RECOMMENDATIONS TO IMPROVE THE COLLECTION AND REPORTING OF PERKINS DATA IN MAINE

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BACKGROUND

To support states in improving the quality of their Perkins accountability data, in March 2005 the Office of Vocational and Adult Education (OVAE), US Department of Education, invited State Directors of Vocational Education to submit requests for individualized technical assistance. In response, the Maine Department of Education (MDE) submitted an application seeking support in collecting data on student transitions from secondary to postsecondary education and the military (3S1), and for selected subpopulations of students that are difficult to identify and track.

The state currently has a very small number of staff in its Career Technical Education (CTE) division, with only one person assigned to collect and report district Perkins data. During project planning discussions with Yvonne Davis, State Director of Career and Technical Education, MPR researchers proposed reviewing strategies that the MDE may wish to consider to improve its existing Perkins measures in the following areas:

- ✓ Tracking students transitioning to postsecondary education, employment, or the military
- ✓ Gathering placement data for students who do not self-report a SSN
- ✓ Support in reviewing non-traditional student data
- ✓ Support in clarifying data on Tech Prep students
- ✓ Support in gathering data on adult learners

This report summarizes MPR researchers' review of the literature and state reporting approaches, and provides recommendations to assist the MDE in improving the validity and reliability of secondary and postsecondary CTE data.

PLACEMENT INTO POSTSECONDARY EDUCATION, EMPLOYMENT, OR THE MILITARY

The MDE collects placement data on students who self-report a Social Security Number (SSN) and who transition into the state community college or technical college system, but is unable to track students who attend a four-year in-state college or postsecondary out-of-state institution. Administrators are also unable to track students who leave the state to find employment, who enter federal employment, or who enlist in the military.

Since SSN disclosure is voluntary, the state is able to collect SSN only for those students who voluntary disclosure their number. Although reporting rates vary across years, on average, the state collects valid SSN for approximately two-thirds of all secondary students. The state also assigns a unique statewide student identifier to public K–12 students, although this number is not currently incorporated into postsecondary institutional databases.

Recommendation: Develop data sharing agreements with in-state postsecondary institutions

MPR recommends that MDE leadership negotiate with administrators in the University of Maine and the Maine Maritime Academy system offices to assess the potential for conducting interagency administrative record matches between secondary and postsecondary data systems. The state may also seek to develop interagency agreements with representatives of each of the private colleges and universities operating within the state to track students who transition from secondary education to an in-state, privately-operated postsecondary institution.

Option 1: Incorporate the unique statewide identifier into in-state postsecondary databases

MPR recommends that MDE collaborate with postsecondary educators to incorporate the statewide student identifier assigned to all public K–12 students into postsecondary education databases. Some options for communicating this number between education sectors could include incorporating the identifier as a field in students' secondary transcript, (2) providing students with a hardcopy record of their state identifier at the time they receive their HS diploma, or (3) having postsecondary colleges and universities collect and verify students' identifier at the time of matriculation, either using documentation supplied students or by contacting students' secondary school.

Incorporating state identifiers into postsecondary information systems would enable the MDE to automate state reporting of CTE concentrators enrolling in state postsecondary institutions. Each year, MDE administrators would generate a list of student identifiers for graduating CTE concentrators. This list, in turn, would be run against postsecondary system office records to identify students with matching identifiers that enrolled within a given time period, for example by January of the year following their high school graduation. Since this approach would only capture students who enrolled in an in-state postsecondary institution, the MDE would still

need to perform survey follow-up to collect information on students enrolling in out-of-state institutions, entering the workforce, or entering the military or other federal employment.

Option 2: Conduct probabilistic matching of secondary and in-state postsecondary student records

If MDE administrators are unable to incorporate students' unique statewide student identifier into postsecondary record systems, the state will need some way to collect placement data for students who are missing SSN. Accordingly, MDE administrators may wish to assess the potential for using directory information to match student records across educational sectors. As defined by FERPA, this information may include

- Student's name
- Participation in officially recognized activities and sports
- Address
- Telephone listing
- Weight and height of members of athletic teams
- Electronic mail address
- Photograph
- Degrees, honors, and awards received
- Date and place of birth
- Major field of study
- Dates of attendance
- Grade level
- The most recent educational agency or institution attended

One advantage of this approach is that it can be performed using existing publicly accessible student data already contained within state secondary and postsecondary data systems.

Here, state secondary and postsecondary administrators would attempt to match unique combinations of CTE concentrators' directory information with that contained in postsecondary data systems, controlling for students who enrolled within a specified period following high school graduation. For example, MDE administrators could seek to identify secondary CTE concentrators who graduated in June 2005 and who subsequently enrolled by January 2006 in a Maine community or technical college, or public or private college or university—using students' name, birth date, and school of attendance to generate matches.

See Appendix A for a copy of *Statewide Student Identifier Systems: A Best Practices Paper by ESP Solutions Group* for a detailed discussion of the details of this match procedure and other issues related to assigning a unique identifier to students.

Recommendation: Consider tracking CTE concentrators who enroll in out-of-state institutions

Given that some students choose to attend an out-of-state postsecondary institution, the MDE may wish to track students who migrate outside state borders. To do so, MDE administrators should consider joining the National Student Clearinghouse, located in Herndon, Virginia. Clearinghouse data are used to verify enrollments of

student loan recipients who defer pay back obligations, and the database includes information on approximately 85% of the nation's postsecondary enrollments. Contact the National Student Clearinghouse at 703-742-4200 for more information on system services. See Appendix B for a copy of the agreement that Florida used to set up its administrative matching program with the National Clearinghouse.

Since this is a fee-based service that requires the use of students' SSN, MPR recommends that the MDE first conduct a feasibility study to assess the relative number of students who leave the state to attend postsecondary education, as well as the number of these students for whom valid SSN exist.

Alternatively, if a large proportion of Maine's CTE concentrators attend public institutions in nearby states, MDE administrators could explore developing inter-agency agreements with neighboring postsecondary system offices to conduct administrative matches. Since a review of the literature suggests that this approach is not currently being used in other states, presumably due to privacy issues surrounding the sharing of students' SSN numbers across states, MDE administrators might wish to consult with OVAE staff, state legal experts, and system administrators in neighboring states to assess the feasibility of this approach.

MDE administrators may wish to explore the feasibility of developing data-sharing relationships with individual, out-of-state technical colleges or other public or private institutions that regularly enroll Maine CTE concentrator graduates. Due to the level of effort required to collect data from individual institutions, MPR cautions against using this approach unless a substantial number of students who possess valid SSN are known to enroll in identified institutions on an annual basis.

Recommendation: Consider entering into data sharing agreements with neighboring states and federal agencies to track student employment and military enlistment

To track students who find out-of-state employment, MDE administrators might wish to consult with Perkins administrators in states that have developed interstate record-sharing agreements. For example, Ohio has a multi-state agreement with several bordering states governing the exchange of UI wage record data. Contact Douglas Holmes, Department of Job and Family Service at 614-644-9178 to obtain a copy of the Memorandum of Understanding and contractual agreements underlying this exchange effort. Similarly, the Maryland Department of Labor, Licensing and Regulation currently shares quarterly UI wage record data with Delaware, the District of Columbia, Pennsylvania, Virginia and West Virginia. Contact Susan Bass 410-767-2468, Legislative Liaison Division of Unemployment Insurance, Maryland Department of Labor, for more information on this effort.

If conditions warrant, MDE administrators may also wish to explore conducting administrative record matches with federal employment and military databases. For example, both Illinois and Florida have successfully negotiated record matching agreements with different federal agencies, including the Office of Personnel Management (OPM), the US Postal Service (USPS), and the Department of Defense (DOD). See Appendix C

for an example of a data sharing agreement between the Illinois Department of Education and the federal OPM, and for an agreement between the Florida Department Education and the USPS.

For more information on developing a data sharing agreement with the U.S. military, contact Mike Dove of the Defense Manpower Data Center, DOD Center Monterey Bay, 400 Gigling Road, Seaside CA 93955-6771 or e-mail the center at: webmaster@osd.pentagon.mil. Note that while administrative record matching with the USPS and DOD can be made free of charge, matching with the OPM will involve a small fee, usually about $1,000 according to Jay Pfeiffer of the Florida Department of Education.

Prior to moving in this direction, MDE administrators may wish to assess the relative number of Maine CTE concentrators who seek federal employment or military enlistment. It may be that the cost and administrative time required to establish data sharing relationships and track students over time do not justify state investment.

STUDENTS LACKING A SSN

To track secondary and postsecondary CTE concentrators transitioning into employment, the MDE currently conducts administrative record matching using UI wage records maintained by the Maine Department of Labor. The state is also in the process of developing follow-up survey tools to improve the tracking of students who do not provide a SSN or who are employed out of state.

Recommendation: Improve state collection of SSN

Although the MDE is successful in collecting SSN for roughly two-thirds of all secondary students, reports from administrators in other states suggest that school staff do not always understand state law governing the collection of SSN. To clarify allowable practices, the MDE may wish to draft policy guidance and examples of data collection instruments to assist school district administrators in understanding what is and is not permissible with respect to collecting student SSN.

Recommendation: Consider conducting electronic, web-based surveys of student placement

Traditional mail surveys can be expensive to administer and analyze, and frequently produce low response rates that invalidate study findings. To reduce state cost and data burden associated with surveying students, MPR recommends that the MDE consider adopting a web-based survey instrument that can be completed on-line by CTE concentrators. To do so, the MDE could either develop its own website devoted to Perkins follow-up, or for a potentially more cost-effective approach, subcontract with a commercial vendor who specializes in on-line survey administration. (See for example: www.surveymonkey.com or http://www.zoomerang.com.)

Given the low cost associated with subcontracting for on-line survey administration—a one-year subscription to Zoomerang costs just $350 for unlimited usage—it is likely the state would realize substantial cost savings in reduced postage and MDE staff time otherwise dedicated to key-entering student responses. Moreover, since survey information would be entered on-line into an electronic database, state administrators could add additional survey questions without increasing the cost of administration. Direct data entry would also reduce the potential for transcription errors associated with manually converting paper-based responses into electronic formats.

Survey work would begin with MDE staff identifying CTE concentrators who gradated in the current academic year and for whom postsecondary placement data were unavailable. State or district administrators would print out mailing labels for CTE concentrators, attach these labels to postcards directing recipients to the state website, and mail out the cards during a state specified time interval. To increase response rates, the MDE could offer incentives to students who log on to complete a survey, such as gift certificates donated by local restaurants.

NON-TRADITIONAL STUDENTS

Maine administrators have difficulty tracking student participation in and completion of CTE programs non-traditional for their gender, as well as in helping district staff make performance gains on state measures. Moreover, the reliability of state nontraditional data is unknown, since local educators make their own determination on what constitutes a non-traditional program in their district.

Recommendation: Clarify key terminology and measure construction

Improving reporting on students participating in coursework non-traditional for their gender begins with clarifying reporting expectations for local education agencies. To support states in constructing their Perkins measures, in 2001 OVAE developed and disseminated a core indicator handbook, which provided a description of measurement objectives for each core indicator, examples of measure construction, definitions of key terminology, a summary of data quality challenges, and answers to frequently asked questions. MPR recommends that the MDE adapt the content of this technical assistance handbook to reflect current state measurement approaches, and that the state disseminate the handbook statewide to support educators in collecting local data. A copy of the OVAE measurement guidebook is included in Appendix D.

Recommendation: Identify qualifying nontraditional coursework

To assist local agencies in identifying coursework, some states have developed crosswalks that link non-traditional occupations to CTE programs and/or coursework using Classification of Instructional Programs (CIP) codes. Other states have simply listed secondary and postsecondary programs that prepare students for

occupations that are currently identified as out-of-gender balance (see Appendix E for an example of a secondary and postsecondary crosswalk developed by the Massachusetts Department of Education). MPR recommends that state administrators identify occupations that are out of gender balance in Maine, crosswalk these occupations with CIP codes of CTE programs that prepare students for employment in these fields, and disseminate this list to districts to standardize statewide reporting.

