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ABSTRACT

This document consists of funding information, a mission statement, 30 research project descriptions, descriptions of nine service activities, and a list of addresses for the National Center for Research in Vocational Education (NCRVE) at the University of California-Berkeley and its subcontractors at Teachers College, Columbia University; the RAND Corporation; University of Illinois; University of Minnesota; and Virginia Polytechnic Institute and State University. The research project descriptions appear under the following headings: (1) Context, Goals, Planning and Evaluation; (2) Curriculum and Instructional Methods; (3) Vocational Education for Special Populations; (4) The Development of Personnel in Vocational Education; (5) The Delivery Systems of Vocational Education and Training; and (6) Governance and Policy. The service activities are grouped into two categories: centralized service functions and service functions located at NCRVE subcontract sites. (CML)

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National Center for Research in Vocational Education

THE 1989 AGENDA FOR THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

The University of California at Berkeley

Subcontractors:

The University of Illinois

The University of Minnesota

The RAND Corporation

Teachers College, Columbia University

Virginia Polytechnic Institute and State University

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THE 1989 AGENDA FOR THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

The Mission

The Center's mission is to rethink what vocational education should be and how it can best be delivered. It is to contribute to the renewal of vocational education so it can give all citizens, of all ages, the skills they need for successful, long-term employment. To accomplish this, we must integrate vocational education with nonvocational education theory and practice. We must find ways to make vocational programs sensitive to rapid changes in the economy and in educational needs. We must help vocational education anticipate future changes so it can shape debates over the role of education rather than merely react to them. Our clientele are *all educators*, and *all students*. We believe that all students and all employers will be better served by an integrated view that combines theory and practice, the "nonvocational" and the "vocational." Our goal is to make this new vision of work-related education a reality.

A. Research Project Descriptions

If our mission is to renew education — to help it respond to changing conditions — then our research programs must look at the most crucial elements of change and identify ways for vocational education to respond. The six issue areas of our research agenda reflect our strategy for doing that.

I. Context, Goals, Planning and Evaluation

To define the goals of vocational education more clearly, we're examining how both the nature of work and the demographic characteristics of students have changed. We are also investigating how different forms of learning (both formal and informal) affect economic outcomes over a worker's life.

Project I.1 The Response of the Vocational Education System to Technological and Economic Changes in the Workplace. Project Director: *Thomas Bailey, Teachers College, Columbia University* (Second Year of Project)

This is an on-going project that was started during the first year of the National Center for Research on Vocational Education. Moreover, it is part of a broad research program being carried out at the Conservation of Human Resources Project at Columbia University that has focussed on the one hand on the analyses of the changing nature of work and the resulting skill demands and on the other hand, on the response of the education system to those changes. During the last 15 years, the economy has undergone a change that rivals in importance the rise of the industrial/manufacturing based economy and the accompanying precipitous decline in agricultural employment. Just as the education system responded to that development, we expect that the system that prepares today's workforce will also have to undergo profound changes. In seeking to understand those developments we are studying how educators and trainers, both in firms and in the secondary and post-secondary vocational education systems, understand the changes taking place in the economy, how they have perceived the implications of those changes for their roles, and finally how they have in fact responded.

Our research is based on extensive interviews with education and training personnel both in the vocational education system as well as in firms, interviews with employers who hire graduates, and administrative data on growth in enrollments, areas of study and job placements after graduation. We have chosen to study educational systems in four major cities--New York,

Chicago, Los Angeles, and Philadelphia. In conjunction with these studies we will also talk to officials and staff in the state governments that oversee the system that we are studying. The variation among cities will allow us to analyze the ways in which different education systems have responded to different paths of economic change and development.

Project I.3 Educational Requirements of Skill-Intensive Production: Implications for Vocational Education. Project Directors: *David Stern, Clair Brown and Michael Reich, University of California at Berkeley* (Second Year of Project)

Productivity of the American economy has grown less rapidly since around 1970 than in the two prior decades. There is no coherent national policy to boost productivity growth. Some firms have new methods of production designed to capitalize on the relatively high levels of know-how among American workers, and to speed the acquisition of new skills and knowledge in order to continue improving productivity. Other firms have adopted the strategy of improving the character of labor-management relations in order to boost productivity. This too requires the acquisition of new knowledge and skills, most importantly by increasing the ability to problem solve, communicate and develop the capability for continual learning. Over a number of firms and work sites the following research questions will be addressed.

1. How and where are workers currently being trained?
2. What are the limitations or deficiencies of current training?
3. What are possible means to improve training? What is an efficient division of labor between formal education and informal training?

Project I.10 Linking Planning and Evaluation in Vocational and Technical Education. Project Directors: *Marion Asche, Deborah Strickland and Donald Elson, Virginia Polytechnic Institute and State University* (Second Year of Project)

Federal vocational legislation has placed increasing emphasis on assessment, evaluation and planning since the 1976 Vocational Education Amendments. States have responded by developing a myriad of models, systems and procedures for the generation, collection and analysis of labor market, enrollment, programmatic and follow-up data. While most states now have some form of systematic approach to planning and evaluation, these approaches are widely variable in scope and sophistication and, for the most part, the evaluation and planning functions are not symbiotic.

This study proposes to (1) describe the current status of vocational education planning-evaluation linkages, (2) review and synthesize relevant research in such areas as planning, evaluation, evaluation utilization, administration and innovation/change to identify factors that influence effective linkages between planning and evaluation, (3) propose research-based strategies or models for facilitating such linkages, and (4) develop and field test a training program to prepare vocational evaluation and planning personnel to develop and implement coordinated planning/evaluation systems.

