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THE IDENTIFICATION OF NATIONAL TRENDS AND ISSUES FOR WORKPLACE PREPARATION AND THEIR IMPLICATIONS FOR VOCATIONAL TEACHER EDUCATION

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Abstract

The development of a well-prepared workforce is an issue of critical concern in America and education is a key ingredient for preparing a well-qualified workforce. However, policymakers have tended to overlook teacher preparation and its place in preparing a competitive workforce. The University Council for Vocational Education (UCVE) funded this study to identify significant trends and issues of national importance for workforce preparation and determine their implications for vocational teacher preparation. The research was initiated with development of an extensive annotated bibliography of over 300 relevant publications that focused on the preparation of the nation's skilled workforce. Of those documents 19 were judged by institutional representatives of UCVE to be of importance in the identification of trends and issues for the preparation of a well-qualified workforce. The selected documents were submitted to institutional representatives with a request that they identify implications for vocational teacher education. Using a nominal group methodology, the implications were then identified and prioritized with respect to the improvement of policy and practice for vocational teacher education. The results of the study were used to prepare a statement for those concerned with the preparation of teachers needed to educate a well-qualified workforce for the nation.

The development of a well-prepared workforce is an issue of critical concern for the nation today. A high priority on the domestic policy agenda is the preparation of young people for emerging high performance

workplaces that are viewed by many as the means for the United States to retain competitive in a global economy (Carnevale, 1991; Reich, 1991; Johnston and Packer, 1987; Thurow, 1992). Although there appears to be agreement on the part of the public and policymakers that education is the key ingredient in preparing a well-qualified workforce, a variety of proposals are being advocated to address the issue.

These discussions range from the need to prepare youth with basic skills for thinking and personal qualities (Secretary's Commission on Achieving Necessary Skills, 1991) to those which advocate national performance standards benchmarked to world class accountability measures (Commission on Skills of the American Workforce, 1990). Other discussions of school-to-work policies and practices focus on apprenticeship systems (Hamilton, 1990), business partnerships (Kolberg & Smith, 1992), and integrating academic and vocational education (Bottoms, 1993). Although there is a plethora of information about the need for a well-trained workforce and recommendations for better school-to-work practices, little attention has been paid to a vital ingredient in the process of preparing youth for the workplace of today and tomorrow. The question of how to prepare teachers with better accommodation to the ever changing and increasingly more competitive workplace of a global economy is seldom addressed by policy makers. The implications of workforce preparation issues in developing new policies and improving the practice of vocational teacher education are the focus of this study.

Conceptual Framework

A number of reports have raised concerns about how to prepare tomorrow's teachers. Linda Darling-Hammond (1990) has called for professionalizing and strengthening teaching practice as well as teacher education programs across all disciplines. The report of the Holmes Group (1986) recommended that teacher education programs be strengthened by adding a strong liberal education component. The University Council for Vocational Education (UCVE) prepared a monograph (Hartley & Wentling, 1996) that describes policy and practice for the preparation of vocational education teachers. It also clarifies existing practices in vocational education in the context of new teacher education reform and practice. Finally, the monograph provides a starting point for vocational teacher education professionals to seek out a more central part of the broad-based reform movement that is prevalent today in teacher education in the U.S.

The National Board for Professional Teaching Standards (1996) has developed a generic list of standards for the professional certification of vocational education teachers. The Board proposed that teachers desiring National Board Certification develop portfolios comprised of videos, lesson plans, and evaluation methods to document their qualifications and accomplishments.

As discussed at length in a special theme issue of the *Journal of Industrial Teacher Education*, (1996) the National Association of Technical and Industrial Teacher Educators has also developed standards for preparing and certifying vocational industrial teachers. The standards are based upon a career plan that requires an associate's degree for entry into the profession followed by a bachelor's degree within five years for permanent certification. Although all of these recommendations and reports strive to improve vocational teacher preparation, none of them take into account any of the trends and issues with respect to the workforce preparation of youth. It was the purpose of this study to identify the national trends and issues for workforce preparation and determine their implications for vocational teacher education.

Methods and Procedures

The study was conducted to identify significant trends and issues of national importance for workforce preparation and determine their implications for vocational teacher preparation. The project was conducted among the institutional representatives of the University Council for Vocational Education (UCVE). The council is composed of representatives of twenty-one state-supported and land grant universities that have comprehensive vocational teacher education programs granting baccalaureate through doctoral degrees in their respective institutions.

