

Promoting Rigorous Career and Technical Education Programs of Study

Evaluation Framework

Division of Academic and Technical Education
Office of Vocational and Adult Education
U.S. Department of Education

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Background

The *Promoting Rigorous Career and Technical Education Programs of Study* project is a four-year effort, sponsored by the U.S. Department of Education, Office of Vocational and Adult Education (OVAE), to promote and improve state and local development and implementation of high quality career and technical education programs of study (POS). Selected states will provide technical assistance to strengthen POS existing within participating Local Education Agencies (LEAs) and conduct an annual evaluation to assess the constancy of implementation and effectiveness of these programs.

The impetus for project work can be traced to the Carl D. Perkins Career and Technical Education Act of 2006 (*Perkins IV*), which requires that all local grantees offer at least one POS that:

- links secondary and postsecondary education,
- combines academic and technical education in a structured sequence of courses that progress from broad foundational skills to occupationally specific courses,
- offers students the opportunities to earn postsecondary credits for courses taken in high school, and
- leads to a postsecondary credential, certificate, or degree.

In January 2010, OVAE released a Program of Study Design Framework (Framework) defining 10 components that support the development and implementation of effective programs. States selected for project participation are expected to work with LEAs to strengthen weak Framework components within their identified POS during the first year of project involvement, and assess the outcomes of these transformed, rigorous POS in subsequent years.

Each state grantee must assemble at least three LEAs, including an urban, suburban, and rural community, where feasible, along with at least one partnering postsecondary institution (2-year or 4-year) per community. States must either have developed or approved valid and reliable technical skill assessments for the identified rigorous POS and commit to conducting an annual evaluation, using a self-assessment tool that aligns with the Framework components. Project sites also must use outcome data to assess the educational progress of students enrolled in the rigorous POS.

This background paper details the research questions underlying the proposed evaluation, outlines an evaluation framework for collecting research data, and summarizes the types of outcome data needed to perform the study.

Research Questions

The evaluation is intended to assess the effect of student participation in rigorous career and technical education POS that are of uniformly high quality. Project activities are intended to document the process that states and local partnerships are using to strengthen existing POS, their characteristics of implementation, and the outcomes associated with student participation and completion. Research questions include:

Design

- To what extent do rigorous POS within state grantees align with the identified Framework components (i.e., which components are weak or missing)?
- What types of technical assistance do states provide to help LEAs create rigorous POS and how effective are these supports?

Implementation

- How many students participate in rigorous POS within LEAs and partnering postsecondary institutions, and what are the characteristics of these programs and students?
- What is the constancy of implementation of rigorous POS over time?

Outcomes

- How do students participating in rigorous POS perform with respect to a set of identified evaluation measures?
- How do students participating in or completing rigorous POS perform compared to those not participating in such programs?
- How are student outcomes affected by the level and scope of POS implementation, based on LEAs use of the 10 Framework components?

Evaluation Framework

The rigorous POS evaluation will employ a quasi-experimental research design, using a comparison group of nonparticipants to assess the effect of student participation. Data collection will support multivariate analyses, where appropriate. Depending upon the availability of student data and program characteristics, it is possible that at least three types of investigations may be performed.

Historical Student Cohort

Prior to the reauthorization of *Perkins IV*, LEAs and postsecondary institutions in participating sites offered career and technical education course sequences, some of which were precursors to the rigorous POS proposed for this project. Where such coursework exists, it may be possible to go back in time to create a student cohort and matched comparison group to assess the in-school experiences and post-program outcomes of youth participating in these program sequences. Project evaluators would perform the following steps:

1. Review historical course offerings in participating LEAs and postsecondary institutions to identify career and technical education coursework that was subsequently classified as part of a rigorous POS sequence.
2. Retrospectively identify secondary students who achieved threshold levels of course credit in identified coursework, and a matched comparison group of students.
3. Assess program outcomes for the cohort of identified students using selected evaluation measures.

Analyses will be used to assess how the educational outcomes of students who participated in career and technical education programs compare to students who enrolled in an identified POS following the implementation of *Perkins IV*.

Baseline Student Cohort (Year 1)

Selected states will identify partnerships of LEAs and postsecondary institutions that have implemented or have the capacity to implement rigorous POS. States will provide technical assistance to these sites during the first project year (2010–11) to strengthen weak Framework components or incorporate components that are missing. Student participants and nonparticipants in the identified POS will serve as a baseline for subsequent evaluation efforts.¹ Project evaluators will perform the following steps to conduct this analysis:

1. Identify secondary students who achieved threshold levels of course credits in the identified POS, and a comparison group of nonparticipating students.
2. Assess the rigor of identified POS to determine the number and quality of Framework components evidenced in the program.
3. Assess post-program outcomes for the cohort of identified students using selected achievement and program outcome measures.

¹ Appropriate nonparticipant groups will be identified in consultation with the participating school districts; they may be nonparticipants within the same high school, at other high schools in the same (or a nearby) district, depending on data availability. Similar consultations will need to be made with institutions of postsecondary education.

This will permit researchers to establish a baseline population of students participating in POS prior to the rigorous POS implementation. Analyses will assess outcomes for students participating in POS of differing levels of program quality (i.e., with weak or missing Framework components), as well as to assess how these students perform compared to the identified comparison group.²

Treatment Student Cohort (Years 2+)

By the start of the second academic year, participating LEAs will have implemented rigorous POS that have some or all of the 10 Framework components in place. Students participating in these transformed POS will serve as the treatment group for subsequent evaluation efforts. Evaluation activities in years 2 through 4 of the project will proceed as follows:

1. Identify students who achieved threshold levels of secondary course credits and students participating in the aligned postsecondary component of identified POS, along with a comparison group of nonparticipating students at the secondary and postsecondary education levels.
2. Assess post-program outcomes for the cohort of identified students in program year 3, using selected evaluation measures.
3. Repeat in years 3 and 4.

