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ABSTRACT

These four issues of volume 1 (1991) contain brief reports on published research of the National Center for Research in Vocational Education (NCRVE). In Issue 1 are these eight articles: "Twelve Exemplary High Schools: Preparing Vocational Students for College"; "High School Vocational Education Withering Away?"; "Separate or Integrated High Schools: What's Best for Students?"; "Learners with Special Needs: Vocational Education Resources"; "Reforming Education for Work: Some Guidelines from Cognitive Science"; "Our Changing Workplace: Impact on Skill Requirements"; "Investments in People: Data to Support the Value of Vocational Education"; and "Coordination between Voc Ed and JTPA [Job Training Partnership Act] Programs: Local Successes." Issue 2 contains six articles: "How Should We Use Data to Improve Education?"; "'The Cunning Hand, the Cultured Mind': Integrating Vocational and Academic Education"; "The Beginning Vocational Teacher: Spotlight on the Induction Process"; "Customized Training and Economic Development: New Roles for Vocational Education"; "Generic Skills: Teaching and Learning for the Workplace"; and "Community College Research: An Update." In issue 3 are seven articles: "Does Work Enhance Student Success?"; "Co-op Education Students Find College and Work Mutually Reinforcing"; "NCRVE Human Resource Directory"; "How Do Successful Vocational Education Administrators Behave?"; "Adult Vocational Education: Issues for the 90s"; "Nontraditional Student Attrition: A Model"; and "Education and the Economy: Monitoring the Interaction." The five articles in issue 4 are "How are Teachers Responding to Integration?"; "Part-Time Faculty in Community Colleges: Staff Development Issues"; "Professional Development Programs: Lessons Learned"; "The National Assessment of Vocational Education"; and "Vocational Education Policies: An Overview." (YLB)

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Practical Research Updates for Leaders

Volume 1
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Practical Research Updates for Leaders

Volume 1, Number 1, Fall 1990 National Center for Research in Vocational Education

ABOUT NCRVE

The Center is established under authorization of the Carl D. Perkins Vocational Education Act to conduct applied research and development in vocational education. Our mission is to engage research and service activities designed to make a new vision of work-related education a reality. The Center seeks to increase the access of all Americans, regardless of their aptitudes or abilities, to a high quality work life that is not only economically rewarding, but also personally fulfilling We seek to enable vocational education to shape (rather than react to) debates over the role of all education. The Center is located at the University of California at Berkeley Through a network of subcontractors at Columbia University, the RAND Corporation, the University of Illinois, University of Minnesota and Virginia Polytechnic Institute and State University, and its host site, the Graduate School of Education at Berkeley, NCRVE is committed to providing the following services in addition to its research agenda: dissemination, technical assistance for planning and evaluation, JTPA and vocational education coordination, leadership development, inservice education, technical assistance to special populations, and materials distribution. This publication is part of our commitment to those on the front lines of vocational education, struggling to create a new vision.

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TWELVE EXEMPLARY HIGH SCHOOLS: Preparing Vocational Students for College

The last farm remaining in the city of Chicago has become a successful magnet school, the Chicago High School for Agricultural Sciences. But it teaches college prep English, math and other academic subjects as well as agricultural science courses and career awareness.

Twenty airplanes are part of the educational equipment of Aviation High School, New York, N.Y., located in Queens in order to be convenient to major airports. It is the only public school of its kind in the U.S. and is one of the few high schools certified by the FAA. It too serves as a magnet school and its students also are prepared for college entrance.

Both schools have many more applicants than they can accept, and report higher attendance rates (among teachers as well as students) and lower dropout rates than their school districts as a whole. Their discipline problems are few and their students tend to be successful after graduation. The evidence of success at these schools is typical of that seen in twelve case studies reported in *Exemplary Urban Career-Oriented Secondary School Programs.*

The case studies cover career/college preparatory high schools in Chicago, New York and metropolitan Los Angeles, all large urban centers in which there are significant numbers of minority students and students from low-income families.

"The schools in this study are not vocational high schools in the traditional sense of the term. They are all attempting to blur the lines between vocational and academic education by integrating career and college preparation for all students enrolled. They are defining vocational education in a new and broader way than it has been defined in the past," the report comments.

The schools all have *common characteristics* that have implications for educational policy:

1. A crime-free, safe and orderly environment conducive to teaching and learning.
2. A business-like attitude on the part of students and teachers which creates an atmosphere of constructive energy.
3. A warm and caring climate; students are made to feel special. Acceptance into the school (not based on high grades) "is a vote of confidence for the individual" and their self-esteem is enhanced by opportunities to demonstrate their ability both academically and hands-on.
4. Admissions based on student interest in the career specialty, not solely upon test scores or ability.
5. A dual mission—to prepare students for an occupation and for college. Students have a range of choices for life after high school.
6. High expectations of success for students of all ability levels. A variety of strategies are employed to make sure that the lower achievement students make it through the college prep curriculum.
7. Curriculum organized around an industry or a discrete set of subjects. The report writers argue that the vocation-specialized high school is better able to afford expensive equipment because it can reap the benefits of economies of scale in the use of that equipment.
8. The integration of theory and practice in academic as well as in vocational courses of instruction. It is noted that the transferability of skills learned in school to life outside school is likely to be enhanced as theory and practice are linked.
9. Strong linkages with business and industry (most schools have active advisory committees) and sometimes with post-secondary institutions.
10. Inspiring, sensitive and firm leadership. The differentials in operating costs appear to be relatively small when the exemplary schools are compared to other schools. ■

(For Complete Report, Order # MDS-012)

HIGH SCHOOL VOCATIONAL EDUCATION WITHERING AWAY?

"The distressing findings about vocational education at our three schools suggest that those who advocate the abolition of vocational education at the secondary level may be well on their way to seeing that goal attained."

This is an observation from Rand Corporation researchers in an NCRVE report entitled *Who Gets What and Why: Curriculum Decisionmaking at Three Comprehensive High Schools.* The report presents findings from the first phase of a two-year study of why comprehensive high schools offer the vocational courses they do and how they decide which students should be enrolled in them.

Case studies were developed of three four-year comprehensive high schools in different school districts which shared the same labor market. All were large: 1,500, 1,700 and 2,100 students. And all were subject to the same state curriculum policies. They were different in ethnic and racial mix as well as economic status of the students. They also differed in that each district developed its own interpretations of state policies and its own curriculum policies.

Because the schools were different, the findings on differences in vocational programs and students were not surprising.

Researchers report being "struck most by the many overriding similarities among the schools:"

1. Because of the large numbers of students assigned to counselors (350 to 700), the "activism" of parents of college-bound students, and the severe personal and academic problems that many students face, "the guidance and placement structure at all three schools seems to serve least well those untroubled students who are not college-bound."
2. While each of the schools offers a variety of vocational courses, "none has a cohesive, comprehensive vocational program."
3. At all three schools, negative perceptions existed of the role and quality of vocational courses, of the faculty who teach those courses, and of the students who take them. These negative perceptions, along with the absence of an aggressive counseling system for non-college-bound students, "have acted synergistically to drain the little remaining vitality and cohesion from existing vocational offerings," conclude the researchers.

The study found that, in fact, many of the vocational offerings at these schools "are staffed by poor or unmotivated teachers, using outmoded equipment and teaching skills that are no longer used in business or industry." Many courses are regarded as "dumping grounds" and the students "dumped" into them are often held in low regard by faculty and staff. One principal characterized these students as "the dregs of the school."

"Rather than eliminating secondary vocational courses or incorporating into them basic-skills instruction, academic course content might be fused with vocational education's hands-on approach to solving real life problems."

At one time, much richer and diverse vocational programs were offered at these schools; they have been "emasculated" by increasing academic course requirements and declining funding, and, say the researchers, "if it remains within the context of the comprehensive high school curriculum, vocational education will continue to wither away."

Are separate vocational high schools for non-college-bound students a more appropriate alternative

(continued...)

than trying to revitalize the comprehensive curriculum at these (and other) high schools? The study found that "teachers and administrators readily sort students in terms of abilities, curriculum 'needs,' and post-graduation aspirations by their racial and ethnic background, raising the very real possibility that separate vocational high schools would be perceived as being largely for non-white, non-college bound students."

The researchers conclude that only a "more radical approach" to high school reform is worth further investigation—namely , a more fundamental reconstruction of the high school curriculum, so that the distinction between "academic" and "vocational" subjects is blurred.

"Rather than eliminating secondary vocational courses or incorporating into them basic-skills in struction, academic course content might be fused with vocational education's hands-on approach to solving real life problems. Such hybrid courses might turn out to be more appropriate for most students, not only those now in vocational education," the study concluded. ■

(For Complete Report, Order # MDS-028)

SEPARATE OR INTEGRATED HIGH SCHOOLS: What's Best for Students

What is best for students—shared-time or full-time vocational high schools?

The Delaware State Board of Education set out to find out in order better to address proposals to convert Delaware's shared-time vocational/technical schools into full-time vocational high schools.

The independent assessment team's work, *Shared-Time Versus Full-Time Vocational High Schools in Delaware: An Assessment*, a 54-page report, was published in November, 1989.

Not all shared-time vocational schools operate exactly the same way. In Delaware, the shared-time vocational schools, located in two different counties, operate as independent school districts, with their own school boards and taxing authority, and serve secondary school students attending high school in the other districts in the county. Students attending the area school have academic classes and extracurricular activities in a "home high school" and are bused to the vocational school for a morning or afternoon session and bused back to the home school.

Full-time vocational high schools increase opportunities for better integrating academic and vocational education and for improving communication among academic and vocational teachers.

Looking at sharply decreasing enrollments in the vocational schools (down 40% in 10 years), researchers found many circumstances playing significant roles, among them: increased graduation requirements and reduced opportunities for students to take vocational programs since these are classified as electives; lack of communication and integration between the academic schools and the area voca-

tional schools; transportation conflicts; and inadequate attention to extracurricular activities.

Shared-time schools "are an economical way to offer more advanced, more specialized and more capital intensive courses to the greatest number of students."

In trying to help Delaware reach its decision, the report stressed that both shared-time and full-time vocational high schools have been "proved effective means of providing high-quality vocational education" in other states. Both have advantages and disadvantages, "and neither is inherently superior."

Shared-time schools "are an economical way to offer more advanced, more specialized and more capital intensive courses to the greatest number of students. When properly designed they can provide substantial flexibility for students, who can attend for as little as a semester and for as long as four years. They can easily accommodate adults and programs that consciously mix adults and high school students in the same classrooms to better motivate students and reduce discipline problems."

On the other hand, shared-time or area schools "significantly increase the amount of time students must spend in transit, which complicates scheduling and divides students' identities between two schools. They may also impede participation in extracurricular activities."

Full-time vocational high schools increase opportunities for better integrating academic and vocational education and for improving communication among academic and vocational teachers. Opportunities for team teaching may also be fully developed. Full-time schools reduce transportation time and can generally create a stronger school culture, pedagogically as well as socially.

On the other hand, "they require duplication of athletic facilities, auditoriums, libraries and other facilities that are not needed in a shared-time school. They are not as flexible in accommodating the desires of students for different levels of participation in vocational education, and they generally cannot include adults in daytime programs."

The report concludes that in Delaware "continued inaction is tantamount to a decision to close" the shared-time schools entirely. It adds that "conversion to full-time, however, is not a guaranteed improvement."

The researchers see conversion as offering the state "some exciting opportunities to improve both vocational and academic education for high school students...a chance to develop model schools...to forcefully articulate a vision that promotes integration of academics and vocational education."

"...continued inaction is tantamount to a decision to close the shared-time schools entirely...conversion to full-time, however, is not a guaranteed improvement."

In describing such models, the report discusses a number of schools which have adopted "integrated applied learning," including Aviation High School in New York City and Chicago's High School of Agricultural Science and Technology, two of 12 exemplary high schools featured in another NCRVE publication and reviewed herein *(see page 2)*.

Without such a vision, warn the writers of this report, conversion will only "move students around to eliminate transportation and scheduling inconveniences." ■

(For Complete Report, Order # MDS-204)

LEARNERS WITH SPECIAL NEEDS: Vocational Education Resources

Four publications addressing concerns about the participation of handicapped students in vocational education programs currently are available from NCRVE.

Increasing Vocational Options for Students with Learning Handicaps: A Practical Guide

This report grew out of the conviction "that most students with mild learning handicaps (i.e., the learning disabled, educable mentally retarded, or mildly emotionally disturbed) can succeed in mainstream vocational education."

While the 49-page guide is general and does not provide all the answers to questions about improving vocational education for the handicapped, the guide suggests "appropriate directions for efforts by interested educators."

Such directions vary from "use hands-on training" and "recruit advanced students as tutors" to "provide paid time for coordination between vocational and special educators."

(For Complete Report, Order # MDS-003)

Participation of Special Education Students in High School Vocational Education: The Influence of School Characteristics

This report, used nationally-representative data to describe the features of schools that provide vocational training to large proportions of their special education students.

The 50-page report describes finding that "large schools currently do not serve handicapped students as well as do the smaller schools." However, the report concludes that "overall we still cannot explain very well the variability in (students') vocational course-taking patterns."

(For Complete Report, Order # MDS-019)

Directory of Human Resources to Better Serve Learners with Special Needs in Vocational Education

In this directory, resources are listed in 12 categories, such as Agencies, Associations and Organizations and State Directors of Vocational Education. Names of directors as well as addresses and telephone numbers are included. One page of the 38-page book is devoted to Toll-Free Numbers for Special Needs Resources/Information and lists 800 numbers for 47 services and sources of information.

(For Complete Report, Order # MDS-052)

Resources to Facilitate the Transition of Learners with Special Needs From School-To-Work or Post-secondary Education

Of this report's 139 total pages, some 58 pages are devoted to print resources, including general literature, journals and newsletters. Each listing includes a concise description of the contents of the book, report or paper.

Other pages list agencies, associations and organizations, state personnel and the like, and there are pages devoted to descriptions of projects relating to transition.

(For Complete Report, Order # MDS-002)

REFORMING EDUCATION FOR WORK: Some Guidelines from Cognitive Science

Some very specific approaches to reforming vocational education are cited in the NCRVE publication *Reforming Education for Work: A Cognitive Science Perspective.*

The report first lists five "mistaken notions in education" which lead to lack of school success:

Skills hierarchies: It is not true that skills are like building blocks, that people must learn the basics before they can learn specific problem-solving skills, yet most of school-and-work-based training operates on this assumption.

Skills decomposition: Often, a skill is decomposed into subskills, and each subskill is practiced separately. But it is seldom true that learning each of the subskills separately produces competence in the skill itself.

Learning in isolation: Skills are taught in isolation, with too little experience with their application or how they are used together in combination. Appropriate application of knowledge and skills is not automatic.

