of economic issues. Vanderbilt has attempted to rank the basic concepts in terms of their importance for economic understanding. Colorado students "discover" concepts through analyzing economic and demographic indicators.

As part of their experimentation, each of the remaining institutions (FSU, NYU, Montclair and Oklahoma State) has similarly sought to reduce the number of concepts by explicitly identifying the objective of the course. This is not to imply that all of the experimental schools have chosen the same exact number of concepts, nor does it mean that there is complete aggreement by the experimental schools on the ordering of these concepts. Disagreements can and should exist inasmuch as there is no single "best" course for all situations.

With respect to methods of presentation, there are significant variations among the participating schools. Several of the experiments have enjoyed success with cases or topics which have high student interest. Oklahoma State has introduced special topics such as pollution, urban decay, the economics of crime and the like, which have been favorably received by students. Vanderbilt has written a number of original cases especially designed to explicate certain economic concepts and principles. The cases range in length from one page in which only one or two concepts are introduced, to lengthier, more complicated cases involving several concepts. Their cases, too, have been selected to capture the interest of the students.

Florida State is attempting to use an historical approach to show how economic theories have evolved over time and to give the student an appreciation for the dynamics of economic systems over time. As mentioned briefly above, Colorado is using economic

and demographic indicators to develop student interest. Seemingly cold statistics such as the functional distribution of income are used as lead-ins to examine income differences among various factors, what accounts for these differences, the consequences of varying patterns of income distribution, and alternative means to change the distribution of income if such changes are considered to be desirable.

Montclair State is experimenting with a multimedia approach involving several sorts of written materials plus films, filmstrips and cassettes. The approach at NYU has been partially dictated by the students themselves who have had a hand in the selection of content and materials. In sum, the approaches vary but the idea which pervades them all is to excite the students' interests without sacrificing sound economic analysis. Preliminary reports on all the approaches have been encouraging.

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ABSTRACT

Presented is a proposal to develop a teacher training program designed to improve the classroom performance of economics students by improving the teaching skills of trained professionals. Projected major steps in the 5-year planning period are outlined: a) planning a training program to improve the classroom ability of college instructors; b) developing a summer workshop; c) involving a number of educational institutions; and d) developing basic materials, organized for easy transfer to any inst tution. (Author/JB)

A PROPOSAL FOR ESTABLISHING A TEACHER-TRAINING PROGRAM PRIMARILY FOR GRADUATE STUDENTS IN ECONOMICS

Submitted by:

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Proposal for Establishing a Teacher-Training Program
Primarily for Graduate Students in Economics

1.0 Introduction

1.1 Teacher Training: The Need

Each year U.S. universities produce several thousand new Ph.D.'s in the various disciplines. A large percentage of these graduates pursue academic careers in the colleges and universities throughout the country. For the most part Ph.D.'s are well trained, except for the area in which they will spend most of their working time--teaching. It is true, of course, that many of these individuals have some teaching experience as teaching assistants. But the experience gained here is often painful for both the TA and the students he teaches. Preparation for the TA's first classroom assignment consists usually of little more than supplying him with class lists, a textbook, a grade book and the location of the classroom. For graduate students on fellowships or scholarships the situation is uniquely perverse for future professors. These fellowship students are often among the brightest of their class, and their talents are rewarded by virtually isolating them from all formal contact with undergraduate students during their years of professional training.

There is mounting evidence that the need for teacher training of new Ph.D.'s is being recognized and, to a limited extent, rectified. A few programs of teacher training in economics have emerged around the country, for example, at the University of Minnesota and the

University of Wisconsin--Madison. Experience indicates that these programs are well received by the participants, and are supported by the faculty.

The explanation for these new programs may be the coincidental existence at these institutions of concerned leadership. We predict, however, that similar programs will begin to emerge at other institutions due to an increasing demand for teacher training. Market trends will encourage this process. First, given the slack market for economists--and most other Ph.D.'s--schools will increasingly attempt to identify ways to "sell" their graduates. Preparing the new Ph.D.'s for their main area of vocational activity, teaching, may be one answer. Second, with the emergence of tight college budgets, strong pressures are mounting to increase the productivity of instructional programs; indeed, there is some evidence of a realignment of the relative emphasis on the activities of teaching and research. Professional advancement is increasingly taking into account teaching effectiveness and productivity. Finally, the fastest growing segment of American higher education, the Community and Junior Colleges, is exercising a notable market influence on the demand for Ph.D.'s. However, there has been some market resistance by the Community and Junior Colleges, whose main mandate is undergraduate instruction, toward the employment of the highly trained, research-oriented Ph.D. Many institutions training Ph.D.'s will respond by developing professionals more acceptable to the large and growing Community/Junior College market.

While it is difficult to provide hard evidence on the extent of the demand for teacher-training programs, some information is available from the experience at the University of Minnesota. In response to a short article in a Joint Council on Economic Education Newsletter, the director of the Minnesota program received, within a period of one month, some

42 inquiries concerning the teacher-training project in economics. Letters were received from a wide cross-section of universities: large and small, prestige and non-prestige, and eight two-year community colleges.