The project began with the development of an extensive bibliography of relevant publications (books, reports, monographs, and other publications) that dealt with the preparation of a skilled workforce for the

nation. The list of publications for the bibliography was identified through a review of databases such as the ERIC system, U.S. Government documents published by the agencies that included the Departments of Labor and Education; and research reports and position statements published by business and industry associations, policy groups, and other educational organizations and agencies. Each publication was annotated and the entire bibliography was submitted to the UCVE institutional representatives for additional nominations. After receiving the additional nominations, a final annotated bibliography of workforce preparation trends and issues consisting of over 300 publications was compiled and submitted again to the institutional representatives of the Council.

The representatives were requested to rate the documents found in the annotated bibliography into three categories: 1) of critical importance, 2) somewhat important, and 3) not very important, for the preparation of a well qualified workforce in the United States. Those documents rated as "of critical importance" (mean rating of 1.5 or below) were retained for further review.

An executive summary was then prepared for each of the selected documents. The executive summaries were divided among and submitted to four different groups of the UCVE institutional representatives. Each group was asked to identify the major implications for vocational teacher education from the documents described in the summaries. The identified implications for vocational teacher education were then brought to the 1994 annual summer meeting of UCVE. During that meeting, a nominal group process was used with the participants to prioritize the previously identified implications for vocational teacher education.

Results of the Study

"Critically Important" Documents

The process for selection produced nineteen documents that were considered of critical importance in the identification of trends and issues for the preparation of a well-qualified workforce. The nineteen documents are presented in [Table 1](#). A brief review of each of the retained documents appears below.

The following documents, in rank order, were identified by participants in the study to be "of critical importance" for the preparation of a well-qualified workforce in the United States:

[Carnevale](#) (1991) discussed the context of America in the new economy and proposed six competitive standards that must be met if the nation is to remain globally competitive. These standards include such items as productivity, quality variety, customer satisfaction, customization, convenience, and timeliness. In order to meet the new competitive standards Carnevale argued that workplaces must change and that workers must begin to think critically, solve problems, communicate, and work in teams.

[Carnevale, Gainer, and Meltzer](#) (1990) made specific recommendations for workforce skill development. They recommended the development of workers with seven basic skill groups: (1) learning to learn, (2) reading, writing, and computing, (3) communication (both listening and oral), (4) adaptability skills, (5) development skills that include managing personal and professional growth, motivational and goal setting, developing a personal game plan, and group effectiveness skills, and (6) understanding organizational cultures leadership skills.

[Berryman and Bailey](#) (1992) suggested the conceptual model of a double helix to represent two strands operating in American society. One strand is a changing workplace that is gradually rendering education as traditionally delivered more and more unconnected to what high school graduates need to know in the workplace. The other strand is the research base from cognitive science that has shown that the skill requirements of restructured workplaces and optimal ways of organized learning fit one another. The double helix of education and the economy compliment each other and the two strands of a changing work place and what is known about effective learning compliment each other.

The difficulties employers face in securing a highly skilled workforce were discussed in a report by the [Center for Workforce Preparation](#) (1994). This report made several recommendations for helping youth make

smooth transitions from high school to work and for further learning. They identified three basic components that school-to-work transition programs should emphasize in order to be effective. These include: (1) restructured classroom instruction based on a program of career majors that incorporates substantive work experiences into the curriculum, (2) classroom activities supplemented by structured learning experiences in the workplace, and (3) strong cooperative linkages between schools and employers. The report further recommended that schools begin to view preparation of youth for employment as part of their primary responsibility and posited that school leaders must be fully committed to program quality and high standards of performance for teachers and students.

[Hull](#) (1994) advocated coupling four years of high school with two years at a community college, along with an emphasis on work-based learning as a vital component in preparing youth for America's workforce. As Hull envisioned it, this Tech Prep/Associate Degree program would emphasize linkages between high school and community colleges that utilize contextual learning to motivate students to stay in school and continue further learning and education related to the workplace. The Tech Prep/Associate Degree program would recognize the unique learning and motivational needs of students, the changing skill requirements of employers, and the need for a new kind of integration of academic and occupational knowledge as preparation for a lifetime of learning.