Separating "learning to know" and "learning to do": The assumption that academic learning and education for work are distinct and need to be separated is mistaken. There are no skills without a foundation of knowledge and no knowledge without associated applied skills.

Learning out of context: Knowledge and skills are taught in a setting—that of formal school—very unlike settings at work or in real life. This impedes the transfer of school learning to settings outside the classroom.

"What needs to be done seems clear enough," declares the report, which was developed at the Columbia University NCRVE site.

"The hard task is to design programs that will meet these conditions, given today's organization of schools and work," the report continues, and notes that it is "not accidental" that several of the illustrations of successful training provided in the document are drawn from the military. Servicemen and women are committed to staying in the service for the period of their enlistment. Instruction in the services is judged by how well the trainees perform the jobs for which they were trained, and the quality of the job usually is self-evident. None of these characteristics is common to to either school or work.

One suggestion for reforming vocational education and training that is frequently made is *to expand and upgrade apprenticeship opportunities.* A second suggestion, in line with the expansion of apprenticeships and other forms of on-the-job education, is *to free students from compulsory full-time school attendance after age 16, or as early as age 14.*

(continued...)

FOUR APPROACHES SUGGESTED BY THE RESEARCH

1. *Integrate learning of basic skills* with learning about the devices, systems, procedures, decision rules, and social interactions characteristic of specific work settings and responsibilities.
2. Provide most education for work in *settings that are or duplicate as closely as possible the work setting* for which the individual is preparing, while ensuring that the necessary guidance and tutoring is provided.
3. Ensure that the education being provided is *not narrowly limiting* in its scope.
4. Take into account the *personal lives of the student or novice worker* and recognize the interrelationships that exist between healthy families, schools that educate and productive workplaces.

Not all analysts agree with either suggestion, pointing out that the frequently-cited German model of apprenticeship may not be transferrable to the U.S. and that early (age 14 to 16) induction into apprenticeships and the world of work is "a limiting view of education (which is) antithetical to the American conception of equality of educational opportunity."

If apprenticeships and other forms of on-the-job-education are expanded, the report recommends that it is important "to ensure that apprenticeships and other work experiences teach not only how to do a particular job or task but also how to become a competent novice, able to learn from any work setting."

Schools also are encouraged to forge strong linkages with business and industry, so that they will organize curricula around an industry and integrate theory and practice. The *Cognitive Science* suggestion makes reference to the exemplary urban high schools which have used this strategy and which are recognized in another NCRVE report *(see page 2)*. ■

(For Complete Report, Order # MDS-024)

OUR CHANGING WORKPLACE: Impact on Skill Requirements

Profound changes are taking place in the economy and labor market of the U.S., and these changes have far-reaching effects on the skills needed in the workplace and on the educational process both in the school, college and university systems and in the firms themselves.

But there is growing concern that the education and training system in this country *is not adequate* to play its expected role in "assuring individual opportunity, in promoting growth and prosperity in the economy as a whole, and in strengthening the country's ability to compete in an increasingly global economy."

Those are the challenging introductory statements in an NCRVE research publication titled *Changes in the Nature and Structure of Work: Implications for Skill Requirements and Skill Formation*. The report is based on research and case studies of four industry sectors —apparel and textile manufacturing and financial and business services (primarily accounting, management consulting and software development).

The report suggests that a fundamental characteristic of today's economy is "the increase in uncertainty and in the pace of technological and market change."

Research links education with the ability to cope with change. If educated workers are better able to respond to change and uncertainty and if uncertainty is growing, then the relative demand for educated workers should also be growing. "This, indeed, appears to be taking place," says the report.

If educated workers are better able to respond to change and uncertainty and if uncertainty is growing, then the relative demand for educated workers should also be growing.

And this obviously has educational implications, both for public educational systems and for the workplace which must make use of the "optimal mix of skills of individuals leaving schools." That optimal mix of skills would include literacy, numeracy and written and oral communication, the ability to react to change and uncertainty and to benefit from firm-based education. Also wanted is

the ability to apply general knowledge and principles for solving problems in particular situations. Increased emphasis on teamwork and more complex interactions with co-workers, customers and suppliers also calls for different types of social skills.

Sophisticated accounting software, for example, "has freed accountants from much of the routine work they previously carried out, and has changed their role to one in which they act more as consultants capitalizing on their intimate knowledge of the client's finances," the report says. (Cooperative or collaborative learning might well develop these skills, although research in this field is needed.)

"One implication of the changing nature of work is that workers who have in the past been trained in vocational education programs increasingly need conceptual and problem-solving abilities traditionally expected of students in academic programs," suggests the report. But because of an environment of increased competition (in the apparel business, for example, leading to six fashion lines a year instead of two), workers also need the ability to react to change, uncertainty, and to benefit from firm-based education. ■

(For Complete Report, Order # MDS-007)

INVESTMENTS IN PEOPLE: Data to Support The Value of Vocational Education

Unless the nation increases its investments in educating and training non-college bound students, it faces two grave risks.

First, overall economic growth will slow—"starved of the occupational skills needed to sustain economic development."

Second, "unskilled people will suffer diminishing economic prospects—unable to find work or trapped in low-paying jobs, unqualified for the growing number of well-paid jobs."

This is the troublesome prediction outlined in *New Limits to Growth: Economic Transformation and Occupational Education*, a recent NCRVE publication. It abounds with convincing statistics, such as "six dollars out of every seven of national income are the earnings of labor or the returns to human capital (including our skills as entrepreneurs), and only one dollar out of seven are the returns to investments in land and physical capital."

It concludes that the economic success of the United States in the coming decades "will depend on how well it can meet three imperatives that are raising the demand for skilled workers."

"The technological imperative. Technological change does not eliminate jobs, it redistributes them to industries demanding stronger basic skills. Using new technologies requires that workers have skills that employers cannot provide.

The trade imperative. The expansion of trade has increased the demand for skilled labor relative to the demand for unskilled labor. Expanded occupational education will be needed to allow the flexibility that international trade demands.

The entrepreneurial imperative. Most new jobs are created by new businesses, few of which offer their own training programs, and most of which need employees who can perform several roles. Success in creating and expanding a new business demands special

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skills that a growing number of occupational education programs are offering."

"The U.S. rate of investment in its people exceeds that in any other nation and serves a much broader share of the workforce than in any other nation. For example, of American workers who have entered the workforce in the past five years, over 30 percent have received some postsecondary training or education." According to the report, no other nation had more than 20 percent educated past high school.

"...the U.S. still faces a growing shortage of trained employees and a growing surplus of untrained or poorly trained ones"

As a result, the American workforce is still the most productive in the world—"the value of output per hour worked in the United States is 30 percent higher than in any European country and 40 percent higher than in Japan."

But the U.S. still faces a growing shortage of trained employees and a growing surplus of untrained or poorly trained ones. Fewer people are entering the labor force and many new entrants are minorities and immigrants with special educational needs. "But occupational education is preparing all types of entrants, preparing disadvantaged people for mainstream opportunities, and recycling displaced workers."

Because we need to train more people and to train them in greater depth to meet the growing demands by employers, the nation will need to draw upon the full potential of its occupational education system. But only about 25 percent of the workforce's occupational and career skills will be acquired through degree programs in universities. The rest must be acquired in vocational programs and on-the-job training. And increasingly, on-the-job training is provided to those workers who have acquired some postsecondary education or training.

In focusing on people (as well as economic growth) the report has this to say:

Occupational education is a way to get a job. High school graduates with vocational training are less likely to be unemployed than those without.

Occupational education leads to on-the-job training. Employers are more likely to train employees who have vocational training than those who do not. Occupational education graduates have skills that can be adapted in the workplace.

Occupational education is the opening of a career. Some 65 percent of skilled jobs can be learned through occupational education. Less than one-third need college degrees.

Occupational education fosters entrepreneurship. Many graduates of occupational education courses begin their own businesses and many occupational programs offer business assistance.

Occupational education is an avenue to opportunity for the economically disadvantaged. Occupational education offers mainstream skills without the stigma of participating in special programs.

Occupational education increases the flexibility of the economy. When existing skills and industries become obsolete, the occupational education system retools the workforce.

This report has a wealth of material and data which would make it very useful for any administrator or policy maker who is called on to take the stump for occupational education. It also has wonderfully applicable quotes, from the *Congressional Record, 1912*, from Samuel Gompers, from Peter Drucker. It ends with this from Ernest Boyer, President of the Carnegie Foundation: "Our goal should be a quality education that helps students understand that life is a blend of work and further education." ■

(For Complete Report, Order # MDS-016)

COORDINATION BETWEEN VOC ED AND JTPA PROGRAMS: Local Successes

Seven case studies of coordination between vocational education and JTPA programs indicate that there's a lot more innovative coordination and collaboration between the two and a lot less turf-guarding and duplication than commonly believed. And it isn't all because of federal requirements to improve coordination. Or because of personal relationships at the local level.

Innovation Versus Turf: Coordination Between Vocational Education and JTPA Programs found "both the state initiatives and the coordination requirements in the federal Acts to be less important than local initiatives."

The real innovation in both JTPA and vocational education occurs at the local level, "where the amount of creativity, entrepreneurship, and doggedness in searching for solutions to the education and training needs of various groups is quite impressive," concludes the NCRVE report.

The seven states chosen for case studies were picked for their diversity and for their exemplary programs. The report's authors explain: "Our efforts to find exemplary programs that integrate vocational education and JTPA are part of a larger effort by the National Center for Research in Vocational Education to identify and evaluate exemplary programs. There are several reasons for this approach: it stresses the positive accomplishments within education, rather than harping on failures; it provides models for other programs to emulate; and it draws on the rich diversity of the education and training field, a diversity which constitutes a 'laboratory' of programs to describe, evaluate, and emulate."

The states chosen were California, Kentucky, Iowa, Michigan, Montana, North Carolina and Wisconsin, providing a mix of urban and rural areas; high-income and low-income states; states which are racially and ethnically diverse and those which are relatively homogeneous; and states with strong state roles and some in which state government is relatively undeveloped.

The real innovation in both JTPA and vocational education occurs at the local level, "where the amount of creativity, entrepreneurship, and doggedness in searching for solutions to the education and training needs of various groups is quite impressive."

At the local level in these states, a variety of innovative approaches were found. "Several of the models we identified—particularly the practice of contracting for JTPA services with postsecondary institutions and the efforts to systemically allocate certain functions to specific institutions—suggest efforts to determine a rational division of labor among the various institutions of the education and training system. The use of community colleges and postsecondary technical institutes by JTPA programs also converts JTPA from a wholly federally-funded program to one which, by generating state ADA funds, is supported by both federal and state resources. This kind of cooperation also presents opportunities for JPTA clients to enroll in longer programs than would otherwise be the case."

Also cited are the development of hybrid institutions and the efforts to supplement services to high school students with JTPA funds and "other creative efforts which attempt to generate more effective programs."

The publication suggests several areas of change which the federal government might make to avoid

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duplication and promote coordination. One of the most important suggestions involves performance and effectiveness.

"The vocational education system in this country has frequently been charged with being insensitive to performance and placement. Indeed there are very few institutional mechanisms in most public institutions to monitor and improve performance; in effect, these institutions rely on well-informed students 'voting with their feet' to identify good and bad programs.

"The JTPA system is much more performance-oriented because of performance standards; but ironically many administrators seem so preoccupied with the specific performance standards required by Congress that they have neglected other possible outcomes. As a result JTPA appears to be *performance-conscious, but not especially out-come oriented,*" the report states.

The report concludes that improving the concern for outcomes, in both vocational education and JTPA, "would be valuable in its own right; but it would also allow administrators and policy makers to distinguish between those forms of coordination which exist for the sake of compliance with federal requirements from those which truly enhance the effectiveness of the education and training 'system.'"

"It would, for example, allow us to say whether community colleges are in fact better at providing classroom training than CBOs, or vice versa; whether cooperation to enhance the resources going to dropout-prone youth in fact reduces dropout rates; and whether hybrid institutions created with multiple funding streams and 'one-stop shopping' for employment services are more effective than the institutions they replace."

Without such information about effectiveness, the report concludes, "the search for coordination becomes a crusade without a goal." ■

(For Complete Report, Order # MDS-063)

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NCRVE Change Agent
Practical Research Updates for Leaders

Volume 1, Number 2, Spring 1991 National Center for Research in Vocational Education

ABOUT NCRVE

The Center is established under authorization of the Carl D. Perkins Vocational Education Act to conduct applied research and development in vocational education. Our mission is to engage in research and service activities designed to make a new vision of work-related education a reality. The Center seeks to increase the access of all Americans, regardless of their aptitudes or abilities, to a high quality work life that is not only economically rewarding, but also personally fulfilling. We seek to enable vocational education to shape (rather than react to) debates over the role of all education. The Center is located at the University of California at Berkeley. Through a network of subcontractors at Columbia University, RAND, the University of Illinois, the University of Minnesota and Virginia Polytechnic Institute and State University, and its host site, the Graduate School of Education at Berkeley, NCRVE is committed to providing the following services in addition to its research agenda: dissemination, technical assistance for planning and evaluation, JTPA and vocational education coordination, leadership development, inservice education, technical assistance to special populations, and materials distribution. This publication is part of our commitment to those on the front lines of vocational education, struggling to create a new vision.

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HOW SHOULD WE USE DATA TO IMPROVE EDUCATION?

"My own hope is that what Congress intended was local program improvement."

Dr. E. Gareth (Gary) Hoachlander, NCRVE Director of National Planning and Evaluation, talks candidly about the accountability requirements in the Carl Perkins Amendments of 1990, from his perspective as a data and policy analyst. "The law is very ambiguous," he adds, attempting to explain what Congress wanted when it called for performance measures and standards.

On the one hand, he begins, "what Congress wants is national data on vocational education, what's happening to students who participate in vocational education. And if that is what is wanted, that implies the need for uniform definitions, uniform methods for collecting data, which is something that has been very difficult to achieve."

On the other hand, "if what you want to do is to use these accountability systems to encourage local high schools and community colleges to begin to use data to improve their programs, that implies a system that is at least tailored to meet their particular local circumstances, and those two objectives can't be satisfied with the same system.

"You can't have a system that is tailored to local needs and conditions and then is forced to use uniform definitions to satisfy Federal reporting."

Hoachlander's hope that Congress intended local program improvement is based on his belief that we have other vehicles for dealing with national policy requirements. "If, three or four years from now, when one begins to think about the reauthorization of Perkins and what it can accomplish, I would hope that the Congress would be satisfied to know that states have designed and implemented accountability systems and school districts are beginning to use them to monitor what they are doing. I think that if that occurs a major objective of Perkins will have been accomplished," says Hoachlander.