1.2 The Case for Better Teacher Training

On the one hand, it is clear that the training of graduate students to become teachers in economics is at a low level, that there is some evidence of attempts to rectify this deficiency, and that market pressures and trends are creating a favorable climate to the development of programs in this area. On the other hand, to the economist, recognizing a "need" is not sufficient to making a resource commitment to satisfy this need. A critical consideration is whether the demand for teacher-training services is sufficiently great, given the production possibilities and associated costs for providing these services, that teacher-training programs can be maintained on a self-financing basis over the foreseeable future. If we were using a market test to evaluate the prospects for such a program, one might ask why, in the face of apparent need, teacher-training programs are not already provided on a wide scale.

Most likely the costs to the individual Department or professor in developing such a program exceed the projected benefits. In contrast, the benefits accruing to the department of implementing an existing and well-designed program may well be more than the costs. Based on his experience of three years in the development of a limited teacher-training program in economics at Minnesota, Darrell Lewis has noted: "The initial development of such a program involves an enormous amount of work...there just are not many prototypes, either in or outside of economics, to which the developer of such a program can look for guidance."

It is the overall strategy of this proposal to develop a model and curriculum for implementing a teacher-training program which will substantially lower the costs to the individual Department and faculty member in offering such a program to their students. This model will be sufficiently flexible to permit adjustment of the program to the preferences and needs of the adopting Department, yet will be detailed enough so that the key curriculum components will be specific and useful to the Department and professor. While the program and model will be implemented and evaluated in economics, at every stage consideration will be given to the requirements for generalizing the program to other disciplines.

A final issue remains. While below we propose to develop a program of teacher training for Ph.D.'s in economics, foremost in our planning must be the question of the long-run viability of such a program. Over the past two decades, teacher-training programs have been developed in several disciplines. In general, these efforts have not been successful; that is, the programs have not been self-sustaining over long periods of time. Reasons must be sought for the short life of these programs. Many possible answers exist. The timing of the programs was not conducive to their long-run maintenance. The 1950's and 1960's were characterized by an excess demand for students with advanced degrees. It was therefore less necessary to provide each Ph.D. candidate with all the requisite skills for academic employment. On-the-job training may have been considered a satisfactory substitute for imparting teaching techniques and skills. In contrast, the 1970's has witnessed a turnaround in the demand for Ph.D.'s; prospective employers can afford to be more discriminating in their hiring decisions.

Previously developed teacher-training programs were deficient in one or more dimen-

sions. Their curricula were excessively rigid, thereby meeting resistance of the independent-minded faculty member or Department. The programs were not adequately planned to be institutionalized for long-run maintenance. The programs were not systematically evaluated, and revisions undertaken on the basis of this evaluation. They did not capitalize on the incentive and reward structure relevant to constructing a successful long-run program.

We consider it imperative that the development of our teacher-training model take advantage of the experience of previous efforts not only in economics, but in other disciplines as well. We shall intensively investigate the various programs implemented in the past few years, to identify those elements which are important to incorporate (or avoid) in a model for economics, and for other disciplines, in the 1970's.

1.3 Strategic Reasons for Focusing on Economics to Identify a Teacher-Training Model

Our proposed project represents the first such effort undertaken on behalf of an entire discipline. The executive leadership of the American Economic Association has given its Committee on Economic Education a mandate to do more in the area of upgrading teaching. Previous teacher-training programs have been developed by individual schools, departments or faculty members. One of the primary reasons for the failure of these programs has been the inability of a single school to allocate sufficient resources to develop a first rate program to help develop future teachers. Moreover, the transferability of programs to other institutions will be less if the program is specific to a given institution than if it was developed by a staff representing a broad range of colleges and universities. While wide participation of members in a discipline is more likely to engender success in the development of a teacher-training

program, there are only a small number of disciplines where such a large scale effort could be mounted. Indeed, economics is perhaps uniquely situated to assume leadership. First, the Joint Council on Economic Education, which currently has 77 major Centers for economic education in 35 states, provides a well organized and geographically dispersed operational arm for implementing AEA-sponsored programs of economic education. The current proposal, while under the sponsorship of the JCEE, was developed in close collaboration with the American Economic Association through its Committee on Economic Education. Early drafts of this proposal were evaluated by each member of the AEA Committee; moreover, members of that Committee and its representatives will continue to participate in the ongoing planning and advisory groups overseeing the project.

At the practical level, the JCEE and AEA have amassed extensive experience in promoting and improving college teaching and economic-education research. For example, at the annual meetings of the AEA, formal sessions are devoted to reporting research from carefully controlled experiments in areas such as programmed learning, textbook evaluations, efficiency of TV instruction, the lasting effects of economic instruction, teaching information processing systems, testing and evaluation, instructor characteristics as they affect student achievement, and so forth. Moreover, the JCEE is currently undertaking experimentation with the introductory course at seven institutions with particl funding provided by the Sloan Foundation, has sponsored many conferences and workshops with organizations such as the AACTE and AACSB, and publishes The Journal of Economic Education. With the exception of the fields of education and psychology, there is probably no other discipline which has amassed a greater output of hard research based on well-devised experimental procedures in

areas relating to the determinants and consequences of alternative teaching approaches and techniques. The efforts in economics have been facilitated by a set of carefully formulated standardized tests, constructed jointly by the AEA, the JCEE and the Psychological Corporation of America. In short, the concern of economists to upgrade teaching not only is based on a desire to promote economic education, but is made possible by a long tradition of hard research coupled with the development of an institutional network through the JCEE for implementing successful programs, and for experimenting and evaluating new program thrusts.