Recommendation: Provide technical assistance to assist local educators in improving student performance

As part of its Program Quality Initiative, OVAE sponsored a research initiative to identify root causes that affect student performance on each Perkins core indicator, along with intervention strategies that, the research suggests, are effective in changing student outcomes. This document, entitled *Research on Causes and Improvement Strategies for Perkins III Core Indicators: Example Models and Research Results* can provide a starting point for state and local administrators seeking to understand the persistence of nontraditional occupations in our society. A copy of the report can be downloaded from the OVAE Peer Collaborative Resource Network at: http://www.edcountability.net/downloads/LITERATURE_REVIEW.DOC

State administrators may also wish to consult a review of the literature on non-traditional programs, developed by MPR for the Massachusetts Department of Education, which explores how educational services are offered in other states. State and local practices for improving services that appear promising, but lack scientific evidence to demonstrate their effectiveness are also described (see Appendix F).

Recommendation: Analyze state data to identify effective programs and those in need of improvement

Ultimately, MDE staff should take responsibility for reviewing the status of nontraditional program services within the state and take steps to improve local performance. To gain perspective on district operations, MDE staff may wish to conduct a detailed analysis of statewide CTE data to identify local agencies that appear to be making substantial progress in improving student participation and completion in programs nontraditional for their gender, as well as local agencies that warrant additional support.

As a starting point, MPR recommends that MDE staff review the report *Nontraditional by Gender—Career and Technical Education Program Study* developed by MPR researchers for the Massachusetts Department of Education (See Appendix G). This summary report was used by Massachusetts CTE administrators to identify programs that appear to be effective in encouraging student participation and completion of nontraditional CTE programs, controlling for geographic and economic factors that can affect students' enrollment and persistence. MDE administrators may use this report to gain an understanding of issues underlying the analysis of state Perkins data, as well as to identify strategies for analyzing their existing state data.

MPR also recommends that MDE staff contact Karen DeCoster, Educational Specialist, Massachusetts Department of Education, Career and Technical Education Unit, to obtain more detailed information on issues underlying the analysis of state data on nontraditional CTE students. Phone: 781-338-3115 or e-mail to: kdeCoster@doe.mass.edu

TECH PREP STUDENTS

Like many states, MDE administrators have difficulty distinguishing Tech Prep students from non-Tech Prep students who are participating in postsecondary CTE courses articulated with secondary vocational programs. Moreover, since secondary students do not always know that they are classified as a Tech Prep student, matriculates are generally not able to self-identify themselves upon entering a community college.

Recommendation: Provide local administrators with strategies to identify Tech Prep Students

The state has a number of options to improve the identification of Tech Prep students.

Option 1: Maintain a Centralized Tech Prep Database

Secondary institutions could forward identifiers of students participating in secondary Tech Prep programs to the MDE, which would maintain a Tech Prep database. These identifiers could include students' SSN, statewide identifier, or unique identifying characteristics, such as students' first name, last name, birth date, and school of attendance. Each postsecondary institution in the state could then either receive a file containing this information, against which they would conduct their own administrative record matches, or forward a file to the state containing identifiers of students participating in postsecondary Tech Prep programs. This would support tracking students who transition from a secondary to a postsecondary Tech Prep program for which a specific pathway exists, as well as for students who enroll in Tech Prep coursework at a non-affiliated community college. One drawback of this approach is that it requires the state to maintain and administer a Tech Prep database, which may be resource intensive.

Option 2: Conduct Retrospective Matching

The state may wish to work with secondary and/or postsecondary educators to standardize procedures for tracking Tech Prep students as they transition across sectors. One approach, currently used in California, would be for postsecondary institutional researchers to identify students participating in postsecondary CTE programs who were graduates of a high school with an affiliated Tech Prep pathway. Students enrolled in these postsecondary programs—either one or two years after graduating from their feeder high school—would automatically be classified as a Tech Prep student.

To reduce the probability of reporting false positives (i.e., students who attended a feeder high school but who were not enrolled in a Tech Prep pathway), postsecondary institutions could share a list of their identified Tech Prep students with their feeder high schools, who would confirm or deny student participation. See Appendix H for a copy of California's State Plan for Vocational and Technical Education, which details the state's tracking approach.

Option 3: Coordinate Secondary and Postsecondary Reporting

A third option would be to require secondary educators to forward the identifiers of secondary Tech Prep students to their affiliated postsecondary institutions. Postsecondary institutional researchers would then attempt to match secondary student identifiers with those of postsecondary students enrolled in a recognized Tech Prep pathway, either using students' SSN, statewide student identifier, or by performing probabilistic matching using a combination of student identifiers (e.g., name, birthday, school).

Option 4: Provide Tech Prep Students with a Portable Transcript

Rather than rely on secondary or postsecondary administrators to identify Tech Prep students, Nevada relies on students to self-identify by attaching fiscal incentives to completion of a secondary Tech Prep program. Nevada high school students who complete an approved Tech Prep sequence with a grade of an "A" or "B" can apply for a specialized high school transcript that, when presented at a participating community college, automatically provides them with college credit. Colleges use these transcripts as a way of identifying Tech Prep students for postsecondary Perkins follow-up. While the system is not perfect—it is estimated that only 50 percent of eligible students in Nevada apply for a Tech Prep transcript—some postsecondary schools report that as many as 90 percent of students entering eligible coursework present a secondary transcript. For more information on the Nevada model, contact John Bearce of the Community College of Southern Nevada by phone at 702-651-7454 or by e-mail: john_bearce@ccsn.edu

State administrators may also wish to access the Tech Prep Compendium maintained on the website of the Office of Community College Research and Leadership, affiliated with the College of Education at the University of Illinois at Urbana-Champaign, for additional resources on identifying and tracking Tech Prep students across secondary and postsecondary sectors: http://occrl.ed.uiuc.edu/

ADULT LEARNERS

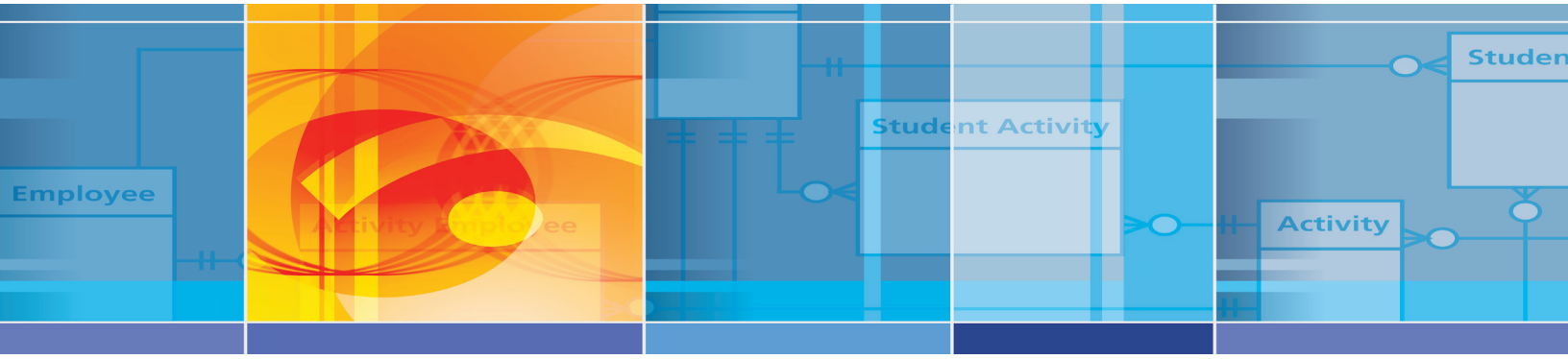
Maine is currently unable to report data on adult learners participating in vocational education programs. The state is requesting support in identifying strategies for collecting and reporting data on adult learners.

Recommendation: Create data collection tools targeting adult learners

Eight states are currently reporting performance outcomes of adults participating in vocational education as part of their federal Consolidated Annual Performance, Accountability, and Financial Status Reporting (CAR) Instrument. These states include: California, Florida, Louisiana, Ohio, Oklahoma, Pennsylvania, Rhode Island, and Utah. To track adult student performance, each state has developed a unique set of measures for each core indicator. A description of measures and their construction for each state, for each core indicator, can be found in Appendix I.

Data collection procedures vary across states, depending upon the organization of adult education delivery systems and state and local agency reporting capacities. In California, for example, adult education services may be offered in comprehensive high schools or in specialized, Regional Occupational Centers and Programs (ROCPs), which provide career and workforce training to both high school students and adults. Each year, facilities serving adults must collect and report performance outcomes to the California Department of Education, using Perkins data collection instruments developed by the state. To ease reporting, the state has developed electronic forms that allows local agency staff to input annual data. A copy of the form and instructions can be found at: http://www.cde.ca.gov/ci/ct/pk/ Contact Al Tweltridge at the California Department of Education, Secondary, Postsecondary and Adult Leadership Division for more information on the state data collection effort at 916-327-5711 or at atweltri@cde.ca.gov

APPENDIX A: ESP SOLUTIONS, STATEWIDE STUDENT IDENTIFIER SYSTEMS PAPER



The Optimal Reference Guide

Statewide Student Identifier Systems

A Best Practices Paper by ESP Solutions Group

Glynn D. Ligon, Ph.D.
Barbara S. Clements, Ph.D.

ESP Solutions Group

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This ESP Solutions Group brief analyzes issues that states encounter when assigning unique statewide student identifiers. The community of state education agencies has become more enlightened about the breadth and complexity of these issues since the passage of the No Child Left Behind Act (NCLB). Although NCLB did not require statewide student identifiers, the mandated accountability systems and public reports are much more efficient to implement with a statewide individual student record system than with reports aggregated by schools and districts. To be functional, individual student record systems require unique student identifiers and a sophisticated system for assigning and maintaining them.

ESP Solutions Group's experts have been advising state education agencies for about 20 years. Before ESP was founded in 1993, Glynn Ligon was a district-level representative on an advisory group for the Texas Education Agency when their identifier system was created in the 80's. The first state that ESP Solutions Group consulted with on the creation of statewide student identifiers was Nevada in the mid-90's. Massachusetts, Mississippi, and New York followed with formal studies, recommendations, and designs. By the end of 2004, ESP Solutions Group will have directly advised 18 states related to student identifiers. Many other states have received less formal consulting from ESP Solutions Group through other activities and projects.

ESP Insight

Best practices for assigning statewide student identifiers continue to evolve across the states. However, the issues require state-specific solutions.

States without a student identifier are well positioned to learn from other states that have them.

States with an existing student identifier are constantly asking whether they need to make adjustments or convert to a new system. At times these questions are very quietly and carefully asked, because the legacy inherent in an existing system creates such a financial, political, and practical inertia that even raising the issue publicly is daunting. However, the benefits of converting to a more modern system are well worth the consideration.

Barbara Clements and Glynn Ligon have contributed over the years to NCES publications related to individual student record systems for states. A statewide student identifier is a crucial component of these systems. A copy of the latest NCES publication is available at:

> National Forum on Education Statistics. (2000). Building an Automated Statewide Student Record System, NCES 2000324. Washington, DC: U.S. Government Printing Office. [Available at http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000324]

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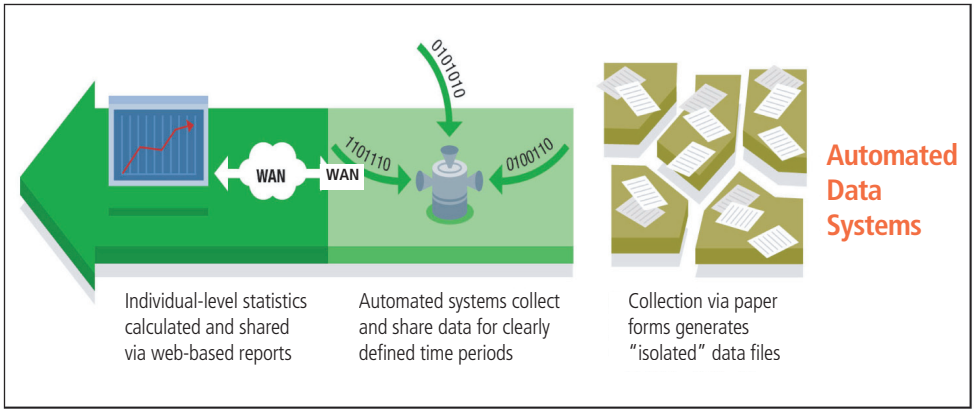
The Secretary of Education commissioned a white paper by Glynn Ligon for the No Child Left Behind Leadership Summit on Accountability and Assessment in March, 2004. The paper, A Technology Framework to Support Accountability and Assessment: How States Can Evaluate Their Status for No Child Left Behind, provided an overview of the components required for a states' education information system. A student Identifier is an advanced characteristic of the Automated Data Systems component described below.