But his fear is that Congress will expect to have information from these systems that will show that programs have improved. Gathering such data will not be possible since the accountability systems will not be implemented until the fall of 1992, "which means at best they would have a year or so to show any kind of change at all and the chances of being able to measure any significant change in two years are remote."

Hoachlander hopes that the new demands for performance measures and performance standards will help develop "a new mind-set" among educators. "I think at both the secondary and postsecondary level there has never been a mind-set that data are something that can be used to improve programs — data are something that you have to report to the state to get reimbursed. Or you have to report to the Feds."

As evidence of this lack of a mind-set he focuses on the currently-available data which school districts are not using to improve programs:

- "Transcripts are a wonderful device for looking at course-taking patterns of students." (e.g., school districts could examine whether students are milling around or are taking a sensible cluster and sequence of courses.)

- Attendance data. "Every school in this country maintains extensive data on attendance, but very few of them ever look at it to see what the attendance patterns offer, and whether they can be changed or improved."

"I think it does reflect a mind-set. I think most educators are just not accustomed to thinking about how to use data to improve what they are doing," he concludes.

If the Perkins-required standards are set to document program improvement, will vocational program directors be inclined to admit only those students they think will succeed? "That's a major concern," responds Hoachlander. But he suggests a way to avoid, or at least discourage, it:

"Make sure that at least some of the measures you use are measures of gains, rather than accomplishment of some absolute standard. For example, let's say you set a standard that you would like to see students completing the program scoring 70% on some sort of standardized achievement test. The easiest way to achieve that is to select students who enter scoring 69% or better.

You can't have a system that is tailored to local needs and then is forced to use uniform definitions to satisfy Federal reporting.

"But you might also have a standard where you want to see students completing a year of vocational education also demonstrating a year's growth in reading and mathematics. So now a student comes in reading at the second grade level and leaves reading at the third grade level; the gain of that one year has been accomplished."

Hoachlander thinks it is important to develop both types of measures, absolute performance standards and measures emphasizing gains, "or what economists call value added." And he emphasizes that "if this 70% standard is real, if we're saying that students who can't do better than that aren't likely to perform very effectively on jobs, then it does students a disservice to say 'You've made great gains here... you've moved from the second grade level to the fifth grade level,' and reward programs for that when a fifth grade reading level will not do on the job."

He feels strongly that all students need to know that there are absolute standards that they have to achieve if they are likely to participate in certain kinds of occupations. "But that doesn't mean that they shouldn't be allowed to achieve those standards over a longer period of time or with more intensive teaching."

In the past there was much more emphasis on labor-market outcomes; now the focus is on the design of an accountability system and of performance measures and standards, with attention to educational outcomes or learning outcomes as well as labor-market outcomes, summarizes Hoachlander. However, he adds, the problem with the system is that the data don't affect program funding. "They aren't tied directly or explicitly to other requirements for assessment or evaluation."

In order to get Perkins money schools must have designed and implemented an accountability system, but, he explains, "let's say that the accountability system shows that your program is awful; you could continue to run awful programs and still get Perkins money. There's nothing built into the system that really requires you to change as a result of generating information, and that's a potential weakness in the whole effort."

Hoachlander says that Congress wanted to put real emphasis on the design of the systems, to get people thinking. "And perhaps next time [Perkins is reauthorized], five years from now, there will be a tie between accountability and funding." Then, and only then, will we be able to say we have learned how to use data to improve education. ■

(For materials by Dr. Hoachlander, Order # MDS-004, MDS-020, MDS-232)

"THE CUNNING HAND, THE CULTURED MIND": Integrating Vocational and Academic Education

Cunning hand, cultured mind" is taken from a little ditty attributed to C. M. Woodward, a leader of the manual training movement of the 1880s, articulating the need for integrating vocational and academic education over a century ago:

Hail to the skillful, cunning hand!
Hail to the cultured mind!
Contending for the World's command,
Here let them be combined.

Despite this historical basis, researchers explain "efforts to integrate academic and vocational education have all the signs of a new movement. Policy-makers reforming secondary vocational education, vocational educators trying to find a new relevance for their programs, business people decrying the 'narrow vocationalism' of the schools, critics of academic education, and cognitive scientists developing new theories of learning have all lent their support to integration." And very importantly, in the Carl Perkins Amendments of 1990, integration of academic and vocational education is a requirement of all federally-funded programs.

The NCRVE research report, *The Cunning Hand, The Cultured Mind: Models for Integrating Vocational and Academic Education*, is based on visits to more than 70 secondary schools across the country, interviews, and close looks at curriculum. Based on these observations, the research team identified eight basic integration models, each with several variations.

The models reported "are idealized versions of what we have seen; they describe the visions of those who have tried to integrate academic and vocational education, as much as (and sometimes more than) what these individuals have accomplished."

In the variety of models "there is an important lesson," says the report. "Many approaches to integrating academic and vocational education exist, rather than a single model that could apply to all schools; and it would therefore be misguided for federal or state policy-makers to impose a single model or decide on one 'best' approach."

The models include the following:

Model 1. Incorporating more academic content in vocational courses. "Some schools have worked to incorporate more academic material into existing vocational courses, either through exhortation, through the adoption of a new curriculum materials, or through the development of model curricula."

Model 2. Combining academic and vocational teachers to incorporate academic content into vocational programs. When academic teachers are assigned the responsibility of enhancing the academic components of vocational programs, "they can then teach applied academic courses modified for particular occupational areas, teach individual lessons or modules for vocational students, help vocational instructors to develop their own academic exercises, or pull students out of vocational classes to work on academic competencies." In this model, academic and vocational teachers collaborate in modifying vocational programs.

Model 3. Making academic courses more vocationally relevant. In this model the academic curriculum, instead of the vocational, is modified. Academic courses may incorporate vocational applications or be reconfigured "so that the topics are more relevant to vocational students." Such "applied academics" courses include Principles of Technology, Applied Mathematics, and Applied Communications.

Model 4. Curricular "alignment," modifying both academic and vocational education. This approach uses more occupationally-relevant material in academic courses and more academic education in vocational courses and then links the two. "This may happen when two or more teachers, from both the academic and the vocational sides, coordinate the content of what they teach at a particular time." Thus it becomes clear that integrating academic and vocational education "can reform entire programs rather than individual courses."

Model 5. The senior project as a form of integration. Some schools have instituted senior projects, often requiring a research paper, a physical project and an oral presentation. "Such a project forces students to integrate their learning from different courses, including the capacities learned in vocationally-oriented workshops," according to the report.

Model 6. The Academy model. Academies are "schools-within-schools that typically include teachers in English, math, and science with a vocational instructor in a subject — health, electronics, business or agriculture — which gives focus to the Academy." Because teachers stay with a group of students for all four courses, over two or three years, the possibilities for curricular alignment are increased. Another advantage is that academies establish close relationships with firms operating in their occupational area, providing students with motivation, mentors, internships, and, after completion, jobs.

Model 7. Occupational high schools and magnet schools. Occupational high schools focused on a cluster of occupations, like health or agriculture, exist in a few cities; occupationally-oriented magnet schools have been established in others. According to the report, "these institutions can provide an obvious focus for efforts to integrate academic and vocational education and a culture in which it is easier to emphasize the occupational content of coursework."

Model 8. Occupational clusters, career paths and occupational majors. A few high schools have established departments organized around occupational clusters, displacing academic and vocational departments. Other schools have maintained conventional departments, but students and teachers are organized in "career paths" or elect occupational "majors." Occupational clusters encourage cooperation among teachers, force students to consider more seriously their occupational futures, and combine students from different backgrounds with very different occupational ambitions, reducing the usual segregation of college-bound and vocational students.

Efforts to integrate academic and vocational education require certain elements to succeed: Vision and commitment are important; so are consistent support from state and district administrations. New resources are generally necessary, especially for release time and

Efforts to integrate academic and vocational education have all the signs of a new movement.

preparation time for teachers, new materials, staff development, improved counseling services, smaller classes and maintaining a rich variety of vocational courses. Sustained efforts are important, "since a substantial amount of time is necessary for innovations that seek to reverse a division that is a century old." And teacher training is vital, "since vocational and academic teachers are now prepared in ways which reinforce the separation of academic and vocational education."

"The Cunning Hand, The Cultured Mind": Models for Integrating Vocational and Academic Education concludes that "the most ambitious approaches to integration can be interpreted as efforts to reconstruct the American high school—to grapple with some of its most serious failings and develop a new vision of what secondary education should be."

The important components in this "reconstruction" include:

- "Eliminating the 'shopping mall high school' by replacing the tendency of students to 'mill around' and take unrelated courses with coherent sequences of courses related to broad occupational clusters.
- "Enhancing the engagement of students by replacing the stultifying teaching of conventional academic courses with more activity-based and student-initiated methods, and by clarifying the importance of education to future careers.
- "Reducing the isolation of teachers—of all teachers, not just academic and vocational teachers—by providing new opportunities and motives for collaboration.
- "Reducing tracking and segregation of students, by eliminating (or at least weakening) the divisions between academic and vocational students.
- "Providing a clear vision of how business should participate in high schools, to provide the kinds of motivation and incentives that teachers cannot provide and to stress the variety of competencies which students need to master for their occupational futures."

The report was prepared by W. Norton Grubb, Gary Davis and Jeannie Lum of the University of California at Berkeley, and Jane Plihal and Carol Morgaine at the University of Minnesota. ■

(For Complete Report, Order # MDS-141 available later this Spring)

THE BEGINNING VOCATIONAL TEACHER: Spotlight on the Induction Process

An effective faculty is essential if revitalization of vocational education in America is to take place. The development of effective teachers takes place in three basic phases: preservice education, induction into the profession, and ongoing professional development.

The professional literature in general education is full of research and theoretical discussions of the induction process, but many of the induction problems and needs of beginning vocational teachers are unique. Thus the NCRVE monograph *On Becoming a Teacher: Vocational Education and the Induction Process* is a singular publication. It is based on papers presented in a national research symposium held in conjunction with the annual meeting of the American Vocational Education Research Association. Two of the areas highlighted are mentoring as a component of induction, and the special needs of beginning vocational teachers without teacher education degrees.

The term "mentor" has its roots in Homer's epic The Odyssey. When Odysseus goes off to war he entrusts his son Telemachus to his friend and advisor, Mentor. Mentor serves as a guardian of the household and accompanies Telemachus on a journey to search for his father and to find himself.

Mentoring is defined as "a nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels, and befriends a less skilled or less experienced person, for the purpose of promoting the latter's professional and/or personal development. Mentoring functions are carried out with the context of an ongoing, caring relationship between mentor and protege."

Generally the reports on using mentors as part of the induction process of teachers are positive. But the reported research on mentoring in vocational programs is extremely limited.

A report of the Vermont Mentor Program "highlights an important concern for vocational eduction. Training in vocational education is done in two-year postsecondary institutions as well as in secondary schools. The needs of beginning teachers in a postsecondary school may be quite different from those in a secondary school. Although the teachers in postsecondary institutions may have a wealth of experience, they may lack a background in pedagogy. Beginning teachers in secondary schools may have pedagogical training, but little work experience. Thus, mentoring relationships and success may differ in each type of school."

The needs of beginning teachers in a postsecondary school may be quite different from those in a secondary school.

Another concern particular to the vocational area is finding appropriate mentors for beginning vocational teachers. In some schools, for instance, there may be only one home economics teacher, one agriculture teacher, or one industrial arts teacher in the entire school system.

There are many questions which need to be discussed to illuminate the concept of mentoring as it applies to vocational education. "Clearly, vocational educators have just begun to investigate the issue."

The induction process of non-degreed vocational teachers "is unique in that the majority of teachers are recruited directly from business and industry, generally with little or no formal teacher preparation, and without the benefit of a college education." All too often the induction process for these new teachers consists of "being assigned a group of students, being introduced to colleagues, and being given a sketchy curriculum — should one exist — and a key to the classroom." The new vocational teacher inevitably must learn to teach by trial and error. The failure of this system is indicated by research which shows that 48.2% of the non-degreed persons who enter vocational education have left within five years.

"The underlying premise of this approach to induction is that teaching is based upon an abundance of common sense and intuition." One educator quoted suggests that "pedagogy based on common sense is sheer nonsense and that such induction practices are programmed for failure."

The monograph reviews programs which assist first year vocational teachers whether they are degreed or entering the classroom directly from industry, without teacher education.

It also recommends "continuing professional development," and suggests that four distinct groups could be involved in a "collaborative professional development system: the local school system, the state department of education, the teacher education program at a cooperating university, and the professional teacher organizations.

Teacher education is seen as "one of the most critical factors in improving the overall quality of vocational education. New-teacher induction programs can play a major role in reducing teacher burnout, improving the retention of teachers, and improving the quality of instruction offered to our vocational students at the secondary and postsecondary levels."

On Becoming a Teacher: Vocational Education and The Induction Process was prepared by William G. Camp and Betty Heath of Virginia Polytechnic Institute and State University. A companion monograph should be released soon. The new work, *On Becoming a Teacher: Research on the Induction of Beginning Vocational Teachers,* will report results of the field research done in the project. ■

(For Complete Report, Order # MDS-018)

CUSTOMIZED TRAINING AND ECONOMIC DEVELOMENT: New Roles for Vocational Education

Separating the Wheat from the Chaff: The Role of Vocational Education in Economic Development is an NCRVE paper which carefully scrutinizes "our simple faith in education as a mechanism of economic development."

"The oldest approach to economic development focuses on luring employment from neighboring localities or states, a process often described as 'smokestack chasing' (currently a process of chasing clean, prestigious high-tech companies)."

The report concludes that "while this approach to economic development has fallen out of favor, there remain powerful incentives for local institutions (like community colleges and technical institutes) and for states to continue this kind of activity. However, the report suggests that "the most helpful conceptions of economic development that have replaced smokestack chasing have been those stressing employment creation, often referred to as 'growing your own' employment."

In the promotion of economic development, vocational educators have offered a special role for vocational education in several relatively new practices. "In particular, customized training for specific firms, and technology transfer programs and small business development centers offer new models for job training and vocational education."

Institutionally, customized training is provided in a variety of different settings. Many community colleges, postsecondary technical institutes and area vocational schools provide training to specific firms, sometimes using regular funds generated by enrollments and sometimes using funds from federal sources including the Perkins Act and JTPA.

The variety of public funding sources is matched by the variety of training programs. Some operate with subsidies from the firms, or firm donations of equipment, materials, space and even instructors. Some training takes place at a firm's site, some on the campus of the postsecondary institution, some at other locations. Students are selected in different ways, sometimes by the employer and sometimes by the firm and the educational institution together. Schedules of classes are apt to be different from the academic calendar; some are open entry/open exit; and most customized training programs are relatively short in duration.

The most helpful conceptions of economic development... have been those stressing employment creation.