A second, and possibly equally important reason to look toward the economics discipline for the identification of a teacher-training model is the strong professional orientation of economists toward the justification of programs on a benefit-cost basis. Any teacher-training program will therefore be scrutinized on economic, as well as pedagogic grounds. Two forms which this economic orientation will take will include: first, a plan to insure that the teacher-training efforts are long-lasting and fully institutionalized, and second, a curriculum and model which is applicable to and usable in other disciplines, thereby spreading the development costs over larger numbers of students.

2.0 The Specific Objectives of the Teacher-Training Program

Before discussing the broad strategy we propose to use in developing and implementing a teacher-training program in economics, it is useful to list the specific objectives of the project under consideration.

The primary objective of this project will be to develop a teacher-training program which, in its ultimate impact, will effect a substantial improvement in the undergraduate students' mastery of their subject matter, in this particular case, economics. It is our thesis that this can be accomplished by improving teaching skills of those trained in the professional disciplines. Thus, an important measure of the success or failure of the program would be whether undergraduate students whose professors took part in the program in fact achieved a greater understanding of economics than those whose instructors were not so trained. As a part of the project design and evaluation, this objective must be kept foremost in planning, and in the project's assessment.

As a means for carrying out this overall objective, we con articulate four specific sub-goals:

First, we seek to establish high quality teacher-training programs in ten or more institutions which produce large numbers of Ph.D.'s. These programs will be fully institutionalized; that is, they should not require continuing outside support to insure their maintenance and expansion. The programs will be of use to graduate students participating in the Department's instructional program (TA's, laboratory leaders), new Ph.D.'s about to enter their first teaching positions, and faculty members resident in the Department.

Second, we want each participant to be able to recognize and utilize the skills of

effective teaching. The curriculum will expose the participant to the various pitfalls of ineffective teaching, create an awareness of the ways in which these deficiencies may be removed, provide practice in selected skill areas, and develop a respect for the difficulty of effective teaching.

Third, we will develop a series of instruments and research procedures for validating the impact of the teacher-training program. A research design will be built into the initial planning and curriculum development not only to provide feedback for program improvement, but also to provide hard evidence at the conclusion of the project on the relative success and impact of the teacher-training program.

Fourth, a set of teacher-training materials will be developed. The training materials will include, at a minimum, a manual, curricula, reading materials, and a set of video tapes. These materials should be helpful in training faculty members in both economics and other disciplines. While specific components of the economics curriculum may require modification for other disciplines--for example, some sciences require training in the techniques of conducting a laboratory--most of the components, and clearly the overall design, will be transferable.

In summary, at the conclusion of the five-year project, we shall consider our efforts a success if a) there are ten or more institutions with teacher-training programs in economics, b) these programs are institutionalized and self-sustaining, c) the impact of the program is validated and positive, and d) a set of materials has been developed which permits the diffusion of the teacher-training programs to other institutions and disciplines.

3.0 Elements in a Teacher Training Curriculum

A major ingredient in the teacher training program is the development of the training curriculum. While the specific dimensions of the curriculum must be worked out by the Planning Committee, it may be useful to identify and consider what appear to be key elements in the training curriculum.

Learning Theory - Experts have yet to develop a satisfactory general theory of learning. Yet a considerable body of highly convincing evidence has been accumulated on what kinds of learning generally occur best under what kinds of circumstances. For example, most psychological evidence suggests that the learner's motivation is the critical variable controlling the amount of learning that occurs. If this proposition is accepted, it has obvious consequences for the way economic courses are designed and taught, since without motivation, nothing else matters much.

There is also evidence concerning the factors which appear to govern the acquisition of learning, those which govern the retention of learning and, those which govern the transfer of learning.

On the acquisition of learning, prompt accurate feedback appears of critical importance; that is, the learner must get knowledge of his results, of how he is doing, if he is to learn effectively. Also, learning is faster and easier if the learning is relevant to the learner. This, of course, is closely related to motivation. Moreover, effective learning involves active response. The student must do something, whether verbally in class or in out-of-class discussion. Learning is not a passive proposition in which the student merely sits and receives information. Learning theory tells us that the more organized, meaningful

and related the material is, the greater the retention rate is. The retention rate goes up rapidly as material is "overlearned." That is, learning the same material several times produces more lasting learning in most circumstances. Conversely, the forgetting rate is high on just barely learned materials. Finally, the evidence on the acquisition of learning seems to indicate that the more highly motivated the student, the less guidance is required; that more complex learning situations require more supervision. However, learning theory cautions us against excessive guidance, since this may violate the principle of feedback, which involves having students do something for themselves and then telling them how they have done in terms of results. What seems to emerge from this is a mixture between the induction on the part of the student and guidance on the part of the instructor in most learning situations.

The evidence on the transfer of learning is unsatisfactory in most respects. But even so there are things to note that are important for economists. Transfer appears to occur more effectively when the process of problem solving is stressed as a basis for transfer to new situations, in contrast to stressing a particular technique. There is also some evidence that verbalization of principles facilitates transfer.

This is by no means a complete list of what experts know or are discovering about the learning process in human beings, but new Ph.D.'s are unlikely to be aware of even the rudiments of learning theory. At the very least, the propositions of learning theory have more empirical validity than the casual empiricism on which most teachers build their courses and reaching behavior. Hence, a considerable amount of effort would be devoted to this area.