Data will be collected, stored, and accessed using automated systems (e.g., directories, student/school management [student information system, SIS], discipline, program management, food services, transportation, library, finance, human resources, student performance [assessments], D3M [data driven decision making using a student support system], instructional management).

Component Automated Data Systems

Basic Implementation

- Paper forms are used to collect aggregate statistics. Forms converted to the web are not redesigned for efficiency. Validation of entries is minimal.
- "Stovepipe" data files are used.

Proficient Implementation

- Automated data systems collect and share the data efficiently.
- Collection systems are electronic, typically networked (on-line).
  - The periodicity (as-of dates and time periods represented) of the data are clear.
  - Longitudinal data points are available for describing trends.
  - Entries are verified and error messages provided.
- The systems and their data are interoperable (i.e., capable of moving from one system to another without translation).
- Permanent, unique identifiers are assigned to students and staff to ensure matching of records.

Advanced Implementation

- Individual student and staff records are exchanged with the state where statistics are calculated. Web-based reports provide reports to districts and schools.
- Programs and offices at the state level access the data they need and are authorized to use. Automated updates of their from schools and districts files occurs as data are verified

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Throughout this paper, the discussion focuses on the student identifier. However, as is evident in our analysis of issues, a fully functional student locator system makes the student identifier viable. Several states initiated the assignment of student identifiers by requiring schools and districts to make the assignments of identifiers and to manage the process of ensuring that students do not receive another one when those students move to another district within the state. Recently, states have concluded that the assignment process and the maintenance of identifiers is so complex and time sensitive that a web-based student locator system is required. These web-based systems allow a school or district to verify that a student already has an assigned identifier, and if not, to get one immediately.

Historical Context

The Migrant Student Record Transfer System (MSRTS) began assigning identifiers to student records 35 years ago. The identifiers were more successful than the overall system, which was abandoned in the 90's.

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The remaining states with a statewide collection of aggregate statistics rather than individual student records are seeing the need to assign unique student identifiers as a necessary first step toward a student record system.

Florida began the trend of collecting individual student records with unique identifiers in the 1980's. Texas followed. Both states initially used the Social Security Number. In 1997, Nevada became the last state to rely mainly upon Social Security Numbers. Since that time, no state has relied so heavily on the Social Security Number as its primary identifier. In 2004, a random number has replaced the SSN as the statewide identifier in Nevada.

New York's Legislature passed a restriction on the use of the Social Security Number (SSN) and the allocation of ranges of student identifier numbers to districts in 1991. In 2001, the New York State Education Department (NYSDE) found their need for a statewide student identifier system growing with the increasing demands for an accessible, centralized information source for decision making. Currently, NYSDE is planning and developing more automated information systems. These software applications envision information codified to save space and to allow for analysis of information across separate files. Although some extant information systems at the school and district levels may use only the student's name or a local identifier, those that anticipate linking to related information in other files, longitudinal comparisons, or efficient searching for records across districts require this common identifier system.

Wisconsin's SEA staff had concluded that statewide identifiers were useful many years before the political and practical context allowed them to be assigned. During an initial meeting with stakeholder groups in 2003, a lively discussion of issues ended with a consensus that everyone accepted the reality that identifiers are required, but they all wanted to have an active role in designing the policies and processes that would be followed. Assignment of identifiers began in 2004.

Iowa began collecting individual student records from volunteer districts well before implementing a statewide identifier in 2004. This allowed districts and schools to learn how to build and submit individual records and to conclude for themselves that a statewide identifier is worth the effort and that the benefits outweigh the potential problems. A case study of Iowa's process is presented later in this paper.

In Oklahoma, acceptance of their statewide identifier was earned through extensive discussions with both a politically astute steering committee and a technically savvy user working group. By the end of their requirements study, unanimous support had been built for the implementation of the identifier.

Each state has its story. The background information and advice in this paper reflect all of their experiences and approaches to a successful implementation.

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Legislative and parental demands for confidentiality are based upon the function of a student identifier as a key to view (or hack into) a student's record within any system containing personal information. In some states, the identifier contains imbedded information about the student; therefore, knowing the identifier also means a person might know the personal information imbedded.

Concerns about confidentiality of statewide identifiers and the personal data linked to them have been very persistent—appropriately so. The best perspective on these concerns is that major problems with confidentiality have not materialized across the many years and states with statewide identifiers. Confidentiality and security issues are discussed in this paper and in other references. Constant vigilance and careful planning are required to avoid problems.

The Family Education Rights and Privacy Act (FERPA) protects the confidentiality of personally identifiable information in a student's education record.

The identifiers perform a practical, technical function for the SEA. The identifier is the index used by software applications to find an individual student's record(s). In a relational database, the identifier links data about an individual student across separate tables.

With a student identifier assigned, is there a need to store a student's name in a database? Yes, every identifier needs to be verified. Verification requires other pieces of information to determine that the identifier is attached to the correct student's records. This verification does not have to occur within the main database or even within the SEA. For example, there must be a table that crosswalks the identifier to an encrypted identifier that is used more generally across applications. By using data elements such as name, birthdate, and gender the crosswalk, as well as the actual identifiers, can be verified.

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State education agencies must have in place policies to restrict access to student identifiers so that personally identifiable student information is not disclosed inappropriately.

Data Access and Use Policies

An SEA should not publish its technical design and internal processes for maintaining the physical security of its information systems—especially those containing personally identifiable data such as a student identifier. However, the policy and procedures related to data access and use should be published and available to all potential users of the data. A state's data access and use policy is one of the most customized and personal documents associated with a student identifier. Nebraska and Iowa represent the contrasts in contents and requirements that individual states must incorporate. Their documents, created in 2004, can provide an idea of what might be in a final policy, but each state will need to engage in a careful process of reviewing their own laws, regulations, and policies with appropriate stakeholders. (See Iowa Data Access and Use Policy, www.espsolutionsgroup.com/documents/iadataaccess.pdf and Nebraska Data Access and Use Policy, www.espsolutionsgroup.com/documents/nedataaccess.pdf, ESP Solutions Group, 2004.)

ESP Insight
The policy and procedures related to data access and use should be published and available to all potential users of the data.

ESP Solutions Group, along with individual SEAs, has crafted data access and use policies that reflect each state's laws, regulations, policies, and procedures. This process has involved a review of the state's laws and related documents, published procedure documents, and informal processes being followed. These have been related to the Family Educational Rights and Privacy (FERPA) requirements. The result has been a clear and precise document that specifies the conditions under which personally identifiable data, the student identifier and data linked to it, can be accessed and for what purposes.

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This policy and any related state legislation are crucial whenever student data are shared among state agencies.

Some of the key questions that should be addressed are:

- Who owns the data associated with the individual student record? For example, if a parent requests a copy of the data within the SEA's information system, can the parent be referred to the district which provided the data or must the data within the state's system be provided?
- Which data elements if any can be shared with other agencies, e.g., postsecondary institutions, law enforcement, other state agencies, etc.
- What data elements are defined as directory information as per FERPA?

Some states use encryption routines for the identifier when a student's record is brought into the SEA's database. This adds a level of confidentiality for internal agency users who have access to the records. When providing files for researchers, SEAs often encrypt the identifiers and remove names from student records. Data elements that identify students as members of small subgroups (e.g., fewer than 10 Asian students performing at the basic level on the state assessment within a school) are also suppressed. The SEAs maintain the encrypted numbers as well as the actual identifiers to allow matching of records across years.

The Nature of Statewide Student Identifiers

What are essential characteristics of a student identifier?

1. The identifier is a proxy for a student's name.

Some states prefer not to have a student's name in its databases for confidentiality reasons and to reduce the demands for files that might unintentionally disclose personally identifiable data. Some students' names change, the name components get abbreviated, or they are not reliably provided each time a student is registered. At times, when a document should not have a student's name showing, an identifier would be useful.

2. The identifier is unique, unchanged, and unduplicated.

Students move, change names, enter and exit different special programs, and an SEA's databases must be able to link a student's records across time, across files, and across schools. The identifier must be unique to identify one and only one student or records could be inappropriately combined for more than one student. The identifier must not be an alias because the student must have one and only one number, so all of the student's records can be linked into one physical or virtual set. The identifier must be permanent (unchanged) because changes in a student's identifier inhibit linking records. Permanent also means that the SEA or some state-level process must assign and maintain the identifier for each student. States that allow a parent to choose between using a Social Security Number or a state-assigned number must constantly manage changes in the parent's preference.

3. The identifier is ubiquitous while being undisclosed to unauthorized users.

All local and state records that share data must use the same identifier to create a virtual set of records for an individual student. Crosswalk tables can be used to translate the identifier used by one system to the identifier used by another; however, creating and maintaining crosswalk tables add complexity to information systems. This universal usage of the same identifier imposes a responsibility upon the SEA to manage and control access to and use of the identifiers.

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SEAs have adopted a wide variety of identifiers. There is a generally accepted best practice that says the SEA should assign its own identifier, not require (but allow) districts to use it within their local systems, but require that it appear on all state reports. The approaches most often considered by SEAs are categorized below along with an analysis of the advantages and disadvantages for each.

1. Use Locally Assigned Identifiers. This option allows each district (or school) to maintain currently assigned identifiers and potentially to assign new identifiers using whatever local process they choose.

Option 1.a. Districts and schools continue to assign and maintain identifiers as is current practice.

Option 1.b. The SEA collects pre-existing local identifiers in year one only, and then assigns all new numbers from the SEA system.

Option 1.c. The SEA adds a district identifier to the front of locally assigned identifiers to make them unique across the state.

Advantages: Local control is maintained. Districts and schools are not required to make changes in their local identifier system. Historical local files continue to be compatible with the identifiers. Dependent upon local processes in place, an identifier can be assigned at the time of registration for new students.

Disadvantages: Uniqueness across the state is not assured. Mobile students would receive a new identifier in each district/school. The formats and characteristics of local identifiers would have to be considered in the establishing of parameters for acceptable identifiers. SEA's central database design and the checking for aliases and duplications would be more complicated. 1.c might work with a district identifier added to the front of local identifiers to make them unique statewide. However, where the local identifiers are only unique within a school, both a district and a school identifier would have to be added. This has implications for the length of the identifier.

This strategy breaks down when students move from one district to another. Each district would have to accommodate the characteristics of other districts' identifiers or there would be aliases created in the assignment of numbers to individual students. The SEA would have to abandon uniqueness statewide to fully accommodate option 1.a.

Option 1.b would require the setting of criteria for a local identifier to be acceptable, e.g., no longer than the SEA identifier, same characteristics in regard to alpha, numeric, and special characters, etc. This might eliminate too many local identifiers from use.

Option 1.c. works only if receiving schools verify a prior identifier from a prior district rather than assigning a new local identifier. The addition of a three-character district identifier to the front may make the identifier longer than practical for some local student information systems.

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2. Create an Algorithm to Assign the Identifier. An algorithm could be devised that encrypts the student's name, birthdate, gender, place of birth, and possibly other data elements to create a unique combination. The algorithm could be secured to protect the contents of the identifier; however, the utility of using an algorithm is that someone at any level can generate the same identifier for a student if the personal characteristics are known.

Advantages: The algorithm could be distributed as a software application to registrars for use at the time of registration. Parents and students would not have to remember the identifier when they move, nor would registrars have to contact prior schools.

Disadvantages: The required length of the identifier to ensure uniqueness might be excessive. Students who have identical names and demographic characteristics would get the same identifier. Twins at times have the same names and identifying characteristics. Students who happen to get the same identifier upon their first registration will always get the same one generated by the algorithm, and will need resolution each time.

A hacker (an unscrupulous computer expert) might obtain or break the encryption routine.

Changes in names or mistakes in the entry of data elements used to run the algorithm would result in incorrect identifiers. Requiring the use of names, birthdates, etc. directly from an official birth certificate would be advisable.