Customized training offers some "obvious and powerful" advantages":

- **To vocational institutions,** it provides connections between the educational institutions and employers. Firms often make contributions of equipment, helping vocational programs keep up to date.
- **For students,** it presents new opportunities for combining general and specific training. Students can enroll in general vocational courses and academic courses at the same time that they receive firm-specific training.
- **For program graduates** it is an obvious placement mechanism. And customized training may be "socially efficient."
- **For the firms involved,** the most obvious benefit is subsidized training costs. "If there are economies of scale in training, then small and medium-sized firms cannot provide their own training except at enormous cost per worker."

But there are potentially serious drawbacks to customized training:

- **The most serious question** is whether it operates to shift employment away from high unemployment areas. "In California there are some indications that customized training programs in community colleges are helping to draw employment away from central cities and to suburban areas, exacerbating the problems of minority employment."

- **A second possible drawback** is that if the firm recruits and selects trainees, or selects trainees from its existing labor force, then "any discrimination within the firm may show up in the customized training program as well."

- **Another issue** is that vocational education already may be too narrow in focus, and customized training may not serve the long run interests of employees and employers, but only provide short-term training.

- **And there is the possibility** that customized training "merely substitutes for the training which firms would otherwise provide themselves."

To provide some preliminary answers, the report authors briefly reviewed a small and nonrandom sample of customized training programs (45 institutions), and the results are on the positive side. "Most customized training programs appear to be genuine collaborations between employers and educational institutions, and many have real potential for combining firm-specific and highly customized training with more general education. The potential problem of bias in selecting applicants may not be a serious issue. In general, there appears to be a division of costs between the public and the private sector.

The effects of these programs on the long-run employment of participants and on the productivity of employers remain unknown. However, the NCRVE report concludes that "increasing the quantity of education, and especially improving its quality, can always be justified in many ways aside from economic rationales."

The report was prepared by W. Norton Grubb and David Stern of the University of California at Berkeley. ■

(For Complete Report, Order # MDS-040)

F.Y.I.

In the first issue of **Change Agent** we asked you to complete the sentence "I could use more information on..." You responded:

- **Career Development/Guidance**
  - ...successful local and state efforts at the "infusion process": career concepts and relative applications into all curricula
  - ...job development, placement, and follow-up
  - ...vocational counseling
  - ...student-assessment-for-career-selection tools

- **Program Innovation**
  - ...successful voc ed programs and how they were implemented
  - ...models of change in secondary ed
  - ...program innovation we could consider
  - ...ways to apply info [locally]
  - ...ways to improve or change vocational programs
  - ...what is a reasonable voc ed program for the high schools of the 21st century?

- **Integration of Vocational and Non-Vocational Education**
  - ...successful integration of voc/academic education, [in districts under 15-25,000 students]
  - ...integration of academics in decentralized delivery systems—apprenticeships, co-op experiences, employer-based training
  - ...[integrating] special needs students ■

GENERIC SKILLS: Teaching and Learning for the Workplace

The latest wave of school reform proposes instruction that emphasizes "generic skills" as much, or more than, it does occupation-specific or domain-specific knowledge and skills.

The assumption is that generic skills will enable people to (1) cooperate and communicate for group problem solving, (2) identify and define problems in complex environments, (3) seek, acquire and synthesize new information, and (4) adapt to changes and gaps of information in the problem solving environment. With these skills, workers will be better able to adapt to changing forms of American industry and the occupational structures supporting it.

NCRVE set out to study the teaching and learning of generic skills in vocational education settings. The results of the study are published in *Teaching and Learning Generic Skills for the Workplace.*

Two categories of generic skills were defined for the study: *basic* or *enabling* skills (reading, doing simple mathematics and *life* skills, such as reading a schedule or filling out a form) and complex reasoning skills. In addition to these, which define a person's competency for a task, the research team considered the motivational style or dispositions that influence task performance.

A number of vocational classes were observed, and one, a high school interior design class, was selected for intensive study. Three questions guided the field work: What generic skills are taught in vocational classrooms? How are they taught? How does the school context influence instruction?

The vocational teachers observed taught several specific problem-solving skills. The researchers found that the teaching of these skills was often embedded in cooperative working arrangements, wherein students worked together to solve "authentic" problems. In the case of interior design, students worked for approximately six weeks on a project to design and furnish a six-room Victorian house. The teachers encouraged students to try different ideas without fear of failure, to analyze problems and generate solutions, to evaluate and critique.

One interesting quality of the instructional practice observed in the vocational classrooms was its appropriateness for teaching a diverse group of students.

Teachers also emphasized student acquisition of generally useful attitudes and work habits, such as making independent, bold decisions and taking responsibility for decisions made. The teachers stressed with students that acquiring such dispositions was as important as learning particular job-related knowledge or skills.

Researchers observed nontraditional teaching methods (i.e., those not typical for academic classrooms as well as some vocational classes). Teachers designed project-centered courses in which students could make many choices in an environment free from typical classroom rules. Teachers treated students like adults, fostered a climate of mutual respect, and held students accountable for their work using workplace performance criteria. Overall, lecturing or didactic instruction was minimized, and teachers conducted "micro-apprenticeships" (with the teacher as master

and the student as apprentice) and engaged in one-on-one tutoring.

One interesting quality of the instructional practice observed in the vocational classrooms was its appropriateness for teaching a diverse group of students.

The interior design class was made up of both college-bound students fulfilling a fine arts requirement as well as students hoping to acquire job skills. It also was racially and ethnically mixed, and several of the students had limited English skills.

Rather than requiring uniform performance standards, teachers assessed individual student progress. In the case of group work, they also determined a student's contribution to the group. In addition, students "had some freedom in their choice of projects or of tasks within projects, which allowed them to tailor their activities to suit their talents or interests." (For example, one Mexican-American student elected to do a Southwestern style house as his final project, rather than a Victorian.)

The researchers also reported that "the apprenticeship and tutoring aspects of the teaching we observed seemed well-suited to student diversity. The apprenticeship model, in particular, has long been associated with vocational education. Traditional apprenticeship methods — coaching, scaffolding, modeling — promote 'learning through guided experience,' and they are embedded in a social context that supports learning to solve authentic domain problems."

The researchers also speculated about the integration of academic and vocational education as one way to restructure education to meet the needs of all students. "In short, both academic and vocational educators have much to contribute to the design of integrated educational practice. One aspect of curriculum reform common to both is the need to improve students' abilities to reason, think and solve problems. That is, both see 'generic skills' as important learning skills of students 'in school and out' — from school to the workplace or throughout one's life.

"If this is one goal of integration, then we might envision a model of integration based on teaching generic skills and dispositions to all students in both academic and vocational classrooms," they concluded.

The importance of workplace experience for teaching some important dispositions or for executing some instructional approaches is another issue which is addressed. "The teachers in this study had real-life experience in the 'cultural practice' that provides knowledge and understanding valued by practitioners. This form of expertise is just as important as skill in performing tasks and solving problems in the workplace. It is part of what constitutes the practice of expert work, as well as what the expert (or master craftsman) imparts to the novice (or apprentice). Thus, the expert can teach or model both skills and attitudes."

The researchers hypothesized that "it is possible that some lessons for successfully adapting to the workplace 'culture of practice' — such as taking responsibility for one's own behavior or making independent decisions — are more easily incorporated into teaching in vocational than in academic classrooms."

The final two years of the project will test this hypothesis, gathering data both from more vocational classes as well as from academic classes. In addition, the conceptual framework of the study will be further developed.

The report was prepared for the NCRVE by Cathleen Stasz, David McArthur, Matthew Lewis and Kimberly Ramsey, all of RAND. ■

(For Complete Report, Order # MDS-066)

COMMUNITY COLLEGE RESEARCH: An Update

NCRVE has a number of ongoing research projects focusing on community and junior college issues. The following are nearing completion:

- A case study of customized training and education programs.
- Development of an operational definition of customized training to provide a basis for future evaluations of such programs.
- A survey of professional development programs for occupational-technical faculty in community, technical and junior colleges, including sampling both full-time and part-time faculty at 46 colleges.
- An examination of high school and two-year college students in school-supervised cooperative education programs. (This also includes following comparable students in non-supervised jobs and tracking those who are not employed for a period 1-3 years after leaving school or college.)
- Research into the reasons for the dramatic increase in the rate of non-completion in postsecondary vocational education, 1972-1986. (This includes an effort to distinguish between the changing compostion of students attending communities colleges and the institutional and policy characteristics which affect non-completion rates.)

Details of these and other NCRVE projects will be reported in future issues of **Change Agent**. Contact NCRVE at 1-800-762-2124 for details. ■

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Page 4 **"The Cunning Hand, The Cultured Mind": Models for Integrating Vocational and Academic Education**, W.N. Grubb, G. Davis, J. Lum J Plihal, C. Morgaine, #MDS-141 *(Available late Spring 1991)*

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Page 8 **Separating the Wheat from the Chaff: The Role of Vocational Education in Economic Development**, W. N. Grubb, D Stern, #MDS-040 $4.00

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ABOUT NCRVE

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DOES WORK ENHANCE STUDENT SUCCESS?

Using work as a deliberate learning experience at both the secondary and post-secondary level has exciting possibilities, according to Dr. David Stern, Professor of Education at the University of California at Berkeley, who, with colleagues Charles Hopkins, Martin McMillion, and James Stone, is researching both school-based enterprises and school-based work experience programs (cooperative education).

David Stern

"We're having a great time going around visiting high schools and colleges which are doing some amazing things," Stern said in a recent interview. "I was at Hocking Technical College, recently, in Nelsonville in the southeast corner of Ohio. It's a rural area, and the only decent place to stay in town is a Quality Inn which is owned and operated by the college as part of their hotel and hospitality management program. They also do a lot of telemarketing there. If you call for a reservation at a Quality Inn anywhere in the world the 800 number will actually connect to operators at Hocking College; *students* operate the reservation center. And they have a travel agency there... the students at the two-year public technical college are the employees."

Stern also describes a school enterprise at a vocational high school in Phoenix. "A CAD (computer assisted drafting) class contracted with a local aerospace company to do some of their routine CAD work, essentially copying tasks, putting drawings into a computer. The contract was for $40,000."

The school-based enterprise research is "attempting to do two things: one, to describe some of the exciting possibilities which have not been given sufficient attention, and two, to explain why, if this is such a good idea, it doesn't happen more often."

We asked Stern what students could learn on co-op jobs which are not necessarily related to their educational programs or potential life work. "Generic work skills," he answers quickly, again describing a situation.

> *"In an office setting, the student will learn something about the world that is not going to be learned in school or any other way..."*

"Suppose a student gets a co-op job working in an office. And this student has no intention of being a secretary, but wants to go into theater. Well, I imagine the student would improve his or her word processing skills quite a bit, and that's a very portable kind of skill. And it's a useful skill in college. If you have some paid experience during high school you can find regular part-time work at a higher hourly rate than if you had not been employed.

"And furthermore, in an office setting, the student will learn something about the world that is not going to be learned in school or any other way...except by being there and seeing what kind of work gets done and how people relate to each other in the work setting. So there is a certain sociological advantage."

That was the main theory in the establishment of co-op programs in liberal arts colleges like Antioch, according to Stern. "Go out and see the world."

Stern says the research indicates that students in school-supervised jobs are more likely than students in non-school-supervised jobs to persist, to finish high school or get their associate degrees.

One of the questions being asked in the study is "whether the 22-year-old who works while in college will do better than one who is not working."

"We don't know yet," he says, "but my hypothesis is that kind of payoff will be greater for students in school-supervised jobs."

"Somehow, because of enrollment in co-op programs, there is a relatedness to classes; that is, the job enhances school, which is the flip side of school enhancing the job," Stern explains.

"There's something about school supervision that makes students think about these things more. Or it may be that students who think about these things more are more apt to enroll in co-op. Cause and effect is always a little slippery. Or it could be that co-op requires the employer to think about these things, to discuss them with the co-op student."

The development of a positive work ethic through school-based enterprises or school-supervised work outside the school is also being examined. One attitude measured is the motivation to do good work. This is measured by students' answers to questions about commitment to high standards of quality at work and the absence of an expressed desire to shirk.

Students are asked dozens of questions that focus on this motivation. They are asked how much they agree or disagree with such statements as "A worker should feel responsibility to do a decent job whether or not the supervisor is around," "A person should feel a sense of pride in his/her work," "I want to do my best in my job, even if this sometimes means working overtime," and "A worker who does a sloppy job ought to feel a little ashamed."

"Students in school enterprises are able to develop more of a sense of quality in their work."

According to Stern, there is evidence that "students in school enterprises are able to develop more of a sense of quality in their work. At a high school outside of Denver a student told us that, compared to an auto shop outside of school where he worked, he was able to get his work done to perfection without regard to time, whereas in the commercial shop if he took extra time, the supervisor got on his case."

"So," says Stern, ' there is a trade-off between getting the work done and getting it done to his own standards. These aspiring blue collar workers are very articulate about how they experience their work as a form of art; they are very eloquent about it."

Although students may have to compromise their learned work ethic once they are out of school, in the commercial world, Stern says "we'd much rather have them develop that first and then deal with the problem of compromise than not develop it at all." ■

(For related materials, see the following article. For materials by Dr. Stern, Order # MDS-167, # MDS-040, # MDS-317, and # MDS-318)

CO-OP EDUCATION STUDENTS FIND COLLEGE AND WORK MUTUALLY REINFORCING

Two-year college students who work at school-supervised jobs (usually termed internships, co-op, or co-op ed) report that their jobs are interesting, are related to their future careers, provide opportunities to learn, and positively reinforce their efforts in college. Co-op students perceive their jobs differently than students in non-school-supervised work holding the same kinds of jobs, although the two groups of students are similar demographically and in their educational ambitions.

The greater mutual reinforcement between school and work among the co-op students compared to the non-school-supervised working students may predict that more of the co-op students will achieve their educational objectives and have more occupational success after college.

This is an early finding from an ongoing, longitudinal study of both high school and college students. The study, sponsored by NCRVE, looks at students in a two-year public technical institute in a midwestern city and in three public community colleges on the west coast.

At each college, a sample of the general student population was selected, representing a cross-section of academic and vocational students. The mean age of the students was about 24, and both school-supervised and non-school-supervised students worked about 26 to 27 hours a week. Mean hourly wage was $6.20 for co-op students and $7.32 for non-supervised students.

Both groups of students are working in similar occupations:

Co-op program students are employed as

- Office workers—secretaries, typists, stenographers, word processors, receptionists and general office clerks (1%)
- Clerical workers (9%)
- Retail sales workers and cashiers (9%)
- Cooks, waiters and related restaurant/bar occupations (9%)
- Technicians—legal assistants, lab technicians, draftsmen, etc. (7%)
- Records processing clerks (7%)

Non-school-supervised work students work in

- Retail sales (19%)
- Office jobs (12%)
- Restaurant jobs (10%)
- Clerical jobs (6%)
- Records processing (6%)
- Child care (5%)

Despite the similarity of occupations, there is a striking difference between supervised and non-supervised students in the perceived connection between their current jobs and their eventual careers. Almost three out of four co-op students say that their jobs are related to a career they want. But less than half of the non-supervised group indicated such a correlation.

