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ABSTRACT

Eleven recent reports related to excellence in education were examined, and their implications for vocational education were interpreted. Commonalities and differences among the studies were identified, and a selection of these was developed further with major emphases on teaching and learning. Topics were selected according to their immediacy and relevance for vocational education. The analyses of these studies highlighted the need for improvement of education in the public school system, concentrating on high schools. The most effective strategy was the improvement of teaching. Problems in the teaching profession and ways to differentiate and reward good teaching were identified. Needs were found for better teacher recruitment and retention, improved preservice education, technological and professional updating of teachers in the field, teacher recognition, equity and equality in teacher education, and certification. Specific recommendations addressed improvement of instruction through incorporating basic academic skills in vocational education curricula, implementing competency-based instruction in the vocational classroom, and using time-on-task research. Attracting a different caliber of student to teacher education programs, adding more years of study to preservice programs, and modifying teacher certification were considered as possible and necessary steps to improve the future classroom teacher. (YLB)

Information Series No. 293

TOWARD EXCELLENCE IN SECONDARY VOCATIONAL EDUCATION: IMPROVING TEACHING

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FOREWORD

Toward Excellence in Secondary Vocational Education: Improving Teaching examines some of the recent reports related to excellence in education and interprets their implications for vocational education. Special attention is given to the application of basic skills within vocational education. The development of teachers through certification procedures and inservice education is highlighted.

This paper is one of seven produced by the Information Systems Division of the National Center. This series of information analysis papers should be of interest to all vocational and adult educators, including Federal and State agency personnel, teacher educators, researchers, administrators, teachers, and support staff.

The profession is indebted to Dr. Gwen C. Cooke for an interesting and informative interpretation of the teaching-learning process within the context of achieving excellence in vocational education. Dr. Cooke is Director of the School of Family Studies and Consumer Sciences, College of Professional Studies and Fine Arts at San Diego State University. She has served as President of the California Home Economics Association, and has published widely in home economics and vocational education journals.

Dr. Arthur T. Bell, Chairman of the Department of Agricultural Education at North Carolina Agricultural and Technical State University; Dewey A. Adams, Senior Research Specialist; and Robert E. Norton, Senior Research Specialist, of the National Center for Research in Vocational Education contributed to the development of the paper through their reviews of the manuscript. Staff on the project included Dr. William Hull, Senior Research Specialist; Dr. Oscar Potter, Graduate Research Associate; James Belcher, Program Associate; and John Tennant, Graduate Research Associate. Janet Ray served as word processor operator for this manuscript. Editorial assistance was provided by Janet Kiplinger and Judy Balogh of Editorial Services at the National Center.

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EXECUTIVE SUMMARY

This information paper was written in response to a National call for excellence in education in the public schools of the United States. In the recent studies on the status of public school education, the school system was held responsible for the decline in preeminence of the Nation, the social ills of society, and the troubled state of the economy.

The studies called for a return to excellence in education in the Nation's public schools. The decline in student standardized test scores was identified as a major indicator of the decline of excellence. Other issues of concern listed were the plight of teachers in the public school system, low status of the teaching profession, lack of leadership in the educational system, and lack of motivation by many students.

Recommendations made to address these issues and take corrective action included calls for immediate action to lengthen the school day and year and to require a core of academic basic skills courses for all students. Implicit in all studies was the right of all youth, including special needs students, to a public school education from kindergarten through high school.

The impact of the studies on vocational education was analyzed. Commonalities and differences among the studies were identified and a selection of these was developed further in this publication, with major emphases on teaching and learning. Topics were selected according to their immediacy and relevance for vocational education.

The analyses of these studies highlighted the need for improvement of education in the public school system, concentrating on the Nation's high schools. The most effective strategy, the one that would have the greatest impact on the overall improvement of education, was clearly the improvement of teaching.

The prevalence of vocational education in the comprehensive high school was noted. The vocational program was deemed an important part of the education of youth. Improved teaching in vocational education would help achieve excellence in public secondary education.

Preparing youth for life and work in a technological society was seen as the major mission of vocational education. Vocational education programs provide an alternative for diverse student populations and make a significant contribution to student retention. For example, vocational curricula serve well the special education needs of the disadvantaged student.

The study on student populations reinforced the premise that various educational tracks are necessary to serve the great diversity of students. However, prominent educators and National figures recommended a common academic core for all students, in essence, a one-track system. That all students achieve the basic academic skills was seen as essential.

Basic skills education was deemed to have a significant role in vocational education. Methods and materials for teaching basic skills in the vocational classroom were reviewed. Teaching basic

education through vocational education was identified as a major contribution to the total educational process. Student motivation and achievement were considered in terms of their direct relationship to teaching methods and to the teacher in the classroom. Teaching and learning were identified as the heart and core of education.

Special attention to the research on teaching included time-on-task studies, which showed that improvement of teaching could result from increasing the amount of time spent on learning in the classroom. A systems approach to teaching competency-based education was seen as particularly effective in vocational education.

The plight of teachers in today's society was discussed and ways to differentiate and reward good teaching were identified. Although the overall improvement of teaching requires a multi-pronged approach, the best way of improving teaching for the interim was seen as the technological and professional updating of teachers in the field. Inservice education programs considered were state-wide mentor programs, cooperative programs with business and industry including part-time employment and faculty/staff exchange, utilization of "bridge-builders" to transmit research knowledge into practice, and traditional formal education through workshops, seminars, or courses.

Specific recommendations address improvement of instruction through the incorporation of basic academic skills in vocational education curricula, implementing competency-based instruction in the vocational classroom, and utilizing time-on-task research.

Attracting a different caliber of student to teacher education programs, adding more years of study to preservice programs, and modifying teacher certification were considered as possible and necessary steps to improve the future classroom teacher.

Improving teaching in vocational education was considered integral to improving teaching in general and was deemed an essential and major part of achieving excellence in education.

INTRODUCTION

In August 1981, Secretary of Education, T. H. Bell, appointed the National Commission on Excellence in Education to study the quality of education in the United States and report back to the Secretary and the American people its findings and recommendations. The final report of this commission, *A Nation at Risk: The Imperative for Education Reform*, and a series of commissioned papers were submitted to the Secretary in April 1983. The publication of the final report and commissioned papers brought the status of secondary education abruptly and sharply to the attention of all segments of society. The Nation was deemed at risk unless drastic and immediate action was taken. A study, Action for Excellence, States' Task Force of Education for Economic Growth, quickly followed.

These and other major studies generated an intense reaction and renewed National concern for excellence in U.S. education. The thrust for excellence in education has become a dominant issue demanding further inquiry and a plan of action.

The call for excellence resounded to the borders of our country. President Miguel de la Madrid called for an "educational revolution" in Mexico to improve the quality of secondary schools and universities in that country. He said that Mexico faced an educational crisis because great advances in science and technology have made many educational programs obsolete. To our north, educators in Canada speak with concern about the current competition among various curricula and express the desire for a comprehensive curriculum. Osborne (1983) called for a study of a comprehensive curriculum that included vocational education.

This has not been the first time, nor in all likelihood the last, that education has been studied and major action taken to correct the deficiencies cited. The advent of Sputnik sounded an alarm that produced a flood of support for teaching more science in secondary schools and universities. However, these new studies differ from the previous studies by several orders of magnitude and have commanded wide press coverage. The multitude in the public schools has become the Nation's problem, creating a National concern that something be done to better educate the youth of today and leading educators and political figures to call for a "back-to-the-basics" movement in our educational system.

Background

One major result of the "back-to-basics" movement has been an increase in the number of basic education courses required in the high schools, which adversely affects the quantity of courses and programs offered in vocational education. Concomitant with the increase in requirements in basic academic education has been the need for additional funding, which has resulted in a decrease in the level of funding for vocational education. These parallel decreases in the broad spectrum of vocational education offerings and in funding have resulted in a negative impact on the poor, nonwhite, and urban populations. It has also seriously affected vocational education's ability to prepare students for a lifetime of work. The major issues that have surfaced from these studies have affected the very core of the educational system, which suggests that the

state of the art in both teaching and learning is bleak.

Purpose of This Paper

This paper is intended to point out those actions that will provide excellence in education within the framework of improving the field of teacher education. Improving preservice and inservice teacher education as well as strengthening teacher certification requirements are among the more important factors in achieving the excellence in education called for by the National studies. Additionally, the use of applied research in the classroom and a better understanding of the diversity of the student population will be required in order to provide the teachers with the tools to improve teaching.

Although the studies focused on a back-to-the-basics approach and pointed at political and economic influences as the causative factors of the problem, the improvement of teaching could well be the most significant single factor in providing a new excellence in education. This approach, in concert with program changes and administrative improvements, should be applied to basic education and vocational education alike. These measures could well facilitate a strengthening of the vocational education system.

A REVIEW OF ELEVEN NATIONAL STUDIES ON EDUCATION

Many National studies on education have been reported during the past 2 years. Eleven of these have been selected for their National prominence and impact on vocational education. The substance of these studies is given in the following descriptions.

A Nation at Risk: The Imperative for Educational Reform

In August of 1983, the National Commission on Excellence in Education, an 18-member commission chaired by David P. Gardner, completed a report containing practical recommendations for educational improvement. The report focused on high schools, with selective attention given to elementary schools, higher education, and vocational and technical programs. This report, perhaps more than any other, captured National attention.

The commission's study relied upon five sources of information. Commission members reviewed papers from experts on a variety of education issues, reports of public hearings, current analysis of educational problems, comments from concerned citizens, and descriptions of notable programs and promising approaches in education. After this information was studied and the dimensions of the risk were identified, recommendations for remedial action were made.

Amcng the recommendations was one calling for the raising of requirements for admission to teacher education programs in universities. Major concern was expressed for improving preservice teacher education and making the teaching profession more rewarding and respected. The commission proposed a longer school day of year and more effective use of the existing school day, with more time devoted to learning the "new basics." Responsibility for leadership and fiscal support was placed on Federal, State, and local officials with the Federal Government having the primary responsibility.

A Place Called School: Prospects for the Future

This research report, directed by John Goodlad (1984), relies on data collected through extensive interviews and surveys of a diverse sample of 38 schools. Characteristics of schools were referred to as "commonplaces" of schooling, which are manifested differently from school to school. Included in the list of commonplaces of schooling were teaching practices, instructional materials, physical environment, evaluation, time management, and leadership.

The investigators developed a common set of characteristics from recurring themes, and identified them as school quality and the need for data. Recommendations included a comprehensive set of goals for States consisting of alternative curricular designs and pedagogical procedures, continued assessment of the condition of education in schools, and support for school improvement. One recommendation suggested that greater responsibility reside in the local school. Teacher education was to separate the preparation process from the customary ways of keeping school. The education of new teachers, further development of experienced teachers, and school improvement were seen as going hand in hand.

