Lessons from Twenty Years of Interdisciplinary Educational Experiments

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This paper first will describe four different sorts of interdisciplinary instructional programs that were born at the University of Nebraska-Lincoln during the sixties and seventies. Then some discussion of the impact of each will follow and some conclusions drawn with respect to the lessons we might learn from these experiments in higher education.

The University of Nebraska-Lincoln is the state supported PhD granting institution of Nebraska. It has enrollment of about eighteen thousand students. It is one of three separate institutions which are coordinated through a Central Administration and run by a Board of Regents. The other two institutions are the University of Nebraska-Omaha and the University of Nebraska Medical College, also in Omaha. Along with Colleges of Agriculture, Business Administration, Engineering, Home Economics, Law, and others, the University campus has the Graduate College, the Teachers College (which trains the majority of teachers credentialed in the state each year), and a sizeable College of Arts and Sciences (which provides courses that are required for all undergraduates seeking bachelors' degrees at the institution.

During the sixties and the seventies, the social unrest, political dissatisfactions and the economic stresses present in the american society at large were felt on the UN-L campus. The programs to be discussed in this paper were perhaps as much expressions of those conditions as they were movements to ameliorate them. Hence, what caused what with respect to some of these matters cannot be answered simply, so I recognize my tenuous grounds

in regarding these programs as the "conditions" for societal or institutional changes that occurred or as the "results" of such changes. Nevertheless, I do so believing that the moves I regard as "results" would not likely have occurred when they did in the ways they did without the "conditions" I present.

The Programs

1. The Tri-University Project in Elementary Education (1967-1970)

A federally funded program, the Tri-University Project was founded in order to bring professors from major teacher-training institutions in the country together with experienced elementary school teachers and a Project faculty representing a variety of fields whose research would be of relevance to the teaching of children in the post-"Sputnik Age." There were three universities involved, each focusing on a different content area of the elementary school curriculum. The University of Washington concerned itself with the social studies areas of the curriculum, New York University centered on Psychology and Assessments, while UN-L tackled English and Language Arts. UN-L Project faculty consisted of both visiting professors and regular members of the University's Departments of English, Educational Psychology, and Elementary Education. Areas concentrated on included Cognitive Theory, Psycholinguistics, Language, Composition, and Reading. The grant proposal to the U.S.Office of Education summarized the Project's tasks as: "1) to turn the best minds in the subject matter areas to the problems of the lower schools -- to permit the information at their disposal to shape curriculum and school organization, teacher training and professional standards; and 2) to develop a sense of scholarly profession in the lower schools." All participants (both the Post-doctoral Fellows and the experienced teachers, who were Graduate NDEA Fellows) were expected to take specially designed courses in Cognitive Theory and Curriculum Development; Language

Theory; Genre Theory; Descriptive Rhetoric; and Reading.

A key aim of the program was to change the teaching in the country's schools via changing the teaching of the teachers. In a nation of educational institutions which were primarily adult-centered, it was hoped this would affect a shift toward student-centered teaching. Yet the organization of the year-long program for participants was largely determined by the Project Faculty. "Courses" were to be taught presumably by lecture methods, with research projects to be reported and discussed in a rather traditional graduate-seminar fashion. Application of the new-found knowledge by school teachers was to be attempted during the summer in the "practicum schools" in Lincoln, where Faculty and Post-doctoral Fellows might be able to observe and to evaluate. All participants were to return to their respective institutions in the fall and begin to make changes in their home institutions.

Over the three years of the project there were about three dozen Post-doctoral Fellows and a like number of experienced teachers under NDEA Fellowships. They came from all the states, from rural and urban settings, from large and small, private and public institutions.

By the second year the Project changed to emphasize more heavily the need for research and theory to blend with practice. Practicum schools were established and used throughout the year and the structures of "courses" were loosened. Faculty began to give explicit attention to the need for participants to gain political knowhow to make changes in their home institutions.

2. The Cooperative Schools Project in Elementary Education (1973-1979)

The Tri-University Project was a prelude to the TTT Project (1970-1973), a vast federally funded program on the same model but housed in several institutions in the country and now including, as participants, pre-service Teachers College students. TTT was to accomplish the shift of financial re-

sponsibility for this major venture in improving the education of teachers from federal to local sources. Along with the push toward student-centered curricula and student-centered teaching, there was a move in TTT toward more active participation of the local community in decisions about what was to be done in the schools and how. "Parity" was the term used.