"Co-op students...find their jobs more meaningful and important; they are often less bored; they report more challenge..."

A correspondingly larger group of the co-op students also indicate that they are learning things in their jobs which will be useful later. One explanation of these differences may be that students who have obtained a job that is related to their desired careers may enroll in co-op in order to increase what they learn from their work experience.

In addition to seeing more relevance to their future, co-op students, compared to non-school-supervised

working students, find their jobs more meaningful and important; they are less often bored; they report more challenge and that more of it is mental. Their jobs also reinforce commitment to strive to do well and help them learn to set priorities.

They also report more opportunity for learning in their current jobs. Their employers gave them some training when they started, and they also learn from experienced co-workers. More of the co-op students also report that their jobs are teaching them skills that will be useful in their future work, helping them to improve their basic academic skills and their ability to think and solve problems, and giving them a chance to learn a lot of new things.

One possible explanation for these differences is that students who have obtained jobs from which they want to learn are more likely to enroll in co-op programs because the co-op program makes their on-the-job learning objectives explicit.

Finally, almost seven out of ten co-op students gave positive responses to "My job gives me a chance to practice what I learned in school," while fewer than half of the non-school supervised students responded positively. They also feel that working pays off for them at school, giving them information about things they are studying in college, making their classes more interesting. More than for non-college-supervised students, school and work are mutually reinforcing.

The findings in this study are very similar to differences between school-supervised work experience and non-school work experience in high school. Both the college students and the high school students will be followed until 1992.

This research project has been undertaken by David Stern and Helen Cagampang, of the University of California at Berkeley; James Stone and Charles Hopkins, University of Minnesota; and Martin McMillion, Virginia Polytechnic Institute and State University.

NCRVE publications related to this topic are *Adolescents' Perceptions of Their Work: School Supervised and Non-School Supervised; Work Experience for Students in High School and College;* and *Quality of Students' Work Experience and Orientation Toward Work.* ■

(For Complete Reports, Order # MDS-317, # MDS-167, and # MDS-318)

NCRVE HUMAN RESOURCE DIRECTORY

A directory listing key National Center for Research in Vocational Education personnel has just been published.

The Human Resource Directory lists the entire staff at the main office in Berkeley and personnel at the University of California at Berkeley research site, as well as at NCRVE's five subcontractor sites: Teachers College, Columbia University; RAND; University of Illinois, Champaign/Urbana; University of Minnesota; and Virginia Polytechnic Institute and State University.

In addition to the listings by site, the directory also identifies personnel by ten substantive areas. The reader can, for instance, find the names, addresses and phone numbers of ten people who are experts in Vocational Education for Special Populations, or 22 persons with Methodological Expertise. FAX numbers are included, and there is a useful index. ■

(Order # MDS-209)

HOW DO SUCCESSFUL VOCATIONAL EDUCATION ADMINISTRATORS BEHAVE?

What leadership attributes, as demonstrated by behaviors, are reflective of successful vocational education administrators?

How effective are existing administrator development formats and materials?

What would be the most effective way of preparing future vocational administrators and upgrading the leadership attributes of present voc ed administrators?

The NCRVE is in the process of trying to answer these questions, and as part of a three-phase project has published the report *Leadership Behaviors of Successful Vocational Administrators*. The document is based on interviews with administrators and faculty who work with them in secondary and postsecondary vocational educational programs in seven states. The administrators interviewed were nominated by state staff members as "the most successful of those currently employed in each state."

In all, 39 administrators and 78 instructors, about evenly divided between the secondary and post-secondary level, were interviewed. Only six of the administrators were female; 51 of the instructors were female.

The interviews, conducted by telephone to conserve time and money, utilized a list of 35 leadership attributes developed under an NCRVE grant by Jerome Moss and Tsanglang Liang at the University of Minnesota. Moss and Liang accepted a definition of leadership which describes it as both a process and a property. It is "the process of perceiving when change is needed and influencing the group by noncoercive means such as persuasion and example in its efforts toward goal setting and goal achievement." The property of leadership is "ascribed to an individual by members of the group when they perceive the individual to possess certain qualities or characteristics." Thus, when viewed as a property, leadership is in the eye of the beholder, and only persons who are so perceived are leaders.

The Moss and Liang list of leadership attributes is generic and could be used to measure leadership effectiveness of non-vocational leaders in education, or most leaders outside of educational fields. (The list was based on an examination of thousands of leadership-related studies and publications produced over 40 years.)

The interviews were oriented towards vocational education by relating the attributes to the work role of the administrator, thus establishing a context. In addition to being asked why they believed they were nominated as successful vocational administrators and what attributes they thought contributed to them being nominated as most successful, administrators were asked to describe critical events and how they behaved relevant to the event.

"Leadership...is the process of perceiving when change is needed and influencing the group..."

Interviewees were asked to describe two events when they felt particularly effective as an administrator and one situation where, with the power of hindsight, they would behave differently in a similar situation. Instructors were also asked two questions leading to narratives about events involving their administrator and his or her demonstrated behavior.

Some 272 events were discussed by the administrators and faculty, and these were classified into 14 event types. "Implementing a Self-Selected Change or Improvement" was discussed by the highest number of interviewees. Other types of events discussed by high numbers of interviewees included "Dealing With a Staff or Student Problem," "Participating in a Face-to-Face Situation," and "Linking With Business/Industry/ Community."

Communication was the attribute most often related to the successful administrator (62 percent). The study concluded:

> "The successful administrator is adept as a listener and oral and written communicator. Obviously, administrators must communicate if they intend to keep their jobs (but) our analysis showed that successful administrators' communication

MOSS AND LIANG LEADER ATTRIBUTES

I. CHARACTERISTICS

A. **PHYSICAL**
1. **Energetic with stamina**

B. **INTELLECTUAL**
2. **Intelligent with practical judgment**
3. **Insightful**
4. **Adaptable, open, flexible**
5. **Creative, original, visionary**
6. **Tolerant of ambiguity and complexity**

C. **PERSONAL**
7. **Achievement-oriented**
8. **Willing to accept responsibility**
9. **Assertive, initiating**
10. **Confident, accepting of self**
11. **Courageous, resolute, persistent**
12. **Enthusiastic, optimistic**
13. **Tolerant of stress and frustration**
14. **Trustworthy, dependable, reliable**
15. **Venturesome, risk taker**
16. **Emotionally balanced**

D. **ETHICAL**
17. **Commitment to the common good**
18. **Personal integrity**
19. **Evidences highest values and moral standards**

II. KNOWLEDGE AND SKILLS

A. **HUMAN RELATIONS**
20. **Communicating with others**
21. **Tactful, sensitive, respectful**
22. **Motivating others**
23. **Networking**

B. **MANAGEMENT**
24. **Planning**
25. **Organizing**
26. **Team building**
27. **Coaching**
28. **Managing conflict**
29. **Managing time and organizing personal affairs**
30. **Managing stress**
31. **Using leadership styles appropriately**
32. **Holding ideological beliefs appropriate to the group**

C. **COGNITIVE**
33. **Decision-making**
34. **Problem-solving**
35. **Gathering and managing information**

skills extend well beyond what is minimally required. This was confirmed through statements made by instructors as well as administrators.... Administration communication encompasses a broad range of written activities, including the preparation of reports, proposals for funding, development plans, memoranda, and correspondence."

Listening skills illicited some additional comments:

"I think the most difficult task for me and the other administrators was to learn to just sit and listen. We knew that if we did most of the talking at the committee meetings, the committee members would not contribute much."

"I think that one of her (the administrator's) attributes is that she listens very well. She is probably one of the best listeners I have ever met."

The attributes mentioned next most often were *group process and team building* (36 percent) and *information gathering and managing* (33 percent).

Instructors seemed to talk about group process and team building more than administrators talked about it themselves. While administrators commented on group process and team building

TYPES OF EVENTS DISCUSSED BY INTERVIEWEES

EVENT TYPES	SECONDARY		POSTSECONDARY	
	Administrator	Instructor	Administrator	Instructor
1. Handling a crisis	0	3	1	4
2. Dealing with a staff or student problem	11	10	12	4
3. Implementing a mandated change or improvement	1	1	4	9
4. Implementing a self-selected change or improvement	21	23	16	17
5. Participating in a face-to-face situation	2	10	2	10
6. Linking with business/industry /community	4	9	3	8
7. Securing or improving facilities and/or equipment	4	9	3	8
8. Negotiating with faculty or staff representatives	1	1	1	1
9. Participating in an institution accreditation or evaluation	0	1	0	4
10. Maintaining/improving fiscal posture	2	3	2	2
11. Determining institutional mission /goals/objectives/policies	4	5	2	3
12. Collaborating with governing boards /state agencies/political representatives/organizations	3	5	3	2
13. Enhancing institutional visibility/image	2	2	4	6
14. Not elsewhere classified	5	3	2	3

behaviors as they related to school decision and building support, instructors talked about them in relation to funding for programs, committee assignments, school decisions, building support, formulation of policy, selection of equipment, budgeting, school renovations and institutional goal development.

Information gathering and managing appeared in the interviews more as a means to an end than an end in itself, clearly tied to other actions—primarily *problem-solving, decision-making, planning, organizing, implementing and communication*. Information appears to be gathered in a variety of ways—reviewing literature, administering surveys, observing activities, having discussions with others, and conducting needs assessments.

The NCRVE report concludes that "results support the notion that vocational education administration is a complex, dynamic, and multifaceted process. The successful administrator approaches administrative responsibilities in a holistic manner. When something is accomplished, the administrator draws from a range of attributes, selecting and applying from this repertoire to suit the situation, the context, and the people involved."

The report also finds that when leadership development programs are being devised, "preparing administrators to be change agents appears to be as important as preparing them to deal with a staff or student problem and participate in a face-to-face situation."

The support that identified behaviors lend to Moss and Liang's listing of leader attributes is most encouraging. Even though several of the attributes were linked to a small number of behavior examples, most attributes could be tied to a host of relevant behaviors.

"Communication was the attribute most often related to the successful administrator."

Leadership Behaviors of Successful Vocational Education Administrators was prepared by Curtis R. Finch, Susan L. Faulkner, Kuang-Chao Yu, and Keith Goins of the Virginia Polytechnic Institute and State University and James A. Gregson of the University of Ohio.

Two related works also may be ordered from the NCRVE Materials Distribution Service: *Leadership, Leadership Development, and the National Center for Research in Vocational Education* by Jerome Moss and Tsanglang Liang, and *Conceptualizing Leadership and Assessing Leader Attributes* by Jerome Moss and Barry C. Johansen. ■

(For Complete Reports, Order # MDS-097, # MDS-041, and # MDS-187)

ADULT VOCATIONAL EDUCATION: Issues for the 90s

A review of state adult vocational education enrollment reveals "considerable unevenness" in programs for adult learners. Many traditional educational establishments — public school systems, area vocational schools, community colleges — "have failed to make adult education an integral part of their education programs," and there exists a "lack of clarity" as to who is responsible for delivering adult vocational education programs and a lack of comprehensive planning for meeting the needs of the rapidly growing adult population.

These are some of the issues outlined in two newly published NCRVE working papers, *The Scope and Direction of Adult Vocational Education in the 90s:*

Notes from a Seminar Presentation and *Emerging Issues in Adult Vocational Education: Notes from a Seminar Presentation*.

The two papers examine the present and future scope and direction of adult vocational education, focusing on major forces that influence program planning and development, new and expanding program services, program planning and implementation strategies, and emerging issues within the field.

Researchers found that the demand for adult vocational education has increased in response to various social and economic forces, including the search for improved service and product quality, greater international competition, growth of small and medium-sized companies, technological change, and demographic shift. The increased demand for training and retraining has been accompanied by demands for services such as needs analysis, counseling, dissemination of learning resources, screening of job applicants, and consulting in areas related to training and education for adult learners.

In order to respond to the forces of change, establish priorities and make the best use of scarce resources, providers of adult vocational education will need to invest more time in strategic and operational planning.

Given the influx of many new providers and an environment that is "characterized by greater complexity," adult education providers will need to offer needs analysis, and they will need to invest heavily in staff development and other resources in order to effectively offer this service.

Although there has been a modest increase in collaboration among providers of adult training and education, most communities still lack an integrated workforce development strategy, and many providers operate autonomously rather than joining forces with other agencies. Providers need to engage in strategic, long-range planning in order to discover the benefits of building alliances with other agencies and organizations.

Staff development offers another challenge; most adult vocational educators agree that instructors need to acquire preparation beyond their technical expertise. But additional research may be needed to determine the best way to develop adult instructors.

"Adult vocational education should be measured in terms of enrollee learning and, ultimately, performance on the job."

Industry-based training represents another emerging challenge for adult vocational educators. A growing number of private sector companies, particularly small and medium-sized firms, are turning to public schools, area vocational schools and community colleges for training and development services. Adult vocational education will need to develop stronger linkages with business and industry.

A final conclusion and recommendation relates to program evaluation and follow-up activities. Adult vocational education should be measured in terms of enrollee learning and, ultimately, performance on the job. All persons concerned with the program should be involved in the evaluation process: the program administrator, the instructor, the learners, and in those cases where the enrollee is employed, the employer.

The research for these papers was done by William T. Price, Jr. and Barry L. Reece of Virginia Polytechnic Institute and State University. ■

(For Complete Reports, Order # MDS-327 and # MDS-328)

NONTRADITIONAL STUDENT ATTRITION: A Model

To date, few studies have been conducted on nontraditional student attrition in postsecondary vocational education programs. Filling the void is a conceptual model formulated by David R. Johnson of the University of Minnesota. The model was just published under the title *Formulating a Conceptual Model of Nontraditional Student Attrition and Persistence in Postsecondary Vocational Education Programs.*

The model was developed to account for potential attrition among different subgroups of nontraditional students (i.e., adults with disabilities, academically and economically disadvantaged students.) It incorporates such variables as special learning needs (disability) and outside community agency support received, and the inclusion of disability as a variable of interest in investigating student dropout behavior is unique.

Developing an improved professional understanding of why students with disabilities drop out and what factors mitigate this attrition is critical as efforts to provide increased access to these individuals in postsecondary vocational education continue.

The model also seeks to examine the inter-relationships of disability and disadvantagement to a range of outside environmental factors such as personal finances, family and friend relationships, community agency involvement, and other environmental variables potentially affecting students' dropout behavior.