Project I.12 Improving Health Sciences Education: An Industry Study. Project Director: *Gary Hoachlander, University of California at Berkeley* (Second Year of Project)

This study is directed at improving secondary and postsecondary health sciences education. By working closely with employers and educators in the health care field, this project seeks to better understand the changing skill requirements of the health care industry, to assess the implications of these changes for vocational education in the health sciences, and to improve the exchange and use of information on an on-going basis between health care employers and educators. To accomplish these tasks, the study has the following major objectives:

- To develop a model industry study that can be used to examine the intersection between vocational education and employment in other industries;
- To produce replicable methodology for job analysis and evaluation of vocational education programs that can be applied in other industries;
- To design an on-going system for information exchange between employers and vocational educators that can be replicated for other industries and other geographical regions;
- To establish the NCRVE as the leading repository of information and expertise on vocational education and employment in the health industry.

II. Curriculum and Instructional Methods

We must translate the goals we've defined into practice. We're identifying ways to modernize the content of vocational programs to help them respond rapidly to changing economic and demographic conditions.

Project II.1 Subject Matter of Vocational Education. Project Directors: *Robert Beck and George Copa, University of Minnesota* (Second Year of Project)

There are two major strands to the research which was begun in 1988 and will be continued in 1989. These strands concern defining the unique subject matter of vocational education while at the same time developing the interaction between vocational education and general and/or liberal/academic education. Concerning the first strand, the plan is to review the knowledge base of the various disciplines (i.e., economics, anthropology, philosophy, physical science) to address the foundational questions developed during 1988. This plan will be accomplished through library work and discussions with experts in these various disciplines at the University of Minnesota. Resulting will be an initial structure and content for the foundations of vocational education as one major component of the subject matter of vocational education.

The second strand of research, developing the interaction between vocational education and general and liberal/academic education, was approached in 1988 by indepth investigation of polytechnical education as practiced in Russia and the German Democratic Republic. The point of the examination was to analyze and reflect upon the extent to which ideas that are basic to polytechnical education, as a quite different structure for education, can improve the quality and integration of education in this country. During 1989, it is proposed to push significantly forward the possibilities of integrating what has long been understood to be a polar: vocational training and general and liberal/academic education. The prime question is, can there be an impressive gain by melding these two forms of instruction? The term "meld" is meant to propose a revision of both vocational and non-vocational education such that both are used to create something that is new and more compelling than the separate entities with all the disparities of status and educational adequacy that are well known in conventional education.

Project II.2 Models for Integrating Academic and Vocational Education. Project Directors: *W. Norton Grubb, University of California at Berkeley and Jane Plihal, University of Minnesota* (First Year of Project)

Many critics of vocational education have called for integrating academic and vocational education, but it has never been clear what such integration entails. This project will investigate different models for achieving such an integration, at both the secondary and the post-secondary levels, and will then examine their effectiveness. The final stage of the project will disseminate information about the exemplary forms of the integration through networks of interested teachers from both academic and vocational faculties.

Project II.3 Who Gets What and Why?: Curriculum Decisionmaking in Vocational Education.
Project Directors: *Jeannie Oakes and Molly Selvin, The RAND Corporation* (Second Year of Project)

This proposal describes the second year of work on an on-going two-year study that relies on case study and cluster analysis techniques to examine the determinants of high school academic and vocational offerings, and the factors affecting which students are placed in various programs and courses. The study will examine the curricular decisionmaking processes at the state, district, and school levels. The findings of the study should enable policymakers, guidance counselors, and vocational educators to develop better strategies for ensuring that all students (and particularly those from special populations) have access to an appropriate mix of academic and vocational preparation.

Project II.4 Impact of Cognitive Science-Based Vocational Education Instructional Design on Work-Related, Domain-Specific Knowledge Acquisition, Structure, Use and Transfer. Project Director: *Ruth G. Thomas, University of Minnesota* (Second Year of Project)

Cognitive science research is increasingly indicating that the way in which knowledge is learned affects the structure of stored knowledge, its usability, and its transferability to new and unfamiliar problems and situations. The way knowledge is stored also affects further knowledge acquisition. Usability and transferability of stored knowledge and the ability to independently acquire further knowledge are increasingly important as the complexity of work place problems, decisions, roles and tasks increases. This program of research will derive new instructional design principles and models based on cognitive science research and test those principles and models for impact on the structure and content of learners' stored knowledge and on learners' ability to use and transfer their knowledge and acquire further knowledge relevant to work problems, roles and contexts.

Project II.5 Defining and Assessing Generic Skills for the Workplace. Project Director: *Cathleen Stasz, The RAND Corporation* (Second Year of Project)

Educators and employers agree that general problem-solving, communication, and flexible learning skills are key to success in many working environments. However, no clear consensus exists as to what these skills are, and how they are defined. This lack of clear definitions stands in the way of the careful development, testing, and implementation of curricula and teaching methods for these important "generic" skills. The goal of this project is to survey the literature and field, and bring to bear research methods from ethno-methodology and cognitive science to the task of defining and investigating generic skills instruction in successful work-related educational programs.

Project II.7 Computerized Adaptive Assessment of Vocationally Relevant Basic Skills. Project Directors: *David J. Weiss and David J. Pucel, University of Minnesota* (Second Year of Project)

This project will begin the development of an adaptive computer-administered test battery for assessing vocationally-relevant skills in reading and mathematics. The test battery will be designed to test individuals entering vocational-technical schools in order to identify deficiencies in their basic skills that would reduce the effectiveness of vocational-technical education. The test battery will use state-of-the-art computerized adaptive testing procedures to insure both measurements of high precision and maximum efficiency of the testing process. Procedures will also be developed and implemented for identifying the minimum basic skill levels of occupations. These data will be combined with the individual skill measurements to provide a computer-generated individual interpretive profile of basic skills for use by educational personnel. During this project year literature reviews will be completed in three areas to serve as the basis for project activities: (1) the measurement of math skills, (2) adaptive testing, and (3) procedures for identifying the skill

requirements of occupations. A review of the literature on measuring reading skills will also be begun. During this project year the adaptive testing system for measuring math skills will be designed, item banks constructed and normed, and a prototype adaptive testing system for measuring math skills will be pilot tested.

