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ABSTRACT

A study was conducted to identify key long-term research areas for Nebraska's vocational education community. The Delphi survey technique was used with 22 Department of Education personnel, 18 of whom completed both rounds of the study. A 1-5 Likert rating scale was used to identify 23 research topics, which were thematically clustered into the following general areas for continued investigation: (1) programmatic issues, such as barriers to integration of vocational and academic education and apprenticeship linkages; (2) student-centered issues, such as impact of vocational student organization and vocational and academic education graduate follow-ups; (3) vocational education effectiveness and accountability, such as job-ready effectiveness of secondary vocational education (the most widely agreed-upon area in need of research attention) and accountability systems and models for vocational education; and (4) economics and economic development, such as education's impact on the economic base of Nebraska and education and industry partnerships in training employees. It was concluded that primary attention for research must focus on the procedures for delivery and outcomes of vocational education programs. (CML)

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Research Priorities for Research and Development:
Articulating Areas for Increased Investigative Attention

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Abstract

Vocational education as a field of study continues to face a number of challenges for research and development. While federal mandates once provided for research coordinating units, nearly all states have now ceased to provide central coordination for research projects. From 1984 until 1993, the Nebraska Department of Education maintained a Research and Development Unit for Vocational Education (RDU) to assist in research coordination and provide technical and supportive assistance to the state department of education and local education service units. The RDU was commissioned to identify key research areas that would comprise a tentative long-term research agenda for the state's vocational education community. Utilizing the Delphi survey technique and a sample of Nebraska Department of Education personnel, 23 research topics were identified for further exploration. The 23 research areas were thematically clustered into four general areas for continued investigation: programmatic issues, student centered issues, vocational education effectiveness and accountability, and economics and economic development.

Research and development programs for vocational education have resulted in numerous advances for the entire formal and non-formal education-related community. In efforts to promote vocational and technical education, dramatic successes have been made in technologically advanced and simulated instruction, research methodologies, teaching techniques, and so on. With

continued pressure from state and federal agencies, research into the working and paradigms of applied education have become somewhat limited and narrowly defined along programmatic funding guidelines. Indeed, attention to research areas that resemble a theoretical or conceptual approach as well as practical guiding action research has, and continues to be limited (Miller, Edmunds, & Mahler, 1992; Rojewski, 1990).

In response to the passage of the 1990 Carl Perkins Vocational Education Act and Amendments, the Nebraska Department of Education staff requested an initial investigation into perceived research needs for state department attention. As a result, this investigation was conducted to identify the primary perceived research needs for the Research and Development Unit for Vocational Education, the external research branch of the Nebraska Department of Education. In particular, the investigation was intended to provide a conceptual framework for the development of a long-term RDU research agenda.

Background of the RDU

In the 1968 federal vocational education legislation, "Perkins I," each state receiving federal funding was required to establish a Research Coordinating Unit for Vocational Education (RCUVE). These Units had several responsibilities, including the administration of career information components and programs and the coordination of various state and federally funded research projects.

The 1984 reauthorization of the Perkins Act dissolved federal mandates for statewide research coordination. Several state departments of education, the bodies responsible for the administration of federal funds, maintained coordinating units as research bodies and external evaluators and assessors of vocational education programs. After careful examination, the Nebraska Department of Education authorized the dissolution of the RCUVE and in its place created the Nebraska Research Development Unit for Vocational Education (RDU).

As the effort to continue coordination of vocational education and training programs continued, the RDU was fashioned around a tripartited mission: service to the Nebraska Department of Education and corresponding educational agencies for both general and specific research and development; coordination of select job training programs, namely short term customized training based on skill acquisition; and the coordination, evaluation, and support for community and technical college vocational program improvement.

Methods

A number of acceptable social science research methods were appropriate for this investigation. There existed a need, however, to provide an equal voice and an equality of participation to all sample participants regardless of rank or formal responsibilities within the Department of Education. With this need in mind, the Delphi survey technique was selected for use.