The model has yet to be tested. It expands several concepts described and tested in other models of student attrition and persistence in postsecondary education. Institutional commitment and social integration take on new meanings in postsecondary education dropout studies that include subgroups of students termed disabled and academically and/or economically disadvantaged.

For example, in previous studies, institutional commitment was defined as the students' level of personal commitment to the institutions as demonstrated by grade performance. Johnson indicates that of equal importance is the type and level of commitment that educational programs must demonstrate to their students, and the willingness and capacity to create a positive and supportive environment for student learning. This means offering appropriate student support services, making reasonable accommodations for students with special learning needs, and assisting students with other special needs and requirements essential to their successful participation.

> ***"Feelings of alienation, stress, isolation and loneliness are commonly associated with decisions to drop out."***

Social integration, the extent to which students assimilate into the social and cultural fabric of the institution, needs further delineation. Feelings of alienation, stress, isolation and loneliness are commonly associated with decisions to drop out. So the proposed model includes the construction of social integration and broadens these general concepts to include other attitudinal variables associated with the student's overall social/psychological adjustment (integration) within the postsecondary setting.

The publication includes a 16-page bibliography on student attrition. ■

(For Complete Report, Order # MDS-217)

EDUCATION AND THE ECONOMY: Monitoring the Interaction

Education is but one of many factors affecting the economy, and the precise influences of education on the economy are not easy to specify or gauge.

But a new NCRVE publication, *Indicators of Education and the Economy*, has set out 18 indicators "that represent important considerations for discussions about education and the economy and strategies for public policy." The indicators describe major aspects of the economy, the demand for labor, and levels of human capital.

In the publication's introduction, the authors indicate that "the selection of particular indicators is somewhat arbitrary, and debates over the importance of certain indicators are quite appropriate. Indeed, one of our primary objectives here is to stimulate discussion about what indicators are the most useful for monitoring the interactions between education and the economy."

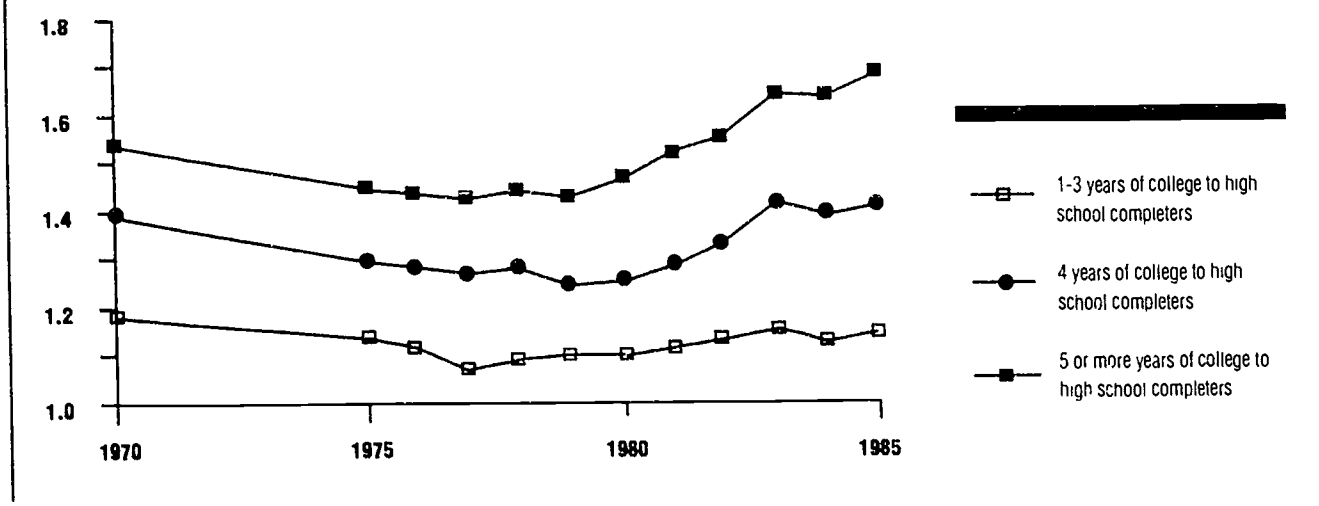
The report was prepared by E. Gareth Hoachlander, NCRVE's Director of National Planning and Evaluation, and Phillip Kaufman and Elliot Wilen, his colleagues at MPR Associates, Inc.

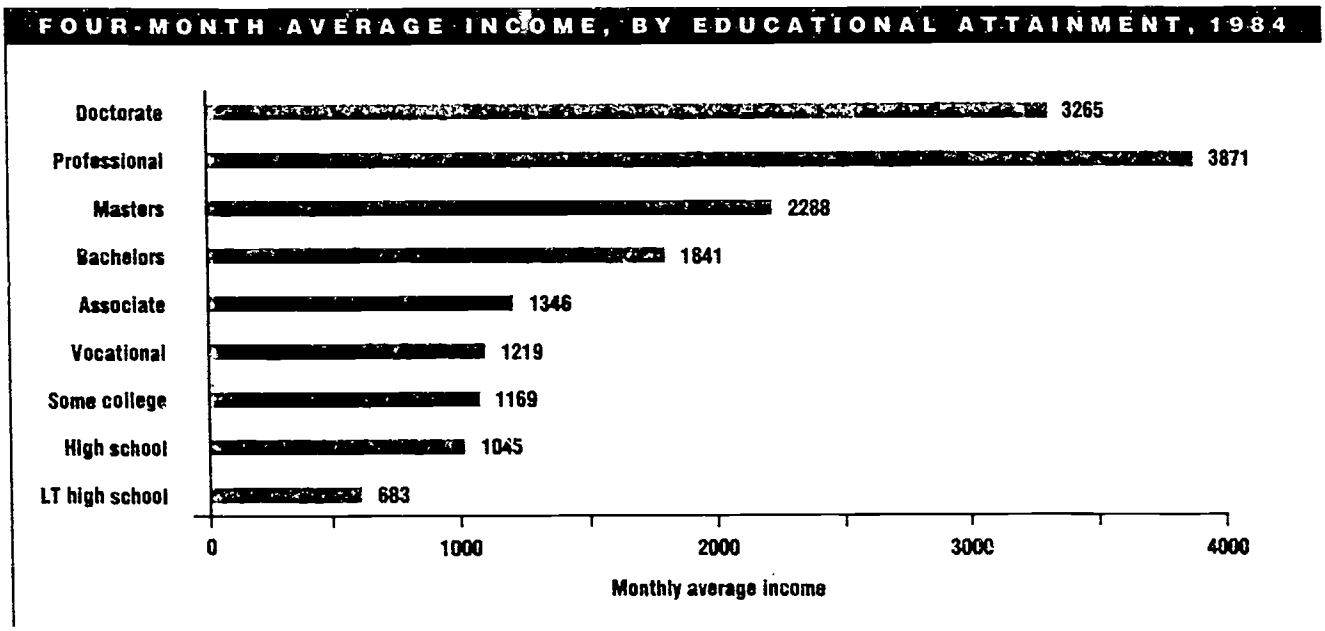
The indicators are organized into eight categories: Economic Activity; International Competitiveness; Skill Demands; Unemployment Rates; Economic Returns; Demographic Trends; Educational Attainment in the Workforce; and Performance. The discussion of each indicator is highlighted with graphics.

"Greater investment in education should promote economic development."

"Conceptually, education's role in the economy can be stated quite simply. Education is one of the primary institutions charged with helping people acquire the knowledge, skills, and abilities to perform productive work efficiently. Additionally, education is a major contributor to advances in technology and general knowledge that also improve productivity," say the authors.

RATIO OF INCOME OF MALE FULL-TIME WORKERS, BY EDUCATIONAL ATTAINMENT





"Greater productivity produces a higher standard of living, and, hence, greater investment in education should promote economic development and improvement in general well-being. Preparing people to work productively is not, of course, education's only objective. Nor is education sufficient to ensure that work will be performed efficiently. Many other factors, such as the availability of the appropriate capital equipment in the right amounts and good management of people and other resources, affect productivity. Nevertheless, other things being equal, more highly skilled individuals should generally be more productive."

But how do you measure education's contribution to the economy, or the precise relationship between education in general and specific skills in particular? "Identifying the relationship is further confounded by the likelihood that the interactions are constantly changing. Consequently, such conceptually simple notions as measuring the demand for labor and assessing the preparedness of supply becomes wickedly difficult to carry out."

The report highlights several issues:

The importance of manufacturing is one. "Manufacturing still accounts for just over 25 percent of employment, which is down rather modestly from about 32 percent sixty years ago. To the extent that we mindlessly prepare for an increasingly service-based economy and ignore manufacturing, we may hasten economic stagnation and decline, exacerbating trade deficits and further eroding America's lead in high technology."

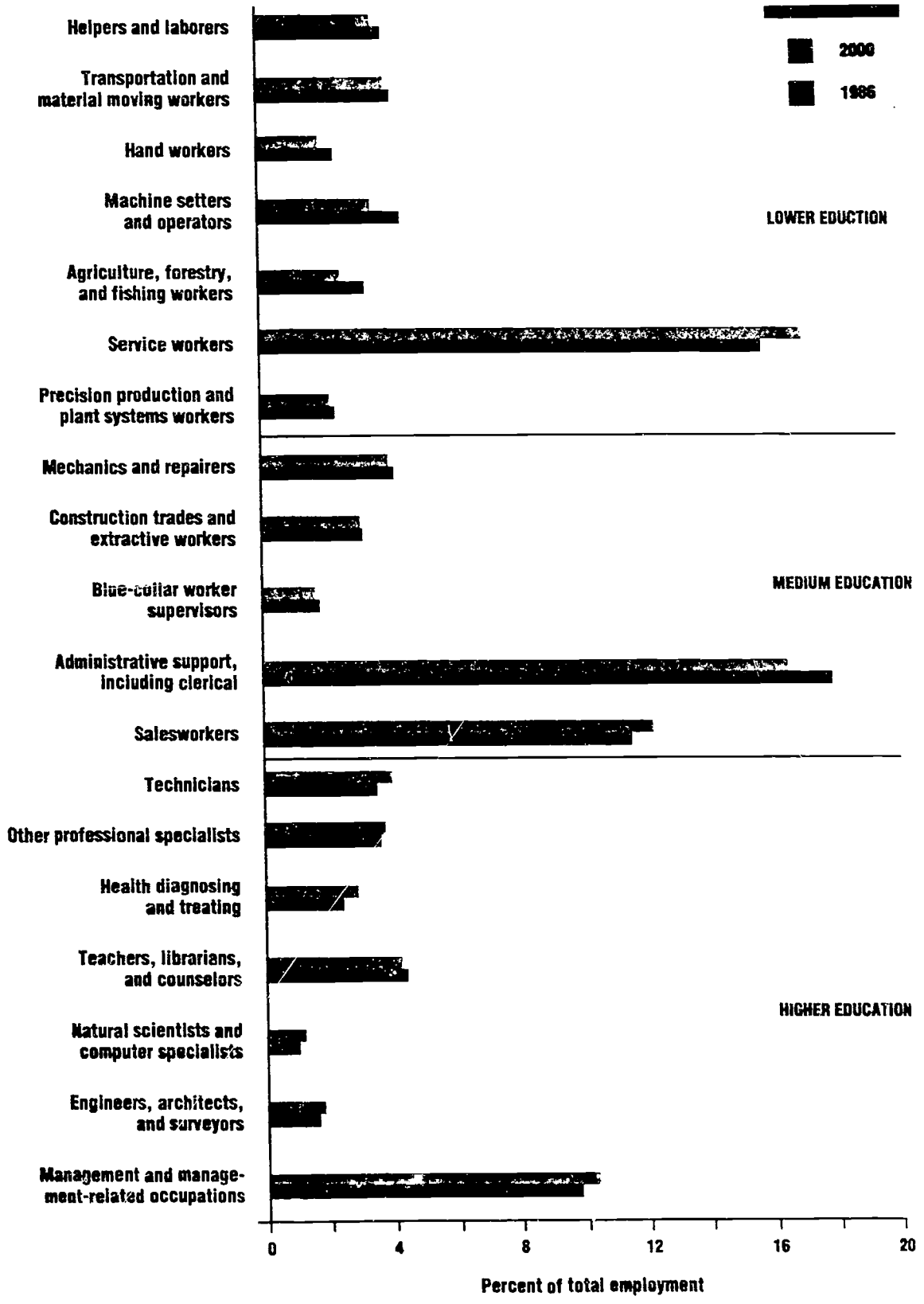
According to the researchers, American schools, especially elementary and secondary schools, generally do a poor job of teaching about contemporary manufacturing, and "miss countless opportunities to ground the abstract principles of math and science in concrete modern manufacturing techniques."

Service is also important. In this area, changes in technology hold promise for improving productivity, bringing with them increased demands for better educated, more technologically sophisticated labor.

The growing importance of good education is reflected in increasing economic returns to higher education. Although the economic value of college relative to high school declined during the 1970s, this trend has reversed significantly in the 1980s.

While the economic pressures will increase to improve the education levels of both minority and

EMPLOYMENT IN BROAD OCCUPATIONAL CLUSTERS, BY LEVEL OF EDUCATIONAL ATTAINMENT, 1986 AND PROJECTED 2000

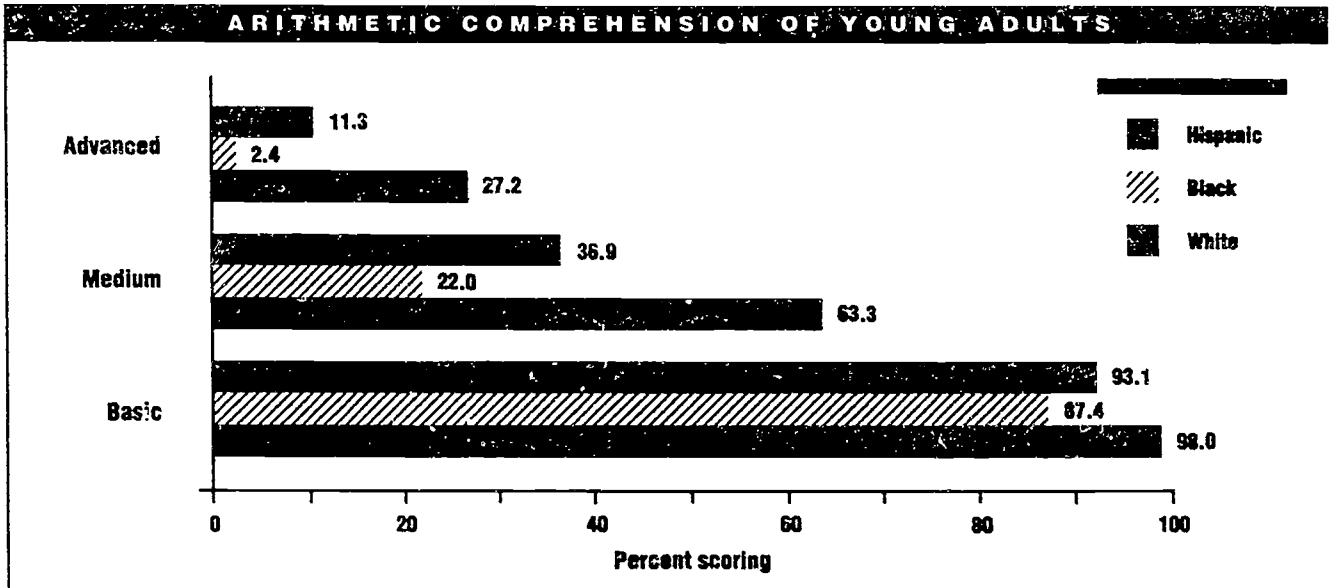


majority students, *employers will have other options if schools cannot meet the challenge.* These alternatives include sending more work overseas, retaining older workers past traditional retirement age, luring even more women into the labor force, and increasing automation of routine, low-skilled labor functions in both manufacturing and services.