Project II.8 Research on the Effects of Training in Conflict Resolution and Cooperation. Implications for Vocational Education Policy and Practice. Project Director: *Morton Deutsch, Teachers College, Columbia University* (Second Year of Project)

This study addresses the important question of how students can be better prepared to resolve conflicts constructively and interact cooperatively with others in the workplace as well as in their schools and communities. The purpose of this project is three-fold: (1) to develop procedures for providing students with skills in managing their conflicts more constructively and working cooperatively with others; (2) to provide students, as well as teachers, with these skills; and (3) to conduct research to assess the value of such procedures. Many of the work problems experienced by students after they finish schooling relate to their lack of skills in working cooperatively with others and in managing their conflicts at work constructively. The project will provide educational practitioners with models, manuals, and procedures for training students in the skills of effective conflict resolution and collaboration. Systematic research on the effectiveness of these procedures in affecting student behavior in school and work-related situations is being undertaken by comparing equated groups of students who have or have not been exposed to training. The research is a three-year longitudinal study with a control group in which students will be assessed before training, after different amounts of training, and at regular intervals subsequent to training. A fourth year is required to complete data analyses and prepare appropriate reports.

Project II.9 Technical and Symbolic Knowledge in CNC Machining Laboratory for Cognitive Studies of Work. Project Director: *Sylvia Scribner, Teachers College, Columbia University* (Second Year of Project)

This project will address the question of how machinists learn to use computer numerical control technology. This technology was selected because it represents a prototype of changes in work which require an integration of traditional machining knowledge with the symbolic knowledge and logical skills involved in the new "informatics" that are affecting, not just machining, but many industrial occupations. The project will analyze the intellectual demands that these technologies pose, how workers learn to integrate their existing knowledge with the new symbol-based knowledge systems incorporated in these technologies, and which educational means are effective in facilitating this integration. The project consists of three complementary studies: (1) an observational study of machinists learning CNC programming at work, primarily designed to refine our knowledge of the tasks, problems, and changes in performance which challenge machinists when they learn CNC technology under normal shop floor conditions; (2) a quasi-experimental study of cognitive differences among machinists with different kinds and levels of expertise in traditional machining and in CNC programming, designed to illuminate differences in approach to machining tasks by people with different backgrounds; (3) an experimental training course in CNC programming, designed to observe changes in thinking under formal CNC training conditions and to illuminate differences in learning problems encountered by machinists and engineers with differential knowledge of traditional machining.

Project: II.12 Analysis and Improvement of Vocational Education Instructional Materials. Project Directors: *Thomas Anderson and Bonnie Armbruster, University of Illinois* (First Year of Project)

This project will involve surveying and describing a variety of vocational-technical textbooks, focusing on the text that shows or demonstrates how to do something. A sample of middle school,

high school and community college text material will be obtained which shows or demonstrates how to do something. The sample will be from a variety of vocational-technical subject areas.

Segments of text from material in the sample will be selected and analyzed using principles gained from recent Center for the Study of Reading projects examining instructional text from other subject fields. Analyses will determine how "reader considerate" the text is by investigating the characteristics of structure, cohesion and audience appropriateness. Using results from this analysis, a topology of procedural texts and reading strategies will be developed.

Project II.13 Applied Basics Curricula in Vocational Education: Validation of Student and Program Outcomes. Project Director: *Jerry D. Pepple, University of Illinois* (First Year of Project)

The overall objective of this project is to assess the student and instructional program outcomes which result from implementation of applied basics curriculum packages, such as Principles of Technology and Applied Communication. As these materials are developed and used in various ways by schools and individual teachers, it is important to understand the gains in basic skills which result across various student groups, different educational levels, and in different vocational program areas. The scope of the project covers a span of four years and has as its primary goals:

1. Developing new linkages for dissemination and replication of applied basics curricula involving vocational educators, curricula developers, and the National Center.
2. Strengthening the content of and instruction in basic and academic competencies in vocational programs by studying the implementation of applied basics curricula in selected secondary and postsecondary settings.
3. Developing and disseminating valid, reliable, and replicable procedures and instrumentation for assessing student attainment of applied basics competencies.

III. Vocational Education for Special Populations

In view of changing demographic conditions, a growing portion of those needing vocational training will also need special help to benefit from it. We're looking at ways to improve existing programs for these special populations — students with limited skill in English, minorities and low-income students, the handicapped, single-parents, women seeking access to a broader range of occupations. If these programs successfully blend theory and practice, they can provide students with choices they have previously lacked. These students can gain access to post-secondary education or to superior jobs after completing a high school program.

Project III.1 Vocational Education in the Context of Programs for Pregnant and Parenting Teenagers. Project Director: *Gail Zellman, The RAND Corporation* (Second Year of Project)

The proposed research continues and builds upon the Year 1 project, "Vocational Education in the Context of Programs of Pregnant and Parenting Teens." The Year 1 project focused on school-based vocational programs for pregnant and parenting teens. The proposed Year 2 project extends this work to include all teen mothers by examining both the availability of community-based services in selected Year 1 sites and the degree to which the schools and the larger community have come together to provide integrated services and outreach to a very needy population.

In selected public and private community-based agencies we will gather in a semi-structured manner information about the program, its funding sources, its degree of integration into the

community, and its outreach efforts. A key issue will be the relative focus on the completion of high school and on vocational education.

The findings of the proposed study, when combined with the Year I results, will provide a comprehensive look at the availability of vocational education services to a large and needy population likely to benefit from vocational education—teen parents both in and out of school.

