist who uses a traditional lecture-discussion teaching style. The Teacher-Demonstrators, their disciplines, content taught in L.A. and teaching styles are as follows: Professors Paul Ackerson, Secondary Education, mathematics using the discovery method; David Nicklin, English, short story using the open classroom; Donald Shult, Physics, the physics of sound using lecture-demonstration; and John Wanzenried, Speech/Communication, the concept of feedback using the experiential method.

All members of the team were chosen for their content and teaching style expertise as well as for their recognized personal qualities as a teacher. Section E.3. below documents, for example, their positive quality of establishing rapport with students.

None of these faculty members had ever worked together on a teaching development project although the majority have had some experience with such projects elsewhere. They brought diverse values and perspectives to the project and an openness to developing a shared perspective. This shared perspective is, however, just now beginning to emerge as a result of the actual L.A. experience and is discussed below, especially in Parts C, E, H and Section III.

B. The Goals of L.A. are described in the project proposal and descriptive summary as (1) to give students experience with alternate teaching strategies, (2) to help students become more knowledgeable and analytical about their own learning reacitons, (3) to provide successful and

innovative teaching faculty the opportunity to interact with colleagues from other disciplines having different teaching styles, and (4) to provide a campus demonstration laboratory for faculty interested in expanding their teaching repetoires. These goals were all known and accepted by the teaching team before the planning semester. It was their task to operationalize and implement them, with the guidance of the proposal, Project Director, and Evaluator. The discussion below describes that process.

C. The Planning Semester began several weeks after classes had started when the team began a series of weekly meetings. Early sessions were spent on mechanical problems such as finding suitable classrooms and establishing a unit sequence (see Table 1). Dr. Manning took responsibility for these administrative tasks after discussion with the team. She became the administrative staff to and member of the team rather than its directive leader. This role for the Coordinator emerged after several meetings and has been maintained admirably even as the paper work has increased.

The early mechanics-oriented sessions seemed to establish a set for considering the course as a series of units with Dr. Manning responsible for tying it together via the introductory unit. The Teacher-Demonstrators assumed, for example, that she would describe and elaborate upon the teaching styles to be experienced, whereas she apparently assumed, as per the project descriptive summary, that each faculty member would provide "...an analysis of the learning principles embodied in the technique and...a discussion of the strengths and limitations of the method" (page 2 of the descriptive summary). As a consequence, only a brief discussion of the teaching methods were presented in the introductory unit and the content

TABLE 1

COURSE DESIGN

Section	Unit			
	1	2	3	4
0051	Speech	Math	Physics	English
0052	English	Physics	Math	Speech
0053	Physics	Speech	English	Math
0054	Math	English	Speech	Physics

units, at least initially, emphasized disciplinary content. The Evaluator also thought Dr. Manning would be visiting each section at the end of each unit to discuss the students' learning reactions with them. Whether accountable to a shared academic model among the teaching team or the early set toward unit content, the planning period emphasized development of the five units rather than analysis of the L.A. course goals in terms of student outcomes or mechanisms for creating such outcomes.

Some discussion of common goals, of course, did occur and the concept of a student journal was developed as a means by which students might keep a record of their learning reactions. Team members agreed to review and comment upon the journals after each unit, which they did reliably and with sensitivity.

A very useful aspect of the planning sessions occurred when each team member presented a segment of his unit to the other team members. These sessions allowed participants to learn about their own learning preferences and were fun, helping to develop a more concrete sense of an L.A. course about to happen as well as to demonstrate the feasibility of the project concept. The ease with which the team members participated and analyzed their own responses, however, may have created the idea that freshmen students would be able to do so with similar ease and enjoyment.