At the point at which federal funding was to be discontinued for the UN-L based TTT Project, the Cooperative Schools Project was founded as an alternative program for elementary education majors. It provided a package of thirteen university credit hours per semester on the site of a participating elementary school in Lincoln for sophomores, juniors, and seniors. The Teachers College and the Arts and Sciences College provided professors for the off-campus program. The Lincoln Public Schools provided access to children and the expertise of the teachers in their participating schools, space for a center in each school and a staff coordinator in each school. The Project Director, who was a Teachers College faculty member with recent experience as an elementary school administrator, administered the program which enrolled from 20 to 25 new students each year at two school buildings.

A steering committee consisting of representatives of Teachers College, Arts and Sciences College, Lincoln Public Schools, and Parents of children in the schools was responsible for policy and curriculum decisions for the program. Each semester four university courses were offered on the school-site -- two of them were taught by Arts and Sciences College profs and two by Teachers College profs. These courses were to be an interrelated package promoting knowledge of academic disciplines as well as information on practical applications in the classroom.

Faculty of the courses planned together so that the activities of courses dovetailed with one another and so that the classrooms and schoolchildren

available could be effectively used as grounds for observation, assessment, and skill learning for the students. E.g., my Logic course and the educational psychology prof's course in Development used the children as the materials for psychological and logical analyses and discussion. Students read Piaget and replicated his research tasks with children, compiled the data and investigated its relationship to other facets of those children's behaviors, proposed hypotheses and attempted tests, then reported results and proposed implications to the classroom teachers for their feedback.

This program, unlike the traditional program for teacher preparation offered on the campus when the project began, provided students, early in their college training, with intense school experience with elementary school children of all ages and with elementary school teachers and administrators. Thus, by the time they were ready to do their required "practice teaching" as seniors, they would already be "pros" in the elementary school classroom.

During the last two years of the program, the economy had taken its toll. It was extremely difficult to get faculty to volunteer to staff the program and students for whom it was financially feasible. The rising costs of transportation and of time available for paying jobs worked against it. In 1979, the colleges and the school system closed the program because it was not "cost effective."

3. Centennial Educational Program (1969-1981)

Centennial Educational Program began amid the political-social activities at the end of the sixties. It was founded as an undergraduate interdisciplinary residential college for "exceptional students." A faculty of ten to twelve strong professors became its Fellows and shared the internal governance of the Program with its 180-200 highly motivated students. It was housed in a wing of a dormitory complex on the main campus so that

students would be able to live and study in the same spaces. The original faculty were all "borrowed" from departments of the university, they were dedicated to giving at least part of their time to the Program for two years before returning full-time to their home departments. CEP was to provide enrichment for the faculty by allowing them to learn in different surroundings, explore a variety of ideas crossing over discipline boundaries and being stimulated by persons of a variety of backgrounds and interests and pushed by the intellectual curiosity and excitement of working closely with small groups of very bright students. Similarly, it was to provide high-powered enrichment for the students, allowing them to learn social and political arts along with intellectual skills and encouraging them to assume responsibility for their own learning.

Topics of study were often student-initiated, but sometimes fellow-suggested issues or fields. They were called "projects" and were flexibly arranged small-group or individual "contracts" ranging from 2 or 3 weeks long to 2 semesters long. Some centered on reading and library research, others were social or psychological primary research projects, others involved performance in the arts, and still others included community action and field work.

Students were limited to 6 credit hours per semester in Centennial Program while they sought degrees in various colleges of the university. In Centennial the traditional grading-evaluation routines of the regular university were suspended whenever possible. A "Pass/Fail" structure was instituted with the tasks of evaluation of the students' performance and growth shared by faculty with the individual students.

Soon after its founding the intellectual "elitist" quality of Centennial was changed -- largely through pressure from the Program's students. It be-

came then more attractive to less highly motivated, less self-directed, less than super-bright students. Thus, probably from about 1971 until its close in spring of 1981, its student population reflected the whole range of undergraduates in the University.

Although Centennial never offered its own degrees and had no permanent faculty of its own, it had its own internal administrative officer (the Senior Fellow) and its own budget line, independent of the various colleges of the campus. And like Deans of the Colleges, CEP's Senior Fellow reported to the Vice-Chancellor for Academic Affairs of the University.