Project III.2 Preparing A Literate Work Force. *Project Directors: Jenny Cook-Gumperz and Glynda Hull, University of California at Berkeley* (First Year of Project)

This research effort will focus on one particular segment of the at-risk population, those 16 to 24 year olds lacking sufficient basic skills in the varied aspects of reading, writing, and information management that now constitute full literacy encounter difficulties even in entering the postsecondary job-training or education programs that provide a transition from school into the regular workforce. The key research questions are:

What is the nature of literacy instruction in excellent vocational programs?

How applicable is college-based learning to work contexts?

How does learning on the job differ?

What roles do literacy skills play in the work world, and how essential are they to success in which jobs?

What kinds of literacy curricula are best suited for at-risk youth?

Project: III.3 Assessing and Improving the Effects of Practices for Serving LEP and Immigrant Students in Vocational Education. *Project Directors L. Allen Phelps and Elizabeth Platt, University of Illinois* (First Year of Project)

Limited English proficient (LEP) students represent the fastest growing special population group to be served in vocational education programs. In 1981-82 (the last year in which VEDS enrollment data were compiled), more than 75,000 LEP youth and adults were enrolled in vocational education programs nationally, with more than 85% enrolling in regular, mainstream vocational education courses (U.S. Department of Education, 1983). With the continuing influx of immigrants and refugees, several states are reporting difficulties in providing effective programs and support services for these individuals. While the impact and effectiveness of special bilingual vocational training programs have been studied, (Troike, Golub, & Lugo, 1982), few if any studies have examined the characteristics of mainstream programs that are successful in serving these youth and adults.

This two-year project will involve an examination of the current literature on the effects of placement in regular vocational education programs upon LEP students achievement at both the high school and postsecondary level. Several exemplary programs will be identified through a national nomination survey and review process. Approximately six programs will be selected for in-depth study and analysis. The project findings and recommendations will focus on highly effective strategies for curriculum and instructional modification, staffing, counseling, and placing LEP students in the workforce.

Project III.4 An Affective Studies Research Program for Vocational Special Needs Populations: Factors That Influence the Retention and Transition of Special Needs Learners Into a Diversified Work Force. *Project Directors: James M. Brown and David R. Johnson, University of Minnesota* (Second Year of Project)

This project will: (a) seek to identify affective-related student characteristics that combine with cognitive and psychomotor characteristics to inhibit or enhance the transition of mildly handicapped students into their post-school lives; (b) develop procedures to assess and analyze pertinent

affective student characteristics that enhance vocational education processes related to transitional programming; and (c) implement, validate, and disseminate these procedures and concepts, in combination with the use of existing technologies and support services, in order to maximize the benefits of vocational training experiences for handicapped learners.

This research program seeks to identify and analyze relevant functional student characteristics in order to gain new insights into the transition-related problems encountered by mildly handicapped and disadvantaged students. This research program will utilize the following strategies: (a) identify key factors related meaningful insights into students' intrinsic and extrinsic motivations; (b) identify these key factors within the context of 'real world' vocational training environments; (c) involve educators, mildly handicapped and disadvantaged students, student advocates, and service providers in the development, implementation, and evaluation of project procedures, practices, materials, and related policies in terms of their utility within transition-enhancement programs; (d) stress enhancement of both vocational education students' short-term and long-term employability; (e) enhance equity among targeted student populations by developing and validating a system for enhancing students' access to appropriate training programs and monitoring the effectiveness of those training programs' efforts to accommodate students; and (f) draw heavily upon research findings and principals from other areas of education and social sciences such as psychology.

Given these issues, this research program will focus on the following intrinsic and extrinsic-related issues in terms of their influence on the retention and transition of vocational special needs learners into a diversified work force:

1. How do intrinsic motivation factors substantially influence special needs populations during vocational training programs and in their transition into meaningfully employed careers as adults and how can those factors be used to assist special needs learners through this transition process.
2. What formal/informal social supports (extrinsic factors) can be identified and effectively/efficiently used to enhance the retention of students within their vocational programs and through their transitions into meaningful careers as adults?

Project III.5 Vocational Education for Immigrants. Project Director: *Abby Robyn, The RAND Corporation* (First Year of Project)

Between 1985 and the year 2000, the number of immigrants in the United States labor market is expected to triple. Consequently, we need to understand better the vocational education needs of new immigrants and to assess the response of different local communities to their needs. This study will focus on the largest group of immigrants in the 1980's, the illegal aliens eligible for amnesty under the 1986 Immigration Reform and Control Act (IRCA). Meeting the training needs of this group will require a variety of services in diverse settings - adult schools, community colleges, proprietary schools, customized on-the-job training. The main objectives of this study are to identify the vocational educational needs of IRCA immigrants and examine the public and private response to those needs. The final report will assess the match between need and response and discuss implications for the roles that different governmental levels and private sector institutions might play in providing work-related training for immigrants. Key research questions will address the following topics:

Needs:

- What level of language training are immigrants likely to have? Are they literate in their own language? What is their English literacy level?

- What are their current occupational skill levels?
- In what areas of the labor market is employment demand most likely to occur?
- What problems are employers encountering with immigrant employees that could be ameliorated with job-related training?

Responses:

- What types of vocational training are currently provided? How does training vary by provider? What types of training are most in demand?
- When and where are classes being offered? What is the cost of instruction?

Match Between Need and Response:

- Are there enough classes available to satisfy immigrant demand?
- What support services (transportation, child care) are available for immigrants seeking to pursue vocational education? How important are support services for utilization of job training programs?

Effectiveness:

- How do respondents assess the effectiveness of the educational response to immigrant's needs?
- What are respondents' recommendations for improving the vocational education delivery to immigrants?

IV The Development of Personnel in Vocational Education

We can't make vocational education more responsive to changing conditions without reforming the preparation of vocational education teachers. We're studying the supply and demand for vocational teachers, evaluating the appropriateness of current training programs. We're also investigating ways that the teaching reform movement will impact the training of vocational education teachers.

