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ABSTRACT

The new visions for the American high school have profound implications for vocational education research. Almost all basic premises underlying what high school vocational education should be and do are in question. The new criteria for the American high school make clear that vocational programs focused on broad career preparation are essential and a new vision of vocational education and its relationship to academic education is required. Academic and vocational educators who think the reform solution is to do better what they have done in the past have missed the key point. New paradigms must be developed to accomplish the new educational goals of society. Within this new view, high school vocational programs are expected to provide students interested in a wide range of specific occupations related to an occupational cluster with representative career skills and activities related to that cluster. Vocational courses within the new model are expected to be part of career majors that include sets of academic and vocational courses. Those majors address occupations considered to be of less than baccalaureate level as well as a wide array of careers. Vocational education research must explore the new purposes of high school vocational education, development of vocational courses and programs to accommodate all students, course content, articulation, teaching strategies, and parent and academic and vocational teacher roles. (Contains 15 references) (YLB)

The New Vision of High School Vocational Education: Implications for Research

Paper presented at the
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The New Vision of High School Vocational Education: Implications for Research

The Role of Vocational Education Research

One can not adequately address the role of research on high school vocational education without first addressing the changing vision of what it should be and be like. Since the role of research within a field is to provide insights and evidence which can lead to better informed decisions, researchers must first identify critical areas within the field that require better information. That research can take a variety of forms such as qualitative research related to what should be, quantitative research related to the effectiveness of various instructional processes, or action research focused on how groups might work more effectively together. Regardless of the type of research to be conducted, it is based on a vision of what vocational education is and should be. In the past the goals of vocational education were well established. Federal legislation, professional associations, local school programs, and individual vocational courses were in alignment and research tended to focus on how to do what was being done better. However, during this time of major educational reform, the selection of important research topics and methodologies is affected by a new vision of the role of high school vocational education. For example, if the goal of secondary vocational education is to prepare a select group of students for direct entry to the world of work, then the research would focus on processes to accomplish that goal. However, if the goal is it to provide all students with experiences related to their visions of their future lives and careers, then research would focus on processes to accomplish that goal. The way one answers this first question would then affect how vocational education program success would be evaluated. Should success be evaluated based on the number of students placed in related occupations or the extent to which students and society

believe that the vocational education programs are preparing students for problem solving within their visions of their careers for a rapidly changing society?

Current research in vocational education is also affected by the fact that vocational education at different levels of education is now seen as having different goals. In the past, both the role of high school vocational education and post-high school vocational education were essentially the same. That goal was to prepare students for direct entry into occupations requiring less than a baccalaureate education. With the changing goals for high school vocational education, it is no longer possible to generalize vocational education practices and philosophy to both levels. High school vocational education within comprehensive high schools is now expected to fulfill a different set of expectations while the past expectations for vocational education are still quite appropriate for post-high vocational education. Although post-high school vocational education is also in transition, it still has the preparation of students for direct entry into the world of work as a primary goal. To complicate matters further, secondary vocational centers are expected to develop curriculum to achieve a combination of comprehensive high school and the post-high school vocational program goals.

These differences between types of vocational education make it critical that as researchers frame their research and interpret their findings, they clearly differentiate the level of the vocational education programs they are studying and they are intending to impact. It is also why the following discussion is primarily focused on high school vocational education research in comprehensive high schools. The discussion would be different if it was focused on post-high vocational education and somewhat different if it was focused on secondary vocational centers.

Given the major impact, which the changing vision of high school vocational education will have on the nature of the research questions to be addressed, the new

vision must be described to provide a context for future research. After that context is described, new directions for future vocational education research can be proposed.

Changing Views of the Role of High Schools and Implications for Vocational Education

The call for educational reform is the result of dramatic changes in society. The relationship between societal change and the call for educational reform is not new. The role of education in society has been and continues to be essentially the same. "Basically education in all societies aims at orienting the individual to his (her) social and physical environment." (Frost, p. 8) As those environments change, it is therefore reasonable that the nature of education should change.