Specific recommendations were formulated concerning the development of curricula in line with State goals and for the elimination of ability grouping and tracking of students. Need was recognized for the establishment of research and development centers focused on curriculum and close articulation of elementary, middle, and senior high schools. More rigorous selection and preparation of principals was deemed necessary. It was further recommended that alternative methods be developed for staffing elementary schools and that large secondary schools be divided into smaller, semiautonomous units.

Academic Preparation for College: What Students Need to Know and Be Able to Do

This College Entrance Examination Board report (1983), released in the spring of 1983, was the report of the 10-year Educational Equality Project conducted under the direction of the College Board's Office of Academic Affairs. The study was concerned with the subject-matter preparation needed to equip students best for the most selective colleges and with the broad academic competencies needed by students entering all colleges.

The report listed the specific academic competencies of speaking, listening, reasoning, and studying. The basic academic subjects were identified as English, the arts, mathematics, science, social studies, and foreign language. The use of the computer and the need for computer competency were also reviewed, with computer competency seen emerging as a basic skill complementary to the other competencies.

The report concluded that schools will need to devise their own coherent curricular and instructional strategies for use in addressing the academic preparation of youth for college.

Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools

This report was prepared by the National Task Force on Education for Economic Growth under the coordination of the Education Commission of the States (1983). The challenge facing education was seen as the development of new skills for productive participation in a society depending ever more heavily on technology. Students will need more than the minimum competence in reading, writing, mathematics, sciences, reasoning, and the use of computers. Mobilizing the education system to teach new skills will require new partnerships among all who have a stake in education and economic growth.

In developing their action plan, the task force drew heavily upon the work done by the Educational Equality Project. The eight-point action plan included the development of State plans for improving education in the public schools from kindergarten through grade 12. (The plan called for quality assurance by making the academic experience more intense and productive.) It was recognized that leadership and management in schools need improvement and that teachers need a new and higher regard. The schools were delegated the responsibility for serving more effectively those students who are now unserved and underserved.

America's Competitive Challenge: The Need for a National Response

In the spring of 1982, President Reagan invited a 16-member task force representing corporate and university chief executives of the Business-Higher Education Forum to explore ways in which our National competitive position could be further strengthened through increased innovation and productivity. The report (*America's Competitive Challenge* 1983) resulting from a yearlong research and study effort found that "a growing number of U.S. industries are less

competitive than they were in the past. . . . While the U.S. economy has remained relatively stagnant in recent years, other countries have made rapid gains" (p. 2). In this competitive climate, "Education has given insufficient attention to developing the basic skills—math and science—that will be needed by workers in an age governed by high technology" (p. 6).

Programs recommended included displaced worker, apprentice, and Individual Training Account (savings for training and retraining needs) programs as well as the establishment of special loans in return for commitment to teaching, tax incentives, and Federal funding for the ongoing training of secondary school science and math teachers. The report suggested increased emphasis on research and teaching and asserted that potential benefits derived from industry and university initiatives would include the relevant education needed by students in preparation for available postions in industry.

Educating Americans for the 21st Century

The National Science Board Commission on Precollege Education in Mathematics, Science, and Technology (1983) authored this report. The commission called for a return to the basics in education in order to meet the demands of a technological age. Underlying every recommendation was one basic objective: to make certain, by the year 1995, that all U.S. students will be getting the best science and mathematics education in the world. The specific recommendations included a call for devoting more National resources to teaching math, science, and technology to all students, not just the gifted and talented. It was proposed that curricula in math, science, and technology be developed for kindergarten through the 12th grade. The retraining and upgrading of elementary and secondary math, science, and technology teachers were recognized as essential. Support for new education technologies, particularly in computer applications, was given high priority. More time was proposed for teaching math and science by lengthening the school day, week, and year. Increased minimum requirements were prescribed for high school graduation coupled with increased entrance requirements for college.

The report stressed that the basic skills needed by all students included not only reading, writing, and arithmetic, but also communication and complex problem-solving competencies as well as scientific and technological literacy. Unlike some of the other reports, plans to finance the proposed recommendations were included.

Education for Tomorrow's Jobs

In 1981, the U.S. Department of Education asked the National Council of the National Academy of Sciences to study the potential for collaborative efforts of business, community groups, and public agencies. This study (Sherman 1983) was conducted by the Committee on Vocational Education and Economic Development in Depressed Areas. The final report focused on vocational education in secondary schools more generally than did the other reports issued. Its main emphasis was on strengthening the capacity of vocational education for preparing non-college-bound young people to meet the needs of employers. The report stated that "providing an effective array of vocational education opportunities is a role of public high schools equal in importance to their role of preparing students for college" (p. 67). Recommended were various incentives to strengthen collaboration between vocational education and the private sector, release time for teachers to gain industry experience, bonus pay for promoting arrangements with private sector employers, school credit for courses taught in collaboration with employers, and tax incentives for equipment donations and sharing.

Further recommendations were made for teaching in the comprehensive high school. Basing teacher certification on competence

in both teaching and the relevant occupation rather than on a bachelor's degree in education was recognized as essential. In addition, a need was seen for making the curriculum for teacher preparation short, effective, and aimed at developing teaching practices for a wide range of instructional settings. The report deemed it important to offer a variety of inservice educational opportunities for vocational teachers. Hiring more part-time teachers from the private sector was seen as advantageous to bringing technological advances directly into the classroom. Establishing pay systems that reward the excellence of individual teachers and permit differentiation by field was recommended as necessary to keeping the best teachers in the profession.

High School: A Report on Secondary Education in America

Ernest L. Boyer (1983), president of the Carnegie Foundation for the Advancement of Teaching and former U.S. Commissioner of Education, undertook the study of the current conditions of the U.S. public high school to search for ways to raise academic quality. The report emphasized that, to be effective, high schools must have a sense of purpose and clear goals, a vision in which students, teachers, and administrators shared. It was asserted that these goals should focus on the mastery of language and a core of common learning, as well as on preparation for work, further education, and community service. Furthermore, the report suggested that tracking of students should be eliminated and high schools should prepare *all* students for a life of work and learning.

The study provided an agenda for action that comprised 12 priorities. Included among these priorities were the following: school goals should be clarified and a common core curriculum established, identifying the centrality of language; students should be prepared for work, continuing education, and community service; excellence in teaching must have a high priority, as should instructional improvement; and optimal use should be made of technology in the classroom. Flexible school patterns with effective administrative leadership were recognized as major factors in the overall improvement of the school system. In addition, strengthening connections with colleges and corporations and securing public commitment to excellence in the Nation's schools were recognized as integral parts of the agenda for action.

Horace's Compromise: The Dilemma of the American High School

Theodore R. Sizer (1984) chaired a study group cosponsored by the National Association of Secondary School Principals and the National Association of Independent Schools. Sizer listed many problems faced by high schools, among which are numerous and unrealistic goals and a lack of well-articulated values. According to Sizer, graduates are unprepared and only marginally literate due in part to little incentive to undertake hard academic work. Subject matter was covered broadly, with low productivity in relation to time spent in the classroom. The academic reward system seemed geared to speed. In addition, students were segregated by social class as well as by racial and ethnic stereotyping. Very real problems were found to exist for teachers and were exemplified in limited career advancement, noncompetitive salaries and benefits, and the low status of the teaching profession.

The text urged

> renewed public attention to the importance of teaching in high schools and to the complexity and subtlety of that craft. While our system of schools contains many consequential characteristics—for example, the subjects of the curriculum, the forms of governance, the uses of technologies and teaching aids, and the organization of programs for special

> groups—none is more important than who the teachers are and how they work. Without good teachers, sensibly deployed, schooling is barely worth the effort. (p. 4)

Major imperatives were determined for obtaining better schools. According to the report, teachers and students need to be "given room" to work and to learn in their own appropriate ways. Students must clearly exhibit mastery of their school work with focus on the ability to solve complex problems. The school structure should be kept simple and thus flexible, and incentives for teachers and students should be appropriate in each circumstance.

Making the Grade

The Twentieth Century Fund, an independent research foundation, sponsored an 18-month study by Paul Peterson and the Twentieth Century Fund Task Force on Federal Elementary and Secondary Education Policy (1983). The task force stated, "The nation's public schools are in trouble. By almost every measure—the commitment and competency of teachers, student test scores, truancy and dropout rates, crimes of violence—the performance of our schools falls far short of expectations. . . . This threatened disaster can be averted only if there is a national commitment to excellence in our schools" (p. 3).

The task force proposed the establishment of a National Teachers Program funded by the Federal Government to recognize and reward teaching excellence. A need was seen for the establishment of special Federal fellowships for creative individualized programs in school districts. Federal support for educational research was one of the recommendations.

The Paideia Proposal: An Educational Manifesto

This report (Adler 1982) was generated by the Paideia group, a 21-member panel of educators. A conception of the desired processes and structure of schooling was presented. Advocated for all students was a one-track model of education with three objectives: mental, moral, and spiritual improvement; citizenship; and preparation in basic skills for earning a living.

The report condemns tracking of students that divides children in the public school system into those destined for labor and those destined for more schooling. It contends that all children are destined for learning, that most are destined for labor by their need to earn a livelihood, and that both learning and earning are necessary for the fullest development of each person.

A model was presented of the three modes of learning and the three modes of teaching, with each school having the option of determining the precise way education was to be accomplished. Teaching and learning were identified as the "heart of the matter," with the preparation of teachers and the position of the school principal regarded as significant factors contributing to the process.

AN ANALYSIS OF THE PREDOMINANT RECOMMENDATIONS OF THE STUDIES

The studies constitute the thinking of many nationally prominent individuals; whereas *The Paideia Proposal* presented a philosophical statement, the others made major recommendations derived from research findings. A few studies used large databases and National samples.

There were similarities in both content and results among the reports. Some of this similarity was probably the result of the authors' involvement in more than one study—Boyer and Sizer, authors of *High School* and *Horace's Compromise* respectively, served as members of the Paideia Group. In addition, the Carnegie Corporation funded Boyer's work and partially funded Sizer's study.

Among the concerns and issues highlighted by the studies, the loss by the United States of economic leadership among the developed countries of the world was attributed to the diminished status of public education. In addition, the education system was held responsible for the social ills prevalent in society. Schools were charged to redirect their efforts toward preparing students for life in today's technological society.

In addressing the issue of lack of leadership in the technological world, the most often mentioned corrective measure was computer literacy for all students. Some authorities felt that a computer course should be a requirement for high school graduation. Strong leadership was recognized as essential for a school system to function, and the cooperative efforts of education, business, industry, and concerned citizens were regarded as the milieu in which the most dynamic changes could be achieved.

The studies recognized currency in the field as essential to the teaching process; the status of the teaching profession as a major problem in attracting and retaining quality educators; and rewards; incentives, recognition of good teaching, and optimal pay scales as necessary in the overall improvement of the teaching profession.