Throughout Centennial's life it made use of volunteer "faculty" including regular university faculty members who were interested in facets of the Program and gave their time, academic-types who had no university appointments but were interested and willing to give their time, and members of the non-academic larger community of Lincoln who had relevant expertise and were interested. During the last two years of the Program, some of these persons were officially added to the roster of Fellows and salaried, as were a series of professional artists who took up two-months-long residencies in the Program.

From 1975 on, the residential aspect of the Program diminished until there were only a few CEP students living in the dorm. This, along with the general preoccupation of students with getting grades and jobs, contributed to a loss of sense of community within the Program. As Senior Fellow in 1977-78, Barbara Smith added some teacher-centered theme-based courses to the curriculum so that it would be treated as a more negotiable currency by students while the availability of student-initiated projects was preserved. Enrollments grew again to more than 300 students in spring, 1981, when the Program was closed -- "eliminated" in the budget crunch.

4. The ADAPT Program for Freshmen (1975-19__)

During 1974-75 a group of faculty, gathered for a luncheon discussion sponsored by UN-L's Teaching and Learning Center, heard a presentation about the psychological theory and research of Jean Piaget on "formal operational thinking." They decided to see if they could put together an instructional program based upon Piagetian principles which would enhance the development of reasoning of university freshmen sufficiently to equip them to understand the instructional materials and activities of regular university course offerings.

They got a grant from Exxon Educational Foundation to train faculty, develop courses, recruit students and evaluate their progress for two years. Thus, during the years 1975-76 and 1976-77,a group of 40 incoming freshmen each year were taken into the Program and a like group who had requested but been denied admission to the Program (by random selection of applicants) were contracted with for evaluation purposes. The freshman Program consisted of 6 subject areas, totalling 15 credit hours per semester. The six faculty were tenured members of various departments who had trained in Piagetian theory, developed courses in their own disciplines, and had gotten their department chairs to assign them ADAPT courses as part of their regular teaching assignments for the year. Students had ADAPT courses in social sciences, mathematics, physical science, and freshman English -- their whole freshman program. There were the same students in all their classes. The faculty not only got to know them well (because there were only 40 of them) but they came to be known well by the other students.

The faculty met weekly to discuss the project, the students, their own wishes and wonders and worries. They were a highly compatible group who not only highly respected one another but also liked and understood one another very well. Psychology professors who handled the evaluation of the students

did not teach in the program and, hence, had a healthy measure of detachment. There were tests given early in the school year and tests of similar form given late in the school year -- these were to tap the reasoning of the students as well as information about personality characteristics and attitudes. The evaluation design also called for some follow-up of the students at the end of their sophomore year (one year after they left the ADAPT Program) and again at the end of their senior year.

Information from the evaluation program was deliberately not made available to the teaching faculty of the Program until after the year was completed and grades were in. That was a precaution taken to prevent professors' course-grading from reflecting prejudices that might come from students' performances on the evaluators' instruments. Each professor developed his own way of grading in the particular discipline with which he was concerned. But the Piagetian orientation and the weekly staff meetings helped faculty learn to focus attention on the reasoning processes, the problem solving strategies created by the students, on the uses the students made of information during the exercises, and on their ways of organizing information. Also some note was paid of students social and emotional development.

The first two years' ADAPT students were found to have had some difficulty adjusting to the regular university offerings as sophomores. It was as though some of the usual freshman year adjustments had simply been postponed to the sophomore. Also, as it happened, some staff members were asked by their department chairs to "return to the department's business" (covering graduate level offerings in their fields) for a while. Those factors together led to the reshaping of the Program into 3 courses (9 credit hours) per semester -- usually a social science or humanity, a physical science or mathematics, and freshman English -- thus allowing students to take at least

one regular university course concurrently with their ADAPT courses. Since 1977-78 that has been the form of the ADAPT Program scheduling.

The Program faculty has developed the "Workshop on College Teaching and the Development of Reasoning." which it gives at the invitation of institutions around the country and which it periodically offers in a series of sessions during the school year to interested UN-L faculty. New program faculty are required to participate in the Workshop, do extensive reading of Piagetian theory and research, attend Program faculty meetings, operate as co-presenter of the Workshop at a host institution and develop and test out course materials and Workshop materials in their discipline. The group has now grown from 9 (including 2 psychologist-evaluators) to 15 (including 3 psychologist-evaluators) after 3 of the early program faculty have left the institution or elected to drop out. Instructional costs are still borne by the departments to which the instructors belong. Those departments list ADAPT courses in their course schedules and gain the credit hours produced through them.