Societal changes have impacted both the content and methodologies of education at all levels, including high schools. Most high schools have been organized around an old vision of the relationship between vocational and academic education. It is based on a three-track curriculum. The college preparatory track was to provide education in the arts, science, mathematics, and social sciences, which prepared students for further study in college. The academic courses focused on mastery of disciplines or subject matter areas organized around taxonomies developed to systematize their content. Little emphasis was placed on organizing content in terms of its application. The vocational track was assumed to require a less rigorous background in academic subjects focused specifically around the occupations for which students were preparing and on the concrete skills associated with those occupations. Therefore, vocational content was organized around applications. The general track was assumed to generally prepare students for life with no specific focus. This vision was captured by the 1967 Carnegie report (Conant, 1967)

The current call for reform suggests that this view of the curriculum is no longer functionally related to the needs of society. Reform is fueled by the rapid movement of

society from the information age to what some futurists are calling the knowledge/imagination age. The believe is that in the knowledge/imagination age students should be taught within a context that is meaningful to them and in which they are expected to apply the subject matter being learned. It is generally expected that this will more adequately prepare them to integrate what they are learning into real knowledge which they can apply to new situations with imagination. It is felt that this will allow students to more effectively develop problem solving skills, thinking skills and basic skills related to their future lives and work. (Pucel, 1998) In other words, the impact of schooling should be assessed based on whether students can functionally use information taught and not on students' abilities to parrot back the skills and knowledges taught in the classroom.

In order to accomplish this goal, in addition to teaching the basic subject matter associated with courses, instructors are expected to develop their courses to include methodologies that require students to apply what is learned in the context of their visions of their futures. However, this does not mean students should master only those skills and knowledges related to a particular career. It means all students should have rigorous preparation in academic skills and knowledges and familiarization and experiences with the technology and practices within their career area.

As President Clinton summarized, "We are now learning a lot more about learning and we know that a lot of people with very high intelligence levels learn better in practical settings. We also know that practical skills now require a higher order of thinking. So the old dividing line between vocational and academic is fast becoming blurred and will become more and more meaningless as time goes on." (National School-to-Work Learning and Information Center, 1998)

This new call for reform acknowledges that all students will not be going to college and that few will leave high schools ready to become directly employed. Within this new context the criteria for a quality American High School and quality vocational education have changed. Table 1 presents the new criteria for the American high school developed by the U.S. Department of Education. As one reviews these criteria it is clear that vocational programs focused on broad career preparation are essential within the new vision of the American high school. It is also apparent that a new vision of vocational education and its relationship to academic education is required.

Table 1

Criteria for the New American High School

- Help students achieve high levels of academic and technical skills.
- Teach students in the context of a career major or other special interest.
- Offer hands-on learning in classrooms, workplaces or community service.
- Access a wide range of career and college information.
- Prepare students for college and careers.
- Work with teachers in small school-within-schools.
- Win the support of a caring community.
- Receive extra support from adult mentors.
- Benefit from strong links with postsecondary institutions.
- Use technology to enhance instruction and learning.

(Vocational Education Weekly, 6/3/96)

Past Attempts at Reform

History has shown that the typical solution to calls for reform by both academic education and vocational education has been trying to do what they had been doing better. This is exemplified within academic education by its reaction to the 1983 Carnegie report, A Nation at Risk (Carnegie Foundation, 1983). The primary focus of the report was on getting back to the basics. Basics were defined as the academic

subjects. It was believed that if students were to be able to function in the information age, they would need a sound academic background and that vocational and practical arts courses detracted from this goal. Attempts were made to reduce vocational and practical arts courses and other electives giving more curricular space to academic subjects. Little emphasis was placed on teaching the content differently. In effect, advocates of change thought what was needed was more of traditional academic education. As this movement progressed, educators and the public began to realize that the type of academic education that had been developed for college preparatory students did not meet the needs of the majority of students. It was highly abstract and most students could not see relevance in what was being taught and how it related to their actual lives. In response some of the academic professional associations did respond with a call for more applied instruction (National Center for Improving Science Education, 1989; Kurtz, V. R., et al., 1990).

In 1988 a report entitled The Forgotten Half (W.T. Grant Foundation, 1988) appeared. That report, and studies conducted during the early 1990s, revealed that the majority of high school students were not being served well by the schools focusing only on the basics. The educational system seemed to be adequately addressing the 25% of the students who were focusing on college prep, and the 25% of the special needs students who were getting supplemental assistance through special education programs. However, it was not adequately addressing the middle 50%. More than 50% of high school students were enrolling in the general track which provided them with neither an academic background to go on to further education, or a vocational focus which prepared them for work.