All of the team members worked diligently to prepare their units. The Coordinator facilitated the adminsitrative tasks of duplicating materials, etc., as well as preparing the introductory unit. The lack of emphasis on analyzing thc L.A. goals in terms of student outcomes probably derives from a hesitancy by team members to assume directive

leadership, although some members have expressed an interest in having the Coordinator serve in that capacity, and/or a lack of time for pretesting materials and/or the assumption that students would be able to analyze their learning reactions on the basis of experience with alternate teaching strategies and/or inexperience in developing inter-disciplinary projects whose goals are not the explicit content of any formal academic discipline. It was assumed, for example, that somehow students would become knowledgeable and analytical if given exposure. A more productive approach would have been to ask what knowledgeable and analytic students do and then to train such skills and behaviors directly. Such goals are now more clearly articulated by the teaching team and are discussed more completely in Part H below.

It might be helpful to other campus teams if the UNO team outlines for them what has been and what has not been useful during the planning period. The project guidelines, for example, may have directed Dr. Manning toward "the general principles of human learning," an area she now considers deserving of less emphasis in favor of a more personalized approach to L.A. On the other hand, these same project guidelines also provide direction towards role-play exercises and "more direct student activity in the unit on cognitive styles." Similarly, discussion of the attributes of freshmen in CR/NC elective courses may have been a useful indicator of degree of student participation and academic skill, both areas having been less than the team expected.

D. Enrolling Students is an example of an area where responsibility was not clear. The Coordinator was suprised, for example, to discover she was expected to be responsible for the design of the mailed brochures. Once aware that responsibility was not explicitly assigned, she took

responsibility for aspects of the course involving contacting students. She monitored enrollment, for example, and when she discovered it was low, took responsibility for meeting students during orientation and registration to explain L.A. to them. Responsibility for the large enrollment (N=116) is in large part due to her efforts during the registration period. The low early enrollment suggests that the mailed brochure or the timing of its mailing was not effective in soliciting students. The CR/NC and elective status of the course may also be a detriment for students at UNO, many of whom attend school part-time and are oriented toward their degree objective for occupational improvement. Student interviews substantiate this perspective in that the most positive evaluations of L.A. came from mature students seeking self-enrichment as well as a degree objective whereas the CR/NC option may have attracted the less serious younger students.

E. Introductory and Content Units

1. Operational validity of the four content units was established by examining unit outlines and examinations, classroom observation, and interaction analyses of video-tapes of class sessions. Discussions with each team member, descriptions of their teaching strategies written by each team member, and a review of the literature provided the basis for determining if the teaching methods used differed appropriately or only nominally.

Generally, the teaching strategies used differed sufficiently to be discernible to the Evaluator, graduate assistant, other team members, and to the more analytical students. They were not pure types, however. The discovery method might better be called "guided discovery," as exemplified by the use of semi-programmed materials and the skill of the instructor in providing both individual prompts and

short presentations of learning aids (e.g. number line) to the group. Encouragement of social interaction by the instructor and the arrangement of the room further suggests that "guided peer discovery" might be an appropriate label for this method. Some concern over level of material was expressed by the instructor, although students did not seem very concerned about it. The adjustments made by the instructor were apparently sufficient to resolve any major problems.

The experiential method used a short introductory mini-lecture or "organizer" to explain the purpose of each activity and provided closure with group or instructor summaries. It might best be called a "guided structured experiential" method. Of some concern here may be that class sessions required oral interaction whereas the testing model required a written analysis. Students were encouraged to use their journals to prepare for this experience, however, so some preparation for the exam was given.

The lecture-demonstration method varied from a more formal and traditional approach to include more class discussion in the smaller evening session. This is a reasonable condition for variation. Of more concern is the student surprise about the unit examination. The instructor has suggested that if students had read the material he prepared and handed to them, they would have been able to pass the exam. The high failure rate (see Table 2) and degree of student dissatisfaction with the exam suggests that the material may be too advanced and an entry level test might be useful to redesigning the material (see A.C.T. scores, for example). Other possibilities are that the lecture method even when illustrated with demonstrations puts the student in a passive position, not encouraged to practice the skills on which he will be tested, and thus, unable to determine what he ought