In an effort to justify the subject matter of vocational education as a professional field of study, [Copa](#) (1992) proposed a conceptual framework to guide decisions for the aims, curriculum, instruction, and assessment of vocational education. After an extensive review of the curricular research in vocational education as well as its relationship with general education, Copa derived several propositions to serve as the basis for guiding and selecting the subject matter or content appropriate to education for the vocational aspects of life:

- Vocations are both social and economic roles by which one contributes to and benefits from the shared way of life in a society.
- In the twentieth century context, vocations refer essentially to responsibilities in work and family-life roles.
- Individuals often have more than one vocation at the same time; the interaction of these vocations can be as significant as their separate effects.
- Selection of vocations and fulfillment of responsibility in vocations should be governed by ethical principles.
- Vocations, through the aesthetics of their responsibilities, should give positive meaning to life.

[Wirth](#) (1992) maintained that modern society is driven by two divergent value systems in meeting the challenges of our post-industrial society: a tradition of centralized bureaucratic control versus participatory democratic ideals. Following the work of Zuborff, Wirth argued that work has so transformed the post-industrial electronic age as to invoke two distinct new responses, or strategies. One strategy is to automate and the other is to inform. In the automating strategy, the workplace would use computer-mediated technology to transform processes formerly done by human hands and managers would use the new technology to command and control. In the informing strategy, computer technology would become a means for sharing information with work becoming more collaborative with managers and workers using knowledge to add value to products and services. Choices are now being made between the two strategies and automation is being used in American business and industry, not only in this country but also abroad where a less educated workforce with lower wages can be used to successfully compete. Other corporations are combining technology with human resources. Wirth argued that our long term economic and social welfare depends upon the development of a workforce for these enterprises that has the capability for learning, communicating, and solving problems in collaborative situations.

[Bailey and Merritt](#) (1993) expressed a concern that policymakers have extensively discussed European school-to-work models but have paid relatively little attention to existing programs in the United States that combine schooling and work. They examined four components of the youth apprenticeship model that included student participation, educational content, location of instruction, and credentialing. The existing programs in the United States that shared these characteristics of the apprenticeship model were agricultural

education, cooperative education, career academies, and tech-prep. The educational content of all four programs combined practical application of theoretical or academic knowledge. Applied courseware is the primary characteristic of the tech-prep and career academies programs. Work experience is the primary feature of the cooperative program but the authors found the coordination between classroom learning and on-the-job training a weak one in comparison to the German apprenticeship program. Agricultural education appeared to have been the most successful program in combining theory and practice and was particularly strong in developing behavioral and leadership skills. All four programs used the workplace as learning sites but fell short in using the worksheets for instruction taught by the employers. Credentialing was involved in each program but tech-prep appears to have gone further than the other three programs in developing standards and assessment procedures. Bailey and Merritt concluded that the development of large-scale youth apprenticeship systems with work-based learning is a long-term project. Another strategy, in the meantime, is to build upon the existing school based models and encourage employers to become involved in the school-to-work transition programs.

The [Commission on the Skills of the American Workforce](#) (1990) shared the concern about improving the productivity of the nation in order to be economically competitive in the future. The Commission's recommendations were designed to produce a highly educated workforce of workers with high skills that could attract high wages. In order to accomplish this goal a new educational performance standard should be set for all students at age sixteen. All students should attain certificates of initial mastery with technical and professional certificates for those students pursuing further education. Employers should be given incentives to invest in the further education and training of their workers, with a system of employment and training boards to oversee the new school-to-work training programs.

According to the Secretary of Labor's [Commission on Achieving Necessary Skills](#) (SCANS) (1991), over half of the nation's young people leave school without the knowledge to find and hold a job. The Commission recommended eight workplace requirements that are essential for preparing students for entry into the workplace. Five competencies are required that include: (1) identifying, organizing, planning, and allocating personal resources; (2) effective interpersonal relations with others; (3) acquiring and using information; (4) understanding complex system relationships; and (5) selecting, applying, and using a variety of technologies. Three foundational areas also included the following: (1) basic skills in reading, writing, computing, listening, and speaking; (2) thinking skills used in decision making, problem solving, and reasoning; and (3) personal qualities to develop positive feelings about oneself and one's job performance. These employability skills may be more helpful in permitting individuals to transfer among jobs, make care decisions, and be flexible about changes in the workplace.

According to [Berryman, Flaxman, and Inger](#) (1993), the skill requirements of the new economy necessitate a strategy to educate non-college bound students to help them develop the competencies needed for middle-level jobs. Their report advocated a cognitive apprenticeship model of instruction be used to educate these youth where work-based problems are used for learning situations that create a community of expert practice to integrate academic concepts with practical vocational education learning activities. In addition to the above characteristics, the K-12/post secondary educational system would need to help "build the middle" by articulating occupational cluster principles of tech-prep and preparing a rigorous certification system of work-based youth apprenticeship.