As the need to address all students has become apparent, there has been a renewed interest in vocational courses. However, many vocational educators

interpreted this to mean that traditional types of programs based on occupational analyses of specific occupations were the answer. They viewed the problem as one of vocational programs not adequately addressing the up-to-date content related to those occupations. In order to support the updating of those programs there has been a national movement to develop national skills standards associated with occupations. It was felt that those standards would provide a clear view of the content to be addressed in vocational programs as they prepared students for work. The purposes of the skill standards for employers and schools or job training programs was "to encourage the alignment of school curricula with industry requirements, to update educational objectives as workplace demands change, and to ensure a better return on public and private education and training investments (National Skill Standards, *http://www.nssb.org)*. In effect, vocational educators made the same mistake as the academic educators, they tried to do what they had been doing in the past better.

Academic educators and vocational educators who think the reform solution is to do what they have done in the past better have missed the key point. Adding more traditional academic instruction or more adequately aligning vocational programs with job requirements is not the answer. Completely new paradigms must be developed to accomplish the new educational goals of society. If new instructional paradigms are needed, then the problems to be addressed by vocational education research must be different.

This is analogous to what happened as the design of ships to carry people across the ocean changed. For centuries wind power was the driving force of ships. Therefore, ship makers rightfully spent their time concerned with how to trim the sails, how sails should be mounted, and how hulls should be designed in order to get more wind-powered speed. Research and development was therefore focused on these problems.

Then all of a sudden, steam power came along and it no longer made a difference how sails were trimmed. There was no longer a need for sails. What was really needed was to refine and develop a different kind of ship. Research focused on a new set of questions such as, how does the steam power get transmitted in propulsion? How does one most efficiently balance the amount of fuel carried and the amount of cargo?

Education in this country is now facing a similar situation. In the midst of re-thinking about the future role of high school education, both academic and vocational education are facing challenges to develop a different kind of ship. What they are finding is that the new ship requires academic and vocational educators to work closely together in new ways. The ultimate goal is still to assist students as they prepare for life and work, but education must prepare them for a different kind of life and work than in the past. What skills and knowledges will be needed and what methodologies should be used to teach them?

Table 2 presents a synthesis of some basic tenets, which are now driving curriculum revision to accomplish the goals of the new American high school. The table presents tenets for what schools should do and what students should do. They are very similar to those underlying the development of Tech Prep programs throughout the United States (Brustein, 1993) and School to Work (Brustein, 1994) being promoted and funded through the Perkins Act.

If these basic tenets actually become implemented within high schools, the nature of the vocational education research questions will change dramatically because some of the fundamental premises underlying high school vocational education programs will need to change. A summary of some of those changes is presented in Table 3. Many of these changes will look almost sacrilegious to traditional vocational

Table 2

Basic Tenets for the New High School Curriculum

Schools should:	Students should:
1. Develop integrated programs of academic and vocational courses around meaningful career fields (majors, pathways, themes) of interest to the students. 2. Each career program should include a sequence of courses in mathematics, science and communications and a sequence of technical courses in a career field. 3. Each program must have a common core of required courses in mathematics, science, communications, and career technologies that leads to further education and/or an apprenticeship or direct employment in a specific career field. 4. Each course should be developed to allow each individual student to apply what is being learned to his or her specific career interest. 5. High schools must develop articulation agreements with post-high schools and/or other types of opportunities such as apprenticeships, which will allow students completing a high school program to enter and proceed with a non-duplicative sequence of classes or other experiences, which allow students to achieve their career goals. 6. High schools should establish and provide opportunities for students to have experiences related to their career interest in community settings.	1. Each student should develop a vision of how their high school program of studies will articulate with their visions of their futures. 2. Each student should identify a career major (pathway) consistent with his/her career interest. 3. Each student should develop a program of studies including a sequence of both technical and academic courses. 4. Each student should relate what she or he is learning to their career interests and be able to think of concrete examples of where the content might apply. 5. Each student should have realistic experiences in their career area outside the school.

Table 3

Contrast of Old and New Premises
Underlying Quality High School Vocational Education

Old	New
High school vocational education should contain stand-alone programs which teach limited related academics (e.g., business math, and carpentry math) as well as highly specific occupational skills required for occupational preparation.	Vocational programs should be part of a total instructional program to prepare students for careers, and for continued learning in their careers. Therefore, the vocational instructor is part of an instructional team. All students should receive a quality academic education in addition to participating in vocational education.
Students should be prepared to enter specific occupations such as carpenter, secretary, or data entry technician.	Vocational education programs should focus on career majors, which include sets of vocational courses, and academic courses related to clusters of occupations. Students should receive specialized occupational preparation after high school.
Vocational programs should focus on preparing people for occupations requiring less than a baccalaureate degree.	Vocational programs should focus on a wide range of career clusters and provide experiences for all students interested in entering skilled, technical, and professional occupations.
Vocational program success should be judged based on the number of people who go into the occupations for which they were trained directly after high school.	Vocational program success should be judged based on the number of students who find the programs helpful in preparing for occupations in a career major during and after high school.
Vocational programs should only be for students planning to directly enter the world of work.	Quality vocational education should be the center core of the program of studies for most students. It should provide a focal point for learning, which makes schooling relevant to their lives.
Vocational courses should focus on the technical tasks associated with occupations.	In addition to learning sample technical tasks, all students should be expected to master generalizable work skills (SCANS, 1991) and to have exploratory experiences outside of the schools related to their future goals.