All of the studies recommended that students have a grounding in the basic skills of education, but they varied on what should constitute a basic core. Some studies recommended a basic core plus additional basic skills courses for students pursuing advanced education or continued technical education as well as for those entering the work force directly from high school. Prescriptive solutions were given to improve the education provided in secondary schools. Increasing the number of courses in basic skills was strongly recommended by many studies. There appears to be an underlying concept that more is better, that quantity equals quality. The following commentary discusses a few key topics covered in the individual studies.

Teachers and Teaching

All of the studies identified teaching and learning as the core of the education process and expressed deep concern for the quality of teaching and for public perception of the teaching profession. Many major recommendations were listed for improving the quality of teachers and teaching and for rendering teaching a more respected profession. *Horace's Compromise* and *High School* identified problems relevant to teacher recruitment and training; comprehensive

recommendations set standards of quality for teacher preparation and included incentive programs for teacher recruitment. *Action for Excellence* listed action steps for improving teacher recruitment methods and for teacher preparation. Proposals for teacher education curricula, such as immersion in behavioral and humanistic studies, were implicit in *The Paideia Proposal* and *A Place Called School*.

Both *A Nation at Risk* and *Action for Excellence* included career ladders, increased pay, and recognition of individual teachers as methods for promoting improvement in the teaching profession. The former recommended high educational standards for teachers, 11-month contracts, incentives such as grants and loans, and a master teacher program. *Making the Grade* proposed a master teacher program aimed at recognizing and rewarding teacher excellence.

High School identified excellence in teaching as a top priority and proposed a plan of action to accomplish this goal. The report advocated smaller class loads, increased class preparation time, and exemption from noninstructional duties. In addition, a teacher excellence fund was recommended to provide competitive grants for professional projects and thus recognize outstanding teachers. Specifically mentioned was an increase in average teachers' salaries and monies for the updating of teachers. *America's Competitive Challenge* and *Educating Americans for the 21st Century* both prescribed increased Federal resources to support the training of math and science teachers.

Strengthening collaboration between vocational education and the private sector was regarded as essential for support in the teaching process. *Education for Tomorrow's Jobs* advised release time for teachers to gain industry experience, recognizing this as an essential ingredient in the inservice training of teachers. Three models or modes of teaching were presented in *The Paideia Proposal*, which recommends that each school select one of these modes in its determination of the best way to accomplish improvement in education.

Governance, School Organization, and Management

Governance, with attention given to strong leadership roles, was implicit in all reports. Major responsibilities for leadership were delegated to the Federal level. A common thread throughout the reports was the need for Federal support through legislation and funding. Local school districts were seen as retaining their strong traditional leadership responsibilities. Private and public sectors were to assume their share of responsibility.

Action for Excellence and *A Nation At Risk* stressed the need for strong State and local leadership. The latter study, *America's Competitive Challenge*, and also *Making the Grade*, expressed the need for a stronger Federal presence in education, whereas a leadership role of business and industry was favored in *America's Competitive Challenge* and *Education for Tomorrow's Jobs*.

The Paideia Proposal cited the school principal as having a major leadership role. School organization and management were given great emphasis by *A Nation at Risk*, *A Place Called School*, and *Horace's Compromise*. Governance of the schools was designated as the primary responsibility of State and local officials. Policies providing for more rigorous selection and preparation of school principals were mandated. *Horace's Compromise* cited the necessity for totally restructuring the school system as the only logical alternative in correcting the present system. *High School* advocated a "principal as leader" approach and outlined qualifications and criteria for principals.

Curriculum

Several of the studies made major prescriptive recommendations for improving curricula. *A Place Called School*, unlike the others, did not call for a specific core curriculum but rather placed the responsibility on the State for developing "alternative curricular designs" that could be implemented at the local level. The establishment of research and development centers focused on curriculum was also recommended.

In contrast, strict adherence to a core curriculum for all students was advised in a few of the studies (*Educating Americans for the 21st Century*, *Academic Preparation for College*, and *A Nation at Risk*). *The Paideia Proposal* recommended the most restrictive curriculum—the same course of study for all students with one exception, the choice of a second language. *Education for Tomorrow's Jobs* stated that high-quality education included mastery of the basic educational and occupational skills. Although *Making the Grade* urged that every student have the opportunity to acquire proficiency in a second language, literacy in the English language was deemed the most important objective of the total curriculum.

Students and Learning

Recommendations concerning students and the learning process were present in all of the studies. *A Place Called School* and *Horace's Compromise* called for eliminating the tracking of students—the policy and procedure that separates college-bound, vocational, and general students into competitive curricula. It was further recommended by the latter that age-grouping cease and that student placement be determined by educational ability and performance.

The ability of students to teach themselves (Sizer 1983) was proposed as an overall objective of education.

Quality and Equity

Two studies placed particular emphasis on educational quality and equity (*Making the Grade* and *High School*). The legislative and executive branches of the Federal Government were called upon to emphasize the need for a better education for all young Americans. The function of high schools was deemed as preparing all students for a life of work and continued learning (*High School*).

Research

Only five of the reports discussed research to any great extent. *A Nation at Risk* and *Making the Grade* advocated Federal support for research. They recognized the need for research of the education system, performance of teachers and students, the learning process, and basic programs. An evaluation of many of the Federally sponsored education programs was regarded as a necessary first step. *America's Competitive Challenge* recommended private sector investments for research facilities in universities. *A Place Called School* suggested research into all aspects of curriculum design. *Educating Americans for the 21st Century* called on the National Science Foundation to support the evaluation and application of new educational technologies through research projects, with particular emphasis on computer applications.

THE IMPACT OF THESE STUDIES AND SIGNIFICANCE FOR VOCATIONAL EDUCATION

Reaffirming the Purpose of Vocational Education in the Broad Spectrum of Education

With the focus on excellence in education and the "new basic skills," vocational education continues to function in comprehensive high schools. There is evidence that the common core of basic academic skills has diluted the vocational education program in some secondary schools where vocational education is designated as an elective. However, the focus by vocational educators is on improving teaching in this setting. This includes better preparation of students for meaningful life and work. Preparation or remediation in basic academic skills should be part of a collaborative effort by all teachers to improve common learning so that all students can understand the need for and application of basic academic skills in a variety of life roles, including preparation for the world of work.

In his delineation of the major purposes and functions of vocational education identified at the hearing held by the American Vocational Association, David (1983) suggested that vocational education provides (1) an alternate program of study for the substantial fraction of high school students who do not plan to attend college that makes a significant contribution in student retention by expanding the range of education opportunities; (2) an increased chance of employment for new entrants into the labor market through the acquisition of employability/occupational skills; (3) more equal opportunities for economically, culturally, physically, emotionally, and intellectually disadvantaged students to develop their potential for making a living; and (4) preparation of students for pursuing further education and training similar to that offered by a college preparatory curriculum. In addition, vocational education answers the current concern for economic development and productivity by helping shape the quantitative and qualitative characteristics of the Nation's labor force.

Vocational education touches the lives of students in the comprehensive high school more than in any other setting. It is estimated that 55 percent of secondary vocational graduates pursue further education, many using what they have learned in vocational classes to earn their way through college. The role of vocational education in the educational process is deemed a major one capable of serving a variety of functions and student populations well.

Basic Issues for Vocational Education

Not only does vocational education play a major part in the preparation of the individual for a meaningful place in a free society, but it is most significant in the individual's preparation for living and working in a technological society. The major school studies attribute the economic crisis to the schools and hold the schools accountable for devising corrective measures. *A Nation at Risk* (National Commission on Excellence in Education 1983) states, "Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world" (p. 5). *Action for Excellence* (Education Commission of the States 1983) expressed a similar concern: "The possibility that other nations may outstrip us in inventiveness and productivity is suddenly troubling Americans. Highly skilled human capital has always been important to our economy" (pp. 13-14).

Placing somewhat lesser emphasis than the others on education's responsibility to business, *Making the Grade* (Peterson and the Twentieth Century Fund Task Force on Federal Elementary and Secondary Education Policy 1983) included this statement, "In essence, the skills that once were possessed by only a few must now be held by the many if the United States is to remain competitive in an advancing technological world."

A Nation at Work: Education and the Private Sector (1984) concluded that vocational-technical education must be regularly updated and improved in all aspects to meet the needs of students and respond to the challenges of productivity and technological change. Kang and Bishop (1984) state that "excellence in secondary education can improve the productivity of the nation's work force by improving the quality of the vocational preparation of young people (especially of high school dropouts and the one-third of high school graduates who do not attend college) and by improving the employability skills (career selection, job search, work habits, etc.) of young people" (p. 1).

However, vocational education in the comprehensive high school has been faulted for its slow response to the developments in technology that have had an impact on changing labor market demands and requirements for skills necessary in old and new occupations. In the overall search for improvement in education, vocational educators need to respond by becoming attuned to the dynamics of the labor market. Programs need to reflect the real world of work and demonstrate a futuristic stance in course offerings. The newest technological developments need to be addressed with the enhancement and preservation of the still-valid basic vocational and technical skills.

Rosenthal and Pilot (1983) confronted this issue and recommended that U.S. Department of Labor mechanisms for releasing information on occupational projections be tied directly to vocational education information networks in order to reach the largest possible audience of potential users. Vocational educators can then use this new information in program planning by incorporating concepts that lead to a better understanding of our technological world. This must be a major focus of the educator's attention and energy.

The Senate committee, in their endorsement of the Carl D. Perkins Vocational Education Act of 1984, stated that "vocational education, positioned on the cutting edge of technological change in the workplace, must not stand pat. To perpetuate outmoded practices in the face of these other changes would be to create a vocational system unresponsive to the needs of both employers and the students who invest their trust in the education they receive" (*Update* 1984). The importance of vocational education in preparing people for a technological society has been recognized nationally. Vocational educators must reinforce this recognition and direct their programs toward optimal preparation for all the students they serve.

In view of these facts, improving teaching (and thereby improving learning) is the premise on which vocational educators must stand in their striving for excellence in education. This will have the greatest impact on the secondary public schools while giving the most return for time and money invested.

Identifying the Need to Provide Excellence in Teaching

Problems in the Teaching Profession

The 11 major studies were deeply concerned with the plight of the teaching profession in today's society, including the many compromises teachers must make to survive professionally. Factors contributing to this dilemma of teachers were listed as: inadequate salaries, limited possibilities for career advancement, burdens of clerical tasks and supervisory and disciplinary roles, excessive

numbers of students in classrooms, and the perceived lack of prestige for the teaching professional. These factors add to the current problems of high schools trying to improve education. The answers to these problems will be as complex as the great diversity of the schools involved and the students they serve.

Goodlad (1984) delineated the factors teachers said were the most important to their work satisfaction. Most of these must be present for the teacher to perform effectively. Included were optimal class size, adequate funding per pupil, demonstrated leadership and administrative ability of the principal, and teacher involvement in the decision-making process. Goodlad recommended that decision making be decentralized, with a triad of teachers, principals, and parents working together on major issues. Too often, teachers individually have little impact on the factors that most affect their satisfaction with the teaching profession. The most direct and immediate influence on satisfaction is their involvement in the decision-making process.