know or be able to do. Experienced students can use listening and reading skills to determine relevant and irrevelant points, can model the professor, and structure their own learning experiences during studying. The A.C.T. data on at least one section, the field dependency data, the experience in L.A. mathematics where some students were discovered to have forgotten or never learned junior high math, the finding at UN-L that up to one-third of all freshmen may be unable to handle proportional reasoning, and the freshmen status of L.A. students at a school where the freshmen drop-out rate is about 50 percent, all suggest that the L.A. students have neither the skills nor experience to handle this physics unit by the lecture method. Interestingly, since so many freshmen courses are lectures requiring formal operational thought, the drop-out rate may be a correlate of this teaching method.

Some modification in expectation about solving problems on the physics exam was made during the course. Several possibilities for improving student performance might be to include instructional objectives and produce more examples of problem solving skills while providing appropriate instructions to students to model the professor while he does so. It is not inconsistent for a lecturer, for example, to present a problem, solve it, present a second similar problem and then allow time for students to work on it before presenting the solution.

Another difficulty is that the lecture method here is embedded in a matrix of more experiential, discussion type teaching strategies and may seem more unique and perhaps even inappropriate to L.A. by contrast. Certainly, a more thorough discussion of using learning strategies in a lecture situation would be helpful to the students. Surprisingly, many students felt sound or music was of little interest to them. This may be an example of a "negative halo" generated by the high performance

standards set on the exam as is, for example, the students evaluation that feedback in this unit was less adequate than in other units. In fact, the instructor was very prompt in returning exams and journals and provided an articulated as well as a CR/NC grade.

The open classroom unit suffered perhaps more than the others from inadequate facilities. It was awkward for students to move freely to use equipment, to do so privately, or to explore material. As a consequence, the major "open" aspect of this unit was that students could develop their own goal or choose among suggestions provided by the instructor upon request. Many students felt that the purpose of the unit and expectations of them were not adequately explained. This is to be expected in a first experience with an open classroom. The amount of student discomfort in this relatively field dependent group prompted the instructor to provide examples of previous students' projects and offer suggestions, even to telling students what focus their project ought have. The video tape showed a small group discussion rather than an open classroom with varied activities, but the instructor felt the tape was atypical.

In summary, the teaching methods used differed sufficiently to achieve the goal of giving students experience with alternative teaching strategies. Rapid adjustments in level of material were made in math and English but less so in physics. In speech, the students have not expressed such a concern but the instructor has. It is clear that instructor expectations concerning student skills have been high and that materials may need to be simplified for this group (See Part E3 below).

An issue concerning the purpose of the course and values clarification is raised by the mismatch between student skills/effort and instructor expectations. If one purpose of L.A. is to expose students to alternative teaching strategies, ought this purpose be further confounded (beyond confounding with instructor and discipline) by variations in level of performance expected? On the other hand, if L.A. students are to become knowledgeable and analytic about their own learning reactions, then ought they do so in contexts inappropriate to the usual disciplinary expectations? An illustration may be useful; should the open classroom become less open by providing more direction to frustrated students or should the discovery model adjust performance expectations to a lower level in order to emphasize the teaching strategy rather than college level math? To what extent ought the resolution of this problem be an independent instructor decision or a team consensus? These are issues which must be addressed by the teaching team.

The introductory unit spent considerable time on the principles of learning, exploring the Gagné model of hierarchical learning and other related topics (e.g. memory). Descriptions of cognitive styles were presented and students took several tests of cognitive style (Group Embedded Figures, R.A.T., Screening, Learning Styles Questionnaire). Brief introductions to the teaching methods used in L.A. were also given. This introductory unit was expected to provide a cohesive framework for the L.A. course and indeed did try to do so. Several concerns have been expressed about the unit however. The "principles of learning" material was not, for example, well integrated with the student learning experiences. Only one Teacher-Demonstrator even referred to this material, whereas all of them expected the unit to provide a more comprehensive discussion of their teaching strategies