The major theme of [Marshall and Tucker](#) (1992) is that America must build a new economy based on the principle of human resource capitalism, if it is to remain competitive in a global marketplace. They recommend an ambitious plan of investing in people through a systematic approach for building new community, work, and schooling institutions that will create a "learning society". The new society as envisioned by the authors would enable this country to be a nation of high skills rather than low wages. The key to developing a productive workforce in the new society is to demand excellence in the workplace and the schools. A national set of standards should be established with examinations consisting of assessment of student performance, projects, and portfolios. The standards and examinations would assess the high performance skills needed in the workplace that include a "high capacity for abstract, conceptual thinking," communication skills in computing, written English, reading technical manuals, and the ability to work with

others. Another component would involve setting teacher education standards and another would be development of a set of standards for entering and leaving college. Teachers in the public schools would also obtain their certificates by passing a series of examinations on essential skills and on their teaching subjects, and then they would work under the mentorship of experienced teachers. Final certification would require a series of assessments on teaching competencies by a team of educators. The authors would eliminate any requirement that candidates for a teaching certificate attend a teacher preparation institution as this would guarantee the monopoly on teacher preparation "which has served the country so badly up to now."

[Bottoms](#) (1992), reported the results of The Southern Regional Educational Board Fall Forum. The monograph sought to provide ways for "High Schools that Work" sites and other high schools to examine their old vocational education programs and to develop new programs that would give students the quality of academic and technical preparation that business and industry expect. Major components of the new vocational education programs would include: (1) the integration of academic and vocational studies by allowing students to master higher level concepts in the context of broad technical fields; (2) a link between high schools and post secondary schools to connect a concentration in high school with studies at a two year institution; (3) a link between the school setting and the work setting such as youth apprenticeships, career academies; and magnet schools; and (4) a curriculum suited to the new economic order where students learn to solve problems, communicate with people and adapt to changing work conditions. The report contended that schools that adopt these principles would produce students who are ready to enter and advance in the workplace and are capable of continuing to learn in another educational setting.

The [United States General Accounting Office](#) (1993) studied comprehensive school-to-work transition strategies in four different states in the country. These four states were implementing interrelated components of a comprehensive school-to-work transition program that included: (1) processes for developing academic and occupational competencies, (2) career development education, (3) extensive links between school systems and employers, and (4) meaningful workplace experiences. Although several obstacles exist to implementation of these strategies, the Federal government could help by collecting and disseminating information on lessons learned in state and local jurisdictions and use existing targeted grants for funding school-to-work transition efforts.

A monograph, edited by [Paulter](#) (1993) contained several chapters pertinent to this article. The following four paragraphs summarize those chapters.

- The educational reform movement has particular implications for vocational education according to [Greenan](#) (in Paulter, 1993). These appear to be related to curriculum, student assessment, program planning, instructional delivery, program evaluation, and teacher preparation. Teachers must become proficient in using a variety of learning environments and instructional methods that are matched to learning styles and characteristics of individual learners. Vocational educators must use effective methods in integrating academic content into their programs and also need to take the initiative in working with other academic disciplines and help them to make applications of the theory and knowledge of their subject matter content.
- In Paulter (1993), [Cheek and Campbell](#) reported information about school-to employment linkages from three different countries: Sweden, Germany, and Great Britain. They found a variety of strategies used in each country but concluded that the transition is not a structured event. The process can be successful only with cooperation between school and employers. Ideally, young people will pass from school to employment not only with initial skills, knowledge, and experience required, but also with a forward-looking plan for continuing their education and training.
- Improving transition experiences, according to [Doty](#) (in Paulter, 1993), is a very difficult activity. Very few college and university teacher-preparation personnel display much interest in preparing students for the world of work. Very few faculty have real-world experiences and Doty recommended teacher educators have at least three years of full-time work experience. One concept that seemed particularly important to Doty, was helping each student to make a smooth transition into work and life by helping each student "have a dream" a goal toward which to work.
- [Silberman](#) (in Paulter, 1993) reviewed the research results of school-to-employment experience and

found that the critical factor determining the outcome of part-time work appears to be the level of cooperation between the schools and employers necessary to insure the educational value of the experience. A sizable body of literature exists describing successful applications and evaluations of work experience programs that practice curricular integration. According to Silberman, programs that connect school and work are needed, where young people can learn the essential skills and attitudes that employers and communities need.