(Abstracted from Bottoms, Pucel, & Phillips, 1997; Pucel, 1996)

educators who have operated successfully for years under what has been known as the "Smith Hughes" philosophy directed toward preparing high school students for direct entry into the work place.

Recognizing that some students will still want to be prepared for direct employment after high school, many states have adopted some type of post-secondary options program. These programs allow the few high school students who want specific occupational preparation to attend community or technical colleges as part of their high school programs to take courses aimed at specific occupational preparation.

Within this new view, high school vocational programs are no longer expected to provide specific occupational training. They are expected to provide students interested in a wide range of specific occupations related to an occupational cluster with representative career skills and activities related to that cluster. It is expected that students who take part in courses related to that cluster will be interested in a wide range of specific occupations.

Vocational courses within the new model will be expected to be part of career pathways or majors that include sets of academic and vocational courses. Those majors will not only address occupations considered to be of less than baccalaureate level, but they will address a wide array of careers throughout society. Tables 4 and 5 present sample career majors from a real high school curriculum. Notice that the career majors go beyond those typically thought of as vocational education in the past. One example is for an artistic, musical and literary major. This suggests that if vocational education is going to be the leader in providing career focused courses in the new high schools, it must broaden its view of the careers it addresses. Tables 6 and 7 present the types of careers individuals might be interested in who take part in those majors. Notice again that the careers include skilled, technical, and professional occupations.

Table 4

Sample Business, Managerial and Sales Major				
	Grade 9	**Grade 10**	**Grade 11**	**Grade 12**
Required Classes (academic core)	English 9 Civics (S) Physical Science Applied Math I, Alg. I or Geometry Phys. Education 9 Futures Prep (1 Qtr)	English 10 American History Biology Health (S) Phys. Education 10 Applied Math II, Alg. I, Geometry, or Alg. II	English 11 Social Problems (S) Geography (S)	English 12 Social Studies- Choices: Applied Economics (S) Current Affairs (S)
Career Core Electives	*Intro. To Business(S)	Intro. to Business(S) Exploring Health Occupations	Applied Math III, Alg I, Geometry, or Alg. II Computer Appl. Accounting I/II *Business Methods, Comm. & Tech. (S) Store Operations *Sm. Bus. Mgmt.(S) Medical Terminology	Computer Applications I/II *Business Law (S) Integrated *Business simulation Principles of Marketing I/II

(S) Semester Length * Required vocational courses

Table 5

Sample Artistic, Musical, & Literary Major				
	Grade 9	**Grade 10**	**Grade 11**	**Grade 12**
Required Classes (academic core)	English 9 Civics (S) Physical Science Applied Math I, Alg. I or Geometry Phys. Education 9 Futures Prep (1 Qtr)	English 10 American History Biology Health (S) Phys. Education 10 Applied Math II, Alg. I, Geometry, or Alg. II	English 11 Social Problems (S) Geography (S)	English 12 Social Studies- Choice
Career Core Electives	Drawing I/II (S) Basic Graphic Arts (S) Basic Photography (S) Choir Band	Drawing I/II (S) Individualized Art(S) Painting (S) Sculpture (S) Architectural Design I/II Basic/Adv. Graphic Arts (S) Basic/Adv. Photography (S) Choir Band Interior Design	Drawing I/II (S) Individualized Art(S) Painting (S) Sculpture (S) Architectural Design I/II Basic/Adv. Graphic Arts (S) Basic/Adv. Photography (S) Choir Band Interior Design	Drawing I/II (S) Individualized Art(S) Painting (S) Sculpture (S) Architectural Design I/II Basic/Adv. Graphic Arts (S) Basic/Adv. Photography (S) Choir Band Interior Design