and means for optimizing performance while subject to their methods. Additionally, cognitive style test scores were returned to students midway through the semester in order to avoid biasing their learning reactions, but students would have preferred to receive them earlier. The test scores could have provided the basis for discussion of using alternate learning strategies under different teaching methods. Also, the Teacher-Demonstrators have expressed strong interest in having the test score profiles available to help them work with students. There was general consensus by students that the cognitive styles test report was well done, providing all the needed information in a readable format bur received later than desirable. Clerical help for the Coordinator would facilitate returning the information earlier. Additionally, it is not clear that all the tests given provided useful information. The R.A.T., for example, provides a very restricted perspective on creativity and the Learning Styles Questionnaire may overlap the Group Embedded Figures Test (e.g. Independent Learner). It would help if the Teacher-Demonstrators integrated information about cognitive style with a discussion of their teaching method. They seem eager to obtain the information which would allow them to do so.

Lastly, it should be pointed out that the teaching team's views of expected student outcomes emphasized recognition of preferred learning and teaching styles for planning future courses, whereas little was done to help students learn how to seek information about teaching methods offered or to develop compensatory learning strategies for use in non-preferred situations where alternatives are not available. Examples of such activities might include an assignment to interview faculty/students about teaching methods used and discussions of how students with different learning style preferences optimize their

performance under varied teaching conditions. Worksheets relating patterns of cognitive style to preferred and non-preferred learning situations might also provide useful learning tasks.

The final exam prepared by the Coordinator allowed students to demonstrate their knowledge and analysis of their own learning styles and reactions. Based on the final grade distribution, students did not appear to be very knowledgeable as a group. Only 44 of the 80 students taking the final received a grade of C- or better. Only one A was given. The grading criteria was quite lenient. Of some concern here may be that students did not expect to take a final until several weeks before the course ended nor were their responsibilities for receiving a CR or NC made clear, so that the poor student performance probably reflects lack of student preparation as well as inadequacies in integrating the introductory and content units.

2. Materials and Facilities

There is unanimous consent that materials handling would be simplified if a course manual were prepared, which the Coordinator is in the process of doing. The students are less concerned than the faculty about room facilities. Either a permanent locked storage for materials or a room assigned completely to L.A. would simplify the situation. Earlier faculty concerns over students moving from one room to another are now less than concern over proper facilities.

Half of the students did not find the journal useful. The faculty did find the journal useful to them, however, although they recognize great variety in student use of the journal. Improved guidelines have been suggested and might be tried as might a simplified, less frequent format.

TABLE 2

PASS/FAIL* RATES (SECTION NUMBER)

Unit Sequence	Speech	Math	Physics	English
1	29/8	6/2	11/14	32/9
	(0051)	(0054)	(0053)	(0052)
2	11/14	25/12	12/29	7/1
	(0053)	(0051)	(0052)	(0054)
3	6/2	34/7	18/19	13/12
	(0054)	(0052)	(0051)	(0053)
4	32/9	16/9	3/5	21/16
	(0052)	(0053)	(0054)	(0051)
Total	78/33	81/30	44/67	73/38

*Fails include earned F's and O's due to nonattendance. WD's are not included here.

3. Student Performance is summarized in Table 2. The more articulated grades provided by most instructors reflect similar performance patterns to that found here. Additionally, passing the introductory unit required only having taken the tests of cognitive style and the final. Quality of response was not included to determine passing this unit. Since only 44 of the 80 taking the final received a C- or better grade on that final, the criteria for passing may have been appropriate for this first semester of L.A.

Of the 116 students enrolled in L.A., seven received WDs, 78 credit, and 31 no-credit grades. Credit required passing 3 of the 5 units. This CR/NC criterion was anticipated by the students and may account for part of the poor attendance pattern. Figure 2, however, illustrates that the pass rate does not appear to be related to unit sequence.