Specifying Educational Objectives - The lack of basic learning theory, on the part of

new Ph.D.'s in economics, shows up in the courses they teach. Little, if any, thought is devoted to the justification for including economics in the curriculum and what specific ends are being sought. Lacking justification, and clear objectives, the selection of appropriate course content tends to become aimless. Thus, for students, economics does not become a vehicle for conveying some understanding of social systems, but instead becomes a series of fragmented abstract exercises in which sophisticated techniques become ends in themselves. With such an approach, it is not surprising that many students find economics unduly difficult and wholly irrelevant to their experiences.

The relatively poor performance of young instructors in designing and teaching their courses follows from their graduate training. What they tend to emphasize in their own classrooms is what was emphasized in graduate seminars--theory and sophisticated techniques. While this emphasis is a clearly appropriate goal of Graduate Schools it is not adequate for undergraduate instruction. A considerable block of time in the training curriculum would be devoted, then, to specifying course objectives and designing courses which are appropriate and effective for students.

Specific course objectives need not focus on content per se. Rather, they can be built upon the propositions of learning behavior, some of which were indicated above. In this conception, subject matter as such does not become the primary end, but a means to the more fundamental end of the student's learning how to think for himself about economic issues. Where outcomes or objectives are clearly specified, selecting the appropriate principles, concepts, and the level of sophistication necessary to obtain the objectives, can procede in a more orderly fashion.

Teaching Techniques and Methods - With some background in learning theory as a foundation for specifying educational objectives and designing courses, the viability of alternative methods of instruction could then be explored.

Students are not a homogeneous lot, a simple fact often overlooked in college teaching. The degree of motivation among them varies as do basic intellectual abilities and academic backgrounds. It would seem, then, that if instruction is to be effective, methods of instruction should vary where appropriate.

The following are just a few of the techniques that could be considered: in order to motivate students, we would explore the uses of case studies, computer games, simulations, films and filmstrips. A number of these materials are available which explore such diverse and interesting topics as the draft, pollution, poverty, the economics of cities and the problems of emerging nations. Games and simulations also meet the learning proposition of student involvement.

On the acquisition of learning, the problem of prompt, accurate feedback can be investigated through the use of Programmed Learning, the Keller Method of Self-Paced Instruction, and the Teaching Information Processing System (TIPS). These materials have the added advantage of being constructed in an orderly, logical fashion and hence contribute to the retention of learning. In this connection, single-concept film loops would also be considered.

The program curriculum would also introduce methods to directly enhance the classroom presence of the instructors. These might include the preparation and delivery of lectures, the use of testing and evaluation for diagnosing teacher effectiveness rather than

merely assigning grades, and the techniques of leading classroom discussion.

The research possibilities in economic educatian would also merit attention. Implicit in the setting of educational objectives and the selecting of teaching methods, is the challenge to determine if they are effective. Instructors in the program would be introduced to current research, methods for conducting research, and be encouraged to undertake research on their own.

These are only some of the considerations included in the training curriculum. Flexibility would be maintained to accomodate the desire by faculty members to exercise independence and creativity in the development of techniques used at their diffe.ent institutions, and in the selection of research topics.

4.0 Project Format

We propose the following five year project to achieve the objectives stated above. The program is described here on a year-by-year sequential basis.

FIRST YEAR

THE OBJECTIVES OF THE FIRST SIX MONTHS OF THE INITIAL YEAR ARE (1) TO FORM A CURRICULUM PLANNING COMMITTEE AND ADVISORY BOARD; (2) TO CONDUCT A RESEARCH STUDY ON PAST AND PRESENT TEACHER TRAINING PROGRAMS; (3) TO DEVELOP A TRAINING MODEL AND CURRICULUM; AND (4) TO RECRUIT THE PARTICIPANTS FOR A SUMMER CURRICULUM DEVELOPMENT WORKSHOP. EACH OF THESE OBJECTIVES IS CONSIDERED BELOW.

4.1 The Curriculum Planning Committee and Advisory Group - The first step in the project is to form a Curriculum Planning Committee. This committee will consist of the Project Director and several additional members. The members of this committee will serve throughout the project as key resource personnel. They will be involved both in the initial formulation and in the subsequent revisions and evaluation of the curriculum, including the drafting of a manual for participating schools. Committee members will be selected on the basis of their interest in improving teaching and their demonstrated competence in this area. Most, but not all of the committee members, will be economists. Experts from other disciplines will be invited to join or assist the Planning Committee as consultants.

A five man Advisory Board will also be formed. The purpose of this Board will be to offer advice to the Project Director and Planning Committee at various stages of the project.

The Advisory Board will be selected from distinguished members of the American Economic Association.

Research on Past and Present Teacher Training Programs - For the first six months of the project the Planning Committee will develop a detailed teacher-training curriculum. As a part of that activity, it will prove productive to explore past and present training programs in economics, as well as those in other disciplines. While some of this exploratory work has already been completed, a more thorough investigation is in order.

This investigation can be carried out by a search of the literature and by means of telephone interviews with the coordinators of the identified programs. Other experience will serve to supplement any model developed for economics, including the model's broader strategy.