The Excellent Teacher

The teacher has been recognized as playing the major role in the teaching and learning process. However, there is still controversy at many levels of education concerning the attributes of a good teacher and what constitutes good teaching. Excellence in teaching depends on the individual teacher in the classroom. Truly excellent teachers are recognized as such by students, colleagues, and the community at large. The results of teaching excellence can be identified as changes in students through their achievement of a high level of learning and demonstrated ability to solve complex problems. The students develop a new thirst for learning and extend their creative ability. In addition, students learn "how to learn" so that they can teach themselves.

How these changes in the learning process occur differs among teachers. The truly excellent teachers are able to take the science of teaching and turn it into an art. Major aspects of this ability include the relationship teachers have with students, the knack for managing a successful classroom, and the use of varied instructional methods and strategies. Although other factors impinge upon the teaching process, these are deemed the most significant in the day-to-day business of teaching.

Some of the remaining discussion in this paper will center on the acceptance and understanding of the many diverse types of students present in the public schools. A mutual feeling of acceptance and trust should underlie the teacher-student relationship. Excellent teachers make students feel that they belong in a particular classroom. These teachers are alert to the student who is alienated, poorly motivated, disruptive, or apathetic. They know how to make the student comfortable enough in the classroom to be able to participate actively in the classwork without fear of making a mistake or inviting ridicule by other students. A bond is established between the excellent teacher and the student in the classroom.

There is an astuteness in these teachers that helps them determine which situations they can solve and when it is best to seek additional help. These aspects of teaching are observable, major evidence of excellence in teaching.

The Competent Teacher

Scriven (1979) has proposed a definition of professional teaching that, if considered and accepted by educators, would have significant impact on teacher education programs and certification of teachers. He states that professional teaching must contribute substantial positive gains in the learning, either partially or totally, of content, skills, and attitudes. He adds that the learning gains from professional teaching should exceed those achieved by reading a book or listening to an audiotape. Moreover, professional

teaching should produce gains that are greater than those produced by a nonprofessional in the same setting. Substituting the word "competent" for "professional" would characterize excellence in teaching.

Research studies have consistently shown certain characteristics of instruction to be correlated with either high or low achievement of students (Bryant 1981). These are time management by teachers, classroom climate, and quality of instruction. Medley (1982) opposes the use of "learning gains" as an assessment of teacher competence for purposes of teacher preparation or certification. He believes that if the teacher is regarded as a professional, the use of pupil learning for evaluating teacher performance does not make sense. He argues that one of the essential characteristics of practitioners of any profession is that they are not expected, and are not even permitted, to guarantee results. Professional ethics demand that the professional accept any case, however hopeless, and that professionals guarantee their services and best efforts, not results. Medley further states that the public accepts the fact that some diseases cannot be cured because medical science, being imperfect, knows no way to cure them; but the public does not accept the fact that some children cannot learn some things because pedagogical science, being imperfect, knows no way to teach them.

Although teachers have an impact on students' learning, it is clearly recognized that other factors also influence it. At times, it may be difficult to isolate the influence of an individual teacher. However, professional teachers must be held accountable for knowing and demonstrating the knowledge and skills required of the profession. Educators can describe and define better what these knowledges and skills are today than they could in the past. Teacher education programs and certification should hold these requirements of the profession to assure a foundation for excellence in teaching.

Recruitment and Retention

Beginning in 1970, fewer children enrolled in public schools and a teacher surplus developed. Educators believed that this could be a time for improving significantly the quality of the teaching force. They projected that more education majors would be hired from the top of the graduating class, more rigid and appropriate certification standards would be developed, and requirements of teacher education programs would be tightened. However, this scenario did not come to pass.

Newly hired teachers, many times the best and most talented, but also nontenured, were discharged due to economic constraints. Consequently, fewer positions were available for new teachers, which resulted in an aging teaching force.

Currently, a pool of talented young students attracted to teaching as a career does not appear to exist. A study by Dearman and Plisko (1982) shows that entering college students selecting teaching as a career are among the least academically talented of their classmates. Education majors were the lowest among 12 groups of college majors listed in the math and verbal subscores of the Scholastic Aptitude Test (Benderson 1982).

Why are the talented young people being replaced by the less able in teacher preparation programs? Among the possibilities may be increased opportunities for women to enter other professional fields. Also, salary ranges for teachers as compared to other professionals are very low. The lack of status, promotional opportunities, and satisfactory working conditions for teachers is widely recognized. These conditions make the teaching profession a less than attractive prospect for the bright, young college entrant.

The traditional satisfactions of teaching include seeing young people develop and

"flower"; having 3 months each year to pursue further education, supplementary work experience, or extended vacation; having job security; and attaining status within the community. These satisfactions do not necessarily exist in the profession today. Those that do exist may not, in themselves, be reason enough for entering the teaching profession. Even a public relations recruitment campaign, like those developed by the military, may not change the situation.

Reducing certification requirements may help increase the potential pool of teacher education candidates; however, it will reduce the quality of those entering teaching. Setting high certification standards to eliminate candidates having a weak academic background or teaching ability would have a greater impact on the quality of teachers in the long run. This strategy could also have the effect of increasing the prestige of the profession.

Raising teachers' salaries significantly to make teaching careers more competitive with careers in private industry should have major impact on teacher recruitment and retention, but this author believes that such an action alone is not sufficient. Adverse working conditions (namely, large classrooms, nonteaching duties, school discipline, long hours, and a long work week) must be corrected.

Alterations in the workplace could be accomplished through the use of support staff working with full-time teachers. The principal must demonstrate leadership ability and direct school programs; in addition, the discipline of the student body is a major responsibility of the principal. Teachers must have opportunities to collaborate in decisions affecting their careers. Team teaching, timesharing, and flextime should all be instituted as alternative employment practices to make use of the excellent teachers who cannot or do not wish to be employed on a full-time, structured basis.

Meeting the current crisis in certain subject areas will require incentives for potential teachers. These might take the form of grants for retraining, reduced work load, smaller class size, and additional support staff.

Increasing numbers of elementary students will be entering the public school systems in 1985, immediately creating a need for more teachers, with the same effect on secondary schools occurring in 1990. This will have varying impact across the country because of the uneven geographic distribution of available positions and potential candidates. Dearman and Plisko (1982) indicate that not all teacher candidates secure jobs and that some never apply for certification. These are additional factors that affect the supply of new teachers.

Modern technology must be utilized to help ameliorate this impending teacher shortage by collecting data on available teachers and positions and disseminating it throughout the Nation in a timely fashion. The amount and kinds of supply-and-demand data and their dissemination would have great impact on public school systems and teacher preparation institutions.

Preservice Education

In addition to ensuring the currency of teachers in the field, it is imperative that school systems hire the best of the newly certified teachers and provide the support necessary to allow them to develop into outstanding teachers. Who are the potential new teachers on the education scene? Some rather discouraging results have been found in answer to this question.

Ishler (1984) surveyed 103 teacher education programs in major public and private institutions to ascertain their admission and graduation requirements. Students admitted to approximately half of these programs needed only a 2.0 grade point average (GPA) for admission (a C average) and a mere 3 percent needed a 3.0 GPA (a B average). The low GPA standard was replicated in the low GPA that students earned in their majors with

the average of 2.25 GPA in professional education and other subject matter courses. This 2.25 GPA was all that was required of the students to stay in the professional teacher education programs of half of the institutions. A quarter of the institutions only required a 2.0 GPA. Graduation requirements were similarly lax, with approximately one-third requiring a cumulative GPA of 2.5 and one-third requiring a 2.0 GPA.

These statistics indicate that students are not challenged to perform academically in order to be admitted to professional teacher education programs in major universities. Furthermore, they can complete their degree requirements and enter the teaching profession by maintaining the same low level of achievement.

In the past years, there has been renewed interest in extending teacher preparation to 5 or as much as 7 years (Gallegos 1981). Many reasons have been given for extending programs, including the opinion that the expanded professional knowledge base cannot be accommodated by rearranging the form and content of existing programs. Reducing the general education and subject matter components of the teacher education program would be unacceptable since teachers must be broadly and rigorously prepared. An increase in social esteem and salary have been observed to follow, not precede, more stringent training in other occupations having professional status. This may be the greatest argument in favor of an extended teacher education program.

The funding of model extended teacher education programs that could demonstrate the value of the increased time may be one method of attack. Superior teachers are prepared when students who are bright, motivated, and committed to teaching as a profession are inducted into such a program.

Since the program approval standards used by State education agencies influence directly what is included in teacher education programs, a revision of these standards would be required. A review and synthesis of "essential" courses and content would define the new program.

Koehler (1979) presented a program approach in which the teacher is employed and concurrently continues training during the first years of teaching. Inherent in such a program is the recognition that there is a significant difference between beginning competence and professional excellence in teaching. This model takes into account the fact that the first 3 years, particularly the first, are critical in teacher development. Commonly called a "fifth-year program," this approach creates a bridge between preservice and inservice education, which allows an extension of professional and academic studies and supports the linking of theory and practice. In some States, this model is part of a master's degree program.

Colleges and universities can develop linkages with industry, business, and social service agencies to provide job placement for teacher candidates in nonteaching positions. Such employment has attracted prospective teachers to the teaching profession. Major corporations have staff development programs for their employees that could be made available to teacher candidates as field experiences to enrich their teacher preparation programs.

Lowry et al. (1983) conducted a study of recent vocational teacher education graduates to determine their preparation for instructing exceptional students. They found that graduates were not uniformly prepared for teaching exceptional students, especially the adult learner and students having little or no proficiency in the English language. Only half of the 2,091 participants from 29 States had been required to take courses relevant to teaching exceptional persons. Lowry et al. recommended changes in teacher preparation programs to remedy these deficits.

Inservice Education

Although attention must be given to preservice education of teachers, an immediate need for inservice education is seen by Lydecker (1983) and Wonacott and Hamilton (1983). This need is even stronger for the vocational education teacher who must not only remain current in a subject matter field but must also maintain currency in a technology.

Failure to maintain such currency appears to be one of the more pressing problems facing vocational education today. Vocational education teachers must not only seek currency in their subject matter areas, they must also seek renewal and vitalization in their teaching methods and strategies. Others must seek competency in new vocational areas as obsolescence overtakes their original field of specialization. If teachers holding tenure are not willing to take the additional training, methods must be devised to circumvent the situation so that the education students receive is current and viable in the marketplace.

Ravitch (1984) describes an inservice education program for developing teaching methods in her article on a "good" school, the Edward R. Murrow High School in Brooklyn, New York. The principal has taken the leadership role in determining the teaching method to be used in the classroom and in retraining teachers to use the "developmental lesson" or the "socialized recitation." The department chairs or the principal trains all teachers in this method. This article further illustrates the difficulty of maintaining and building a good teaching staff and the problems in removing incompetent and ineffective teachers. It is an excellent example of one person's determination and leadership ability to establish a "good" school through "good" teaching.