An interesting contradiction may exist between the student performance on the final exam and their self-reports of benefits from L.A. Students report that L.A. was a worthwhile learning experience which will help them seek information about and select future courses. Yet they are not very analytical about their own cognitive styles and learning reactions in different teaching situations or about what information to seek for choosing courses as measured by the final exam and journals. It may be that students are simply not able to articulate verbally the reasons for their behavior but are able to act upon their understanding. Long-term consequences may support this interpretation but the student interviews suggest that it is more likely that students will now seek out certain instructors and/or avoid others (a passive response) than consider the match of teaching strategy and learning style per se.

4. Student Rapport with and access to the teaching team was strong as reflected in the student interviews and evaluations. The overwhelming majority of students would recommend the course to friends, felt L.A. was worthwhile, reported feeling they had access to the instructors, and rated the course favorably. Note that students identified themselves on the course evaluation so that the global ratings may be somewhat inflated by the lack of anonymity (See Stone, E.F. "Effects of Anonymity and Retaliatory Potential on Student Evaluations of Faculty Performance," Research in Higher Education, in press).

Students reported further that the course was "fun" and "not too demanding." They enjoyed the diversity of presentations, interaction with their peers, and meeting a group of faculty whom they feel are excellent instructors and personable individuals. Additionally, many students report increased interest in Speech/Communication and Mathematics, and a majority report increased interest in English. Increased interest in Physics also occurred but was balanced by a similar number of students' decreased interest in Physics. Comparative data on the effects of introductory courses on subject matter interest is not available.

5. Teamwork among the teaching team is not highly developed. Regular meetings during the initial semester of L.A. would have helped to identify problems and pool resources for solutions. As it is, such problems have been dealt with largely on an individual basis. If the Coordinator is to be responsible for all integration of material, then relatively autonomous instructors may function well in L.A. If, on the other hand, responsibility for integration is shared, then the somewhat fragmented interaction pattern which has developed may need to be refined. Relations among the team members and mutual respect are

strong. What appears to be needed is time for regular meetings; periodic sharing of problems, achievements, and information; and an agenda which focuses on the common goals of L.A. Some potential for instructor bias may result from sharing during the semester, but the potential for integration seems a more important objective.

F. Student Characteristics and Behavior

The erratic attendance patterns and lack of student respect illustrated by late arrival at class, talking out of turn in class, and making noise when others wished to concentrate are serious problems annoying the teaching team and a significant number of students, particularly the more mature ones.

It has been suggested that 60 percent attendance patterns are not uncommon in elective freshmen courses and that the late entry and noise problems may reflect the CR/NC status of the course taken by students wishing to take an "easy" course. More rigorous guidelines on attendance and a frank discussion of appropriate college student behavior early in the semester may be helpful here.

Additionally, change in status to fulfilling the social science breadth requirement may increase the number of serious students involved. Opening the class to non-freshmen may also be used to change the normative behavior pattern. The teaching team is satisfied with the CR/NC status of the course but wishes to establish more rigorous requirements. If shared early with students, such requirements would be helpful in establishing appropriate expectations.

G. Faculty Participation

The goal of providing an on-campus laboratory for faculty wishing to increase their teaching repertoires was not met. No faculty participated in L.A. Members of the teaching team rarely attended units other than their

own also. The Office for the Improvement of Instruction at UNO has been conducting a similar laboratory using existing classes with similarly poor results. A better public relations campaign informing faculty and graduate assistants and allowing access to all sections may be useful, especially if supported by the advocates of the Office for the Improvement of Instruction.

B. Teaching Team's Perspective on L.A.

The team was unanimous in having enjoyed getting to know each other and the L.A. students. Each team member seemed to have a favorite section and to relate particularly well to them. Among their concerns are a lack of project coherence with respect to logistics, achieving project goals, operating as a team, and emphasis on content rather than method. The summary of the faculty interviews provides a more complete statement of faculty concerns (See appendix). Note in reviewing the summary that the team members are aware of the assets and problems of the current L.A. course. The content of this report reflects in many ways their observations and suggestions.