The Training Model and Curriculum - The inttial curriculum model will be developed as follows. At the outset the Planning Committee will meet to define the scope and form of the training model and curriculum, to explore methods by which the entire project can be evaluated on a period-by-period basis, and to develop plans for a final evaluation. Also, at this meeting each member will be assigned specific responsibility for preparing first drafts of selected facets of the model and curriculum.

During the period when the drafts are being prepared, the committee members will be in communication via mail and telephone, exchanging ideas and comments. First drafts will be completed within four to six weeks and members of the Committee will receive copies of each other member's draft. Two to three weeks will be allocated to criticize the drafts, after which time the Planning Committee will again meet to agree on specific curriculum compo-

nents, and to arrange for necessary additions or revisions. The Project Director will be responsible for ensuring that the final form of the model and curriculum is developed and drafted by the end of six months, and that the curriculum model is approved by the Advisory Board.

Recruit Summer Workshop Participants - During the summer of 1973 we plan a pilot implementation of the teacher-training model with a group of graduate students who are working on their Ph.D.'s in economics and with a small number of economists currently holding teaching positions. These persons must be recruited well before the end of the first six month period. The Planning Committee will assist in this task.

The proposed training program is flexible and can be used for training teaching assistants those who have just completed their Ph.D.'s, and those who have some teaching experience and wish to improve themselves. In recruiting participants for the summer workshop, consideration will be given to drawing participants from these various levels; i.e. efforts will be made to recruit TA's, new Ph.D.'s and experienced faculty members.

In addition to testing the curriculum on participants at these three levels of professional training, there are other benefits flowing from this selection procedure. During the life of this project, controlled experiments may be constructed to evaluate the relative impact of the training program on each of the three groups. The results may be used as a part of the project's evaluations. Moreover, the experienced faculty participants will form the nucleus for implementing teacher-training programs on their respective campuses; indeed, they will be selected with this end in mind. Finally, by recruiting from different levels, distinct benefits may derive from group interaction.

The participants will be recruited through letters and phone contacts with key faculty at around ten target universities for the project. Given the stratified composition of the participant group, it is neither necessary nor desirable to obtain a representative cross section of participants from the faculty and graduate-student population. No stipend will be awarded the participants; however, all travel and living expenses will be covered.

THE NEXT PHASE OF THE PROJECT, WHICH RUNS FOR THE SUCCEEDING THREE MONTHS, HAS THE FOLLOWING OBJECTIVES: (1) TO IMPLEMENT THE SUMMER WORKSHOP; (2) TO DEVELOP A VIDEO TAPE; (3) TO EVALUATE THE OVERALL PROGRAM AND ITS COMPONENT PARTS; AND (4) TO REVISE THE CURRICULUM. EACH OF THESE IS CONSIDERED IN TURN.

4.2 Training and Curriculum Development Workshop - The focus for the workshop will be the presentation of the model program developed by the Planning Committee in consultation with the Advisory Board. The program will not simply be a listing of topics, time and place, but rather a full scale presentation of a detailed teacher-training curriculum directed toward specific objectives and strategies with supporting materials, bibliographies, research results, and the like. The workshop will run for fourteen days, roughly ten of which will be devoted to the program presentation, and the remaining four for careful evaluation and revision.

The teaching members of the workshop will include individuals on the Planning Committee and expert consultants both within and from outside the economics profession. Visiting consultants will be expected to spend a minimum of two consecutive days at the workshop

to interact with the participants. Interaction will be further enhanced by requiring all teaching staff--permanent and visiting--to share the same dining and living quarters with the workshop participants.

The workshop will be held on a university campus, perhaps at Duke University, University of Minnesota or University of Wisconsin. In addition to the 30 participants, six to eight experienced faculty will be invited. These experienced faculty will be selected as potential campus coordinators of the teacher-training program at their respective institutions, each of which will be phased into the project during subsequent years. For these members, the workshop will serve as a briefing session in the various components of the curriculum and training model. Equally important, these faculty members will be expected to play an active role in forming and modifying the final curriculum which develops from the workshop. They will thus feel a stronger identity with the program, and will be more enthusiastic about providing a time and resource commitment to it on their own campus.

Development of Video Tape - A major long range objective of the teaching-training project is to produce a working model for other institutions and disciplines to adopt and use effectively. There is much more involved in adopting a program than simply using a prepared curriculum and examining a set of written materials and instructions. The manner in which the materials are presented to the potential adopting faculty member or department--emphasis, inflections, subtle nuances--will not be effective from reading alone. Yet it is impractical to consider workshops for everyone who might be interested in such a program. As a result, the preparation of a carefully edited video tape version of the substantive parts of the workshops appears to offer a practical alternative. Moreover, the video tape can comple-

ment the written curriculum materials. Potential users of the teacher-training model can see how the materials were used and also, incidentally, how they were received.

Evaluation - No new teacher-training program will be satisfactory in all respects. However, careful evaluation can help make a good product better. Video taping quite apart from its merits for potential users, will serve as a strong evaluation aid. But there are other forms of evaluation which can and should be employed; some are qualitative, some quantitative. Qualitative measures such as formal and informal participant feedback will be used to analyze the effectiveness of the overall program and its components. Where objective outcomes are stated clearly, quantitative evaluation is generally applicable and will be used.