Project IV.1 (a) National Data Base on Vocational Teacher Education. Project Director: *Richard L. Lynch, Virginia Polytechnic Institute and State University* (First Year of Project)

This project seeks to establish a national data base on vocational teacher education programs. The data base is intended to overcome the present lack of knowledge about where, when, how, and to whom vocational teacher education is provided. Researchers will develop, test, and administer an instrument designed to elicit quantifiable information about vocational teacher education programs found on the nation's university and college campuses. The study will be conducted in consultation with an advisory committee comprised of researchers from each of the Center's affiliated institutions and other researchers in teacher education. The product developed and dissemination activities will provide information to educational policy makers and to vocational teacher educators to assist them in their efforts to direct the reform of vocational teacher education.

Project IV. 1 (b) Strengthening the Knowledge Base for Vocational Education Personnel Development. Project Directors: *Mildred Griggs, James A. Leach, and L. Allen Phelps, University of Illinois* (First Year of Project)

Vocational teacher education programs have traditionally prepared teachers for work in secondary schools in specific service areas such as agricultural or business education. The rapid growth in postsecondary vocational-technical education and in training and human resource development programs in the private sector, has created far more vocational teaching positions than have been available at the secondary level. As employment-related education and training for adults in postsecondary settings becomes increasingly prominent, the nature of the knowledge and experiences provided through vocational teacher education programs must change as well. The roles of vocational teachers in these settings are distinctly different and are likely to change at a more rapid pace in the future.

This project focuses on several aspects of determining, on an empirical basis, the appropriate knowledge base for the preparation of vocational educators for the 21st century. During 1989, two major research investigations and a National Center coordination activity will be undertaken.

First, Professor Leach and his colleagues will determine the nature of effective vocational educators who are employed in the business industry and a comparative analysis will be made to determine the extent to which academic programs in selected vocational teacher education departments include competencies required for effective private sector teaching.

Professor Phelps and his associates will engage in a two-year investigation designed to define, identify, and characterize research-sensitive practitioners in vocational and technical education programs. More specifically, this study will identify and assess the characteristics or performance of research-sensitive teachers and administrators and their relationship to professional preparation, school organization, and/or personal attributes.

During 1989, Professor Mildred Griggs will lead an effort to assemble and conduct at least two meetings of a national advisory committee on research in vocational education personnel development. This committee will include representatives from each of the National Center institutions, as well as individuals representing various professional organizations/groups (e.g. American Association of Colleges of Teacher Education, the Holmes Group). The primary charge of the group is to review the current work of the National Center, assess the implications of other prominent, current research in teacher education, and encourage appropriate collaboration within and outside of the National Center group.

Project IV.2 Professional Development of Beginning Vocational Teachers. Project Directors: *William G. Camp and Betty Heath, Virginia Polytechnic Institute and State University* (Second Year of Project)

This project will examine the induction process for beginning vocational teachers. Based on that research, model programs to assist in the induction phase of the professional development of vocational teachers will be devised, tested, evaluated, and disseminated.

The research will focus on beginning vocational teachers in four groups: (1) secondary level teacher education graduates (2) secondary level teachers with alternative certification (i.e.) college graduates without teacher education), (3) secondary level teachers whose certification is based on industry or business experience (i.e.) - vocational certification, as in the traditional Trades and Industry, T&I, model) and (4) beginning postsecondary vocational teachers. All of these groups, particularly the last two, have been largely ignored by the growing "induction" literature and research base in general education.

Project IV.5 Identifying Professional Development Programs for Two-Year College Occupational-Technical Faculty. Project Directors: *James L. Hoerner, Darrel A. Clowes, W. Robert Sullins, and James C. Impara, Virginia Polytechnic Institute and State University* (First Year of Project)

This project is a study of professional development programs for occupational-technical faculty in community, technical and junior colleges in the United States. The first year of the project includes two phases: the Identification Phase and the Initial Analysis Phase. The Identification Phase covers the identification of exemplary professional development programs and of professional development activities. It also covers the identification of situational and organizational variables associated with professional development for occupational-technical faculty. This Identification Phase will be accomplished through the first literature review, the identification of exemplary programs, and through a national survey of the approximately 1300 two-year colleges and a targeted survey of the faculty of the identified exemplary programs. The second phase, the Initial Analysis Phase, includes analysis of the data collected in the first phase supported by a second literature review. Through this phase professional development programs, activities, indicators, and situational and organizational relationships will be further identified and confirmed. Extensive use of practitioners will be used through 1989 to ensure appropriate alignment of the project activities to the community college setting. A second year of the project will be proposed to complete the Analysis Phase of the study. During the second year, case studies of exemplary professional development programs will be conducted. The second year of the project will also include a dissemination phase to make the findings of the study generally available through the Center's in-service education function and presentations, papers and publications as well as a dissemination conference conducted by the project.

V. The Delivery Systems of Vocational Education and Training

Vocational training happens in many places outside high schools and community colleges. We're looking at a wide variety of occupational preparation, asking how effective the programs are and how they relate to training programs in the traditional education system.

Project V.9 Effective Vocational Training Programs in Correctional Institutions. Project Director: *Steven Schlossman, The RAND Corporation* (First Year of Project)

The purpose of the proposed research is to shed new light on the evolution of vocational training in American correctional institutions: for juveniles as well as adults, for females as well as for males. Relying on little explored historical data, the study will analyze the wide range of vocational ideas and programs that correctional institutions have experimented with during the past century. It will focus particularly on how innovations in vocational training have been formulated, implemented, and sustained in diverse correctional settings. The study should suggest new ways to frame policy-relevant questions regarding the origins, conduct, and outcomes of correctional training programs today.

To achieve the primary tasks of the proposed research, the methodology of this project will combine archival and case-study methodologies. Archival data which detail the vocational training programs of juvenile and adult correctional institutions are available for many states and for some localities.