III. Summary

A. Accomplishments of the First Semester

The UNO teaching team has accomplished a lot during the initial semester of L.A. The course is established in the schedule and recognized by undergraduate advisors and the orientation program. It is accepted as a UNO effort led by a team of excellent instructors. Student enrollment was satisfactory with the exception of a small evening session. Introductory and content units have been designed and tested one time. Students have learned some introductory Psychology, Math, Physics, English, and Speech and report increased interest in most of these disciplines. They have enjoyed the course and report that they

found it useful in planning for future courses, and will recommend it to their friends. The goals of giving students experience with alternative learning strategies and allowing innovative teaching faculty the opportunity to interact were met.

The goal of helping students become more knowledgeable and analytical about their own learning reactions was met for some students but not for many others. Unfortunately, all the measures of knowledge and analytical skill required an articulated verbal response. The quality of the journals and final exams suggest that only a minority of students were able to demonstrate such skills, yet about two-thirds of the students described L.A. as a worthwhile learning experience, helpful to them in seeking information about and choosing courses. Long-term effects of their L.A. experience may confirm the student self-reports, yet student inability to articulate the reasons for their learning style/teaching method preferences suggests that the self-reports may reflect personality preferences for instructors or be carry-overs from the students' positive evaluations of the course experience as a whole.

The goal of establishing an on-campus laboratory for faculty interested in expanding their teaching repertoires was not met.

B. Problems to be Resolved

The major problems facing L.A. at UNO concern the related problems of team structure and course coherence. Although the Coordinator has emerged as administratively responsible for course enrollment, materials, logistics, etc., it is still unclear who is responsible for the design and implementation of an integrated course. In order to identify the tasks involved in creating course coherence, course goals must be operationalized in terms of explicit objectives or student outcomes and

responsibilities for teaching to these objectives or training relevant student skills must be determined. Whether responsibility is shared or held primarily by the Coordinator, decisions regarding the autonomy of the team members must also be considered. Is each member to decide independently what they will do? Is the Coordinator to structure aspects of the content units? The team seems to prefer an interaction model of shared responsibility with relatively great autonomy. This model will succeed only if the members agree on the student outcomes to be sought, procedures for accomplishing these outcomes, and on the importance of attendance at regular meetings.

Articulation of and agreement on desired student outcomes is a second problem area. The goal of "helping students become more knowledgeable and analytical about their own learning reactions" seems to pose the most difficulty. What are the characteristics of such a knowledgeable and analytical student? Does he seek information about teaching methods? Choose courses based on match of learning style preference to teaching strategy? Does he develop alternate learning strategies or mechanisms for using his preferred style in a non-preferred situation? Is it necessary that he be able to articulate verbally his learning style preferences, characteristics of teaching methods, and their relationships? How does L. A. explicitly help the student develop these skills?

The third area for resolution concerns the mechanics of the course--room assignments, paper shuffling, materials development. The development of a course manual will simplify some of these problems. Including course and unit requirements will assauge students' concern over performance expectations. Some of these problems would also be resolved by assignment of a permanent room where equipment may be kept safely and materials left.

C. Recommendations, UNO

The following is a list of concerns which the teaching team might find useful to discuss:

Problem Area	Issues and Questions
Team Structure	Administrative and course design concerns must either be shared or assigned to a willing member. Shared responsibility will require a greater time commitment by all members; assigned responsibilities may reside with the Coordinator or be distributed.
Course Coherence and Objectives	What are the instructional objectives of L.A.? What are desirable student outcomes? Which of these outcomes require directed teaching efforts? By whom? In what context? Does the five-unit structure facilitate accomplishing these objectives? What unit modifications, if any, are needed in the introductory units? Consider the relative importance of content and method in achieving the overall goals of L.A. How might they best be integrated in light of the course goals as a whole?
Student Characteristics	Student behavior was less than optimal. Can a proposed point grading system modify attendance patterns? Is the system too complex for practical use? Are content units at an appropriate academic level? Should the course be opened to non-freshmen?
Logistics	What will the proposed course manual look like? Is its function to facilitate dissemination of materials, to provide course structure, to serve as a workbook?