Revise the Curriculum - The purpose of evaluation is to supply the information to effect change. Data and observations obtained through evaluations will be used to modify the curriculum and the training model. The form the revisions take will depend largely upon the collective judgment of the planning Committee in consultation with the Advisory Board, the future campus coordinators at the workshop, and the consulted experts in educational technology.

The Advisory Board will be invited to attend the concluding day of the workshop. Their presence will not only provide the participants an opportunity to exchange ideas, but will represent an important additional resource in revising the program curriculum. The revised curriculum will then become an input into the next phase of the project, and will form the basis of a training manual.

THE OBJECTIVES OF THE FINAL THREE MONTHS OF THE FIRST YEAR OF THE PROJECT ARE TO (1) IMPLEMENT THE REVISED TRAINING PROGRAM AT TWO UNIVERSITIES; (2) TO EDIT THE VIDEO TAPES; AND (3) TO INITIATE THE PREPARATION OF A PROGRAM MANUAL.

4.3 Implement the Revised Training Program - A stated objective of this project is to implement teacher-training programs at approximately ten institutions over a period of five years. Two institutions will implement the revised training program during the first year. It is important that these institutions be chosen carefully; they represent the "field trials" or "pilot plants".

Recall that the participants in the summer workshop will have included several experienced faculty members. The first two universities to be phased into the program will represent the home institutions of two of the participants. The reason for selecting from among the participants is not simply that they themselves were "trained" at the workshop--although that is important. Rather, these participants will have played an active role in shaping the final curriculum. In a real sense the workshop, the training model, and the curriculum will have been "theirs". In the first stages of the field trials it is appropriate to invest in those who feel most closely identified with the project.

The Project Director will play an active role in the first program implementations. He will not only provide the campus coordinator with necessary backstopping (including special consultants, if necessary), but more importantly, will observe the program with the objective of obtaining insights useful to future evaluations and program modifications.

Edit Video Tape - The video tape, along with the program manual, will form the basic materials for implementing future teacher-training programs. A careful editing of the video tape is necessary to keep its length manageable while retaining its instructional worth. The Planning Committee will assist in establishing the criteria for editing the tape, although the final program will be compiled by an expert in educational technology.

Program Manual - The program manual will be keyed to, and will complement the video tape. The manual will be a self-contained, step-by-step blueprint for constructing a teacher-training program. It will offer suggestions and criteria on selecting staff, indicate pitfalls to be avoided in conducting training programs, list consulting experts in various areas, and the like. The Planning Committee will assume a major responsibility in the development of the manual; specialists, when appropriate, will also be consulted.

SECOND YEAR

THE OBJECTIVE FOR THE FIRST SIX MONTHS OF THE SECOND YEAR IS TO COMPLETE THE FIRST DRAFT OF THE MANUAL AND VIDEO TAPE.

4.4 By the end of the first six months of the second year, both of these resource documents will be ready for field trials. They will have benefitted from the experience of the ongoing training programs, although each will be modified as more is learned from the expanding program.

FOR THE NEXT SIX MONTHS OF THE SECOND YEAR THE OBJECTIVES OF THE PROJECT ARE (1) TO PHASE IN TWO ADDITIONAL PROGRAMS, AND (2) TO EVALUATE THE TRAINING MODELS AND MODIFY THEM ACCORDINGLY.

4.5 Additional Training Programs - Two more institutions will be phased into the program, for a total of four. As in the previous case, the Project Director and his resources will be available for backstopping, and the new programs will be actively observed. The campus coordinators for these new programs may be selected from either the experienced faculty who attended the summer workshop or from among the new Ph.D.'s at the workshop who now hold teaching positions. Besides the consulting services of members from the Planning Committee, it may be possible to make available the advice of the campus coordinators of the two original training programs. These campus coordinators will have amassed considerable experience with the program and will most likely be in the process of implementing another training program. The cadre of experienced consultants in teacher training will expand as more schools are phased into the project.

Evaluation and Modification - Until this phase of the project, individuals connected with the training program will represent the "graduates" of the summer workshop. Moreover, they will have had the benefit of the services of the Planning Committee and perhaps other consultants. Subsequently, institutions phased into the program may include some not previously associated with the project. These new campus coordinators will rely mainly on the video tape and the manual for guidance.

Prior to launching this new phase of the project, it would be appropriate to carefully

criticize and revise the tape and the manual. This will be undertaken at a working seminar attended by the Planning Committee, the campus coordinators of the ongoing teacher-training programs, and selected consultants. An attempt will be made to match the actual experiences of the campus coordinators with the procedures contained in the tape and manual. Two or three "outsiders" may also be invited to determine whether the documents are sufficiently clear in their purpose and procedures to be used by those with no prior training. Deficiencies in the documents will be remedied during the remainder of this three month period.

THIRD, FOURTH, AND FIFTH YEARS

THE OBJECTIVES DURING THESE YEARS ARE: (1) TO IMPLEMENT ADDITIONAL TRAINING PROGRAMS; (2) TO IMPLEMENT THE EVALUATION DESIGN; (3) TO INITIATE A FOLLOW-UP STUDY ON THE SUMMER WORKSHOP; (4) TO PUBLICIZE THE PROGRAM; AND (5) TO PREPARE A FINAL REPORT.

4.6 Additional Training Programs - During these three years six additional institutions will be phased into the program. The procedure will parallel that employed during the final phase of the second year. That is, the programs will be observed, but heavy reliance will be placed on the prepared materials.