Only about 25 percent of young American adults possess the more advanced reading and math skills that employers say are increasingly required to perform effectively in the labor market, and only 12 percent of Hispanic young adults and 3 percent of black young adults possess such skills. American students consistently score lower on tests of math and science knowledge than their peers in other countries and their knowledge about the location of important places in the world is poorer now than it was forty years ago. *America could be much better prepared to compete in the world economy and to participate in the "global village."*

The authors warn, however, that there are limits on the capacity of education to strengthen the economy, "and we must guard against expectations that are unrealistically high and against ill-conceived investments in schooling." Education is but one of many factors influencing the robustness of the American economy. Other factors include capital investment, trade policy, international marketing capacities, tax policy and compensation structures. ■

(For Complete Report, Order # MDS-014)



Basic item—add two numbers on a bank deposit slip
Medium item—calculate the price of a meal using a menu and determine the amount of change received
Advanced item—determine a ten percent tip for a meal

REPORTS REVIEWED

Page 2 Publications by Dr. David Stern and colleagues:

Work Experience for Students in High School and College. Stern, McMillion, Hopkins, and Stone. # MDS-167 $2.00

Separating the Wheat from the Chaff: The Role of Vocational Education in Economic Development. Grubb and Stern, # MDS-040 $4.00

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ABOUT NCRVE

The Center is established under authorization of the Carl D. Perkins Vocational Education Act to conduct applied research and development in vocational education. Our mission is to engage in research and service activities designed to make a new vision of work-related education a reality. The Center seeks to increase the access of all Americans, regardless of their aptitudes or abilities, to a high-quality work life that is not only economically rewarding, but also personally fulfilling. We seek to enable vocational education to shape (rather than react to) debates over the role of all education. The Center is located at the University of California at Berkeley. Through a network of subcontractors at Columbia University, RAND, the University of Illinois, the University of Minnesota, and Virginia Polytechnic Institute and State University, and its host site, the Graduate School of Education at Berkeley, NCRVE is committed to providing the following services in addition to its research agenda: dissemination, technical assistance for planning and evaluation, JTPA and vocational education coordination, leadership development, inservice education, technical assistance to special populations, and materials distribution. This publication is part of our commitment to those on the front lines of vocational education, struggling to create a new vision.

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Contents

HOW ARE TEACHERS RESPONDING TO INTEGRATION?

"Teachers report that they now focus more on the student, rather than on their individual subject matter."

That's the good news from B. June Schmidt, NCRVE researcher at Virginia Polytechnic Institute and State University, who has been studying efforts to integrate academic and vocational education at several schools in the southeast.

She has a great deal of enthusiasm for the NCRVE project she is just completing, and she thinks the positive trend she has seen will mean general improvements for both academic and vocational education. Her evaluation is based on 30 years of education experience—as a classroom teacher and supervisor for the Virginia Department of Education, and in teaching business education at VPI.

The enthusiasm is for what she is finding out about high school vocational and academic teachers working together to integrate their disciplines. Most of what she has learned from interviews with teachers and administrators at three school sites has been positive.

At one school, an English teacher said the need to help all students learn and to focus on students rather than on subject matter was brought home to her through a survey of the business community:

> "The survey outcomes revealed the high level of basic skills required for available technical jobs—not just low-level skills the teacher previously felt adequate for those entering the workforce after high school without going to a four-year college," Schmidt reported. "This teacher realized that all students need to be taught workplace skills and that the only way to achieve this is to vary instruction to accommodate different learning styles of students."

Both vocational and academic teachers told her that they had gained great respect for teachers in other disciplines as a result of working together, and liked it when they could "reinforce each other's teaching." They believed that the students benefited from that kind of reinforcement, too.

The teachers she interviewed had been working together for three years, and they admitted that they had learned as they went along. For instance, Schmidt said, some vocational teachers reported that they had "tried to set aside class time for drill and practice" in basic academic skills, but that didn't work; they then learned to weave those skills into the vocational instruction, "offer them in applied contexts."

B. June Schmidt

At one school, the vocational teachers agreed to work with the English teachers by emphasizing the same grammar competencies that the English teacher stressed—for example, writing complete sentences or subject-verb agreement. As opportunities arose in the vocational classes for students to write, the vocational teachers graded the students on their English as well as the vocational subject matter. Academic instructors also learned to offer vocational examples in their classes.

The interview sites (one comprehensive high school and two vocational centers complementing academic high schools) were in Virginia, South Carolina, and Georgia, with a variety of vocational programs including agriculture, business, home economics, marketing, and trade and industrial.

Two initial teacher frustrations were reported in the interviews:

1. When they first were given the general charge to improve the academic competence of students in vocational programs, "nobody told us what to do." But once the vocational and academic teachers began collaborating on curriculum strategies, instructional strategies, and making them work, they felt comfortable in what they were doing; they took pride in it.

2. Teacher groups working on integrating vocational and academic instruction were not successful if they were larger than eight. "The best things happened when there were three to eight teachers developing collaborative relationships," said Schmidt.

They had gained great respect for teachers in other disciplines as a result of working together.

The change from frustration over lack of direction to pride of ownership reflects the key to making integration succeed. "It was theirs; they owned it," explained Schmidt. "It wouldn't have been the same if they had been told what to do. The teachers are really the bottom line in this integration effort."

Forming curriculum committees was the most usual way to get the integration process started, according to Schmidt. Teachers shared information about what basic skills were taught in the academic courses and what academic skills were needed in the vocational classes. "Often they began by sharing texts and identifying competencies common to both the academic and the vocational subject matter."

Schmidt does have some advice about the make-up of teacher integration groups. At one school the integration process was started by vocational teachers selecting an academic area to team up with. "This format did not work well, as one vocational teacher reported," she observed. "He joined the mathematics teachers and found that they dominated the session. The vocational teacher said he felt left out, intimidated." Schmidt advises using small groups, with an even balance of academic and vocational instructors.

The 30 interviews done at three school sites are setting the stage for a larger study, interviewing nationally at eight school sites and focusing more on teacher outcomes and student outcomes at schools which integrate vocational and academic instruction.

From what she has learned so far, does Schmidt think integration will work? Her answer is an enthusiastic "Yes!"

"Integrating vocational and academic education provides both teachers and students a means to achieve success. Cognitive psychologists report that students learn better when information is learned in an applied context. Further, many students cannot learn when they see no relevance to what they are expected to learn. By working together, vocational and academic teachers can provide instruction their students find meaningful and of use. And they can deliver basic skills required in technological workplaces rather than low-level basic skills often emphasized with students not preparing for college."

She offered a wonderful example reported by a masonry instructor. This teacher had a student whose father was a bricklayer and in business for himself. "The father was pleasantly surprised by what his son had learned. As an outcome of having the math teacher help students with the calculations needed for bricklaying, the student was able to make computations that took the father years of on-the-job experience to learn how to do."

A math teacher reported that with his help the machine tool instructor was now able to have each student individually set the numeric control lathe equipment. "Prior to the integrated teaching, the machine tool instructor set the equipment and all the students produced the same item; now each

student sets the equipment and produces a unique item."

In another example, a vocational teacher reported on the success the students had when they went for job interviews because of assistance received from an English teacher on how to respond to interview questions.

The results of this study will be published by NCRVE in the future.

In addition to her work on integration, Schmidt has worked in the area of inservice training. Her work with Susan Faulkner, *Staff Development Through Distance Education*, has been published by NCRVE. ■

(For materials by Dr. Schmidt, Order # MDS-330)

(For additional information on integration, see page 12.)

PART-TIME FACULTY IN COMMUNITY COLLEGES: Staff Development Issues

Part-time faculty now outnumber full-time faculty at the nation's community colleges by 60 to 40 percent. According to the American Association of Community and Junior Colleges (AACJC), they are responsible for 25 percent of all credit courses.

Many of these part-timers are recruited from non-academic sources such as business and industry, and the majority have had little or no experience in teaching.

To deal with the professional development needs of part-time faculty, administrators have employed a variety of strategies, including group orientation sessions, one-to-one counseling with division chairs or other college faculty, workshops on developing teaching skills, team teaching, and mentoring. A few colleges have reported success in involving part-time faculty in professional development activities, but many others have reported less than success.

Innovative practices in professional development with a primary focus on part-time occupational/technical faculty were reported at a recent national conference sponsored by the National Center for Research in Vocational Education, the AACJC, and the National Council for Occupational Education.

Twenty-five papers delivered at this conference have been published by NCRVE. *Proceedings From National Conference on Professional Development of Part-Time Occupational/Technical Faculty* includes much valuable information for community college administrators or faculty charged with integrating part-timers into the college community and helping them become excellent instructors. The following items are summaries of three of the papers included in the collection:

Part-Timers Have a Voice

by Linda Luehrs, El Paso Community College

A Part-Time Faculty Development Issues Committee recently has become part of the comprehensive development program provided for some 300 full-time and 700 part-time faculty of El Paso Community College, which has 25,500 students at three campuses and numerous satellite centers. The committee, made up of part-timers, is addressing the specific faculty development concerns and needs of the part-time faculty.

Activities suggested include:

Informal sessions for faculty to be held on Saturdays. Sessions vary; however, they may

include information about various resources at the college, a tour of the campus, an exchange of ideas, and discussions/workshops on instructional techniques.

Colleagues in Education—A mentor program for new full- and part-time faculty now is in the planning stage. Experienced faculty, both full- and part-time, will serve as volunteer colleagues to new faculty, acting as resource persons and friends.

Self-Assessment—A checklist designed by part-time faculty to help determine a faculty member's familiarity with instructional and student support services available. In addition, the checklist will contain a teaching tips section.

Recognition Programs—Historically, these programs have been limited to full-time faculty. Based upon input from the committee, an outstanding part-time recognition program was implemented in each division.

The El Paso Community College "New Faculty Orientation" includes a video for new faculty about the college, its mission, goals, and objectives, as well as resources available to the faculty. A two-day orientation program covers instruction and student support services information and workshops on Developing Course Syllabi and Lesson Plans, What to Do on the First Day of Class, Instructional Strategies/Alternatives to Lecturing, Using Media in the Classroom, and Student Study Skills.

After the semester is underway, additional workshops are held on Test Construction and Evaluation and Faculty Evaluation Jitters. Faculty Handbooks and Teaching Effectiveness Guides are distributed to all new full- and part-time faculty at EPCC.

Improved Salaries Wanted

by Kevin Hollenbeck, W. E. Upjohn Institute for Employment Research, and Betty Rider, Ohio State University

Another recommendation that part-time faculty be recognized—but with improved salary structures—came from a report titled "Professional Development of Part-Time Faculty: Findings From a Survey of Public Postsecondary Technical Education Institutions."

Perhaps the most surprising finding reported from the extensive data analyses was that "part-time instructors reported that they undertook, on average, more professional development activities than did their full-time counterparts."

Based on the research findings, the following recommendations were offered to postsecondary occupational administrators:

1. Improve salary structures to reward part-time faculty that are actively involved in professional development.
2. Encourage part-time faculty to engage in more instructional-related activities.
3. Promote collegiality between full- and part-time faculty.
4. Alter office hours of regular staff so that they interact with part-time faculty.
5. Review institutional policies and environment as they affect professional development activities.
6. Provide more opportunities for part-time faculty in the areas of teaching disadvantaged or at-risk students, handicapped students, limited-English proficient students, non-traditional students, older students, and single parent students.

EPIC Project in Ohio

by Donald Hoyt, Cuyahoga Community College

Each academic quarter, the Cuyahoga Community College District in Cleveland employs an average of 50 new part-time instructors at its three campus locations and numerous off-campus sites.

An Educators Peer Instructional Consulting (EPIC) program has been developed as an attempt to extend the efforts of the division heads and assistant deans in aiding part-time faculty. Reassigned Equated Quarter Units (EQUs) enable full-time faculty to relate directly on a one-to-one basis with new part-time faculty.

Part time instructors reported that they undertook, on average, more professional development activities than did their full-time counterparts.

The basic premise of the program, according to Donald Hoyt, is that a part-time person has as much to bring to this relationship as the full-time person because of the part-timer's direct link to the world of work and other connections in the community.

As a result of this relationship, new part-time faculty members will develop a sense of belonging to the college community, will develop effective teaching methods, will use contemporary instructional technologies, and will provide rewarding learning experiences for their students.

Also, full-time faculty will benefit from the part-time instructors' perceptions of expectations of students and graduates, whether in the world of work, in the arts, in communications, or in the general expectations of an educated citizenry, and will be continually stimulated to rethink the teaching/learning process.

The full-time faculty member who acts as a "peer consultant" has .5 reassigned EQUs for each part-time person with whom he or she works. The full-time faculty member is required to meet with each part-timer at least three times during the quarter.

The full-time faculty EPIC participant is not the formal evaluator of the new part-time instructor. "Because of the mutual helping relationship that is expected to develop, it is considered wise to keep the formal evaluation process separate," says Hoyt.

Both the full-time and the part-time faculty member of each team keep a short journal of their interactions. A format is prescribed, and includes the following:

- Lessons learned or problems encountered
- Any unsolved problems with a recommendation or plan for corrections
- Needs of either participant that could be addressed through seminars, workshops, or other activities of the Faculty Development Program

These journals are submitted to the Faculty Development Office at the end of the quarter and are used as a component of the evaluation of the program, but not the individual faculty member. A copy of the journals also goes to the appropriate division head, who also submits a report on the usefulness of the program.

The project receives partial support from the U.S. Department of Education, Fund for the Improvement of Postsecondary Education (FIPSE).