Alternative: The algorithm could be used to "estimate" a mobile student's identifier. Some states use a sound/pronunciation approximater to generate possible matches of students in their databases. Then a manual process is used to make the final match.

3. Assign Identifiers Only at the State Level. The SEA could create a pool of valid and available identifiers, and students new to the state would be assigned a permanent identifier from the pool.

Option 3.a. A common statewide pool of numbers would be accessed to assign each new student an identifier.

Option 3.b. A block of identifiers from the state pool would be assigned to each local district. The district would manage the assignment process for new students.

Advantages: The SEA fully controls the characteristics of the identifiers. The validity of identifiers can be verified by the SEA. Uniqueness is assured within the pool of potential identifiers. Option 3.b. facilitates assignment of identifiers to new students at the time of registration. The identifier cannot be deciphered and directly linked to confidential data sources.

Disadvantages: Districts must rely upon the SEA for their identifiers. Access to their identifiers and the ability to assign them at registration will require sound management. This disadvantage has been effectively addressed in states using a web-based student locator system.

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4. Use a Pre-Existing Identifier. Every state has identifiers in use someplace. Within the SEA, special programs may use identifiers for their own purposes, e.g., special education, vocational education, early childhood, migrant education services, state assessments, etc. Other state agencies may be assigning identifiers to their clients, e.g., health services, Medicaid, drivers license bureau, etc.

Advantages: If an existing identifier system has the features and functions to meet the requirements set by the SEA for statewide implementation, then time and costs may be saved. Crosswalking across information systems and conversions to a new system would be simplified if existing identifiers are used.

Disadvantages: An existing identifier or system is unlikely to meet all the requirements for a statewide identifier because it was not designed with the same specifications. Making enhancements to an existing system may be more costly than implementing a new system. If the identifier is being assigned by another state agency, then aligning the requirements of the separate agencies will be necessary. FERPA requirements for example would need to be aligned with HIPPA requirements if the other agency manages health records.

5. Use the Student's Social Security Number (SSN). Use of the SSN as an identifier is legal and in practice in a number of states. With the requirement by the IRS for dependents to have an SSN, most students enter school with an SSN assigned. The use of the SSN for student identifiers has been a common practice by postsecondary institutions for decades, although some are moving away from this usage.

Option 4.a. Require the student's SSN to be provided at registration.

Option 4b. Encourage use of the SSN, but provide for an alternate identifier at the parent's request.

Option 4.c. Collect the SSN as a data element, but assign another identifier.

Advantages: The SSN is unique on a nationwide basis. The SSN is almost universal in its assignment in the U.S. The assignment and maintenance of the SSN system is handled by the federal government; thus, the burden of deter–mining an identifier and assigning it is avoided by SEA. With the SSN, the parent and student can assist in providing the identifier when transferring from one school to another. When students move across states, those states using the SSN can use it to verify records. Postsecondary institutions are assisted in their applications processes when secondary schools can provide the SSN on transcripts.

The SSN can be used to share information or conduct studies across agencies that use it. Some states exchange information about families across agencies to determine eligibility for services. For example, several states use the SSN and other family information to link across Aid to Families with Dependent Children and other public assistance files to establish a student's level of eligibility for the National School Lunch Program, to count the number of economically disadvantaged students to qualify a campus for Title I funding, and to establish a student's eligibility for vocational and job training programs.

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More controversial is the ability to exchange student information with law enforcement agencies such as the local police, juvenile justice system, or the Immigration and Naturalization Service. Confirmation of a student's identity and enrollment status can assist their investigations. At times, LEAs and SEAs are legally required to cooperate and provide information. Within that context, ensuring that the information provided actually belongs to the correct individual is crucial.

The SSN is useful when conducting former-student studies. Employers, the armed forces, and postsecondary institutions can use it to correctly match former students with their current employees or enrollees.

Disadvantages: Some parents are uncomfortable providing the SSN, others strongly oppose its use. A very small number of students will not have one. Parents have occasionally provided their own SSN for their children.

Because public education agencies cannot refuse services to students who refuse to provide their SSN, to use the SSN, the SEA would be obligated to provide an alternative identifier to parents or students who refuse to provide it. The requirement to design and implement an alternative identifier is equivalent to having two identifier systems in place. Students may move back and forth between the use of their SSN and their request for an alternative identifier. Tracking these changes in a longitudinal database is difficult.

In states using the SSN, an attorney general's opinion, legislative authority, or state board of education authority is typically secured first. Consideration of the SSN adds time and effort to the planning, review, and public comment process.

In contrast to a nominal identifier, the printing or display of the SSN on education documents demands a higher degree of diligence from everyone handling those documents. In fact, some state laws preclude the display of the SSN on student records.

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SEAs are well advised these days to avoid an over dependence on Social Security Numbers.

Our advice is to use a truly random or sequential number that has no imbedded meaning.

Schools and districts should be allowed to continue the use of locally assigned identifiers within their information systems.

The specific characteristics of the state's student identifier should be determined in a requirements study that considers all of the issues and options presented in this paper—within the state's unique context. ESP Solutions Group has conducted these studies for eight states, sowe understand the importance of building a clear consensus on the expectations, scope, and functions of a student locator system and a statewide student identifier.

Usage of the SSN varies from state to state. The following counts are based upon results from ESP Solutions Group's visits to every SEA in the summer of 2003 for the U.S. Department of Education's Performance Based Data Management Initiative (PBDMI).

- 5 SEAs use Social Security Number as their primary identifier: Arkansas, Florida, Nevada, Puerto Rico, and Texas. Georgia does not consider its Social Security Number as a statewide student identifier and is implementing a new student locator system in 2005.
- 13 of the 23 SEAs with student identifiers in 2003 did not collect the SSN.
- 10 of the 23 with student identifiers do collect the SSN.

Whenever emotionally charged issues can be avoided without significantly disabling the effectiveness of the statewide identifier, that is the recommended path. Because the SSN can be collected as an additional field in the SEA's information system, it is not essential to use it as the primary identifier. The ultimate argument against using the SSN is that an alternative identifier is required for students whose parents decline to provide it. Thus, two identifier systems must be maintained.

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Creating a pool of available numbers for each district can provide them the quickest assignment of a unique number to new students. However, this places a burden on the districts to maintain that uniqueness and to avoid assigning a new number to students transferring from other districts where they previously received a number. The ultimate solution with today's technology is to implement a web-based student locator system that allows schools and districts to search for previously assigned numbers for a student and to request immediate assignment of a number to a student who is new to the state.

The state identifier would be required whenever state reports are submitted, but the local identifier should be a field in each report for verification and linking back to local files as necessary.

For a state education agency (SEA) to assign an identifier to every student statewide, key issues must be identified and resolved. Fortunately, the experiences across many other states can be brought together to inform that decision-making process. This paper describes these issues, provides a discussion of options, and recommends a best-practice decision. The recommended decision is provided for consideration, not as a final decision for an individual state. Each state's unique context and history must be considered to ensure that this general recommendation fits. ESP Solutions Group has conducted many requirements studies with state education agencies during which careful consideration is given to all options by multiple stakeholder groups before a final decision is made by the state.

A statewide student identifier is a "number" assigned to each "student" in a state. Exactly what the definitions are for a number and for a student are among the determinations that must be made related to the issues detailed in this paper. States assign these identifiers because they are the most efficient way to manage individual student records in an automated information system. Data quality across data systems depends upon the accurate linking of records across sources and years. Identifiers are essential to that accurate linking. Confidentiality can be not only maintained but also enhanced using these identifiers when student names appear less frequently in records.

The student identifier must be:

- Unique (assigned to only one student),
- Unchanged (follows the student throughout the school years),
- Unduplicated (only one assigned per student),
- Undisclosed (provided only to authorized persons for authorized uses), and
- Ubiquitous (used by every SEA database/program).

Under these conditions, the SEA can collect and maintain individual student records with which to respond to changes and new information requirements such as those from the No Child Left Behind Act without passing a new burden on to schools and districts.

A glossary of terms is included at the end of this paper.

Why do states assign student identifiers?

- The full benefits of a student record system for state reporting cannot be realized without the assignment of statewide student identifiers.
- Confidentiality is enhanced by using a number in data files in lieu of a student's name.
- A permanent and unique student identifier is the most reliable and accurate way to link across years and different data files for analyses.
- A unique student identifier is the most efficient way to eliminate duplicate records to ensure a single student is counted only once for state funding and program evaluations.
- Statewide database systems run more efficiently using unique and unduplicated identifiers as keys for matching.

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The full benefits of a student record system for state reporting cannot be realized without the assignment of statewide student identifiers.

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What benefits come from having statewide student identifiers?

- The student identifier is the initial required component that enables the implementation of an individual student record system, which can reduce reporting burden on schools and districts, increase data quality, and shorten the cycle time for reporting information.
- Mobile students' education records can be transmitted electronically to allow prompt provision of services in a new school.
- Academic growth can be measured across time to evaluate the effectiveness of schools and programs for students.
- Data driven decision making (D3M) supported through the implementation of a decision support system (DSS) is enhanced with the use of student identifiers.
- The quality of data available for D3M is higher when individual student records are available for standardized derivations of official statistics.
- Automated interoperability among software applications requires student identifiers.

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Automated interoperability among software applications requires student identifiers.

What additional benefits can come from statewide student identifiers?

Statewide student identifiers allow schools and districts to verify the identities of mobile students, but the real benefits come from a student locator system that provides web-based access to student records.

- Electronic Records Exchange: The locator can offer a feature to send an electronic request for a student's record to the student's prior school. Alternatively, the database within the student locator system can contain the contents of a transcript. Transaction Set 146, Request for a Student Record, ANSI X12 Standards, SPEEDE/ExPRESS, provides a format for a request. Transaction Set 130 Student Record provides the contents of a transcript. The Schools Interoperability Framework (SIF) Specifications Version 1.5 provides an XML format for student records. A state could develop its own formats; however, being compatible with a national standard allows for exchanges across states.
- Migrant Programs: Students eligible for Title I Migrant program services can be identified immediately. This would be compliant with the Federal requirement for timely records exchanges for migratory families.
- Dropouts: Tracking and verification of mobile students can reduce reported dropout rates by providing a way to document transfers who otherwise would be considered dropouts.
- Placement: The locator has the potential to provide a new school with valuable placement information about the student. Placement in proper courses, support services, and programs can save a new school the time and resources required for assessments. The student can be provided more continuous services and avoid changes that might be required upon completion of a reassessment or arrival of records from a prior school. In addition, students with special needs, e.g., vision or hearing modifications, emergency procedures, or free meals, can be accommodated.

NOTE: The inclusion of data elements useful for placement decisions changes the nature of the locator and raises extended confidentiality and access issues.

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The electronic exchange of student transcripts offers timely availability of placement data for mobile students. Electronic exchanges provide authenticated transcripts that save time and money for both the high school and post-secondary institution.

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In order to have these characteristics, how must the statewide student identifiers be assigned?

- A single, unitary process should be established and maintained at the state level.
- Identifiers should be assigned from a pool of valid, unused numbers.
- A new identifier should be assigned only after verifying that the student has not previously been issued an identifier.

What must the SEA do to manage the identifiers, to ensure their integrity, and to maintain their confidentiality?

- Establish policies and procedures consistent with both state and federal confidentiality laws regarding student education records.
- Establish access and use criteria, which clearly describe who can use or view the identifiers and for what purposes.
- Create an encrypted student identifier for use when a data file is provided to a qualified researcher or other agency. The encryption algorithm would ensure that whenever an identifier is encrypted that it is the same, so matching records across years, for example, is possible.
- If the SEA uses the SSN as an identifier, then an alternate identifier will be required for students not providing the SSN. The SEA will need to create an internal, permanent identifier for each student that will remain unchanged regardless of changes in the student's use of the SSN or a state alternative identifier over time.

ESP Insight

Create an encrypted student Identifier for use when a data file is provided to a qualified researcher or other agency. The encryption algorithm would ensure that whenever an identifier is encrypted that it is the same, so matching records across years, for example, is possible.

What do people in states with individual student record systems and state-wide student identifiers say about their experiences?