The issue of skill standards was discussed in the report issued by the [Institute for Educational Leadership](#) (1993). The first volume of the report found serious gaps in current practice in this country. They found: (1) few skill standards were available that included levels that could assist an individual in moving from novice to master craftsman, (2) little or no work has been undertaken to develop national skill standards, (3) a "crazy quilt" pattern of financing the components of the system exists today, and (4) the infrastructure has not adequately supported the development and upgrading of the most important components of high quality skill standards -the instructors.

[Johnson and Summers](#) (1993) reviewed the literature of over 200 studies that link school characteristics and labor market performance. From a set of 17 studies that met a series of criteria for selection, the researchers found that the length of school year and class size do not affect the job experiences of high school graduates. Two studies found that district-level total expenditures per average daily attendance had a positive relationship with annual earnings of graduates. Two additional studies found that state-level expenditures had a positive relationship to graduates hourly earnings. The two most positive correlations led to the conclusion that better educated teachers produce more effective employees. They recommended that school improvement focus on vocational education programs rather than academic curriculum. Rewarding better teachers and better schools will produce improved results in the labor market performance of high school graduates.

[Herr and Long](#) (1992) explored the question of providing every high school student in this country with a salable skill to market in the workplace. In discussing the concept of a saleable skill, the authors conclude that the broader range of employability skills that permit one to search, choose, and adjust to work effectively are the skills that should be provided to all.

[Bailey](#) (1989) reviewed current reform initiatives, research on changing needs in the economy, and combined those with experience with the contemporary reform movement. In this report Bailey developed a strategy for educational reform, arguing that current initiatives which are often solely associated with vocational education can form the basis of an educational reform package that applies to all student and schools.

Implications for Vocational and Technical Education

The participants were organized into four groups based upon their original reading assignments of the executive summaries. Each of the four groups used a nominal group technique to identify the implications of the issues and recommendations found in the documents for vocational teacher education. Each group was asked to identify and rank eight implications of importance. The small groups then shared their implications with the total group making a total of thirty-two implications for vocational teacher education that were drawn from the selected literature on workforce preparation in the United States. The institutional representatives, again meeting as an *en-toto* group, ranked the thirty-two stated implications. That final ranking was used to identify the eight most important major implications for vocational teacher education, see [Table 2](#).

UCVE Draft Statement

The information obtained from the nominal group process was then analyzed and synthesized into a draft statement on preparing teachers for the nation's workforce. The UCVE institutional representatives reviewed the statement and suggestions were made for modification and improvement. The results of the process were compiled into a final statement entitled "Preparing Teachers for the Nation's Workforce". The statement, as shown below, should be of value for those concerned with the improvement or policies and practices to

better prepare teachers of young people who need to be well educated for entry into the high performance workforce of this nation.

Preparing Teachers for the Nation's Workforce

Comprehensive and systematic transformation of teacher education programs must occur if they are to function as leaders in addressing the challenges of preparing well qualified individuals for the nation's workforce. The high performance workplaces of American business and industry will require workers that have the skills, knowledge, and values necessary for success in ever changing, diverse, technological and competitive global markets. A vital component of preparing well-qualified workers is teachers with abilities to link learning with workplaces.

Transformed teacher preparation programs should focus on developing teachers for new roles as leaders in working within schools and communities to restructure and revitalize curricula. Movement toward site-based management with local decision making and increased involvement of business and industry in improvement of schools provides opportunities for teachers to have new and different roles in influencing changes in content and function of secondary and post-secondary schooling. As school and community leaders, teachers should be capable of visionary, collaborative decision making in various settings.

The new roles for teacher will require a broad-based understanding of the purpose of career preparation as an integral component of preparing youth for productive contributions to society. The importance of career preparation as a major outcome of schooling should be a common element in the preparation of all teachers. It is also imperative that educators have a common knowledge base associated with the economic, sociological, philosophical, and psychological foundations of workforce education. A personal, philosophical position or belief statement that encompasses the role of teacher, the nature of learners and learning, and the purposes of schooling are critical for persons preparing to teach. The philosophical statement should address the preparation of young people for work and family life roles as an important outcome of foundational studies for all teachers. The responsibilities for maintaining fulfilling roles as a family member and a productive worker are challenge for many members of our society. The relationships between these dual roles is constantly changing and youth and adults need to be prepared to deal with the challenges of work and family life in our contemporary society.