From the vast archival literature dealing with this project, a limited number of states (6-8) will be selected for intensive analysis.

Project V.10 Learning From School-Based Work Experience Programs. Project Directors: *David Stern, University of California at Berkeley; Charles Hopkins and James Stone, University of Minnesota; and Martin McMillion, Virginia Polytechnic Institute and State University* (Second Year of Project)

This project will gather information on student outcomes of various kinds of school-based work experience programs.

How does students' work experience affect their educational performance and other employment-related outcomes? Are the effects of experience in "naturally occurring" jobs, which students find on their own outside of school, different from the effects of school-based work experience (e.g. cooperative vocational education or school-operated enterprises) where work assignments are deliberately designed to promote learning? This project will continue to explore these questions. This project consists of gathering data from students, their teachers, and their employers from several programs located around the country. Each site will be analyzed separately, this producing a set of parallel studies of similar programs in different places, which will provide bases for generalization because we will be considering the same set of variables in each analysis even though the estimated magnitude of certain relationships may differ from one site to another.

Project V.11 Magnet Vocational Schools: Are They Successful and for Whom.? Project Director: *Robert L. Crain, Teachers College, Columbia University* (Second Year of Project)

This project will measure the effectiveness of some of the newest generation of career-preparation magnet high schools for inner city youth. A unique set of circumstances permits us to evaluate a number of career-oriented magnet schools and magnet programs within comprehensive schools, using a randomized-assignment experimental design.

The New York program has created career-oriented "option" schools and programs: originally established as selective schools, they now accept half their enrollment through a lottery. The fact that students are selected by lottery has the effect of creating a random-assignment experimental design which can be used to evaluate the effects of these schools and programs. We will compare attendance and drop-out rates, grades, test scores and number of credits earned for students who were and weren't admitted to the career-oriented magnet schools and programs in New York City. This will allow us to measure the effectiveness of the overall program and to identify especially effective magnet schools.

We will consider three questions: (a) Do these lottery students benefit from associating with the selected students? (b) Is the performance of the selected students pulled down by the presence of lottery students? (c) Can schools whose programs are designed for selected students make the transition to serving typical inner-city students?

Our study consists of an analysis of school system records using the experimental design and interviews with school staff and students in some of the schools. A special effort will be made to visit those schools which appear to be especially effective. Finally, full-scale ethnographies will be completed in two career-oriented schools.

Project: V.12 Institutional Excellence in Vocational Education: Recognizing and Assessing Its Nature and Operation. Project Directors: *Gordon I. Swanson and George Wardlow, University of Minnesota* (First Year of Project)

This is a project for elevating the capability of vocational education leaders to recognize and assess the distinctive features of institutional excellence in vocational education. The research will not ignore the existence of traditional measures of excellence like course content, methods of instruction or student performance. Nor will it fail to notice if these are highly correlated with

various ways of estimating of excellence. Yet these traditional measures are likely to be only the derivatives, not the precursors, of excellence. If this is true, then the recognition and assessment of institutional excellence in vocational education will need to adopt new dimensions and to consider new frameworks for analyzing excellence. The project will not begin with any prejudgments about what these precursors are, not even a prejudgment about whether they are normative or positivistic. The project will begin with assessments which are empirical and qualitative. It will rely on theoretical constructs which have already begun to emerge from the institutional behavior of industries which have been most successful in confronting market changes or other kinds of transitions. The ultimate outcome of the project is to illuminate ways to search for, or to cultivate, institutional excellence.

VI. Governance and Policy

Work on this issue draws on all the rest of the Center's research because all reforms depend on appropriate governing mechanisms and effective policies. We're examining the current "system" of federal, state, and local policymaking in secondary and postsecondary vocational education. In our projects we are paying particular attention to cooperation and competition among the different institutions that provide vocational education.

Project VI.2 Alternative Policy Instruments in Vocational Education. Project Directors: *W. Norton Grubb, University of California at Berkeley and Lorraine M. McDonnell, The RAND Corporation* (Second Year of Project)

One of the most significant developments in work-related training over the past decade has been the growing state policy role. State governments are actively involved not just in administering the federal Perkins Act and Joint Training Partnership Act programs, but also in funding and managing a variety of training activities as part of strategies for attracting new industry, modernizing firms already operating in a state, developing particular geographic regions, and alleviating chronic unemployment and welfare dependency. This project is designed to identify and assess the range of policy instruments that state governments use to provide work-related training. The project will examine the extent to which particular job training strategies have been implemented and produced effects consistent with policymakers' expectations.

Project VI.10 Postsecondary Vocational Education's Response to Worker Needs: The Case of UAW Joint Funds. Project Director: *L. Allen Phelps, University of Illinois and Dale C. Brandenburg, Industrial Technology Institute* (First Year of Project)

This project will examine the impact of the recently established UAW (United Auto Workers) Joint Training Funds on the post-secondary vocational education community and its ability to respond to this new work place initiative. Throughout the midwest, community colleges in metropolitan areas have established a variety of education and training programs with resources provided by the Joint Funds. A series of interviews with state-level and community college leaders will be conducted to identify major issues and trends in those Joint Fund programs intended to provide various types of vocational education through community colleges. Based on information acquired through the interviews, four programs located in Illinois and Michigan will be selected for in-depth study. The results of this study will identify the nature and extent of impact that the Joint Fund programs have upon community colleges generally, their enrollments, student services, and curriculum offerings specifically, and the long-range organizational relationships between community college and the Joint Funds.