The Program "Director" is one of the original facutly members. Through his office student recruiting is arranged and program materials (brochures and readings for faculty) are handled. The Program has no on-going budget, however. It has managed to get a few hundred dollars here and there through the last few years from the Teaching Coundil, from the Dean's and the Chancellor's discretionary funds in order to afford student recruitment expenses and new faculty recruitment costs.

Inpact of the Programs

An important question here may be stated thus: What has the institution learned from these programs? Has the University of Nebraska-Lincoln changed due to these experiments? Is it different now than it was before the programs operated?

Even though some were aimed at making change in the institution, it seems as though the changes wrought were minimal except for one thing. That is the faculty -- there are now groups of individuals who were involved in one or more of these programs and who were changed because of that involvement. Relative to the total number of faculty in the institution, they are few, though. But for the most part they are politically wiser from their experience, and some are directly responsible for some changes that have been made in the institution.

Due to the Tri-University Project experience and its ensuing Triple-T Project, a few departments in Arts and Sciences College became concerned enough about the quality of education of teachers that they instituted courses specifically for pre-service teachers. Such courses in English and Mathematics are still offered and heavily enrolled by TC students. The community component of the Tri-U and Triple-T Programs had led to more attention being paid to segments of the society that had traditionally been overlooked or ignored by discipline scholars. This helped result in the founding of several courses on minorities and women, in the establishment of the Institute for Ethnic Studies and, in the larger community, to the founding on the state level of the Mexican American Commission and the Native American Indian Commission. A Chancellor and two Deans were chosen for the University which resulted in establishment of a "Teaching Council" (on a par with the long established Research Council) providing a few incentives for faculty to improve their teaching.

Doctoral studies began to change as a result of these Programs, too. Teachers College reorganized little by little their doctoral program to allow and encourage the crossing of traditional division lines. Where previously Curriculum, Administration, Instruction, History and Philosophy of

of Education, and Educational Psychology and Measurements had been kept separate and distinct majors, they have now been made into two general areas, and candidates are encouraged to step into more than one "general area" for their degree work. Within the Department of English, Cognitive Theory was instituted as a special area for PhD condidates in English, and a PhD is now offered in English Education.

Through the Cooperative Schools Program, faculty in the different departments of Teachers College began talking shop more with one another and working with one another, thus allowing development of more course alternatives and the administrative reorganization of the College. Arts and Sciences College came to work more cooperatively with Teachers College and with Lincoln Public Schools.

CSP also resulted in greater use by the regular Teachers College programs of clinical experience for its students. For secondary education majors in-the-schools work was built in to the pre-service training. For elementary education majors there were similar programs with courses crediting students' experience in the schools. Additionally, in the educational psychology course required for sophomores and juniors, a heavily practicum-oriented program was established that required students to relate their classroom psychology learning to what they observed in the schools and indirectly promoted student-centered teaching.

Centennial Educational Program's success on campus was partially responsible for virtually all departments offering credits for "independent study" in their respective disciplines. The course numbers are available, however the faculty persons who work with independent study undergraduates are still not given professional credit for it in their departments -- thus they do it "gratis."

At first the flexibility of Centennial's curriculum was a problem for the degree awarding colleges because the deans could not decide "how to count" the Centennial credits their students were offering for degrees. That was settled finally by the deans allowing Centennial faculty to decide how the work should be counted and to report that to the colleges for the students' records. Thus, CEP credit became applicable in the broad categories of requirements for students -- i.e., as humanities, social sciences, physical/natural sciences, etc. -- without having to be earmarked as being within specific disciplines. Also, partly under the press of Centennial students, the institution developed ways of handling "Pass/Fail" sorts of grading of students in courses. Colleges arranged limits to the number of "P/F" credit hours a student could offer for degrees in each college.

The institution still has not developed ways to allow students and faculty to work together with the kind of freedom that was available in the Centennial structure. Although there are now several "area studies" majors within Arts and Sciences College, they still operate as combinations of separate and distinct disciplines.