Teacher education programs should be structured and conducted to optimize relationships between subjects and their applications in workplaces and family life. Teachers should be prepared to focus not on disciplines, but rather on contextual relationships between subject matter and integrated work based contexts meaningful to students at the time of learning. Mastery of basic knowledge and skills should be used with interdisciplinary, collaborative instructional strategies to develop problem solving and high order thinking skills in real world, work-related applications.

All teacher preparation programs should be restructured to prepare teachers with skills and knowledge to work together in planning and conducting integrated contextual curricula that prepare young people for the work place as well as for continuing education. This will require collaborative linkages among teacher educators in developing new knowledge bases that focus upon career development as a life long process and utilize problems and protocols from workplaces as the context for teaching and learning in cooperative, interdisciplinary settings. Teacher preparation programs in institutions of higher education have unique opportunities to provide leadership in preparing teachers capable of working together to better prepare youth for transitions from school to work. The preparation of teachers who will become instructional leaders for the workforce preparation of youth should be the highest priority at teacher preparation programs in institutions of higher education in this nation.

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Table 1

Publications on Workforce Preparation Issues Deemed to be of Critical Importance for Vocational Teacher Education.

Rating	Publication
1.15	Carnevale, A. P. (1991). <u>America and the new economy.</u> San Francisco, CA: Jossey-Bass Publishers.
1.15	Carnevale, A. P., Gainer, L. J., & Meltzer, A. S. (1990). <u>Workplace basics.</u> San Francisco, CA: Jossey-Bass Publishers.

1.20	Berryman, S. E., & Bailey, T.R. (1992). <u>The double helix of education and the economy</u> . New York, NY: The Institute on Education and the Economy, Teachers College, Columbia University.
1.26	Center for Workplace Preparation. (1994). <u>New century workers: Effective school-to-work transition programs</u> . Washington, DC: Author.
1.27	Hull, D. (1994). <u>Opening minds, opening doors: The rebirth of American education</u> . Waco, TX: The Center for Occupational Research and Development.
1.28	Copa, G.H. (1992). <u>A framework for the subject matter of vocational education</u> . Berkeley, CA: National Center for Research in Vocational Education.
1.29	Wirth, A.G. (1992). <u>Education and work for the year 2000: Choices we face</u> . San Francisco, CA: Jossey Bass Publishers.
1.30	Bailey, T., & Merritt, D. (1993). <u>The school-to-work transition and youth apprenticeship: Lessons from the U.S. experience</u> . New York, NY: Manpower Demonstration Research Corporation.
1.33	The Commission on the Skills of the American Workforce. (1990). <u>American s choice: High skills and low wages:</u> . Rochester, NY: National Center on Education and the Economy.
1.33	The Secretary s Commission on Achieving Necessary Skills. (1991). <u>What work requires of school: A SCANS report for America 2000</u> . Washington, DC: U.S. Department of Labor.
1.36	Berryman, S. E., Flaxman, E., & Inger, M. (1993). <u>Building the middle</u> . New York, NY: Institute on Education and the Economy.
1.42	Marshall, R., & Tucker, M. (1992). <u>Thinking for a living: Education and the wealth of the nations</u> . New York: Basic Books.
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Table 2
Summary of Nominal Group Process Implications of Workforce Preparation Trends and Issues for Vocational Teacher Education.

<i>Score</i>	<i>Rank</i>	<i>Implication</i>
101	1	All teachers, counselors, and administrators of secondary and post-secondary education should have a broad based philosophical understanding of the purpose of education and the role of vocational education in the restructuring and improvement of workforce preparation of youth and adults.
71	2	Teacher education programs should be structured to optimize the subject matter relationships and collaboration needed between "academic" and "vocational" education teachers in preparing students for the workplace.
48	3	A common knowledge base should be developed that provides a philosophical sociological, economical and psychological foundation for vocational teacher preparation programs.
45	4	The technological and organizational practices of the workplace as well as current pedagogical concepts and practices should be incorporated into teacher education programs.
44	5	Vocational teachers should be prepared for new leadership roles that will require skills in working with community based, school, and political groups in restructuring education for the needs of the workplace.
36	6	Contextual learning strategies should be emphasized in the preparation of teachers as the means for linking education and the workplace.
35	7	The concept and importance of career development throughout the life span should be an integral component of teacher preparation programs.
33	8	The structure, content and organization of vocational teacher education programs should be focused on the linkages between workforce development and the education that will provide well-qualified persons for the workplace.



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