If the journal is retained, will the journal guidelines be included? If so, what should they be?

D. Recommendations for Sharing with Other Campuses

The experience of the UNO team during the planning stage and first semester of L.A. may provide some useful guidelines for other campus project teams. Listed here are recommendations based on the UNO experience:

Planning Stage: It is helpful to have a regular sequence of meetings so team members can learn about each other, their discipline, philosophies of education, and teaching styles. Direct experience as learners in each teaching model is an enjoyable and informative way to begin. Early meetings should also identify any information gaps concerning the project--each member should have a copy of the proposal and free access to the Project Director, Evaluator, and other team Coordinators.

The planning stage is an appropriate time to discuss L.A. course objectives. It is the task of each team to operationalize and implement the four L.A. course goals. What are the characteristics of a student who is "knowledgeable and analytical about his own learning reactions"? Do these kinds of student outcomes require directed teaching? Skills like seeking information about teaching methods used in classes and strategies for using preferred learning styles in non-preferred teaching situations probably do require training. How will these overall objectives be integrated with the content units? Is responsibility for course design to be shared or assigned to the Coordinator? How autonomous may each team member be in setting performance standards or dealing with the introductory material? Who will be responsible for the administrative work, logistics, etc.? These are all concerns

which need to be addressed during the planning period if the course is to provide a coherent learning experience for the students.

Additional topics may be the characteristics, classroom behavior, and academic skills of freshmen in elective credit/no-credit courses. Will attendance be required? What is needed to pass the course? Is the material prepared at an appropriate academic level? Also, the relationship of the range of cognitive styles among the students to the teaching methods used should be considered in choice of measures of cognitive style for the introductory section.

A last topic to be considered is course enrollment. What procedures will be used to advertise the course? Who is responsible for this effort? Will recruiting efforts be shared?

First Semester: It would be helpful to introduce all team members and to have them describe their teaching method and performance expectations to the students during the first unit. Explicit objectives and tasks which help the student to integrate introductory and content units would be useful. A course manual might keep materials organized for all involved. If students will keep a journal of their learning reactions, the guidelines must be carefully written. A comprehensive discussion of the relationship of cognitive styles to teaching methods would be useful, especially if students get early feedback about their own cognitive styles before the content units.

The importance of sharing materials and regular communications throughout the planning and teaching stages of the project cannot be overemphasized.

The Evaluator requests that each campus team identify their informational needs so that appropriate evaluation procedures may be designed for each campus. For example, what information about operational validity of the teaching strategies would be useful to the team? What type of descriptive student information should be collected early in the course? What student outcomes are desired and what measures of instructional objectives would be acceptable?

APPENDICES

A. List of data and available documents: *

1. Project proposal

2. Brief Report series including L.A. course description.

3. Student data: A.C.T. scores **
   Student Report Form

   Preferred Learning Experience Essays

   Subject Matter Preferences

   Cognitive Style Test Reports

   Student Journals

   Instructor Ratings of Journals

   Unit Achievement Scores

   CR/NC by Unit and Course **

   Course Evaluations **

   Model Course Finals

   Load Ratings

4. Student Interviews and Summary

5. Teaching Team Interviews and Summary

6. Video-Tapes and Interaction Analyses **

B. 1. Student Interview Summary

2. Faculty Interview Summary

NOTE: Summaries were not included in the copy received by ERIC.

* All data forms and instruments have been shared with the teaching team. They have been invited to request reports of specific interest to them based on any of the available data.

** Brief reports and tabulations have already been shared with the teaching team and Project Director.