These has been no appreciable affect on the way that a faculty member's concern for teaching and for students' broader intellectual, ethical, emotional, or social development are regarded for the faculty member's professional advancement within the institution. Usually those concerns are simply extra--not determining factors in considerations for tenure, promotion or salary increases. A specific discipline-oriented provincialism pervades the institution when it comes to these matters, so that doing interdisciplinary research and publication is not especially beneficial to one's professional status on the faculty.

The ADAPT Program faculty were aware of many of these conditions. That is why only tenured faculty were invited into the program at first and only persons whose dedication to teaching students in their discipline was such that they were willing to bear the probable consequences to their professional careers. While for most of the faculty, their careers are not enhanced by the Workshop activities or the publications on education in their disciplines they do, the public relations wheels of the institution are regularly greased by notes in the faculty newsletter and articles in local newspapers and in the Chronicle of Higher Education about ADAPTers' doings.

So far there has been little change caused in the institution by ADAPT. What has been done is largely centered in a few departmental circles that have ADAPT faculty as members. The English Department, largely through its ADAPT staff members, became aware that the problems of teaching college students rested upon the ways those students' reasoning had developed. They developed an on-going program on teaching for their graduate students, using the classroom research of their ADAPTers along with some readings and discussions of Piagetian theory. The Physics Department's faculty colloquium has provided an interested and excited audience for its ADAPT person's research on college students' understandings of scientific concepts and reasoning.

The organization of ADAPT allows it to work without being stamped out or severely hassled by the routines of the institution. The withdrawal of soft money did not affect the instructional program. With formal institutional support, of course, we know it could do much more -- be effective for more students and produce more solid research data on its effects. But lacking that full support, it's clear that ADAPT is less likely to be stampted out,

eliminated, as it is than were it bestowed with a budget line of its own these days.

Experience with the Tri-U, CSP, and CEP programs has informed the ADAPT Program. The conviction is strong that educational change can often happen without institutional change, that the enrichment of individual faculty members is key to educational change and that that enrichment must include serious study of the ways in which people learn, come to understand, to reason, and to strategize within the subject areas. Further, faculty members are themselves hard to change -- thus, on-going social and intellectual support must be provided if they are to think differently about teaching in their disciplines and set about trying to do so. Individuals must be respected. Not only fellow faculty members, but also students -- graduate and undergraduate -- must be understood "where they are" intellectually, if one is to facilitate their learning, their coming to be "somewhere else."

Above all, "Teaching" is not telling, nor is "Learning" simply listening. The sort of student-centered teaching that is the basis of Piagetian instruction rests upon a constructivist epistemology -- a view that individuals must construct their worlds via interaction with their environment and continued restructuring of the information they have gained. It is heavily process oriented rather than content oriented. The structure and workings of the institution in which we operate rest heavily upon another epistemology --a more empiricist view of knowledge. These epistemologies conflict with one another.

Among the lessons to be learned from UN-L's experiments in higher education described in this paper is one about the politics of institutional change. Quite clearly, for ADAPT and other Piagetian-based programs and

and many student-centered programs, the power structure of a major educational institution may be "threatened" by programs that are "different" from the traditional offerings. If those "different" programs are to survive within such an institution, they must legitimize themselves through regular institutional channels and under ordinary institutional labels and they must package their "products" in unobtrusive ways, not demanding many changes in the day to day management routines of the institution.

In most respects, Nebraska's higher education institution does not appear to be seriously changed by alternative educational experiments discussed above. The experiments come and go. The institution, the mechanisms by which it works were built for delivery of what it sees as a relatively traditional product. The eighties have entered on a wave of economic and political conservatism. The institution, reacting to budget stress, responds by limiting alternatives, and feeding the segments of it that seem to relate directly to the financial interests of the society. Credit hour production becomes its major management measure of educational effectiveness.

Of the four programs discussed above, Centennial Educational Program probably represented the most rich and useful for the faculty and for students. Its internal structure was flexible enough to provide an umbrella for a great variety of experimental programs for the campus. But there was a major weakness in its organization that made it extra-vulnerable in conservative times. Its functions had not included the means by which it would legally bind the institution to maintain it -- its faculty were not tenured in CEP and it had no students seeking degrees from it. Thus, in the economics of the eighties, philosophical commitment will be made to yield to political reality.