Evaluation - This process will have been a continuous responsibility of the staff over the life of the project. However, in addition to the final evaluation of the project by the staff, each campus coordinator will be asked to provide an evaluation of the individual programs. The staff will assist the campus coordinators with a uniform research for-

mat to obtain comparable data. Latitude will also be provided for additional evaluation as determined by the campus coordinator. These independent evaluations will be summarized, and their contents made available, in the Final Report.

Follow-up Studies - An important component of the evaluation will be a follow-up study of the original summer workshop participants by the Planning Committee. The study will attempt to identify the extent to which this training engendered lasting effects. Do the TA's who participated in this workshop demonstrate a greater proficiency in teaching--say as measured by a standardized course evaluation and subject matter tests--than a comparable sample of non-trained graduate students? If such an evaluation is undertaken, especially if it is expanded to trainees outside the original summer workshop, careful consideration must be devoted to obtaining a viable control group against which this experimental population may be compared.

Publicizing the Program - By the time the project is completed, ten institutions will have instituted teacher-training programs for economists, covering perhaps 200-400 future teachers. Even if the project is totally successful, we will have reached only a small portion of the economists in the teaching profession. There is much to be gained by making the teaching model widely available to economists, and, equally as important, to those in other disciplines interested in improving instruction. We propose to publicize the program widely, through such media as professional meetings, research papers, advertisements in professional journals, mailings, and the like.

Final Report - A comprehensive report will be prepared. It will include a reconciliation of the project's stated objectives with the demonstrated outcomes, a description

and analysis of the program's content, the evaluation results, and recommendations for future thrusts in improving teaching.

September 28, 1972

APPENDIX A

The Lewis Program at the University of Minnesota

The University of Minnesota employs graduate students extensively in their instructional program, particularly in the Principles of Economics course. All of the students in the Principles course meet once a week in a large lecture led by one or more of the professors in the Department. During the remainder of the week, students meet in smaller sections with their individual, graduate student instructors. Graduate students carry out a major portion of the instruction, and are given considerable autonomy in their own individual sections. A course coordinator is responsible for arranging lectures, working with the individual graduate student instructors, coordinating examinations, and so forth.

Darrell Lewis, in close cooperation with the Economics Department, has instituted a program to train graduate student instructors in teaching methods, especially as these methods pertain to the teaching of economics. This program has been in operation two years. Early in their residence at the University of Minnesota, graduate student instructors are given the option of participating in an "Instructors' Seminar" on teaching methods. While attendance is voluntary, faculty support is strong and vocal; wide attendance is therefore common.

There are two major components of the seminar program. The first component deals mainly with teaching methods, and is carried out through seminar discussions, seminar presentations, and reading. The first meeting of the seminar is devoted largely to organization, and includes presentations by the faculty lecturer in the Principles Course, the course coordinator, and the Chairman of the Department. Each lends his strong support to the

program. The remaining seminar meetings cover topics such as a) the purpose and scope of the introductory economics course, b) the use of the blackboard and audiovisual materials in teaching, c) methods of leading class discussion, d) problems in teaching specific concepts in economics, and e) alternative technologies and approaches to teaching (a review of the research).

A second, and concurrent, component of the seminar is an intensive tutorial between the seminar leader (or his assistant) and the individual graduate student instructor. This tutorial centers around a critique and evaluation of the graduate student's teaching. The graduate student instructor is initially evaluated by his students early in the course; these evaluations are then reviewed by the seminar leader in consultation with the graduate student. In addition, two or three classroom sessions are video-taped, rated, and constructively critiqued. The results of this evaluation and self-criticism are kept confidential, thereby insuring cooperation and increased effectiveness.

In Lewis' judgment, the major portion of the benefits deriving from the entire seminar program flow from the tutorial program of self-criticism of actual classroom instruction. The critiques of the video-tape sessions, in particular, have been found to be very helpful.

No teaching credit is awarded to the seminar. On the other hand, those students who have demonstrated particular success in the program (possibly the top 10%) are so recognized by a letter of recommendation from the Seminar Leader. Moreover, each is provided with a video tape recording of one of his class presentations. Both the letter and the tape have been found useful in student job placement.

The Hansen Program at the University of Wisconsin

The purpose of this program is to enhance the instructional effectiveness of teaching assistants in the Department of Economics. Through a series of weekly meetings teaching assistants will be shown how they can improve their techniques for discussion leading, made more aware of their teaching abilities through the use of playbacks of video tapes of their section meetings, instructed on how to prepare more effective examination questions, and exposed to the potentialities for research on the impact of instructional programs in economics. The program may be suggestive of ways by which the teaching effectiveness of faculty members can be enhanced.

The Economics Department has had no formal or even informal program to encourage effective instruction by our teaching assistants, though individual faculty members often work closely with their teaching assistants. While the Department-wide course evaluation program (now in it fourth year) indicates that teaching assistants on average do an effective job, there is still much room for improvement. This judgment is based on observations with teaching assistants last year and this year in teaching large elementary courses in economics.