- The initial work to implement student identifiers is worth the effort because reporting to the state is simpler, quicker, and less burdensome now.
- The transition to a statewide student identifier and an individual student record system motivates and enables schools and districts to make the technology improvements that all schools and districts must make to manage their work in today's environment.
- Electronic records are more confidential and protected than paper records were. Suppression of small group values that might reveal personally identifiable information about a student can be automated and enforced more successfully.
- When new or changed requirements for statistics about students arise (as No Child Left Behind exemplifies), the state can make the new calculations using the individual student records rather than passing that burden on to the schools and districts.
- The student information system software vendors are key partners in the implementation of the statewide student identifier and the individual student record system. They have accommodated these systems in other states and know what is required in most cases.

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Electronic records are more confidential and protected than paper records were. Suppression of small group values that might reveal personally identifiable information about a student can be automated and enforced more successfully.

What issues must be addressed to achieve both acceptance of and full compliance with a statewide student identifier?

- Parents, students, educators, and advocacy groups should be shown how the student identifiers will be assigned and managed without revealing personally identifiable, confidential information about individual students.
- Schools and districts should be shown how they can incorporate the student identifier into their local information systems without inappropriate changes and expenses being required.
- Programs within the SEA must agree to comply with the statewide student identifier as the single student identifier for the state.

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What groups should be a part of the design and information gathering process for developing and implementing a statewide student identifier?

- State professional education associations
- State legislative representatives
- SEA program management staff
- SEA data management staff
- School and district educators and data managers
- Parent and student advocate groups
- Student information management software vendors

What issues must be understood and resolved?

The issues identified below are interrelated. The options provided for one issue may be directly related to the option selected by a state related to another issue. Therefore, the total solution must be consistent across all the issues.

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Allow only authorized education employees with a need to know to access the student identifier (and student locator system) from the local level. Restrict access within the SEA to authorized users. Build permission tables to manage access for view, copy, and edit actions by file and fields within files.

1. Confidentiality – Who may know the identifier?

FERPA and local policies will inform the SEA's answer. If the identifier is a nominal code without intrinsic meaning, then it may be viewed as directory information. This assumes that links using this identifier are not generally available to the public. Prudent practice would call for the identifier to be treated as confidential, because knowledge of the number wouldplace the holder one step closer to accessing confidential information.

2. Process – How do the identifiers get assigned and verified?

a. Burden – What level of burden should be imposed upon local schools and districts?

Burden is defined as the time, effort, and resources required to implement the student identifier system. This includes creating the system, assigning the identifiers, verifying an individual's identifier, and entering the identifiers wherever they are required. Burden also includes the effort to make the transition from an existing identifier system to a new one; or to add the new identifier into an existing system or perform a crosswalk from the local identifier to the state identifier each time a report is exchanged.

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Minimal burden must be required at the school and district level to obtain new identifiers and to verify existing ones. The web-based student locator system must be accessible 24/7. Reporting and managing the use of the statewide student identifier within local files along with an optional locally assigned identifier is acceptable burden for schools and districts.

Clearly the level of burden must be limited to achieve compliance (both voluntary and practical) with the identifier process. Too high a level of burden will introduce unwanted errors as a consequence of the attention to detail required. Burden must be balanced by benefit. In the case of identifiers for State students, the benefits have already been determined to be high because they are critical to the functionality of the entire proposed individual student record system. The option that imposes the least burden, the use of existing school and district identifiers, fails to provide the functionality required as described in response to other issues. Burden is typically an issue to recognize and to manage.

A moderate level of burden can be achieved by allowing the continuing use of local identifiers within local information systems at the discretion of schools and districts. Crosswalking to the state identifiers at the time of state reporting is commonplace in districts within states that collect individual student records. An alternative is for the state identifierto be recorded in the local information systems as a separate field to be included with data extracts at the time reports to the SEA are created. In cases where the local student information system software does not allow for second identi fiers, the crosswalk option would be necessitated. Some districts may indicate that they would prefer to use the state identifiers as their own internal identifiers. Such use could be possible if the SEA used a procedure to further mask the identifiers once the records entered the state database. One state with individual student records uses encryption to alter the identifiers within the state database to provide further security and confidentiality.

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b. Assignment–At what level will the identifiers be assigned to individual students (e.g., school, district, state, national)?

The State SEA must determine the pool of identifiers available to be assigned. However, assignment of the identifiers at the level of registration (either at the school or at the district) provides the quickest and least burdensome alternative. This issue is also related to uniqueness. The schools (or district office where central registration occurs) must follow a procedure that ensures unduplicated identifiers. Therefore, identifiers should be assigned at the lowest level possible without losing their uniqueness.

A reality is that parents and students cannot be relied upon to carry their student identifiers from one school to the next. Mobile families too often cannot identify their last school/district, do not have records with them, and cannot remember student identifiers. Thus, a system must be in place to avoid assigning an alias, a new identifier, when a valid identifier exists.

If a local identifier is to be assigned at registration and used for local purposes, then the assignment of the state identifier can be delayed until some time before the next reporting to the state. If the state identifier is to be used in the local student information system as the primary identifier, then a process for the identifier to be assigned promptly must be in place. An on-line student locator system that provides the identifier to be assigned or a list of available identifiers would be required at registration.

Options for Assignment of Identifiers		State Identifier Assignment Options				
		Block of State IDs Designated for District & Assigned at District or School Level	State IDs Assigned by Web Locator Site at Registration	State ID Assigned by Web Locator Site Later After Registration		State ID Assigned by SEA After Submission of Enrollment File (with a Local ID)
				On-Line	Batch Submission	
Local ID Options	State ID is the Only ID Used Locally	A	D	G	J	M
	Local ID is the Only ID in Local Student Information System (Crosswalked to State ID at Submission)	B	E	H	K	N
	Local and State IDs in Local Student information System	C	F	I	L	O
Verification Options	On-Line	*OK*	*OK*	*OK*	*OK*	*OK*
	Batch Report	*OK*	*OK*	*OK*	*OK*	*OK*

NOTE: SEA's typically require that their official student identifier appear on all reports and data submissions from the LEA. There is usually not a requirement that the state's identifier be used on all local files and records. A district or school could opt to use its own identifier system for local applications such as scheduling and grade reporting. A crosswalk table could be used to translate local identifiers to the state identifiers whenever reporting to the state is required.

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The pool of valid and available student identifiers should be defined and managed at the SEA level. A web-based student locator function should be provided for both batch and individual student assignment of identifiers on demand by the school or district.

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c. Timing–When will the identifier be assigned to a student (e.g., at registration, as soon as possible after registration, at the time of the first report to SEA)?

If the state identifier is to be used for local records, schools need an identifier immediately upon enrollment of a new student. Certain forms are completed at that time and begin to go their separate ways. Ensuring that the student's identifier is on each form immediately saves changes and mismatches later. The difference between assigning identifiers immediately and within a few hours is arguable. However, any system that takes days to assign an identifier presents a very different level of burden–and potential for errors that must be cleaned up later. An on-line student locator system that provides the identifier to be assigned or a list of available identifiers would be required at registration.

SEA should require districts to submit enrollment data for students in a timely manner to ensure the data are available to the next district in which the student enrolls–even if the student enrolls and exits prior to a regular submission period.

For districts not using the state student identifier as their local identifier, the timing of the assignment should be any time before or concurrent with the next state reporting. The SEA should require districts to submit enrollment and exit data for students in a timely manner to ensure the data are available to the next district in which the student enrolls prior to a regular submission period.

ESP Insight

For districts using the state student identifier as their local identifier, it should be assigned at registration and be available to school staff when local records are being created. If registration occurs at the school, then the school should be authorized to use the web-based student locator system.

d. Verification Level–Where will the identifier be verified (school, district, state)?

When a student moves from one school or district to another, the student's identifier must be verified upon registration in the new district. Verification is the process made available to ensure that the identifier assigned to a student is valid and correct. Valid means that the identifier is one actually included in the pool of identifiers to be assigned. Correct means that the identifier is accurately matched to the student.

The identifier can be verified immediately upon registration or later as part of a validation process at the state level. The earlier the verification occurs, the fewer changes will be required later if an identifier is changed/corrected. The closer the verification occurs to the parent and student, the higher the probability of accuracy. Verification at the time of registration, when the parent and student are most likely to be present, is best. This requires that the person registering the student be authorized to assign the identifier according to a set of precise rules, or that the person have direct access to the assignment process.

Verification conducted at the state level using available demographics in the database, after submission of individual records is the least efficient. Some correct identifiers can be incorrectly challenged based upon duplications in the data elements used for verification, e.g., students with the same name, birthdate, and gender. In these instances, verification is then delegated back to the school. This state-level verification is a required component of the system, but the frequency of potentially incorrect identifiers can be greatly reduced by adequate controls at registration.

An on-line student locator system would provide the verification necessary.

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The student identifier must be verified at the time of registration, if possible, when parents and students are available to answer questions and provide documents. (The web-based student locator system must be available at this time.)

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e. Assignment/Verification Process–How will the identifier be assigned or verified?

The assignment/verification process includes several steps:

- First, the registrar determines if the student already has an identifier assigned.
- Second, the registrar secures the existing identifier or causes a new one to be assigned.
- Third, the registrar records the identifier in local records for use in state reporting.

The registrar can accomplish the first step by asking the parent or student, or examining paper or electronic records from a prior school. Parents and students too often do not have the records, and at times cannot precisely identify contact numbers or addresses for the prior school (e.g., districts with county or descriptive names rather than city names). In the case of migrant worker families, enrollment in a prior school may have been too brief to generate an official record.

ESP Insight
Especially during the initial assignment of identifiers statewide, there may be the need to schedule districts to avoid overloading or unnecessarily slowing the student locator system's processing.

An alternative is to establish a statewide reference file (student locator system), such as a web application, that can be queried to determine the existence of a previously assigned identifier. The registrar could access the student locator system during the registration process. The second step could be accomplished using the statewide student locator system to learn the identifier or to request assignment of a new one. In the absence of such a system, the registrar must contact the prior school. This is a crucial point. Students who have existing identifiers can be assigned an alias identifier simply because that is easier than contacting a prior school, or because the prior school cannot be contacted or does not respond promptly. This might result in duplicate identifiers for a single student, rather than a single unique identifier. If such a number is meant to serve as a temporary placeholder for the unchanged identifier, procedures would be needed to replace the temporary identifier with the unchanged identifier as soon as possible.

Batch Processing

At key times, there will be a large number of students registering or needing a new identifier at the same time. This occurs at the beginning of a school year, but also can occur during the pre-registration of kindergarten and first-grade students. Batch processing is the uploading of a file containing multiple student records to a student locator system for assignment of student identifiers. Especially during the initial assignment of identifiers statewide, there may be the need to schedule districts to avoid overloading or unnecessarily slowing the student locator system's processing.

A standardized file format containing the necessary identification data elements will need to be adopted.

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Student Record Submissions and Identifier Assignments

Assigning the student identifiers is a separate process from the submission by schools and districts of their scheduled data reports. The identifier process needs to be an on-going, on-demand process for schools. The SEA scheduled data submissions typically occur three to five times annually. Each submission period contains data that are appropriate to the time of year they are collected (e.g., beginning of the year, mid-year, end of the year).

The Matching Process

States vary in how precise their rules are for matching student records. The matching process compares one student's data elements with another's to determine if the two students are the same. Because names change and other student data may be corrected or entered incorrectly, this matching process should take into account near matches as well as exact matches. Although student locator systems and identifier assignment processes vary in whether they calculate a percent or determine a category, generally these determinations are made.

- Match: The records being compared are identical to a degree that the system is confident that they represent the same student. In these cases, a previously assigned identifier is used.
- Near Match: The records being compared are similar but not exact. More than one record already within the system may be a near match with a new one. The system should return to the user a list of the near matches and their characteristics to allow the user to select the one that is the correct match. If one of the near matches is the same student as determined by the user, then the user indicates there is a match. If none of the near matches is determined to be the same student, then the user requests a new identifier to be assigned.
- No Match: The record submitted does not match any already in the database, so a new identifier is assigned.

ESP Insight
Because names change and other student data may be corrected or entered incorrectly, this matching process should take into account near matches as well as exact matches.

The SEA must select the rules for determining the cut points between matches and near matches, and between near matches and no matches. These decisions should be based upon sample data runs that estimate the number of matches and near matches generated by actual student records and the potential number of cases that will require manual resolution.

f. Verification Data Elements-What data elements are required for verification of a student's identifier?