Project: VI.11 A Longitudinal Assessment of Vocational Education Enrollment Patterns and the Impact of Education Reform. Project Directors: *Deborah C. Strickland, Donald E. Elson and Nevin R. Frantz, Virginia Polytechnic Institute and State University* (First Year of Project)

Public demand for education reform has resulted in the implementation of new or revised education policies which appear to have implications for secondary students' participation in vocational education programs. At the same time, the role of vocational education in the secondary school has come under increased scrutiny and questions as to the delivery and structure of programs have been raised. This program of longitudinal research proposes to examine vocational education enrollment patterns nationwide in light of implementation of education reform related policies. Extant baseline quantitative data will be used to establish enrollment trends prior to the onset of reform policies, with continued data collection to be conducted throughout the duration of the program. Qualitative data on policy implementation and secondary vocational strategies for addressing education reform policies will be analyzed in the context of these enrollment trends. The ability to discern if, when or in what context education reform policies affect vocational enrollments and what intervention strategies have been effective on a longitudinal basis will provide substantive information to decision makers for planning and implementing relevant and dynamic vocational education programs.

B. Service Activities

As a national resource, the Center clearly has important service functions, but here too the watchword is integration. We intend to perform certain services at the sites of the subcontractors: Others will be conducted at Berkeley. All services will be performed as an integral part of the six issue areas on our research agenda. We believe that the Center's audience has valuable knowledge of its own. Its members should be active participants rather than passive consumers of our work. To be sure that information flows both ways, we are building networks of practitioners. These networks will enable experienced and enthusiastic teachers and administrators to share their knowledge and commitment with the broader teaching community.

Centralized Service Functions

Dissemination. Director: *Peter F. Seidman, National Center for Research in Vocational Education* (Second Year of Project)

The *mission* of dissemination is integrating knowledge producers and knowledge users into a shared effort at renewing vocational education through the production and use of **useful** knowledge developed and disseminated in a **usable** manner.

Dissemination's major activities include *collecting, translating, moving* and *using* knowledge of importance to the communities concerned with vocational education; and building the capacity, including the infrastructure, of these communities to design and implement their own dissemination strategies.

The Center will create four structures within which it will collect, translate, move and use various types of knowledge as well as build the capacities and infrastructure for individuals and institutions to more directly engage in planning and implementing dissemination activities:

- an information clearinghouse;

- issue networks, including issue teams developed around Center-sponsored R&D projects, and invisible colleges (collegial networks) among the research and service staffs at Berkeley and the five subcontract sites; and
- networks of schools/community colleges geographically located around Berkeley and the five subcontract sites.

The mission of the Clearinghouse is to operate as a broker of a variety of information services, products and human resources to educators at all levels.

To carry out the Clearinghouse mission of providing a variety of information services and products to educators at all levels, we will adopt a number of strategies. We of course plan to search existing databases for information on vocational education, and also to develop new databases. We will also develop a variety of information products. Another strategy will be to publicize our offerings. Finally, we will establish links to professional organizations and other networks, including inter alia electronic networks that join key persons in vocational education.

Service Functions Located at NCRVE Subcontract Sites

Relationships Between Vocational Education and the Job Training Partnership Act. *W. Norton Grubb, University of California at Berkeley and Gary Hoachlander, MPR Associates* (Second Year of Project)

With the expansion of manpower programs since the 1960s, and the expansion of vocational education into community colleges and technical institutes, two institutions with very different funding streams, methods, and institutional cultures provide job training to individuals beyond their high school years. In recognition of the potential overlap between offerings in vocational education and JTPA, both the Carl Perkins Act and the JTPA legislation require coordination between the two. This research will investigate the state of coordination between JTPA and vocational education, for two rather different purposes. First, the requisite annual report to Congress, the Secretary of Education and the Secretary of Labor on the relationships between JTPA and vocational education. Secondly, one concern of the National Center is the complex of institutions beyond vocational education which provide job-oriented education and training. As part of its investigation of coordination, this project will generate information on two of the most important institutions of work-related education and training, as well as workfare and other welfare-related training programs to ascertain how these training needs are fulfilled, how they involve existing vocational education and JTPA programs, and whether the emergence of workfare programs is likely to create yet another coordination problem for local programs.

Technical Assistance for Planning and Evaluation. *Gary Hoachlander, MPR Associates* (Second Year of Project)

This service function will include four major activities. First, NCRVE will begin a major effort to help shape the collection of national data on vocational education. Through a series of meetings in Washington with such interested parties as the National Center for Education Statistics, the Office of Vocational and Adult Education, the Office of Special Education and Rehabilitative Services, other federal agencies involved in data collection, interest groups, and researchers, NCRVE will seek to develop a comprehensive plan for collecting national data on vocational education.

Second, NCRVE will begin planning for the publication of a statistical monograph on the Condition of Vocational Education, pulling together what is known from national data on student participation in secondary and postsecondary vocational education, staffing, expenditures, and

other topics. A detailed outline of topics to be covered and sources of data will be submitted in August 1989.

Third, NCRVE will implement the evaluation plan that was designed during year one. This evaluation plan will assess the effectiveness of a thirteen-state consortium seeking to use community colleges as a means for improving the transfer of technology to small to medium sized manufacturing firms in the rural south.

Finally, this service activity will have primary responsibility for responding to requests for technical assistance. Technical assistance will mainly take two forms. First, the NCRVE will respond to requests for information and analysis that can be addressed using NCRVE's Data Library or other sources of information maintained by NCRVE. Second, technical assistance may also take the form of consultation to states or groups of states on major planning or evaluation efforts of the kinds NCRVE is currently conducting for the Southern Technology Council's thirteen-state consortium of community colleges.

Forum on Goal Formation in Vocational Education. *Sue Berryman, Teachers College, Columbia University; George Copa, University of Minnesota; and Thomas Glennan, The RAND Corporation* (Second Year of Project)

This project is a policy examining, synthesis, and, where possible, consensus building activity, not a research project. It has two objectives. One is to synthesize and debate the implications of research being conducted within and outside of the NCRVE for selected issues in secondary and post-secondary vocational education. The second is to air the thinking—and its diversity—that emerges within the Forum beyond the Forum's confines to audiences with a stake in these questions about vocational education.