The Delphi survey technique, in addition to providing an equal voice in determining the outcomes of the investigation, has three primary advantages driving its selection as the appropriate research methodology. First, the technique allows for critical reflection on topics identified. Second, the method is designed to allow for changing thoughts and priorities based on the ratings of statements by others. And third, the technique provides for anonymity in the identification and drafting of research items. In all, the procedure allows for learned individuals to express their beliefs and prioritize these beliefs through a set of sequential questionnaire (Borg & Gall, 1983; Rojewski, 1990; Sackman, 1975). The technique is also especially appropriate for the development of priority listings or in the creation of a situational or contextual profile (Miller, et al, 1991).

The sample utilized in the study consisted of the 22 Nebraska Department of Education employees responsible for different academic or vocational education content areas which now compose the Division of Educational Services (formerly the Division of Vocational Education). The participants were selected based on their length of service and responsibilities in the statewide coordination of vocational education.

Results

Of the 22 state department employees originally identified, 18 individuals completed the first and second round of the study.

One of the original respondents did not complete the final round of the Delphi procedure (representing an 81% return rate for the first two rounds of the study, and a 77% response for the final round of the study).

The 18 respondents to the original questionnaire developed a listing of 34 possible research priorities for the RDU, but after checking for duplication and editing, 23 possible research topics remained to be rated. During the second and third round of the investigation respondents made 113 changes to their original ratings, averaging better than five changes per respondent.

In the final rating of the 23 statements identified, nine ($n=9$) were rated 4.0 or higher on the one-to-five Likert-scale used for rating. Nearly the same number ($n=8$) were rated between 3.5 and 3.99, five ($n=5$) were rated between 3.0 and 3.49, and one ($n=1$) was rated under 3.0

Findings

Research areas identified which achieved the highest level of consensus (see Table 1) were indicative of broader contextual or thematic categories which were further clarified in examining the remaining statements. The dominant or most agreed upon research areas were also representative of continued issues of concern in the field of vocational education. For example, job-ready effectiveness, economic impact of vocational training, student involvement, and perceptions of vocational education are all areas which have repeatedly been identified as of in need of

greater attention (Brock, 1992). Only the statement related to academic and vocational education was representative of the changes brought forth in Perkins II. Each of these areas, however, were representative of certain general topics: programmatic research issues, student centered research, effectiveness and accountability, and economics and economic development.

Programmatic issues: Eight different research topics were clustered under the heading of "programmatic" due to their similar nature. These eight statements averaged a mean rating of 3.68. Statements within their cluster included "barriers to the integration of vocational and academic education" (group mean 4.0), "integration of academic and vocational education" (4.0), "barriers to tech-prep programs" (3.8), "apprenticeship linkages" (3.8), "variations in the offering of and distribution of vocational education" (3.8), "impact of the Perkins legislation on transition programs" (3.5), "impact of the Perkins legislation on special populations" (3.3), and "approval and certification requirements" (3.3).

Student centered issues: Six statements developed by study participants dealt directly with vocational students and the impact of vocational education on students. The ratings of these statements, which ranged from 4.5 to 3.3, averaged 4.03. Statements in this cluster included "impact of vocational student organization involvement" (4.5), "vocational and academic education graduate follow-ups" (4.3), "student perceptions of

vocational education at all levels of education in Nebraska" (4.1), "long term impacts of vocational educated employees" (4.0), "data bases and models for vocational student information" (4.0), and "short term impacts of vocational educated employees" (3.3).

Effectiveness and accountability issues: Five statements identified by the sample all related to the effectiveness of vocational education and the accountability of vocational delivery and structure. These five statements had a group mean of 3.71, ranging from a high of 4.88 to a low of 2.7. Statements included "job ready effectiveness of secondary vocational education" (4.88), "accountability systems and models for vocational education" (3.8), "impact of vocational education organizations through consortia activities" (3.8), "modeling for work with special populations" (3.4), and "job placement" (2.7).