Researchers will use this approach to assess the outcomes of students participating in rigorous POS in successive treatment years, as well as against those participating in the base year and, where data permit, prior to POS development. It will also support comparisons of the experiences of students participating in rigorous POS with nonparticipants.

Evaluation data

Each site will be asked to provide researchers with access to individual student record data contained within state or district data systems. This includes information for students participating in and/or completing a rigorous POS, as well as for a comparison group of nonparticipants. Participants also will be asked to supply researchers with information on the postsecondary educational and employment experiences of students participating in or completing an identified rigorous POS, as well as a comparison group of nonparticipating stu-

² Given that some states already have implemented POS that have possess many of the components of a rigorous POS, identifying measureable differences in programmatic outcomes may be difficult. For this reason, assessing the rigor of identified POS and the type and scope of component implementation will be of high importance.

dents³. For the purposes of this evaluation, researchers will use the following student definitions:

Secondary Component⁴

Secondary programs include the three LEAs identified by the state as participating in the rigorous POS project.

Participant

- A CTE participant who has earned one (1) or more credits in the state-approved POS identified for this evaluation

Concentrator

- A CTE concentrator who has earned three (3) or more credits in the state-approved POS identified for this evaluation

Completer

- A CTE concentrator who graduated from high school after completing all of the academic and technical coursework stipulated in the secondary course sequence for the state-approved POS identified for this evaluation

Postsecondary Component⁵

Postsecondary rigorous POS include those that are identified by the state as aligned with secondary rigorous POS proposed for this project.

Participant

- A CTE participant who, following their postsecondary enrollment, has earned one (1) or more credits in the state-approved POS identified for this evaluation

Concentrator

- A CTE participant who completes at least one-third of the academic and/or technical hours in the state approved POS identified for this evaluation

Completer

³ Research team members will work with states agencies, LEAs, and postsecondary institutions, as necessary, to ensure access to individual student records while maintaining student confidentiality.

⁴ The definitions of a CTE participant and concentrator reference those released by OVAE in its non-regulatory guidance. Copies may be downloaded by access the “Student Definitions and Measurement Approaches for the Core Indicators of Performance line at:

<http://cte.ed.gov/perkinsimplementation/nrg.cfm>

⁵ See preceding footnote for information regarding postsecondary participant and concentrator definitions.

- A CTE concentrator who earned a postsecondary credential, certificate, or associate's degree after completing both the secondary and postsecondary components of a state approved POS identified for this evaluation

Identifying Student Populations

Outcomes for students participating in and/or completing a rigorous POS will be compared to those not involved in such programs to assess whether, and if so, how much benefit these programs confer. This will require that LEAs and postsecondary institutions maintain longitudinal, individual student record systems that contain extensive student and program data. Possible data elements for the study include:⁶

Student Level

- Age
- Gender
- Race/ethnicity
- Socioeconomic status (e.g., free/reduced price lunch; Pell grant recipient)
- Secondary academic and CTE course taking data (e.g., number and type of courses completed, participation and completion of courses identified as part of a rigorous POS)
- Ability (e.g., grades, scores on state secondary academic assessment)
- Engagement (e.g., attendance)
- Parenting and/or marital status
- Participation in other educational support programs or student organizations (e.g., academic tutoring, special programs, CTSO)
- Part-time or full-time enrollment (for postsecondary education)

Program or School Level

- Description of POS cluster
- Number of program or school enrollments

⁶ Note that not all of the data elements listed are required for study conduct. It is anticipated that the research team will consult with state agency, LEA, and postsecondary institution staff to assess data availability.

- Secondary teacher credentials, training, and professional development (e.g., highest degree attained, years of experience in industry or teaching, type of credential, participation in rigorous POS training)
- Use and site commitment to the rigorous POS framework⁷
- Program environment (e.g., comprehensive high school, area career center, community college, or technical college)

Community Characteristics

- Distance between high schools and colleges
- Local/regional economic conditions (e.g., local per capita income levels or unemployment rates)

Measuring Student and Program Outcomes

The evaluation will use student outcome data to assess the progress of students enrolled in each selected POS relative to a comparison group of nonparticipants. Outcome measures may include the following:

Secondary Component

- Secondary school graduation
- Technical skill attainment⁸
- Number of postsecondary credits earned in the rigorous POS during high school⁹
- Enrollment in postsecondary education
- Enrollment in postsecondary education in a field or major related to the secondary POS
- High school academic achievement (e.g., GPA or score on HS exit exam, etc.)

⁷ Collecting site commitment to the rigorous POS model will be initially determined through site visits to participating agencies; subsequent measurements may be conducted through a survey or other effort.

⁸ Researchers will work with state administrators and LEA staff to determine if comparable assessments for non-rigorous POS students exist.

⁹ Since postsecondary credits awarded in high school may not be recognized by some postsecondary institutions, the research team will consult with states to differentiate between postsecondary credits awarded and those that are transcribed.

- Highest math level achieved
- Total credits earned
- Certification or credential earned

Postsecondary Component

- Need for developmental or remedial coursework in postsecondary education
- Postsecondary credential, certificate, or diploma attainment
- Transfer from postsecondary to advanced education or training

Other

- Full-time or part-time employment
- Military enlistment
- Apprenticeship