The planning team for the Forum consists of three senior members of the NCRVE staff and two vocational education policy makers. Between fifteen and twenty individuals are being selected for participation in the Forum. They are being selected for their knowledge about and concern for vocational education and for their communication access to the vocational education and other interested communities.

In Years 2 through 5 of the Forum, we expect to hold two two-day meetings. In Years 4 and 5 of the Forum, we plan to concentrate increasingly on diffusing the thinking of the Forum. One mechanism for doing this might be to "spin off" mini-Forums that are regionally based and each of whose membership has some overlap with the membership of the "parent" Forum.

Technical Assistance for Special Populations Program. *Carolyn Maddy-Bernstein, University of Illinois* (Second Year of Project)

The Technical Assistance for Special Populations Program (TASPP) is a service function of the National Center for Research in Vocational Education at the University of California, Berkeley. Housed in the University of Illinois site of the National Center, it is designed to assist in the improvement of vocational education programs for special needs youth and adults. TASPP's direction is guided by a national task force comprised of principal investigators from the various Center institutions as well as national leaders in the field of vocational education for special populations. Some TASPP activities include conducting workshops, publishing a quarterly newsletter on critical issues and policy options, and developing appropriate materials for national distribution.

The TASP's goals are to:

1. Provide comprehensive resource and referral services to practitioners, researchers and policymakers working in vocational education with special needs populations at the secondary and post secondary level;
2. Initiate and support networks of professionals serving the vocational education needs of special groups; and
3. Provide targeted technical assistance on selected topics or problems crucial to improving the quality of vocational education programs provided to special populations.

In 1988, TASP services focused on two critical themes: (a) strengthening the transition of special needs learners to workplaces and continuing education programs, and (b) examining federal and state policy options for the improvement of special needs programs and services.

Current plans for year II of TASP are to focus on providing special assistance to professionals serving (1) immigrant and LEP students, (2) students at risk of dropping out of school, and (3) teen parents. The staff will also begin to investigate the unique needs of special learners in rural and urban settings.

Leadership Development in Vocational Education. *Jerome Moss, Jr . University of Minnesota*
(Second Year of Project)

This proposal calls for two leadership development projects for 1989. The first project, to be conducted in conjunction with the National Association of State Directors for Vocational Education, will produce and broadcast two videotapes that (a) help broaden the perspective of vocational educators and build their vision about what vocational education can and should be, and (b) provide forums in which vocational educators can discuss common goals and issues with representatives from related constituencies. The second project, to be conducted with the University Council for Vocational Education, will incorporate leadership development experiences into graduate-level curriculums in vocational education, and evaluate the effectiveness of the several models utilized.

Leadership Development in Vocational Education — Preparing Vocational Education Administrators. *Curtis Finch, Virginia Polytechnic Institute and State University* (First Year of Project)

This project seeks to identify leadership attributes (characteristics, knowledge, and skills) associated with secondary and postsecondary vocational education administration and, based on this research, develop instructional sequences and materials that prepare persons to function as successful administrators. During the project's first phase, leadership attributes will be identified; a conceptual structure will be delineated; and a prototype leadership assessment instrument will be developed. Activities during the second phase will focus on identifying and assessing existing administrator development formats and materials, redefining the leadership assessment instrument, and developing new instructional sequences and materials. The third phase will emphasize infusion of instructional sequences and materials into vocational education administrator development settings. Products developed will provide individual states, state departments of education, postsecondary institutions, local education agencies, and universities with the capacity to prepare and upgrade vocational education administrators in a manner that goes beyond the knowledge and application of specific tasks.

Center-Wide 50-State Survey. *Jeannie Oakes and Lorraine M. McDonnell The RAND Corporation*
(Second Year of Project)

One major Center-wide activity that will inform both the Center's research and development projects and its service functions will be a 50-State Survey of Vocational Education Policy and Practices. In Year 1 the survey was conceptualized and designed by RAND staff in collaboration with the Center Researcher and service area directors and will be designed and fielded in Years 2 and 3 by RAND researchers. The survey is designed to provide a broad overview of state institutions, the policies they produce, and the major ways in which they vary. It cannot, however, assess how well they are actually working or whether policymakers' expectations have been met in practice. We are assuming that the survey will yield sufficient information about different institutional roles and state approaches to curriculum, teacher policy, and job training to provide vocational education professionals and researchers, wishing to explore these topics in greater depth, with an informed starting-point. The Year 1 conceptual development work for the survey has recently been completed. Plans for year 2 and 3 (survey design and implementation) will be outlined in the master proposal.

In-Service Education. *Lois Beeken, B. June Schmidt and Susan Faulkner, Virginia Polytechnic Institute and State University* (Second Year of Project)

Providing a comprehensive and effective program of in-service education activities is central to the National Center's mission of integrating research and practice. Conducting effective in-service activities is essential to insuring that the new knowledge about vocational education practice and policy has substantive impact upon vocational education programs nationally. Institutions associated with the National Center are committed to a philosophy that involves the integration of research and practice through in-service education activities that build the capacity of vocational educators and their colleagues to bring about informed curricular, instructional, organizational, and policy changes essential to vocational education's meeting the needs of a changing work environment and work force.

Besides providing coordination and direction for in-service activities of the research projects and other service projects of the National Center, the In-Service project staff will seek to build collaborative relationships with other educational organizations involved in the delivery of in-service education. Primary emphasis will be placed on identifying innovative strategies for the effective delivery of personnel development activities.

Specifically, collaborative in-service efforts will be undertaken with the Southern Regional Education Board—State Vocational Education Consortium which is focusing on the development of vocational students' basic competencies in reading, mathematics, and science at the secondary level. At the post-secondary level, collaborative efforts will focus on in-service education needs for updating the skills of part-time, post-secondary technical faculty.

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