A new text on the effective use of research findings in teaching has recently become available (Hosford 1984). The author is concerned with "bridge builders" in education and their attempts to translate new knowledge into common practice. He notes that some teachers questioned the need for bridge building. They fear they might offend colleagues by departing from traditional practice and are more comfortable with the status quo. Others are afraid of possible failure if they adopt the new practice. Hosford examines and presents methods for gaining knowledge, transmitting that knowledge into practice, and achieving artistic levels of teaching.

A study by Emmer and Evertson (1982) has been useful in increasing the knowledge of successful teaching. The instructional procedures developed for the study are examples that can be used in teacher updating and training. Lydecker (1983) reports support for the development of more prescriptive research on vocational education so that program improvement plans will be based on actual circumstances in the classroom. She recognized that an effort was needed to increase the application of general education research on effective schools, time on task, cognitive process, and so forth, to vocational education. She proposed that every vocational teacher complete a paid internship in industry every 5 years to remain current in the field and that these teachers should be responsible for teaching other faculty the implications of new technology. To this end, she advocated the implementation of a career ladder plan that distinguishes among beginning teachers, experienced teachers, and master teachers.

Wonacott and Hamilton (1983) identified six delivery techniques to provide technological update to secondary and postsecondary vocational teachers. These are work experience internships; university and college course work; workshops, conferences and seminars; industry observation; education and industry staff exchange; and part-time employment. The investigators report that many program personnel found a noticeable drop of interest and participation as time passed. They do not attribute this lagging interest to any real decrease in the extent or

level of teachers' need for technological updating, which they ascertain to be on the increase. This response to additional training needs further investigation.

Although further training in "how to teach" may be needed by teachers of all students, it is essential for teachers mainstreaming disadvantaged students in vocational classrooms. Consultants from the Pennsylvania Bureau of Vocational Education identified the modifications in curriculum, facilities, and teaching strategies required to help disadvantaged students succeed. Information has been made available to help the vocational teacher identify students with specific disabilities (Iwler et al. 1983). Southern Illinois University has produced curricula for the Vocational English as a Second Language Program (Hepburn et al. 1981). The National Center for Research in Vocational Education at The Ohio State University has developed a resource guide for vocational education teachers to serve special needs learners better (Denniston et al. 1980).

These specialized requirements further add to the inservice education requirements of teachers. Such requirements place a heavy burden on the teacher which can only be relieved by careful, efficient use of time. Various steps, including released time, relief from nonteaching duties, and smaller class loads will aid in providing the teacher with opportunity for the required study. Further incentives such as grants-in-aid and salary increments would also assist in persuading more teachers to seek inservice training.

Recognition of Teachers

Some States have recognized the strengths of individual teachers by differentiating among them. California has been known as the trendsetting State in the Nation and was the first to have a 5-year preservice teacher education program in the State university system. This State has implemented a mentor teacher program on a large scale and is the first State in the Nation to do so. The California Mentor Teacher Program has been adopted by school districts representing 90 percent of the students and teachers in the State. Local school boards, working with teacher groups, designate exemplary teachers as mentors. In addition to spending the majority of their time teaching, mentor-teachers provide inservice education to new and experienced teachers and may also, develop special curriculum materials. The program is intended to encourage teachers to pursue excellence within their profession and to provide an incentive for them to remain in teaching. Annual stipends of $4,000 will be added to their salaries in 1984-85. California school districts can designate up to 5 percent of their teachers as mentor-teachers.

Pennsylvania's Governor Thornburg (1983) stated, "We must upgrade the skills of those men and women responsible for the instruction of our children and the management of our schools, and we must attract highly competent newcomers to the education profession, insist on better and continuing teacher training, and provide recognition, rewards and other incentives for outstanding work by our most dedicated educators" (p. 4). He called for full implementation of the agenda for excellence developed for the Commonwealth system of public education. Included is a special Excellence in Teaching Award program for Pennsylvania's most outstanding educators. This program provides 1-year, $2,000 excellence awards annually to each district's finest teachers. Like California, up to 5 percent of each district's teaching force will be eligible for an award in any given year.

The criteria for selection of these mentor and master teachers will be a critical factor in the success of these programs. The definition of excellence must receive consensus from all involved as this will be vital to the selection process.

These programs are examples of two populous States' attempts to address the

issue of teaching excellence in concert with other measures on a broad range of recommendations and plans of action for improvement in the public school system. It is interesting to note that the novelty of these models is not that they are reward systems but that they are being implemented on a statewide basis with adequate funding to institute and continue such programs.

Many of the studies on excellence in education recommended that outstanding teachers receive some form of recognition such as incentive pay. The pitfalls of this form of recognition lie in translating the term "outstanding" to mean the acquisition of additional units of college credit, the number of years on the job, teaching in a school system with a high percentage of disadvantaged students, or in a special subject area where there is a shortage of teachers. The Houston Plan for Educational Excellence, designed by the Houston Independent School District in 1982, provides extra pay for the presence of teachers in a classroom labeled as "outstanding teacher attendance." This, in itself, does not necessarily contribute to educational excellence and may keep ineffective teachers in the classroom. Teachers should be expected to be in the classroom in order to teach.

It is this author's contention that the real incentive for good teaching is recognition. Such recognition may take many forms, through association with an outstanding school system, verbal "strokes" from those in a position of leadership, or requested participation in the decision-making process. Grants, incentive bonuses, and merit pay should be awarded in a meaningful manner that recognizes excellent work.

Equity and Equality

Teacher education institutions and the school system need to be aware of the need for equity and equality in education. Vocational educators must take a proactive stance to ensure equity and equality in vocational education. Major obstacles to achieving these goals are the traditional views of vocational occupations and the work role perception of vocational teachers. Welter (1981) states that vocational teacher educators can include equity awareness activities into courses, encourage students from nontraditional backgrounds to enter graduate vocational education programs, and cooperate with administrators and guidance counselors in developing sex equity strategies. Race and ethnic discrimination are seen as more subtle. Grossly unequal enrollments exist in vocational programs, resulting in the perpetuation and prolongation of inequity in employment for women, disabled individuals, and minority group members.

Strategies that have been used to promote equity in vocational programs include sensitivity workshops or activities, interdisciplinary teaching teams, and application of sound research to equity and equality concerns in vocational education. In addition, it is possible to modify or redesign teacher education programs to include selective recruitment for equity.

In literature on female learning styles, Berthelot (1982) found support for implications involving traditionally male vocational-technical education programs. Implications for education included varied teaching methods to accommodate learning style differences and varied content, method, and delivery to attract women to nontraditional programs.

Certification

Certification policies vary among the States and are often historic in nature. In most cases certification requirements are based on specific subject matter and education courses taken by the teacher candidate. Some States have approved teacher education programs or waiver programs that grant eligibility for certification to students completing these programs. These certification standards, because they are based on

minimum standards, do screen out the clearly unacceptable teacher candidates, but they do not ensure that those certified are the most competent to teach.

There are numerous examples of persons hired to teach on an "emergency" certificate who were not certified to teach and who nevertheless taught successfully. There are also examples of those who were certified but were either not successful or only minimally successful in a teaching career. If there were a more distinct correlation between certification and competence, schools could utilize to a greater extent uncertified part-time business and industrial personnel as they work toward certification. This could be an advantage in those areas where there is a predicted shortage of teachers but could be counterproductive if noncertified teachers were deemed as effective as certified teachers by those outside the educational community.

From the beginning of Federally sponsored vocational education programs, vocational educators have recognized the need for a valid and effective system for credentialing vocational teachers. Over the years, State standards for certification of vocational education personnel have been based on tradition, logic, and the law of supply and demand. There continues to be a wide range of standards, criteria, and certification practices across the States (Miller 1982). However, the States do agree that valid work experience is essential for certification of vocational teachers. The Smith-Hughes Act clearly specifies that only persons with practical experience be allowed to teach in Federally reimbursed programs. Occupational experience remains the certification requirement for some vocational service areas in all 50 States.

In a National survey of certifications requirements, Resnick (1977) observed that work experience requirements for vocational teachers ranged from 1 to 8 years, varying widely within vocational service areas. Miller (1980) found that 10 States did not require any work experience for vocational agriculture teachers. Norman and Way (1984) determined that some amount of work experience was required for certification of secondary occupational home economics teachers in 75 percent of the States, including the District of Columbia.

Standards for vocational education certification are under continual review, and up-to-date competency for recertification is a major area of concern. Documentation of technical competencies is more difficult to ascertain than the completion of a specified number of college credits for renewal of certification. In addition, the number of semester hours required prior to beginning teaching varies widely. Resnick and Gardner (1979) found a range of 52.4 credits for trade and industrial teachers to 117.2 credits for vocational agriculture teachers. They concluded that such a variation in certification helps to explain why reciprocity agreements continue to develop slowly for vocational teaching credential acceptance among States.

A study conducted by Greenan and Larkin (1982) determined the existing vocational and special education certification policies and practices in the 50 States, the District of Columbia, and the Trust Territories. Most States do not issue vocational and special education certification for vocational and special education personnel. However, course work and occupational work experience are primary requirements for certification in those States offering such certification. While most States offer certification in K-12 special education, postsecondary and adult special education certification is almost nonexistent. Very few States waive the occupational work experience requirements for certification. In addition, undergraduate and graduate course work is used to satisfy requirements for extended certification. It was found that a limited number of States require vocational educators to complete special education courses for vocational certification.

Many States are now moving to develop and use tests as some part of their certification systems. A recent National survey completed by the Council of Chief State School Officers reported that 20 States are moving to or are presently using tests (Andrews 1982). Less than half the teacher education programs surveyed by Ishler (1984) indicated that students needed to pass certification tests to become eligible to receive a teaching certificate. Andrews (1982) found that the reported purposes of the tests are to screen candidates for basic skills mastery, to test candidates' knowledge of content in the certification field, and to assess teaching performance on the job. Validity and reliability of these tests and their impact on minorities, the costs of administration, and legal considerations are important concerns confronting States and are yet to be evaluated.

Vocational Education and the Student Population

The diversity and sophistication of today's student population must be recognized. Students have changed over the years in pace with vast and rapid technological changes in the world. Youths "grow up" sooner and have more freedom and responsibility. They are more knowledgeable and worldly than their predecessors. Many have traveled more widely and achieved a greater variety of experience than their teachers.

Preparation for Life

Preparation for a fulfilling life is a major contribution of vocational education programs in addition to preparation for the world of work. There is evidence that these programs are valued by many youth and play an important part in the retention of youth in high schools. Students who find basic education difficult and not meaningful can learn through direct application in the vocational education classroom; likewise, students searching for meaning in high school education can find significant classes, courses, and programs in the vocational setting. Further, freedom of choice for all students in the educational setting is enhanced through these vocational education offerings.