When a student's identifier is in doubt, other unique combinations of information about the student must be used for verification. This is typically "directory informa tion" as defined by the Family Educational Rights and Privacy Act (FERPA) along with a few other pieces of information included to increase the probability of describing a single student.

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Directory information typically includes:

- Name (First, Last, Middle, Generation Code)
- Birthdate
- Gender
- Grade Level
- Prior Schools/Districts of Enrollment, Enrollment Dates

Additional detail information could include:

- Race/Ethnicity
- Place of Birth
- Parents' Names
- Date of First Immunization
- Prior Schools/Districts of Enrollment, Enrollment Dates

ESP Insight

Include as many data elements as practical in the verification resource. Define verification elements as directory information. Elements not defined as directory information can be used for matching, but not displayed for the user.

Security and confidentiality issues must be considered. However, the more information available for query, the more likely existing identifiers will be found and used.

One state provides for a two-phase identification system. If the use of directory type data elements results in multiple matches, then other data elements, such as parents' names, race/ethnicity, and place of birth, are made available to the registrar for making a correct identification.

There is the possibility that parents would not approve the release of their children's information for inclusion in this locator system, should they be given the option to not comply. If this occurs, there may be a need for a flag in the locator system database that the information cannot be released and the SEA will need procedures to work directly with the person doing registration to determine if the suppressed student is the one being enrolled.

No Child Left Behind Data Elements

The No Child Left Behind Act requires identification of specific characteristics about each student for determination of adequate yearly progress and publication of annual school, district, and state report cards. The student identifier is essential for linking across various sources of data within unit record databases to compile these characteristics. The student locator system requires only the basic elements described above for its matching process. However, the locator system may be, for convenience or quality control, part of or even the primary source for these student characteristics for No Child Left Behind purposes.

From the basic elements for the student locator system, these are necessary for No Child Left Behind analysis and reporting.

- Gender (Directory Information)
- Race/Ethnicity (Additional Information)
- Grade Level (Directory Information)
- School, District Enrollment Dates (Directory Information)

The following additional student-level data elements are required for meeting the No Child Left Behind analysis and reporting requirements.

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- Disability Status (Yes/No)
- Limited English Proficiency Status (Yes, No; Years in School, Program, and/or LEP Status)
- Migrant Eligibility Status (Yes, No)
- Full Academic Year Status (unless derivable from detailed enrollment dates and locations) or School, District, and State Independently
- Graduation On-Time Status (Yes, No; or Details Required for Determining State's Definition for a high school's additional indicator status)
- Truancy Data (as Required to determine the state's approved definition of truancy for calculating rates)
- Discipline Incidents (as required to determine state's definition of persistently dangerous schools)
- Attendance (as required to determine state's definition of attendance rate for elementary and middle school additional indicator status)
- Other Indicator (as required to determine state's definition for other additional indicators)
- Performance Levels on State Assessments

Pre-Coding Assessment Documents

A significant benefit from individual student records with unique student identifiers is the capacity to pre-code answer documents for the state's assessment program. Pre-coding is the provision to the assessment manager of individual student records containing the information typically hand bubbled onto answer sheets prior to testing. Pre-coding is a major contributor to data quality, quicker reporting of results, and reduction of burden on school staff.

ESP Insight
A significant benefit from individual student records with unique student identifiers is the capacity to pre-code answer documents for the state's assessment program.

The data elements described for No Child Left Behind are the ones most commonly pre-coded.

3. Characteristics—How are the identifiers created?

a. Uniqueness–At what level must the identifiers be unique (e.g., school, district, supervisory union, region, state, nation)?

An identifier must be unique, i.e., assigned to a student only one time. Within a population, the identifier must not be an alias for a single individual within the population. An alias is a second identifier for the same student. Thus each student must be unduplicated within the database. The population defined here encompasses all elementary and secondary students in State. Therefore, uniqueness must be maintained at the state level. The current student identifiers assigned by local schools and districts to their students are not unique across all districts. In fact, some commercial student information systems adopted by districts or schools may provide uniqueness only within a school building for a single year.

ESP Insight
Ensure student identifiers are unique at the state level.

Statewide uniqueness can be achieved if districts assign identifiers that are unique within the district if the numbers also begin with a unique, state-assigned district number. However, this complicates the process of verifying and using those same numbers when students move across districts. The variance in the length of identifiers (number of characters) across districts also complicates this option.

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There are certain benefits to using an identifier that is unique nationwide. At this time, the only such identifier is the Social Security Number (SSN). The SSN provides functionality for tracking former students into postsecondary education, career technology education, and the State workforce. It also enables verification of the identity of students across states (with other agencies using the SSN), and exchanging useful data with other state and federal agencies that provide services to families and individuals (e.g., verifying eligibility for services). These benefits can also be achieved by collecting the SSN as an additional data element irrespective of its use as the student identifier. However, every student may not have an SSN, some parents will choose not to provide the SSN to the school, and use of the SSN raises other confidentiality issues.

b. Imbedded Information–What meaning will be built into each number?

The SSN has no useful intrinsic meaning imbedded in the numbers. (Generally, the number may imply a region, year of assignment, or sequence, but any algorithm producing the number is obscure.)
Imbedded information typically adds to the length of a number. For example, county/district codes may add six characters to a number. Birthdate may add eight. A truly unduplicated, random number carrying no meaning has the advantage of requiring less restrictive security and confidentiality precautions. If the district number is imbedded, this could identify the student's first district of enrollment; however, that information can be carried in other fields within the database as well. In fact, any useful information that might be imbedded in the identifier can also accompany the identifier as a separate field.

ESP Insight
Do not imbed information in the student identifier .

Although unusual, directory information about a student can change. Names change. Even birthdates and gender can "change" when errors are corrected—or made. Any of these changes would require either a change in a student's identifier or would create an anomaly, which would require a process to document.

c. Length–How many characters can be in each number?

Shorter numbers can be entered, transcribed, and maintained with fewer errors. A common length provided for an identification number on generic scanner documents is 10. The SSN is currently 9, but moving to 10 numbers has been discussed. To accommodate 800,000 active students in State and to retire numbers for former students for 100 years, requires 8 numbers, but would use only about 12% of those numbers. This provides 100 million minus one unique numbers.

ESP Insight
The student identifier must be limited to no more than (10) digits..

d. Characters–What should be the nature of the characters in the identifier?

Any number, letter, or symbol could be used. Symbols and letters present problems with recognition and accuracy in entering-especially when mixed with numbers. Certain letters (e.g., o, l, i, z, E, b/d, q/p) are sometimes confused with numbers or each other. Using both numbers and letters provides for many more combinations for unique identifiers, and thus the ability to have shorter identifiers. Problematic numbers and letters could even be eliminated from use (e.g., neither 0 nor o ever assigned). Some state systems use letters and numbers in combination (e.g., a state assigned number beginning with a letter to distinguish it from an SSN).

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Letters require 26 bubbles for each character on a scanner form compared to 10 for numbers. Combinations of letters and numbers require 36 bubbles. Letters come in capital and lower-case forms that may or may not have meaning, but often cause confusion as to their use. Numbers are easier to distinguish from each other, they can carry intrinsic and extrinsic meaning, and they are more "universal" across languages and cultures. Numbers can be assigned without risking the creation of meaningful and undesirable combinations as with letters. Even in the absence of considerations that require restricting the length of the identifier, use of only numerals is preferable. They are easy to distinguish. They can be entered with efficient keystrokes using a number pad. They require less space and are associated with less bubbling error on scanner forms.

ESP Insight
Use only numerals for the student identifier.

e. Rubric–What conditions will be imposed on the numbers?

If an algorithm or imbedded meaning is to be used, then the business rules adopted will answer this question. However, if a random number is used, then several rules can be followed to reduce data entry and clerical errors.

Leading and final zeros are sometimes accidentally, or by software design, dropped when numbers are entered or moved across databases. When the remaining numbers are justified left or right, then a reader or a computer application can misinterpret the identifier. Consecutive identical numerals may be incorrectly entered too few or too many times. Some sequences, such as 666, may have connotations that are best avoided. Therefore, limiting the number of consecutive digits that are the same to two or three can reduce errors and other problems. Rules avoiding repeating digits should also apply to a check digit if one is added to the end of the identifier.

ESP Insight
Use unduplicated, random numbers, no alphabetic or other characters. Use no initial blanks or zeroes or final zeroes. Use no sequence of three or more identical numerals. (Calculate a check digit that can be used as a final digit.)

Leading and final zeros are sometimes accidentally, or by software design, dropped when numbers are entered or moved across databases. When the remaining numbers are justified left or right, then a reader or a computer application can misinterpret the identifier. Leading zeroes are much more problematic than are trailing zeroes. In fact, if a check digit is used, zero may be acceptable as a final, trailing digit. Eliminating all the cases described above would reduce the available pool of numbers.

A final check digit (a number calculated by formula from the other digits) is sometimes used to provide a quick way to locate invalid numbers. With this methodology, if the verification formula checking the validity of a number does not generate the final digit as in the number reported, then there is an error. If a check digit is used, then the potential identifiers eliminated because they end in zero could be assigned. Options for calculating check digits allow the SEA to determine whether or not zero is a valid value. Mod 10 methodology will produce check digits from 0 to 9. Mod 9 can be used to produce values from 1 9 only if a final zero is not desired.

The check digit does not have to be a part of the identifier. The digit can be held in a separate field accompanying the identifier. With this option, the check digit may not always be exchanged and available to users.

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What process should the SEA use to make decisions related to each of these issues?

Best practices have developed across the 17 states that ESP Solutions Group has advised in the decision making process for statewide student identifiers. The following high-level outline provides insight into the key tasks and the people involved throughout the planning and implementation process.

Background

Assemble the background information and create the leadership groups to guide the decision making process.

- ☑ Appoint or Designate the Leadership Groups
  - Steering/Policy Committee (Agency, Legislative, District/School, Community, and Business Leaders)
  - User Group (District/School, Agency Users)
  - Internal SEA (Agency Technical, Program, and Policy Staff)
- ☑ Document Current Laws/Policies
  - Related to identifiers, Social Security Numbers
  - Related to the Acquisition and Maintenance of Personally Identifiable Records
  - Related to Privacy, Confidentiality, Access, and Uses of Data
- ☑ Best Practices
  - ESP Solutions Group Best Practices for Education Data Management Brief
  - Reviews of Peer States
- ☑ Survey of Districts
  - Student Information Systems in Use
  - Network Infrastructure
  - Local Identifiers in Use
  - SIF Planner Results
- ☑ Other identifiers
  - Special Programs
  - Other Agencies
- ☑ Technology Standards
  - State Education Agency Standards
  - State Government Standards
  - National Standards
- ☑ Requirements
  - Student identifier Characteristics
  - Identifier System Functions
  - Identifier System Specifications
  - Buy or Build Recommendation

ESP Insight

Involving school, district, SEA, community, businesses, legislators, employee groups, and other stakeholders in the decision-making process for statewide student identifiers creates a consensus supporting their use and agreement with their characteristics.

Decision

- ☑ Recommendations
  - Internal State Education Agency
  - User Group
  - Steering/Policy Committee
- ☑ Approval
  - State Education Agency Staff
  - Leadership
- ☑ Proposals/Plans – Bids/Build
  - RFP/Build Plan
  - Proposal/Review
  - Selection/Approval
- ☑ Purchase/Funding
  - Contract/Budget
  - Project Plan

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What process should the SEA use to assign and maintain the student identifiers?

Graduate Student : "Why can't I just build a web site and post numbers. Schools could go to that web site and get a number each time a student enrolls."

Glynn Ligon : "That would give students a number on the first day of the system, but the challenge is day two when the students start moving around."

The following processes describe best practices.

Implementation

☑ Project Management
- Kick-off Meeting
- Project Plan Final
- Management Web Site
- Periodic Meetings
- Periodic Status Reports
- Change Management Process
- Deliverables
  - o Review
  - o Revise
  - o Accept
- Steering/Policy Committee Review
- User Group Review
- Internal State Education Agency Review
- Vendor Training
- Vendor Certification

ESP Insight
Assigning and maintaining student identifiers is a process that is much more complex than it appears on the surface. Project management is a crucial component for a successful implementation.