Economics and economic development issues: The fewest number of issues identified were clustered in the category of economics and economic development to reflect research needs relating to vocational education within the framework of economic considerations. These four statements had a group mean of 3.75, ranging from a high of 4.5 to a low of 3.1. Statements included: "educations impact on the economic base of Nebraska" (4.5), "education and industry partnerships in training employees" (3.9), "Nebraska's economic base" (3.5), and "job growth areas in Nebraska" (3.1).

Discussion

The research topics identified in this study provide both a framework for continued research and provide for an indication of state awareness and concerns amidst the changing face of vocational education. The framework for continued research is relatively self-evident, offering suggestions to guide endeavors for the Research and Development Unit along the lines of effectiveness, students, economics, and programs. Individual research areas were identified, naming job-ready effectiveness of secondary vocational programs as the most widely agreed upon area in need of research attention.

The second consequence of this research project was the realization that despite the radical changes brought forth in Perkins II, primary attention for research must focus on the procedures for delivery and outcomes of vocational education programs. Reference was made to Perkins II in several instances, yet they were tied ultimately to the effectiveness of the newly prescribed methods of and content of vocational education courses and programs.

The continued focus of vocational education research on traditional issues seems to indicate that the field of study will continue to be dynamic and self-supporting regardless of federal funding mandates. The power of federal funding programs, however, must continue to be studied and addressed through vocational sponsored research. Only through such research can the true directions of the content and delivery of vocational

education be realized.

While the Nebraska experience may be somewhat limited when compared to other more densely populated and industrial states, the issues identified here are real and indicative of current trends and thoughts in vocational education. As such, scholars and practitioners in all applied education programs must continue to work toward the perceived legitimization of vocational and technical education in all levels of formal education. The topics and themes identified here are merely the beginning for a more comprehensive national research agenda for vocational education which applies to the content, delivery, and state and national administration of programs. Only through the perseverance of scholars and practitioners, and state departments of education in researching the topics identified can the continued existence, sustenance, and success of formal vocational education be assured.

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Table 1.

Top Five Overall Research Areas By Mean

Research Area	Total Group Mean
Job-ready effectiveness of secondary vocational education	4.88
Impact of vocational student organization involvement	4.5
Education's impact on the economic base of Nebraska	4.5
Vocational and academic education graduate follow-ups	4.3
Student perceptions of vocational education at all levels of education in Nebraska	4.1

Table 2.

Programmatic Research Issues Identified By Sample

Research Issue	Group Mean
Barriers to the integration of vocational and academic education	4
Integration of academic and vocational education	4
Barriers to tech-prep programs	3.8
Apprenticeship linkages	3.8
Variations in the offering of and distribution of vocational education	3.8
Impact of the Perkins legislation on transition programs	3.5
Impact of the Perkins legislation on special populations	3.3
Approval and certification requirements	3.3

Table 3.

Student Centered Research Issues Identified By Sample

Research Issue	Group Mean
Impact of vocational student organization involvement	4.5
Vocational and academic education graduate follow-ups	4.3
Student perceptions of vocational education at all levels of education in Nebraska	4.1
Long term impacts of vocational educated employees	4
Data bases and models for vocational student information	4
Short term impacts of vocational educated employees	3.3

Table 4.

Effectiveness and Accountability Research Issues
Identified by Sample

Research Issues	Group Mean
Job ready effectiveness of secondary vocational education	4.88
Accountability systems and models for vocational education	3.8
Impact of vocational education organizations through consortia activities	3.8
Modeling for work with special populations	3.4
Job Placement	2.7

Table 5.

Economics and Economic Development Research
Issues Identified By Sample

Research Issue	Group Mean
Education's impact on the economic base of Nebraska	4.5
Education and industry partnerships in training employees	3.9
Nebraska's economic base	3.5
Job growth areas in Nebraska	3.1