Tracking of Students

The major studies recommended discontinuance of the tracking of students in public high schools. It was concluded that the practice of tracking discouraged, if not eliminated, the diversity required to retain the interest of today's students. At the same time, an increased and prescriptive common core of academic basic skills courses was also proposed for all students. This increase in the length and number of courses could eliminate, and has in some cases eliminated, many elective courses, including vocational education courses. A common core of academic basic skills classes that has depth and breadth could, in effect, become a one-track system.

If a one-track system became the norm, it would eliminate choice in courses and programs. This would undoubtably increase the dropout rate in many schools. Some compromise between diversity and tracking must be determined to assure the flexibility needed for diverse student populations. It will be necessary to meld the basic core and vocational studies package in such a way that educational requirements and the needs of students are met.

Student Motivation and Retention

Vocational education classes play a major role in motivating the student to stay in school, prepare for the future, and plan for a life of work. This student motivation cannot be overlooked when improving education in the public schools and is a topic that has received increasing attention by researchers. Stauffer (1982) identified eight steps necessary to improve the intellectual motivation of students: provide a conducive classroom environment, establish high standards,

provide special help, maintain close interaction between student and teacher, provide special attention to gifted students, become involved in school concerns, increase time spent on academic careers, and allow students to evaluate faculty.

While one may question certain items on the list, it seems obvious that increased teacher involvement in the process of education is necessary if students who lack motivation are to achieve success. Most vocational education teachers are accustomed to working with students on a one-to-one basis. The excellent vocational education teacher helps students determine why they should do something, what they should accomplish, and where they should direct their goals. The importance of this challenge should not be underestimated.

Based on a National sample of 3,400 young people by Mertens, Seitz, and Cox (1982), all else being equal, vocational education participation increased the probability of high school completion, although the size of the effect was small. To a small degree, this indicated a need to combine education in the vocational classroom with other methods of intervention to retain the most dropout-prone youth.

Weber and Silvani-Lacey (1983) indicated that when potential and actual dropouts are afforded the opportunity to participate in vocationally oriented programs that have an integrated basic skills component, their basic skills attainment will usually increase substantially. Based on the outcome of this study, they recommended earlier identification of dropouts, increased use of individualized instruction, and further work on innovative and flexible program delivery.

Student Achievement

There is evidence to suggest that high expectations of teachers directly affect student achievement. These high expectations determine the criteria for measuring student achievement. If high student standardized test scores are expected, and efforts by teacher and students are directed toward that goal, a positive student achievement will result.

It is important to note that there is danger in using any one criterion for judging achievement. Test scores, for example, should not be used alone in measuring the effectiveness or excellence of teaching, although this is the major criterion for many school systems in the Nation today. The National studies cited lower standardized test scores as the major indication of an overall decrease in the quality of education in public schools. A better indicator for judging effectiveness or excellence is through the establishment of program goals, selection of methods to meet these goals; and then determination of to what extent the goals have been met based upon predetermined criteria. This cannot be better illustrated than through the concept of serving the disadvantaged student population.

Disadvantaged Students

Disadvantaged students, including special needs students, dropouts, migrants, and other youth who do not fit the "norm" of the Nation's secondary student population, have been given much attention over the past few decades. Some vocational programs find a disproportionate number of disadvantaged students in the classroom. This may be due to many factors, one of which is the practice of tracking. A severe problem still exists in providing optimal education and essential educational services for these students. They often come to the vocational classroom without the necessary grounding in the basic academic skills that are needed for application in the program. It is in this area that vocational education performs a major service.

A variety of program delivery methods have been and are currently in use. Plata and Jones (1982) delineated roles for vocational, special, and bilingual education teachers in

an interdisciplinary approach to vocational education of limited or non-English-speaking and disabled students. A cooperative teaching approach was presented by Mori (1979) for comprehensive career education for behaviorally disordered and learning-disabled students. He states that educational priorities for secondary special needs students require an emphasis on vocational rather than academic training and a more structured learning situation. Integrated programs, mainstreaming of students, and use of intervention strategies are prevalent in the literature on disadvantaged students. Vocational educators need to remain current on the research that is in progress and to be aware of the results of previous research in order to apply findings in their programs in their high schools.

Many successful programs for disadvantaged students were found by investigators in a study conducted through Pennsylvania State University in 1978 (*Meeting the Needs of Teachers of Disadvantaged Programs in Pennsylvania*). Findings of the study noted that successful teachers of disadvantaged students seemed to display more endurance, order, and deterrence than did less successful teachers of disadvantaged individuals. Ellis (1978) emphasized the strong need for schools to improve and extend the benefits of vocational education to groups that have been bypassed historically, including minorities, women, disabled persons, persons with limited English-speaking ability, and poor individuals. He suggested greater flexibility in programs and recommended that vocational educators take a more active role in job planning and job development for these students.

Additional help is available to the teacher of disadvantaged youth in the form of concept-rich National and State information systems such as the Educational Resources Information Center (ERIC) and Vocational Education Resource System (VERS). VERS is located in the Office of Vocational Education in the California State Department of Education and is a resource information system for teachers with special needs students. Another statewide resource system in California is Vocational Occupational Information Center for Educators (VOICE), located in the Vocational Education Support Services Section of the U.S. State Department. Many States have similar resource information systems operating within their States, serving as a major source of support for vocational teachers.

Even with rich sources of help and information, it is recognized that the human ingredient is the most important part of any learning experience. All students can achieve to the best of their ability if they can recognize positive outcomes for themselves. Recognition of their achievements will produce changes in student motivation, interest in learning, and a positive attitude toward learning. Vocational education can offer successful experiences for students and provide the foundation needed for lifelong interest in learning, for an enriched and fulfilled life, and for admission to the mainstream of life.

The School and the Instructional Process

Purpose of Schools

It is recognized that many other factors are operative in the educational setting in concert with the educative process, and many of these must be addressed before teaching and learning can take place. Rather facetiously, Cohen (1984) stated that the school system was not failing but that it provided very real and necessary functions in today's society. "It keeps the student off the street and out of the job market for a longer period of time, it provides free care for working parents, and many students are prepared for further education at undemanding institutions of higher education" (p. 13). He believes that "legal and economic compulsions, and the social pressures that have been generated have helped to turn high schools into social centers for otherwise unoccupied adolescents. High school teachers accommodate well to the reality of school, making life together most decent and

sometimes genuinely compassionate—and generally undemanding" (p. 14).

Thornburg (1983) recognized that schools are called upon to meet a variety of student needs far in excess of education. "Schools . . . deal with problems such as health, mental health, discipline, and family problems. Schools are asked to handle problems such as truancy, delinquency, and high youth unemployment rate" (p. 25). He proposed that school districts develop partnerships with many human service agencies in their communities. This would alleviate their burden of responsibility for noneducational programs and enhance their ability to provide reliable information and training to students, parents, and teachers in a wide range of problem areas.

Many problems facing society today and having impact on the youth in high schools have been discussed by educators (Spitze 1984). These include mental illness and suicide, drug abuse, child abuse and abuse of the elderly, violent crime, poor nutrition, and alcohol-related traffic deaths. Spitze contended that "the purpose of schooling is not just preparation for more schooling but also, and especially, preparation for life--for ourselves and for our contribution to others and to society as a whole" (p. 51). She further stated that "some of our most important educational objectives are content free, among them, helping students develop positive self-concept, a love of learning, and the ability to think" (p. 51).

It seems evident that teachers should not just teach subject matter or job preparation but, first and foremost, teach children. Addressing the multitude of problems brought forth in the lives of the youth of today, moreover, is a necessary step in the total process of education.

Vocational educators must seek ways to use real-world problems and challenges and translate these into complex problem-solving skills. The criteria for successful teaching should include not just whether the student was placed in employment, but whether or not the student has acquired the problem-solving skills necessary for continued successful learning. This does not negate the need for developing basic skills, a positive attitude toward learning, personal motivation, and other attributes that contribute to learning success.

Vocational teachers have a multifold purpose: preparing students for entrance into the world of work in a technological society, preparing students for a meaningful life and lifelong learning, collaborating with business and industry to improve the education process, and providing application and remediation in basic academic skills.

Learning Environment

This multifold purpose of vocational education is achieved in the individual classrooms by what "happens" in the classroom. The classroom determines, to a great extent, the amount of learning that takes place. Much literature exists on "classroom control," including literature on the methods used for opening and closing class periods, the friendly but yet respected teacher, special techniques to gain attention, and strategies for maintaining an "orderly freedom." One of the major factors of classroom control for teachers is their competency in developing responsible, self-motivated, and self-directed students. Students involved in matters affecting their destiny will help produce the maximum in classroom effectiveness. As an illustration of what is believed to be important in the learning environment, Griffin and associates (1983) selected particular teaching behaviors in designing and implementing a staff development program. These were based on behaviors found in research and included learning environment (warm and supportive), classroom management (well organized), classroom instruction (work oriented), and productive use of time (brisk paced).

Instructional Time

The productive use of time and time spent at a particular learning task have been the topic of much research and educational commentary. Cohen (1984), in reaction to the recommendation by some of the major studies that the school day and year be increased in length, expressed concern about the lack of commitment and wasted hours in many classrooms.

Barranco (1984) continued this theme in reaction to the criticism that the current school year is too short: "I am not convinced that we will improve education by simply adding more time. I am more concerned with the way time is currently used" (p. 7).

Honig (1983), in discussing the major elements of school effectiveness for the California public school system, made the following points on the maximum use of time: "Efforts need to be devoted to determine both how much time can be obtained for instructional purposes and how to better use that which is already available. . . . Strong efforts must be taken to ensure that the teachers' current instructional time is not reduced and that it is free from interruptions. Since the amount of time that a student spends in instruction is so closely related to his or her learning, major efforts must be devoted to helping teachers increase this time factor in the classroom" (p. 2). However, Karweit (1983), in summarizing and evaluating existing studies of time use in school, found inconsistent effects of achievement. She concluded that the effect of time spent in the classroom in educational tasks is influenced by what is being studied, the diversity of the student group, the dynamic nature of teaching and learning, and the skills of the teacher.

Time is said to be our most precious resource and, as in any other endeavors, it affects the productivity of the school. Time was found to be a mediating factor in the teaching process (Karweit 1983). Since there is a limited amount of time available for instructional purposes, including years, weeks, days, and class periods, maximizing the use of time is one method of improving the quality of teaching.

This use of time is referred to as "time on task" and defined as the amount of time a student is actively engaged in learning activities. The use of time on task in secondary vocational education was studied by Halasz and Behm (1983) and Halasz, Behm, and Fisch (1984). They found that 65 to 76 percent of instructional time was spent on task, with by far the greater part of this time spent on content, including basic, technical, and employability skills, and a very small proportion of time spent on noncontent, including setup, cleanup, and other related tasks. Approximately one-fourth of the instructional time was spent socializing and 5 percent of the time on scheduled breaks. This meant that between 24 and 35 percent of a student's time was spent off task. Just three of the fields of specialization were studied—agriculture, business and office, and trade and industrial education. Not only were there variations among these service areas but also among classes in the same service area.