Tasks

☑ Data Standards Adopted and Published
☑ Submissions Defined and Scheduled
☑ Documentation Published
☑ Hardware/OS/Network Installed
☑ Student Locator Application Installed, Tested, and Accepted
☑ Pilot/Test Data Processed
☑ User Interface Finalized and Accepted
☑ Matching Rules Finalized
☑ Authority Tables Built and Populated
☑ Vendor Training Delivered
☑ Training Delivered
- SEA Administrative Users
- School and District Users

☑ Initial Upload/Assignments* Processed
☑ Periodic Batch Uploads/Assignments* Processed
☑ On-Demand Requests for Individual Assignments Processed
☑ SEA Support/Help Provided
☑ Problem Resolution Provided
☑ Management/Evaluation Conducted
☑ Advisory Groups Formed and Assembled
☑ Upgrades/Enhancements Implemented
☑ Interoperability with Other Systems to Share Data Implemented

* Initial Upload/Assignments place a heavy burden upon the new student locator system. Large batch uploads must be anticipated from districts. The SEA may need to schedule large districts for their uploads to ensure that the system can manage the processing without unacceptable delays for all users. Periodically, large batches should be anticipated as kindergarten/first grade pre-registrations, beginning-of-the-school-year registrations, and other peak times occur.

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An illustrative case study of how Iowa approached the assignment of student identifiers and the implementation of their student locator system is the best way to describe the processes. Iowa's experience was presented at a session during the 2004 National Center for Education Statistics (NCES) Summer Data Conference.

ESP Insight

An illustrative case study of how Iowa approached the assignment of student identifiers and the implementation of their student locator system is the best way to describe the processes.

Beginning in 1996, the Iowa Department of Education (IDE) created Project EASIER (Electronic Access System for Iowa Education Records), a voluntary process for districts to submit individual student records electronically for state reporting. Locally assigned identifiers or social security numbers, to the extent they were available, were used as record identifiers. The initial process required the submission of a limited number of data elements to replace seven existing IDE data collection documents. With the implementation of No Child Left Behind (NCLB) and Performance Based Data Management Initiative (PBDMI), IDE moved from a voluntary system to a mandatory system beginning in the fall of 2004. The mandatory system required the use of a unique state assigned identifier. Through a competitive bidding process, the IDE awarded a contract to ESP Solutions Group to manage the implementation of state assigned identifiers, using eScholar's Uniq-ID student locator system.

From signing the contract in January 2004, the implementation was on a fast track to have identifiers assigned for the beginning of the 2004-05 school year. IDE committed the time and expertise of its staff for planning and testing of the system, as well as for training and supporting local districts.

ESP Solutions Group helped guide IDE through the process of crafting a data access and use policy and defining the data elements that would be used in the student identifier locator system. These data elements would be used for verifying new students or matching new students' data to existing records. ESP Solutions Group also assisted in resolving design and implementation issues as they arose during the project.

Though, implementing the identifier locator system within the allotted time frame was not without notable hurdles. First, the interface between the new software and the Department's existing Project EASIER's data collection system required several iterations and considerable communication so that it "fit" within IDE's current efforts. Server hardware and software requirements were reviewed as the new application was initiated and substantial improvements/changes were made to improve capacity and speed.

Second, the timing of the initial assignment of identifiers and the training of district staff needed to occur at the end of the 2003-04 school year, during the summer, and before school started in the fall of 2004. Staff in many districts, especially small ones, are not necessarily available throughout the summer months and hence not available to upload files, resolve identifier issues, and download files. To accommodate this issue of district staff availability, the project plan had to be modified, with the identifier assignment broken into three parts: uploading files, resolving near-matches, and downloading files.

Third, the number of assistance calls to IDE from districts uploading their initial files was significant, and considerable staff time was devoted to providing one-on-one assistance to districts.

Fourth, the system was initially too slow for districts to use, especially if files were large. After several optimizations, the speed of the system was increased to the point that each student's record was processed for potential duplicates and the assignment of an identifier in an extremely short time regardless of file size. Since this was the initial population of the identifier locator database, the system operated in a conservative manner in that a large number of near matches were identified which then required staff review. However, even with a conservative approach, only about 3 percent of the student records had to be processed by hand to resolve matching issues.

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Fifth, files with the assigned identifiers were not available to districts for download until the start of the 2004-05 school year. This was partly a staff timing issue due to the identifier project being initiated in the spring and needing to be completed over the summer. Yet, this also was a system issue associated with initial population. None of these issues prevented the successful implementation of the project.

Advice from IDE staff includes:
1. Communicate clearly to the educational community regarding what the identifier initiative includes and why it is being done;
2. Anticipate the need to support local district staff on a one-to-one basis;
3. Although the ending timeline is fixed, be flexible when preparing the implementation timeline, and
4. Run a test server that is identical to the production server.

ESP Solutions Group built and maintained a detailed project management web site in collaboration with IDE which provided a reliable resource for project documentation, plans, and weekly/monthly status reports. A tour of that site is available by contacting jgoodman@espsolutionsgroup.com

Involving Software Vendors

Software vendors are partners with the local schools and districts in the process of maintaining the integrity of the student identifiers and submitting student records to the SEA. These vendors have a vested interest in providing their school and district clients with functional and compliant software. The larger vendors have addresses similar issues related to identifiers in other states. They understand that each state's requirements are unique.

ESP Insight
Software vendors are partners with the local schools and districts in the process of maintaining the integrity of the student identifiers and submitting student records to the SEA.

An early meeting with vendors to keep them informed has been a successful approach by many states. On-going vendor registration for updates and future meetings is also a positive process. These procedures also support the SEA in being open and fair with all vendors.

States vary in how they manage the vendors and their applications. Models include:

- Certification of software applications before they can be used by a school or district for state reporting
- Certification of software applications, but local decisions allowing use of uncertified applications if the school or district accepts responsibility for meeting state requirements
- Registration of vendors or software applications, signifying only that they are known to the SEA and are registered to receive documentation and attend meetings
- Provision of documentation and requirements publicly to any vendor seeking them
- Dependence upon schools and districts to communicate requirements to their vendors

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Coordination Between the State and the Districts

Clearly, the use of a statewide student identifier imposes requirements upon local schools and districts. However, the identifiers also bring benefits to them and opportunities to leverage the identifiers for local purposes. The SEA needs the cooperation of school and district staff to make the identifiers and the student locator system work. Strategies for working together include:

- SEA understands the status of student information systems and networks across all districts and schools and incorporates their capacities into design and planning activities.
- SEA aligns the student locator system with local practices and provides support to make the local transition to updated systems and processes.
- SEA involves schools/districts in planning, review, and on-going oversight.
- SEA adopts and publishes standards.
- SEA adopts and publishes policies.
- SEA provides user training and ensures participation.
- SEA provides user support for applications developed associated with the use of the identifiers.
- SEA involves vendors in the training and communications processes.
- SEA focuses on goals: reduce burden, reduce cycle time, increase D3M.

ESP Insight

The SEA needs the cooperation of school and district staff to make the identifiers and thestudent locator system work.

Buy or Build a Student Locator System?

Should a state buy or build its own student locator system? This buy or build decision may best be answered by examining the SEA's history of success in building other software applications—especially recent ones with a heavy reliance upon a web interface. The complexity, security, and response-time issues require a degree of technical expertise that is not typical in an SEA.

Agencies can underestimate the time and resources required to build rather than to buy. A commercially available product has typically gone through extensive analysis of user requirements. The SEA can require a real-time demonstration of the application. The SEA can contract for implementation for a fixed amount to manage expenses. The technical expertise and knowledge of the business rules required to deliver the functionality of a software application are not always available within an SEA. On the other hand, an off-the-shelf product, even one that comes with extensive customization, may not provide all the features and functions desired.

Some questions that an SEA might ask when considering the buy or build decision are:

- Have we successfully designed and built a software application similar to this one?
- How easily can we write out the specifications to a level of detail required for development?
- Who will do this design and development? If it is someone already here, who would do their regular work?
- Why would we build this? To save the purchase amount? To save the on-going license fees? To implement earlier? To get features otherwise not available? To be sure it works?
- Does an acceptable product exist?

ESP Insight

Building a student locator system is a major design and development project. An SEA is likely to underestimate the time, costs, and resources required to build. The full set of features and functions available in a purchased system will be difficult to match in a system built in-house..

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Buy or Build a Student Locator System? continued

A student locator system has a finite number of functions, unlike a school's student information system, which can include almost any functionality someone can envision. The Indiana Department of Education has demonstrated that an SEA can build a student locator system. (They used a local contractor for the coding.) The Indiana Department of Education has additional enhancements they are considering, but they implemented within their original time frame.

Technology @ Your Fingertips provides some advice on the buy or build decision process.

> U.S. Department of Education, National Center for Education Statistics. (2001). Technology @ your fingertips: A Guide to Implementing Technology Solutions for Education Agencies and Institutions, NCES 98-293. Washington, DC: Author. [Available at http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=98293]

Requirements for a Request for Proposals

The procurement process varies considerably across states. An SEA will need to follow the prescribed procedures for large state contracts. ESP has created a new document that is of tremendous value for any SEA working on an RFP for a new statewide student identifier system. Over the past several years, ESP has assisted numerous states on their RFP's. Much of that out-of-date work is now being republished and circulated by other entities. The Optimal Reference Guide: Requirements for a Request for Proposals for Statewide Identifiers, is ESP's updated and enhanced guide to producing an RFP in today's environment.

ESP Insight

The SEA should include in its requirements for a student locator system (or statewide identifier) all of the decisions related to the issues identified in this paper. These decisions should not wait to be made until after a purchase is made.

Schools Interoperability Framework (SIF)

SIF™ standards allow districts to submit state reports containing individual student records with a direct movement of data from their local information system into the state's system. At the end of 2003, through a contract with ESP Solutions Group, Wyoming developed a statewide design for using SIF standards for connecting all software applications at the school, district, and state levels. The student identifier is the key number that links and verifies records across all these systems. Oklahoma has a state law that requires education software applications to be SIF compliant in order to facilitate both local data management and state reporting.

ESP has developed an illustration, entitled "Secretary to Secretary: The Path from Data to Decisions," that describes the path that data follow when traveling from a school to the federal level. This illustration tracks data about an individual student from the time a school secretary enters them into the student information system to the time the U.S. Secretary of Education views a report with aggregate statistics that include the student's data.

> ESP Solutions Group, 2004. Secretary to Secretary: The Path from Data to Decisions. www.espsolutionsgroup.com/s2s

ESP Insight

ESP Solutions Group has modified a SIF draft of specifications for SIF compliance to be used in RFPs for software applications. (See SIF Requirements for Software Systems, ESP Version 1.1). SIF standards should be at least one of the options available to districts for submitting their state reports containing individual student records.

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Training

Training is required for the SEA technical staff managing the hardware, software, and network associated with the student locator system. User training can be provided using several models.

- Train a representative from each district, then rely upon them to train others in their district
- Train everyone who may use the system either in large meetings or using web conferencing facilities

The training component should be a major part of either the SEA's proposal process or be provided using internal SEA resources.

A significant aspect of the training must be the consideration of how to respond to staff turnover at all levels

ESP Insight

The training component should be a major part of either the SEA's proposal process or be provided using internal SEA resources.

Afterword

This paper makes a clear case for the necessity of a statewide student identifier for every state.

Even states with an existing identifier have new technologies and solutions available now that can make their systems more efficient.

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Aggregate Record
A value that is calculated from individual (unit) records, a statistic that describes a group

Algorithm
A business rule that defines how a number is derived; A rubric that applies a set of rules to create a student identifier

Alias
A duplicative student identifier assigned to a student who already has an identifier assigned

Block
A set of numbers assigned, designated, or reserved for assignment to students by a specific district

Check Digit
A number that is derived from a set of numbers; used to verify the validity of the set of numbers

Crosswalk
To change a number within one system to a corresponding number in another system

D3M
Data driven decision making

Data Warehouse
Consolidated database that provides a shared resource for analysis and reporting

DSS
Decision support system

Encrypt
To change an identifier to another number that cannot easily be deciphered to the original number

Encrypted Identifier
The identifier that results from encrypting another identifier

FERPA (Family Educational Rights and Privacy Act)
1976 federal law establishing a family's right to have certain personally identifiable data about a student protected from public exposure

Identifier
A number that represents an individual

Individual Student Record System
A data collection, storage, and reporting system that contains individual (unit) records for students

Leading Zeros or Blanks
Zeroes or blanks that occur at the beginning of a number

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Random
Numbers in no particular order, e.g., 28473645, 94273843, 18365384

SEA
The state education agency

Sequential
Numbers in sequential order, e.g., 28473645, 28473646, 28473647, etc.