(S) Semester Length

Table 6

Career Scope of a Business, Managerial and Sales Major

1-3 Year Community College/ Technical College Education	Four Year College Education
TYPICAL CAREERS	TYPICAL CAREERS
Administrative Assistant	Attorney
Advertising Specialist	Aviation Administrator
Assistant Buyer	Bank Officer
Associate Accountant	Business Teacher
Aviation Operator Specialist	City Manager
Bookkeeper	Claims Adjuster
Computer Graphic Specialist	Computer Programmer
Computer Operator	Accountant
Customer Service Rep.	Dietary Manager
Fashion Merchandiser	Editorial Assistant
Flight Attendant	Economist
General Office Clerk	Financial Manager
General Secretary	General Manager Hotel Manager
Hotel & Motel Management	Marketing Director
Income Tax Consultant	Media Director
Insurance Claims Specialist	Personnel Officer
Legal Secretary	Production Planner
Legal Assistant	Public Relations Specialist
Medical Record Technician	Real Estate Broker
Medical Secretary	Safety Inspector
Microcomputer Support and Network Admin.	Sales Manager
Office Administrator	Small Business Operator/Owner
Personnel Assistant	Stock Broker
Paralegal	Title Examiner
Postal Clerk	Urban Planner
Property Manager	Underwriter
Receptionist	Entrepreneur
Data processing	

Virginia Public Schools, Virginia, Minnesota

Table 7

Career Scope of a Arts and Communication Major

1-3 Year Community College/ Technical College Education	Four Year College Education
TYPICAL CAREERS	TYPICAL CAREERS
Audio Recording Specialist	Architect
Audio Visual Media Producer	Advertising/Public Relations
Broadcast Technician	Apparel Designer
Camera Operator	Artist
Commercial Photographer	Art Historian
Computer-Aided Designer	Broadcaster (Radio & TV)
Court Reporter	Choreographer

Color or Printing Press Operator	Columnist
Electronic Publisher	Commercial Artist
Film Maker	Copy Writer
Graphic Designer/Artist	Costume Designer
Jeweler	Creative Writer
Instrument Repairer	Dancer
Lighting Technician	Editor Education Administrator
Motion Picture Technician	Film Maker
Paralegal Assistant	Foreign Language Interpreter
Printer	Industrial Design
Radio and Television Broadcaster	Illustrator
Stage Manager	Interior Designer
Technical Artist	Journalist
Travel Agent	Media Specialist
Video Production Technician	Museum Curator
Visual Artist	Musician
Model	Philosopher
	Photojournalist
	Publisher
	Teacher
	Technical Writer Theater Arts: Actor, Actress, Director
	Sculptor Video Producer

Virginia Public Schools, Virginia, Minnesota

Implications for Research

The implications of these new visions for the American high school have profound implications for vocational education research. Almost all of the basic premises underlying what high school vocational education should be and do are in question. Therefore, if the role of research is to provide information, which can inform better decisions, vocational education research has the role of providing answers to questions such as those presented below.

- What are the new purposes of high school vocational education?
- How can vocational courses and programs be developed to accommodate all students interested in the wide variety of careers associated with a career major versus addressing those interested in preparation for direct employment in a specific occupation?

- What are realistic evaluation criteria for judging the success of vocational programs if the number of people who go directly into employment after high school is no longer the criterion?
- What is the unique content and role of vocational courses within a career major?
- How can community-based experiences be incorporated into all classes within a career major (e.g., School-to-Work)?
- What teacher education strategies are most effective in helping in-service teachers adopt a new vision of high school vocational education?
- How can instructors identify the career content to be included in their courses if the content base should no longer be identified from the analysis of a specific occupation?
- What should be the performance expectation for students within vocational courses if they are not expected to prepare for direct employment?
- How can instructors teach appropriate technical content while teaching general employment skills (SCANS), problem solving, interpersonal skills, etc?
- What is the desirable relationship between the academic instructors in a major and the career course instructors within the major?
- What should be the role of parents in assisting students with the development of a life-work plan and a program of studies?
- What should be the difference in the technical content of high school vocational courses versus post-high school courses?
- How can high school vocational courses, which are not focused on specific occupational preparation, be articulated with occupational preparation post-secondary programs (e.g, Tech Prep)?

The list of research questions could go on and on. However, it should be noted that most questions are not focused on how can we do what we have been doing in the past better. The questions are focused on how can we do the new things that should be done in order to implement the new vision of future high school vocational education. It seems quite clear that if vocational education can not adapt to the changes required by society, then it will be replaced by something that can. Vocational education researchers can and should be key players in helping the field adapt to the new requirements.

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