The most important need is for greater effectiveness in guiding discussion in the weekly section meetings. All too often what discussion there is could best be labeled as "aimless". More often, teaching assistants produce a mini-lecture. Yet there are proven techniques for discussion leading that can make such sessions intellectually stimulating and at the same time improve student learning. These techniques can be developed through proper training. Two sessions lasting five hours each will be given in the early part of the program; these will be led by an outside expert who has already conducted training sessions for faculty members.

Because teachers cannot see themselves in action in the classroom, they have difficulty appraising their effectiveness. With the use of portable video tape machines, tremendous possibilities are now open to us. We plan to tape parts of two sections (one early in the term and the other later) taught by each teaching assistant. There will be a general session in which a faculty member will submit to being critiqued in a video tape playback; subsequently, each teaching assistant will have an opportunity to view his own playback and get suggestions on how he might improve his classroom teaching.

Teaching assistants also know little about how to construct effective examination questions that test students' understanding of what they have presumably learned. Two sessions on the construction of examination questions are planned under the leadership of an expert from the University's Counseling Center. These sessions will also come early in the semester so as to aid in the construction of the six-weeks' exam.

Finally, considerable research is now underway on the impact of alternative instructional programs and techniques in the teaching of economics, including the notable work of Allen Kelley. Teaching assistants need to be alerted not only to what Kelley and others have done but also to the tremendous possibilities that exist for additional research. Being aware of the research underway (and even better, doing research on teaching) is almost certain to improve one's own teaching effectiveness. Two sessions are planned.

All teaching assistants in the Department will be invited to participate in this program. Other interested graduate students will be allowed to attend those sessions that they might benefit from. It is also hoped to have several faculty members attend on a regular basis.

In the late spring an evaluation of the effectiveness of the program and of the individual sessions will be conducted. This will be done through the use of a questionnaire and personal interviews with the participants. A follow-up sometime about the middle of the 1972-73 academic year to determine the longer-run impact of the program is also planned. A written evaluation report will be prepared and made available in the summer of 1972, with a supplemental report early in 1973.

If this program is found to be effective, it will become a regular, once-a-year part of the Department's efforts to enhance the quality of its undergraduate teaching efforts. Other efforts are now underway in the Department to improve its undergraduate instructional program. This particular program is seen as a key element in this larger effort.

APPENDIX B

COMMITTEE ON ECONOMIC EDUCATION

AMERICAN ECONOMIC ASSOCIATION

G. L. Bach, Frank E. Buck Professor of Economics and Public Policy, Stanford University. Special consultant to the Board of Governors of the Federal Reserve System and to the Secretary of the Treasury. Chairman of the Committee on Economic Education of the American Economic Association and the National Task Force on Economic Education. He is a trustee of the Joint Council on Economic Education and has served as consultant to the Ford Foundation, the Sloan Foundation and the Carnegie Corporation of New York. Author of twelve books and over one hundred articles.

Kenneth E. Boulding, Professor of Economics, University of Colorado. Past president of the American Economic Association, Society for General Systems Research, Peace Research Society (International), and Association for the Study of the Grants Economy. Recipient of the John Bates Clark Medal of the AEA, Distinguished Fellow of the AEA, and Prize for Distinguished Scholarship of the American Council of Learned Societies. Author of twelve books and over two hundred articles.

Rendigs Fels, Professor of Economics, Vanderbilt University and former Chairman of the Department of Economics. Secretary-Treasurer of the American Economic Association and trustee of the Joint Council on Economic Education. Past president of the Southern Economics Association. Author of several books and numerous other publications.

Allen C. Kelley, Professor of Economics, Duke University. Specialist in the areas of economic development, economic demography, and economic education. Director of several economic education projects dealing with computer managed instruction and models for evaluating classroom instructional efficiency. Author of numerous articles.

Henry H. Villard, Professor of Economics, City University of New York and past chairman of the Department of Economics. Trustee of the Joint Council on Economic Education, and editor of The Journal of Economic Education. One time staff member of the Ford Foundation and former economist with the Federal Reserve System. Author of several books ond numerous articles.

Harold F. Williamson, former Professor of Economics, Northwestern University and past Secretary-Treasurer of the American Economic Association. Currently Resident Scholar, Eleutherian Mills-Hagley Foundation and Professor of Economic History, University of Delaware. Author of several books and articles.

APPENDIX C

EXPERIMENTAL PROGRAM IN INTRODUCTORY ECONOMICS

JOINT COUNCIL ON ECONOMIC EDUCATION

The Sloan Foundation is partially funding the Joint Council's experimental program with the introductory economics course at seven colleges and universities. The specific objectives of the experimental program are to: (1) develop several new approaches to the introductory economics course which stress both content and effective teaching methods; (2) carefully evaluate the effectiveness of the courses with respect to achievement and student attitudes; and (3) develop course syllabi which are applicable to a wide variety of colleges and universities. Participating institutions are Vanderbilt University, The University of Colorado, New York University, Montclair State College, Indiana University, Florida State University, and Oklahoma State University.

Each of the experiments is being headed by experienced investigators and all are well underway. In all of the experiments attention has been focused on the frequently voiced criticism that the so-called standard course is too technically oriented and attempts to cover too much material; the result often being that little is learned or retained. Thus, the experiments have attempted to isolate basic concepts, while at the same time retaining an analytical framework which can be used to handle a wide variety of policy issues. For example, Indiana University utilizes not much more than basic supply-demand analysis in its micro-economic section, yet manages to apply these simple market tools to a wide variety