Proceedings From National Conference on Professional Development of Part-Time Occupational/Technical Faculty was prepared by the Inservice Education Project at the Virginia Polytechnic Institute and State University NCRVE Site, the National Council for Occupational Education, and the American Association of Community and Junior Colleges. ■

(For Complete Report, Order # MDS-201)

PROFESSIONAL DEVELOPMENT PROGRAMS: Lessons Learned

"There is no single, best way to organize a professional development program."

That's the conclusion of a two-year study of community, technical, and junior colleges just published by the National Center for Research in Vocational Education.

In preparing *Professional Development Programs, Leadership, and Institutional Culture: Lessons From a Study of Professional Development Programs for Community College Occupational-Technical Faculty*, researchers first gathered data from 708 surveys of community, technical, and junior colleges. In the second year the study took a closer look at six of the institutions which responded to the initial surveys.

The case study institutions were chosen to reflect a geographic and demographic cross-section of the U.S.:

- Southwest Virginia Community College in rural southwest Virginia
- Edmonds Community College, an urban college in Lynwood, Washington
- Midlands Technical College, an urban college with two campuses and one center in Columbia, South Carolina
- Alamance Community College in rural Haw River, North Carolina
- Mid-Michigan Community College in the rural, central lower peninsula of Michigan
- York Technical College in Rock Hill, South Carolina

For the in-depth analysis, focus group and individual interviews were conducted at each of the case study sites.

No single model of professional development emerged as the best way to accomplish professional development goals. Rather, the researchers found "professional development in its best, exemplary patterns, to be a natural consequence of a well-led, effective institution. Professional development is an essential ingredient for an effective institution, but, by itself, it cannot make an institution effective."

Professional development programs provide a variety of ways for full- and part-time faculty to participate in professional development. Some common elements emerging from the study have implications for practice:

Professional development programs are one vehicle through which institutions may evidence their ideology. "When the values of the participants and other stakeholders in the institution are consistent with the ideology of the institution, a positive environment and culture are possible."

Professional development is an essential ingredient for an effective institution, but, by itself, it cannot make an institution effective

Leadership supportive of individual and professional growth contributes significantly to the empowerment of individuals within the organization. "A critical core of empowered individuals can influence the culture of the institutions and the direction of its growth and development, can assist in building a common ideology and a sense of community around shared values, and can be used to address short-term institutional issues."

Professional development programs need adequate funding. Funds are needed to pay tuition, pay travel, hire substitutes, pay salary during sabbaticals, and pay for release time.

continued on page 12

THE NATIONAL ASSESSMENT OF VOCATIONAL EDUCATION

In preparation for the Perkins Act reauthorization, passed by Congress in 1990, the Department of Education undertook a National Assessment of Vocational Education (NAVE). The goal of the assessment, was to study the implementation of the Perkins Act of 1984 and the status of vocational education at the secondary and postsecondary levels. Ultimately five volumes of data were submitted to Congress.

NCRVE, the American Vocational Education Research Association, and the University Council for Vocational Education felt that the findings were important information which needed to be examined and discussed, so the three organizations sponsored a symposium dealing with NAVE.

The National Assessment of Vocational Education: "What It Says and What It Should Say"— A Symposium, a Synthesis and Summary of the Symposium Presentations has been prepared by Gordon I. Swanson, former Associate Director of NCRVE. The following are highlights from the various reports given at the NAVE symposium:

John G. Wirt
Director of NAVE

"In the NAVE study we found that, today, over 97 percent of the students currently graduating from high school take some vocational education, even if only one course. The average amount of vocational education taken by all students is about 20 percent of their high school program. Even students planning to obtain a baccalaureate degree take 15 percent of their coursework in vocational education.

"The most astounding statistic to me is that vocational education is the largest single subject taken by students in American comprehensive, public high schools. The figures are that the average student who graduates takes 4.21 credits of vocational education and 4.02 credits of English. "The reason that this is astounding to me is that most states and school districts require at least three and usually four full years of English, whereas vocational education is an elective. Students evidently like vocational education."

Richard L. Lynch
Virginia Polytechnic Institute and State University

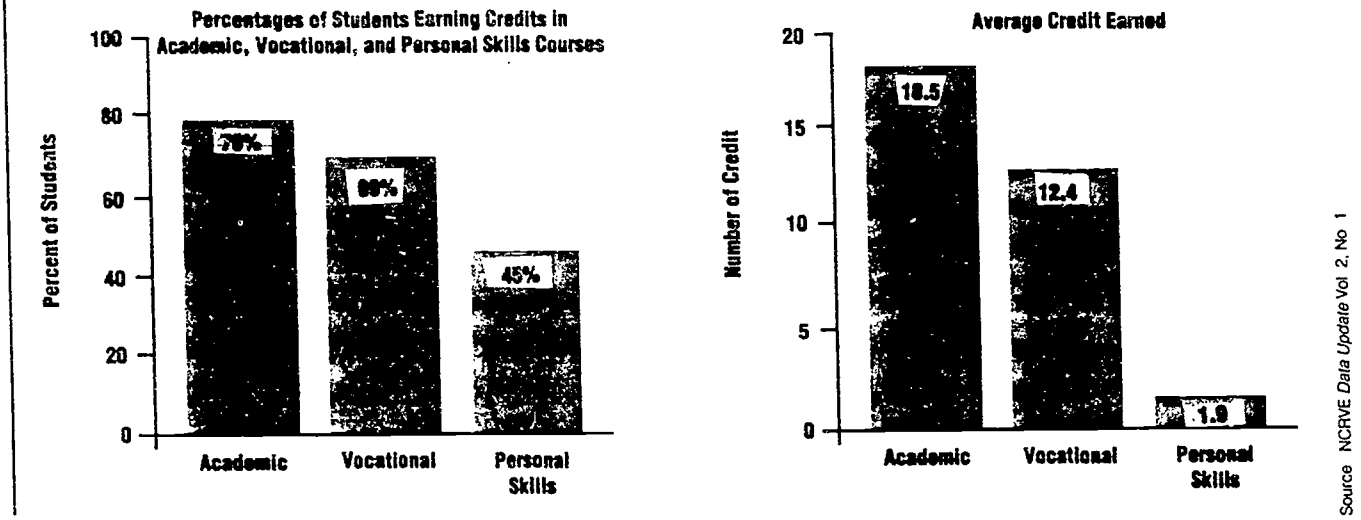
"The largest number of [vocational] teacher education programs by far are in home economics, the vocational area that, according to NAVE data, seemed consistently to show enrollment decline at the secondary level.

"It's been estimated that about 75 percent of all trade and industry teachers and 50 percent of health and technical teachers—including beginning teachers today—are nondegreed. Only two states require that all of their vocational education teachers have baccalaureate degrees. Beginning teachers from 43 states may teach in trade and industrial education without any college credits. I can only speculate as to their ability to teach applied math, science, grammar, communications, and social studies when most of them have not been in any school for at least five years and have no collegiate preparation in the arts and sciences."

George H. Copa
University of Minnesota

"With respect to nature of work, special emphasis should be given to the relation of work and education; the impact of technological change; the sociology of work; and work and family relations.

"As a side note, I suggest that we explicitly identify the family as a common *place of work*: something that everyone does, where there is 100 percent placement in terms of related job, and which has serious problems. The idea of family is often missed as an important part of vocational education and is



Source NCRVE *Data Update* Vol 2, No 1

also missed in the analysis and recommendations of the report."

J. David McCracken
Ohio State Unversity

"By putting extraordinary emphasis in the form of federal funding on separate vocational schools, the vocational education community gains greater control over the nature of the educational program. But at what expense? I have been influenced in philosophy by Rupert Evans from the University of Illinois. In his book, *Foundations of Vocational Education*, he warns of the sociological impact of separate vocational schools.

"These schools prove to be an efficient and effective way to separate the youth of America by socioeconomic class for their educational programs. The resulting dual educational system will result in children of the privileged class studying academic programs in regular schools, and children of the less privileged class pursuing vocational education in an isolated educational environment. This separation has never been the American way. What big choice are we making as a country by the little steps we take to strengthen the separate vocational school at the expense of the comprehensive school?"

John Hillison
Virginia Polytechnic Institute and State University

"I was surprised that the [NAVE] assessment was surprised that college-bound students take substantial amounts of vocational education. Vocational educators have advocated that all students can benefit from enrollment in their programs. Evans and Herr [in *Foundations of Vocational Education*] wrote extensively about how vocational education increased individual options to include both work and college. In addition to making cognitive skill development applicable, vocational education helped many students develop the work-oriented talents that help finance their college educations.

"It was interesting to note the terminology of college-bound students versus work-bound students. Even college graduates work. I would certainly hope they would be work-bound, too." ■

(For Complete Report, Order # MDS-205)

Reference: Evans, R.N., and Herr, E.L. (1978). *Foundations of Vocational Education* (2nd ed.). Columbus, OH: Merrill.

VOCATIONAL EDUCATION POLICIES: An Overview

The National Center for Research in Vocational Education is engaged in a continuing effort to understand the larger institutional and policy context in which vocational education operates.

A new report, *Education and Training for Work: The Policy Instruments and the Institutions*, provides an overview of five major categories of education and training policies, within a framework based on the policy instruments federal and state officials use in designing programs to prepare individuals for employment.

The analysis, abstracted here, focuses on the role of state governments in implementing federal policies in local communities, and in designing and implementing their own policies. Five educational and training policy areas are examined: secondary vocational education, postsecondary vocational education, JTPA programs, state-funded job training programs linked to economic development strategies, and welfare-to-work programs. Data from a 50-state survey of work-related education and training policies and case studies of education and training institutions in eight local communities are presented.

The five types of policies examined in the report share a key similarity: All are based on inducements, i.e., a higher level of government provides fiscal resources to lower levels in the expectation that they will deliver education and training services to specified groups.

Inducement-based policies, however, present a fundamental dilemma for policymakers: it is necessary to promote the flexibility necessary for responsive local programs, but the slippage between policymakers' expectations and local implementation outcomes is very high and must be minimized. Policymakers typically approach this dilemma by including secondary instruments, usually mandates, which set funding conditions and seek to ensure more precise adherence to targeting, service, or outcome standards.

The growing emphasis on accountability in all aspects of American life is likely to make performance standards an increasingly prominent feature of education and training policies.

Despite their use of fundamentally similar primary policy instruments, the five policy areas are quite diverse. First, they vary in the types of secondary instruments they combine with inducements. The federal vocational educational program emphasizes capacity-building, or the transfer of money for the purpose of longer-term investment in material, intellectual, or human resources, in addition to providing inducements for states and localities to serve certain target groups. Some state-funded job training programs use system-changing (the transfer of official authority among individuals and agencies to alter the array of institutions that deliver public goods and services) to allow organizations outside the public education and training system to provide training.

The role of different levels of government also varies with each policy. For instance, in JTPA programs, the federal government is the sole funder and definer of outcomes, but localities largely determine what services are provided and who provides them. Under welfare-to-work policies, costs and programmatic influence are more equally shared by the federal government and states, although policy components vary considerably from state to state. In secondary and

postsecondary vocational education, the federal government has only moderate influence over the targeting of its funds.

The design of education and training policies has been marked by four trends. First, policy instruments have become more complex over time, with policymakers moving to more powerful instruments such as performance standards as problems have arisen and slippage from original goals has reached unacceptable levels.

Second, the balance between federal and state policy initiatives has shifted; the states have assumed a greater role in creating their own programs, in interpreting federal regulations, and in shaping local programs.

Third, policymakers have established new programs either because they felt existing ones were not performing as they initially intended, or in response to the needs of client groups; thus there has been a proliferation of education and training programs.

Fourth, there has been a counterbalance to the proliferation of policy. Although the number of education and training programs has increased, evidence from the case studies indicates that new programs have not resulted in a similar proliferation of local education and training institutions. Rather, existing institutions typically assume new responsibilities, and where feasible, they integrate services across programs (e.g., welfare-to-work clients may attend occupational training classes with traditional vocational education students in a community college).

The researchers conclude that future generations of education and training policies are not likely to differ significantly from the current array. They will essentially rely on inducements to promote the policy objectives of higher levels of government in local communities, but they are also likely to encompass a broader range of secondary instruments. Policymakers, particularly at the state level, will continue to focus on which services should be provided and who should provide them.

Researchers also conclude that the growing emphasis on accountability in all aspects of American life is likely to make performance standards an increasingly prominent feature of education and training policies.

Future generations of education and training policies are not likely to differ significantly from the current array.

However, experience with the JTPA performance standards indicates that a mandate requiring prescribed outcomes does not necessarily ensure that the desired target groups will be served or that goals of overall service quality and appropriateness will be met. As a result, the challenge for future policy design will not be to craft a single instrument to eliminate slippage on a few narrowly defined measures such as program cost and short-term job placement. Rather, it will be to combine a variety of instruments in ways that create incentives for local education and training institutions to advance the multiple goals associated with preparing individuals for productive employment, including widespread accessibility of services and the acquisition of skills that enhance long-term job opportunities.

Education and Training for Work: The Policy Instruments and the Institutions was prepared by Lorraine M. McDonnell and W. Norton Grubb (respectively from the NCRVE sites at RAND and the University of California at Berkeley)

Another study relating to the complexity of institutions that train for employment is *Local Systems of Vocational Education and Job Training: Diversity, Interdependence, and Effectiveness*. This report, also prepared by Grubb and McDonnell, looks at eight local communities. ■

(For Complete Reports, Order # MDS-025 and MDS-259)

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Page 7 **Professional Development Programs, Leadership, and Institutional Culture: Lessons From a Study of Professional Development Programs for Community College Occupational-Technical Faculty**. Hoerner, Clowes, Lichtman, and Allkins. # MDS-162 $3.00

Page 8 **The National Assessment of Vocational Education: "What It Says and What It Should Say"—A Symposium**, Swanson. # MDS-205 $4.00

Page 10 **Education and Training for Work: The Policy Instruments and the Institutions**. McDonnell and Grubb, # MDS-025 $4.50

Local Systems of Vocational Education and Job Training: Diversity, Interdependence, and Effectiveness, Grubb and McDonnell. # MDS-259 $4.50

Professional Development Programs, from page 7

Professional development programs need flexibility. All six case study institutions exhibited willingness to be flexible and to accommodate as much as possible the individual needs and wants of members of the college community. "Too much structure was felt to inhibit, rather than facilitate, professional development."

Development may include such activities as university credit courses; noncredit courses; local, state, and national conferences; on-campus workshops; group orientation meetings; sabbaticals; and return-to-industry opportunities. Activities within professional development programs cover a wide range of topics, including mission of the college, student characteristics, curriculum development, teaching methods, advising, student evaluations, knowledge updating, skills updating, financial planning, and computer literacy.

Researchers responsible for the report were James L. Hoerner, Darrel A. Clowes, Marilyn V. Lichtman, and Michael T. Allkins of Virginia Polytechnic Institute and State University. ■

(For Complete Report, Order # MDS-162)