The researchers found that key classroom variables and teacher behaviors both related to time on task. Positive relationships were found among student time on task and teachers' knowledge of classroom behavior, teaching methods, the relevancy of the task, organization of the curriculum, definition of class goals (found to be the most important overall variable), and grouping of students (found to be the most important classroom variable). They also found that time on task can be increased by defining goals clearly, treating time as an important resource, preplanning and organizing for the classroom, using a range of teaching methods, assigning meaningful tasks, minimizing scheduled breaks and interruptions, and encouraging students to work independently. In addition, time on task was increased when teachers provided positive reinforcement for students, held positive expectations, and served as role models for good work habits. Teachers were

found to have the responsibility for directing students' use of time and instituting necessary change.

Karweit (1983) explained that "learning time results from the conversion of the number of days allotted to the number of days attended, from the reduction of the length of the school day to the fraction of the day used for instructions, and from the shrinkage of allocated instructional time in a subject to the time engaged in learning or time on task" (p. 18).

There is sufficient evidence that both the amount of time and the use of the time allotted affect the teaching and learning process. This recognition has been translated into action plans of increasing the school year and day, and adding to the requirements of the basic skills courses. These corrective measures are direct and readily apparent to students, teachers, administrators, and the community. Effective use of time in the classroom is an individual matter, almost totally in the control of the teacher. Improving education by making the best use of allocated time is a most difficult and time-consuming process. It is one area that needs the attention of both teachers and administrators in the public schools.

Learning Process

In addition to time on task, what is being taught and how instruction takes place have major impact on the learning process. Some students achieve more when taught with structured curricula and others respond best to more individualized or discovery learning approaches. Other students, who learn or receive their instructions directly from the teacher, achieve at a faster rate than those who are expected to learn new materials or skills on their own or from each other. In studies on teaching, evidence indicates that the high success rate seen in the classrooms of highly effective teachers and programs is obtained because the initial instruction proceeds in small steps that are not too difficult. Also, these teachers monitor the students in the practice of new knowledge and skill to the point where bonding results, a necessary step for retention.

Methods of instruction depend on the subject to be taught, the individual student, the teacher, and the teaching moment. Hawley (1982) has identified tasks that are required of most teachers in order to be effective in most situations. These are as follows: getting and holding attention, setting direction, diagnosing and acknowledging the starting level of student knowledge and skill, relating new material to students' prior experience, recognizing and incorporating student ideas, stimulating student thinking, engaging students with ideas, involving students with materials, structuring peer learning situations, and responding to student work.

Despite similarities in subject matter, acquisition of the subject matter takes place in varying ways for most students in a classroom. Recognizing that students learn through a number of instructional methods, this writer has chosen to highlight one promising method by discussing the background, use, problems, and promise of competency-based education (CBE) for vocational education.

Performance-based or competency-based instruction gained much attention from educators in the early 1970s. Exemplary vocational programs using competency-based instruction are found in many geographic areas in a wide range of settings. By 1977 the Commonwealth of Kentucky had committed itself to having all vocational programs competency based and developed many CBE modules for student use. During the late 1970s, the West Virginia Vocational Curriculum Laboratory also developed large numbers of competency-based instructional materials. Proceedings from the California statewide workshop entitled "Common Core Curriculum in Vocational Education"

included information on preparing teachers to initiate, plan, and manage competency-based vocational programs (Cooke and Vander Griend 1977).

Vocational educators have taken a leading role in the movement toward competency-based education since this method of instruction has grounding in the basic principles of vocational education. Focusing training on the skills that workers need and using trainee performance as a basis for assessment have been characteristics of vocational training for a long time. The systems approach to the instructional elements is the aspect of CBE that is new. Proponents of this method of instruction see greater relevancy, efficiency, and effectiveness in instruction, whether it is organized in an individualized and modular system or in a traditional lecture and demonstration setting. A model of a competency-based vocational program is shown in graphic terms in figure 1.

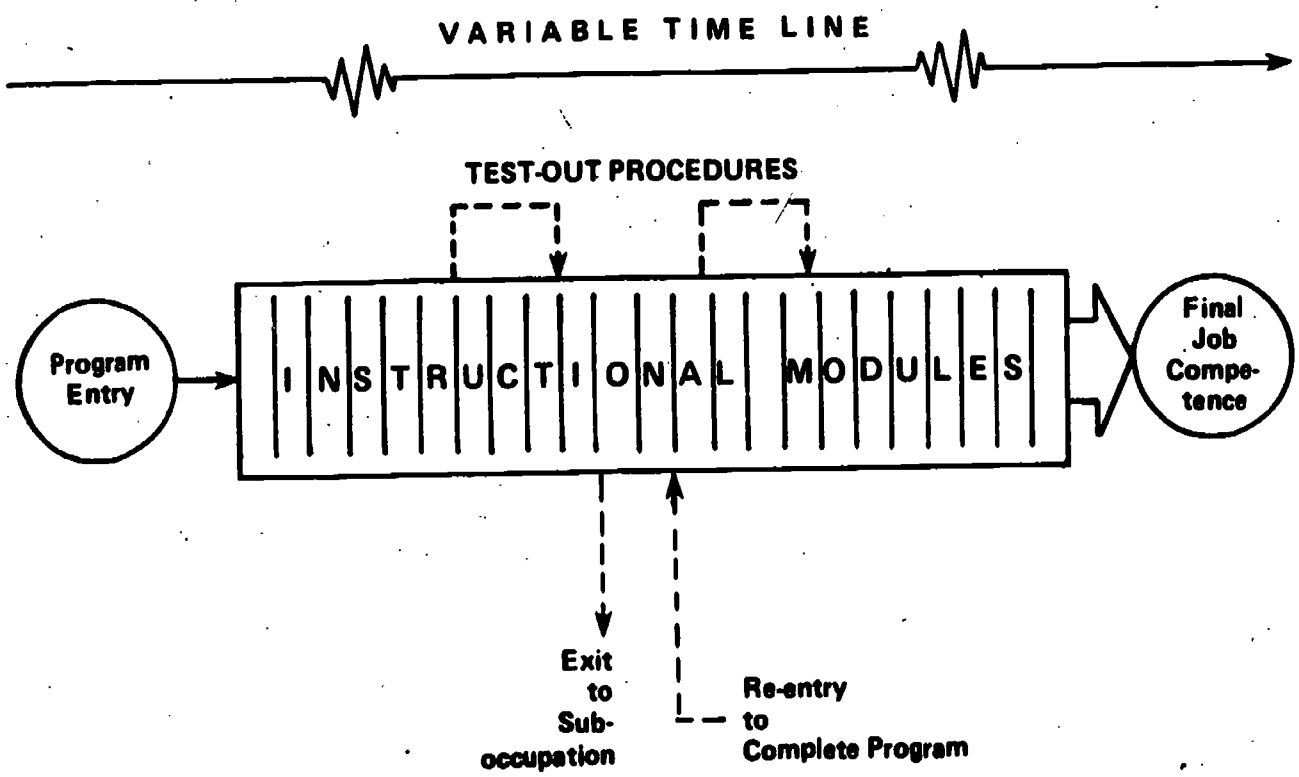

Figure 1. Model of competency-based vocational program

SOURCE: Used with permission of Glen Fardig (1977, p. 4).

There are basic principles behind competency-based education. The competencies included derive from analysis of the tasks performed by successful workers and are made known to the student in advance of instruction. The instructional program is specifically directed to help students achieve the competencies. Students move through the program by demonstrating that these have been achieved. Assessment of student performance is based on predetermined criteria and occurs when the student has

mastered the material up to that point. Each student is assessed individually through criterion-referenced measures rather than in comparison with other students.

Problems inherent in this system have to do with the difficult and time-consuming task of developing the instructional materials. These can be overcome with the help of teacher educators and curriculum specialists. Teachers using the CBE method need to view this type of instruction with a new outlook and remain flexible in their programming.

Classroom management, shown to be a factor in finding increased time for time on task, has major implications in the competency-based education approach since the variety of learning activities used in it may be extensive. Teachers must also become adept at managing the individual performance assessment of students. Smith and Nagel (1979) worked with competency-based education at San Diego State University and found that competencies as a goal required a change of behavior on the part of the instructor. They found that once mastered, this new strategy became satisfying for many teacher educators. They state, "For the individual instructor, once he/she is successful in specifying objectives, working on competencies, looking at performance and developing a one-to-one relationship with students, there is no turning back" (p. 195). The National Center for Research in Vocational Education at The Ohio State University has developed a very complete series of modules for performance-based teacher education. These provide pre- and inservice teachers with the training necessary to make the transition to programs based on this method of instruction.

A large number of competency- and performance-based programs are firmly in place in high schools, postsecondary institutions, and universities throughout the Nation. This approach to teaching in the vocational classroom can preserve quality, equal opportunity for students, and improve the teaching and learning process.

Critical Need for the Instruction of Basic Academic Education through Vocational Education

Boyer (1983) states that many vocational courses "are enriching and useful. They provide excellent options for a wide range of students and should be strengthened, not diminished" (p. 127). The strengthening of vocational programs and instruction in academic basic skills is seen as going hand in hand. He recommended that the relationship of the two in the comprehensive high school be explored.

The National Advisory Council of Vocational Education reported on five regional forums held in 1983 on the topic of business and vocational education (*A Nation at Work* 1983). The forum participants indicated that mastery of basic skills is fundamental in today's world and that only those students proficient in reading, writing, computing, and communicating can achieve competency in modern vocational programs. They stated that while education must stress the basics, it must redefine them to be work related. Vocational programs and career exploration were seen as extremely useful in helping many students see the relevance of the basics to their work lives. Ways in which vocational education and the teaching of basic subjects fit together should be made clear to all teachers and administrators.

State leaders are also very concerned and involved in providing direction for curriculum development and effective teaching. Honig (1983) reported a list of school effectiveness factors that were developed by the Task Force on Standards for Effective Schools in California. Included in the list of 16 major elements of school effectiveness was rigorous content. The report stated:

> In effective schools, students are exposed to a broad-based academic

> curriculum, including reading, language, mathematics, science, physical education/health, social studies, and fine arts. In addition to placing strong emphasis on the mastery of basic skills, effective schools also give attention to high-order thinking skills and concepts. And the teaching of the basic skills—reading, writing, and computing—is an accepted responsibility not only of English and mathematics teachers but also of other teachers. (p. 2)

The topics and subjects that constitute basic academic skills differ according to the person or report addressing the issue. *Experience Based Learning* (McClure 1977) listed life skills as critical thinking, functional citizenship; and personal and social development; basic skills as reading, writing, listening, and mathematics; and career development as career knowledge, employability skills, and understanding work. *A Nation at Risk* (National Commission on Excellence in Education 1983) identified English, mathematics, science, social studies, and computer science as the "new basics" and recommended that State and local high school graduation requirements be strengthened to include a foundation in these five subjects. Henry and Raymond (1982) listed reading, writing, speaking and listening, mathematics, science, and reasoning as basic skills with other skills listed as human relations and work behavior. Cooperation at the community level between companies and school systems was suggested for the purpose of generating new methods to deal with this problem. In *The Unfinished Agenda*, the National Commission on Secondary Vocational Education (1984) recommended "secondary vocational education courses should provide instruction and practice in the basic skills of reading, writing, arithmetic, speaking, listening, and problem-solving" (p. 25).

Basic academic skills are prerequisite for vocational education and essential for full and successful participation in the world today. Most people in our society work, and they must demonstrate employability and occupational competencies. Basic skills are fundamental in this regard and essential to mobility and access to the world of work. Campbell-Thrane and others (1983) reported that a number of research studies show that "higher payoffs from vocational training can be expected when basic skills instruction (principally remedial) and vocational skills acquisition are functionally tied together" (pp. 1-2).

How well do vocational education students attain basic academic skills? Haney and Woods (1982) found that the basic academic skills attainments of those participating in general track and in vocational education secondary programs appear to be similar. This finding is similar to that of Lotto (1983) and Weber and his associates (1982), who found in addition that secondary vocational education students are less proficient in basic academic skills than are academic students.

Corman (1980), in her literature search, found that information was not yet available on the level of basic skill acquisition of students in different vocational programs; however, vocational education students performed below average in reading comprehension, vocabulary, and mathematics. Later, Weber and Silvani-Lacey (1983) found that the basic skills attainment of secondary vocational students varied according to the service area or program in which they were enrolled. They also found that the basic skills level of potential and actual dropouts usually increased substantially when they participated in vocationally oriented programs with basic skills components. Careful attention should be given to these findings by vocational educators who plan to incorporate basic skills education into their programs.

What can vocational education teachers do to incorporate basic skills instruction into the curriculum? How can the extent of basic skills deficiency be determined by the

vocational education teacher? Roberts et al. (1975) developed three preentry criterion-referenced tests, "Skill Checks," which were designed to assess an applicant's verbal and mathematical competencies and to assist in the implementation of remedial education. Although these tests were developed for the specific vocational training areas of office occupations, automotive mechanics, and machine shop, they could serve as models for use in other curricula. Dunn, Gray, and Martini (1982) recommended diagnostic tests for use in the vocational classroom and suggested the use of source information on informal student assessment.

The early identification of skill deficiencies and appropriate corrective action should help vocational education students complete their education program successfully. Wells (1981) directed a project to enhance the basic skill levels of marketing and distributive education students identified as disadvantaged through a tutorial approach to teaching. Students in the project experienced a significant gain in test scores in both English and math. A similar result was found by Weber and Silvani-Lacey (1983) while using an integrative approach to teaching basic skills in vocationally oriented programs. Their study synthesized existing data on the characteristics of actual and potential dropouts and identified methods to remedy basic skill deficiencies in these youths.

The June 1981 issue of *VocEd* was devoted to basic skills instruction. Since this publication was issued, much research and study has gone into the development of strategies for teaching basic skills in vocational education and into the development of resource materials for this purpose. Campbell-Thrane and her associates (1983) have developed three models for delivering basic skills instruction in conjunction with vocational education, which are identified as nonintegrated, integrated, and combination models. Lotto (1983) analyzed the strategies and approaches used by vocational educators and found that they are most likely to use a combination of four approaches: remediation (a compensatory approach), reinforcement (a support-oriented approach), alternative schools (a total organization approach), and inservice training (an instructional improvement approach).

Curriculum is as important as teaching methods and strategies. Educational materials are being developed to answer the need for basic skills instruction. A few examples include materials developed by the Oregon State University (1981-1983) for writing, mathematics, speaking and listening, and reading skill improvement in vocational education secondary programs (Martin 1981; *Mathematics in Vocational Education* 1982; *Speaking and Listening in Vocational Education* 1983; *Writing in Vocational Education* 1983). The National Center for Research in Vocational Education at The Ohio State University has published modules that enable vocational teachers to assist students in developing and reinforcing their basic skills. Dunn, Gray, and Martini (1982) have listed approximately 200 vocationally relevant instructional materials and sources on basic skills development and have developed instructional strategies for a broad range of secondary vocational programs.

Basic skills instruction in vocational education secondary programs can enhance the achievement of excellence in public school systems. Education for academic, life, and employability skills cannot be separated and categorized for teaching by any one method, curriculum, teacher, or program. The cooperative efforts of all involved in the educative process are necessary to attain this goal.

IMPLICATIONS AND RECOMMENDATIONS

Current trends in secondary vocational education indicate that teachers will continue to be the critical factor affecting the success (excellence) of school programs. The literature suggests that teachers will need new and renewed support in this endeavor. Improvements in the quality of teacher education, both preservice and inservice, will be dependent upon programs that address teaching methodology and provide up-to-date information in the subject matter specialty. Proper compensation for the value held for education must be extended in order to attract and retain the best teachers. Teacher excellence can be identified from information present in the research literature.

Vocational educators must identify the nature of quality curriculum, teacher excellence, model programs, and the support required to provide for excellence in teaching. This information must be impressed on those who make the critical decisions on programs and funding. Undoubtably, certain programs and methods are more effective in influencing adolescent attitudes and behaviors, and certain other methods are best suited to specific student needs. These must be documented. With the increasing demands to demonstrate program accountability, evaluative research of this type must be given high priority. It is critical that programs that are "working" be supported and strengthened.

Further research and a systematic dissemination system for this research on all aspects of teaching and learning in the vocational classroom must be recognized as vital. Taking what is good from research in other subject areas and blending it with specific vocational research can enhance the research process. It can well provide a cooperative and interdisciplinary solution to the problems that cut across disciplines and provide for overall excellence in teaching and education.

To achieve excellence in vocational education, teaching must be improved:

- Vocational education course work must be thoroughly redesigned to incorporate the basic academic skills as an integral part. This will require an updating of all vocational education teachers as well as a major restructuring of vocational education preservice teacher preparation. This thrust in education toward narrower and narrower specialization has, in the past, provided very little in the way of basic education for students preparing for specific occupations. A basic education consisting of that gleaned in grades K through 12 is not sufficient to cope with today's technological society. Therefore, utilization of currently developed material on teaching the basics through vocational education should be incorporated into teacher preparation programs.

- Competency-based education, as one method of improving excellence in vocational education, should be installed in the vocational education classroom. The competency-based education approach holds great promise for the improvement of vocational teaching. Teachers will need to accept individualization of instruction, provide opportunity for students with varying learning styles and rates, become more flexible, and develop the ability to extemporize. A new outlook will be needed for the new role of the teacher in the classroom, that of resource person or facilitator rather than lecturer. Managerial skills will be essential in organizing the classroom and laboratory to facilitate the variety of learning activities in the competency-based education method.

- Time-on-task research has provided a catalog of a number of the shortcomings of current classroom practices. The application of this research

to the vocational education classroom could very well provide the "extra" time required to teach the basic elements of a new program. The use of this research will depend heavily on the support of the school administrative personnel. Many functions now performed in classrooms have very little to do with the educational process and will have to be performed at the administrative level to make this proposal work.

- Preservice education of vocational education teachers will require rigorous examination and revision. Not only must subject matter areas be revised to include the teaching of basics as an integral part, but methods must be instituted to insure that the students entering the vocational education teaching profession are of the caliber and scholastic ability that will provide the basis for excellence in teaching. It will be necessary to raise the GPA requirements both for entering the field and for remaining in the program. Certainly, the GPA requirement for graduation in any teacher education program should be well above the average. A GPA of 3.0 would not seem unreasonable, and perhaps standards should eventually go higher than that.

- Inservice teacher education in vocational education will also require rigorous examination and revision. All inservice teachers will require work in the teaching of the basics as an integral part of their subject matter. Further, a system of requirements for maintaining currency in the field should be instituted to assure that inservice teachers do in fact remain current in subject matter and teaching methods. It will be necessary to tie such a requirement to the renewal of certification in order to provide this assurance. Additionally, it will be necessary to provide an effective system for "retreading" those teachers in subject matter areas that become obsolete as technology progresses. Such a system probably would require a stipend and other support for those teachers who participate.

- Teacher certification is a controversial process that will require a complete and thorough overhaul. Certification should not be a reward for completing university course work successfully. A system must be devised that will provide temporary certification while the neophyte teacher gains experience. Full certification should come only after the neophytes have proven themselves as capable teachers of specific subject matter in "real" classrooms. Furthermore, the certification system must provide a means of tying inservice training or retraining to the certification process. This should be done in such a way that failure to remain current in one's field would result in loss or suspension of certification until such time as currency is reestablished. One suggested model for a certification program of this type might be the professional engineering and architectural registration programs of the various States. Most of these provide for a postgraduate examination of subject matter and an experience requirement of 3 to 5 years followed by a professional exam. These registration programs have worked well in providing for competency in fields where public safety is involved and and could well provide a similar program for teacher certification. The institution of a "master" certification level would provide a means of rewarding truly excellent teachers and might help in solving the bruising that tenure would receive in establishing such a

program. Attainment of such a certification could provide a worthwhile goal for any professional.

- Improvement of the status of the teaching profession and teachers can only be provided by the teachers themselves. School administrators, educators, and legislators can help; however, the first effort must be made by the teachers. The public does not perceive the teacher as a highly qualified professional. To alter this image will require exemplary performance, excellence in teaching, and successful programs. The public must see that the educational system and its teachers are worthy of professional status. No small part of this will be the perception that Johnny and Jill can score higher in the Scholastic Aptitude Test than students scored last year, the year before, or 5 years before that.

- Recognition of truly excellent teachers is mandatory to make any scheme for improvement in teaching work. To excel requires the expenditure of much extra effort. If that effort is not rewarded, it will be difficult, if not impossible, to sustain it. Such rewards as salary increments, bonuses, grants, and released time will help; however, the most important reward is peer and public recognition. Without recognition no system of rewards can long suffice. Those rewards that are perceived by the recipient as indicative of achievement are the most successful. Therefore, grants, bonuses, and such one-time rewards appear to be the more effective. Such rewards, coupled with recognition, will prove to be the most successful.

- Attracting professional teachers into vocational education classrooms will require that salaries commensurate with professional attainment be tendered. Of equal importance is work load. Additionally, class size must be examined and the number of contact hours addressed. Adequate time for class preparation, grading of papers and projects, and for study to maintain currency must be provided.

Educators, legislators, members representing professional organizations, individuals from the corporate sector, and lay people will need to work in concert to develop action plans that will most directly and effectively address the above recommendations. Vocational educators should take a major leadership role in this process.

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