SIF™
The Schools Interoperability Framework Association's standards for exchanging data among education information software applications

Student Information System (SIS)
A software application that performs basic student information functions for a school, such as enrollment, scheduling, attendance accounting, and grade reporting

Student Locator System
A web-based application that allows users to look up a student's state-assigned identifier or to obtain a new one

Trailing Zeroes
Zeroes that occur at the end of a number

Transcript
The official education record for a student

Ubiquitous
Identifier that is used in all records for all purposes across n entity

Unchanged (Permanent)
Identifier that is the same for an individual as long as records are maintained

Undisclosed
Limiting access to the identifier to authorized persons for legitimate purposes

Unduplicated
When a student receives only one identifier; no aliases are created

Unique
When an identifier is used for only one individual

Unit Record
A record (set of data) containing data for only one individual

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About ESP Solutions Group

ESP Solutions Group provides its clients with *Extraordinary Insight*™ into K-12 education data systems and psychometrics. Our team is comprised of industry experts who pioneered the concept of "data driven decision making" in the 1970's and now help optimize the management of our clients' state and local education agencies.

ESP personnel have advised all 52 state education agencies as well as the U.S. Department of Education on the practice of K-12 school data management. We are regarded as leading experts in understanding the data and technology implications of the **No Child Left Behind Act (NCLB)**, **Performance Based Data Management Initiative (PBDMI** and **EDEN)**, and the **Schools Interoperability Framework (SIF).**

Dozens of state education agencies have hired ESP to design and build their statewide student record collection systems, federal reporting systems, student identifier systems, data dictionaries, evaluation/assessment programs and data management/analysis systems.

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This document is part of *The Optimal Reference Guide* Series, designed to help educational data decision makers analyze, manage, and share data in the 21st Century.

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Washington, DC Office 3504 Holly Street Alexandria, VA 22305

APPENDIX B: FLORIDA AGREEMENT WITH THE NATIONAL STUDENT CLEARINGHOUSE

EdEvaluator Agreement

The National Student Clearinghouse and the Florida Department of Education

A. Parties and Introduction.

The Florida Education and Training Placement Information Program (FETPIP) of the Florida Department of Education (DOE) is charged with the responsibility of developing follow-up data on former students and/or program participants. FETPIP processes involve --tracking these students into employment and into various forms of postsecondary education. FETPIP operations are authorized under Section 229.8075, Florida Statutes Data is used to meet statutory follow-up requirements for education and training programs including postsecondary program funding, program evaluation, educational accountability, and improvement of instruction. DOE is an agency of the state of Florida and performs the relations of a state education agency.

FETPIP has demonstrated that its activities provide useful aggregate data on educational outcomes for up to 90 percent of former students at about one-tenth the cost associated with student or employer surveys, the alternative means of accomplishing the purpose of this Agreement. Under this Agreement, the FETPIP process will be able to include information valuable to local education agencies regarding the out-of-state, postsecondary enrollments of former students or participants. Heretofore, this information was unavailable.

The National Student Clearinghouse (Clearinghouse) is a not-for-profit corporation organized in 1993 under the laws of the Commonwealth of Virginia. The Clearinghouse was originally established to simplify and enhance the enrollment verification process for student borrowers under the Federal Family Education Loan Program. This process involves the periodic submission of student enrollment records by postsecondary institutions to the Clearinghouse. The Clearinghouse database currently accounts for approximately 80 percent of the postsecondary enrollments in nation's public and private institutions. As such, the Clearinghouse maintains a central, nationwide repository of postsecondary student enrollment information that contains potentially useful information on former Florida students currently followed by the FETPIP program who are pursuing their educations both within and outside of the State.

The Clearinghouse established EdEvaluator to facilitate the release from the database of postsecondary enrollment information to State and local educational authorities. State and local educational authorities seeking to comply with performance-based accountability requirements under Federal and state law or otherwise engaged in the audit or evaluation of publicly funded education programs may enter into an EdEvaluator Agreement with the Clearinghouse to determine whether students transferred to other educational institutions subsequent to their enrollment in education and training programs within the jurisdiction of the educational authority.

B. Agreement.

The DOE and Clearinghouse for and in consideration of the mutual covenants and responsibilities hereinafter stated hereby enter into this EdEvaluator Agreement (Agreement), to accomplish its purpose under the terms and conditions provided below.

C. Purpose.

The purpose of this Agreement is for the parties to share information from education records which will enable the DOE to develop data that will assist State and local education entities and boards in Florida to evaluate educational programs and improve the education, training, and related services for students and program participants. This will be accomplished by augmenting data already collected by the FETPIP program with data on postsecondary student enrollments throughout the United States available from the Clearinghouse. This information is not readily available to the DOE through any other organization or agency.

The enrollment data released by the Clearinghouse will be used by DOE for the sole purpose of generating aggregate statistics that will be used to help evaluate the effectiveness of, and improve instruction within, education and training programs in Florida. Personally identifiable information released by the Clearinghouse under this Agreement will neither be publicly disclosed nor used to make decisions that affect the rights, privileges, or benefits of any individual who is identifiable from the information.

D. State of Florida Contractual Requirements.

1. This agreement may be unilaterally cancelled by DOE for refusal by the Clearinghouse to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the Clearinghouse in conjunction with the Agreement. (See Section 287.058, Florida Statutes.) Material which is exempt from public access is identified and addressed in Section F.

2. (a) The Clearinghouse shall prepare an invoice in triplicate for the amount due and deliver it to the Department of DOE Comptroller in accordance with Section G. The invoice shall set forth details sufficient for a proper pre-audit and post-audit. Upon receipt of the invoice, the DOE Comptroller will request confirmation from the Contract Manager that payment is due. Upon receipt of the Contract Manager's approval, the DOE Comptroller shall process each invoice in accordance with the provisions of Section 215.422, Florida Statutes.

   (b) Section 215.422, Florida Statutes, provides that agencies have five (5) working days to inspect and approve goods and services, unless bid specifications or Contract specifies otherwise. If payment is not available within forty (40) days, measured from the latter of the date the invoice is received or the goods or services are received, inspected and approved, a separate interest penalty set by the State Comptroller pursuant to Section 55.03, Florida Statutes, will be due- and payable in addition to

the invoice amount. To obtain the applicable interest rate, please contact the DOE Fiscal Section at 850/487-2460 or Purchasing Office at 850/488-4336. Invoices returned to a vendor due to preparation errors will result in a payment delay. Invoice payment requirements do not start until a properly completed invoice is provided to the agency. A Vendor Ombudsman, whose duties include acting as an advocate for vendors who may be experiencing problems in obtaining timely payment(s) from a State agency, may be contacted at 850/488-2924 or by calling the State Comptroller's Hotline, 800/848-3792.

3. The State of Florida's performance and obligation to pay wider this contract is contingent upon an annual appropriation by the Legislature. (See Section 287.0582, Florida Statutes)

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list. (See Section 287.133(2), Florida Statutes.)

E. Implementation.

1. The DOE is authorized to submit electronic lists of individuals ("EdEvaluator Request Files") at anytime during the period covered by this agreement in order to obtain information on the enrollment of students at postsecondary educational institutions. DOE agrees to submit EdEvaluator Request Files electronically with the data elements and configuration reasonably required by the Clearinghouse. Accordingly, the DOE may submit personally identifiable, non-directory information, such as student social security numbers, to the Clearinghouse on a nonconsensual basis to obtain enrollment information. However, the Clearinghouse will not release, verify or confirm student social security numbers under this Agreement and will release to the DOE or its agent only student enrollment and other directory information, as defined and designated under FERPA, and s. 228.093, F.S. that has not been blocked from release by the student.

2. The Clearinghouse will promptly compare an EdEvaluator Request File with its enrollment database and provide the DOE with data on the postsecondary enrollment of students in educational institutions.

3. The Clearinghouse will destroy personally identifiable, non-directory information received from the DOE under this Agreement when no longer needed for the evaluation purposes for which it was released to the Clearinghouse, except to the extent that information is needed to maintain the required audit trail of disclosures from the database.

F. Representations, Warranties and Indemnifications.

1. The DOE understands and agrees that the Clearinghouse releases only information that has been provided to the Clearinghouse by educational institutions. Accordingly, the Clearinghouse does not warrant or guarantee the completeness, accuracy or reliability of the enrollment information in its database. The Clearinghouse specifically disclaims any responsibility or liability for errors or omissions in information provided by educational institutions, including direct, indirect, incidental, special, or consequential damages resulting from the DOE's use of information released by the Clearinghouse under this Agreement.

2. The Clearinghouse agrees to indemnify and hold the DOE harmless from any loss, cost, damage or expense suffered by the DOE as a direct result of the Clearinghouse's failure to comply with its obligations under this Agreement. The Clearinghouse agrees to maintain insurance covering errors and omissions in its data processing operations in the amount of at least two million dollars ($2,000,000).

G. Program Records; Security; Privacy Rights; and Public Access.

1. Each party acknowledges that it has a responsibility to perform its responsibilities in accordance with the Federal Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. § 1232g, as implemented by regulations of the U.S. Department of Education, 34 CFR Part 99, and in accordance with s. 228.093, F.S. These federal and state statutes and federal regulations are hereinafter collectively referred to as "student records laws."

2. The parties agree that each EdEvaluator Request file submitted by DOE and the data postsecondary enrollment of students provided by the Clearinghouse include information from "education records" as defined in 20 U.S.C. § 1239 (a)(4)(A) and "records" and "reports" as defined in s. 228.093(2)(e), F.S. Accordingly, such information is confidential and exempt from public inspection under s. 119.07, F.S. (s.228.093(3)(d), F.S.); and, may only be disclosed as provided in the student records laws.

3. A state educational authority, including DOE, and authorized representatives thereof, may have access to information from education records without prior written consent as necessary in connection with the audit and evaluation of state and federally supported education programs or to improve instruction. (20 U.S.C. §1232g (b)(1)(F), (b)(3)(C); s.228.093 (3)(d)3.,5., F.S.). DOE hereby designates the clearinghouse as its authorized agent for purposes of having access to the EdEvaluator Request Files and providing the data on postsecondary enrollment of students in connection with DOE's program evaluations.

4. Pursuant to the student records laws, the data shall be protected in a manner which will not permit the personal identification of students and their parents by anyone other than the state education authority and its authorized representatives. The personally identifiable data shall be destroyed when no longer needed for purpose of evaluating programs and improving instruction. (20 U.S.C. § 1232g (b)(3)(C); 32 CFR § 99.35; s.228.093 (3)(d) 3., 5., F.S.). Therefore, the following provisions shall apply:

(a) If the purpose for which the EdEvaluator Request File is sent does not require the Clearinghouse or DOE personnel to print, display, or otherwise personally view the contents of the tape, the personnel shall refrain from doing so.

(b) If the purpose for which the EdEvaluator Request File is sent does require the Clearinghouse or DOE personnel to print, display, or otherwise personally view the contents of the file, for example, to avoid or correct a malfunction of the matching process, the personnel shall do so in a manner that prevents the disclosure of the contents of the file by persons not involved in the process.

(c) After the requested enrollment information has been sent to DOE, the Clearinghouse shall return to DOE, or erase or destroy, all information received from the DOE that is personally identifiable as to the pupil or student, and shall not retain such information in any form except to the extent that it is needed to maintain the required audit trail of disclosures. Once the enrollment information is given to DOE, DOE shall destroy all information that is personally identifiable as to the pupil or student, and shall not retain such information in any form.

(d) The Clearinghouse and DOE agree to provide written instructions regarding subparagraphs one, two, and three above to affected employees.

(e) Each EdEvaluator Request File sent by DOE and in the possession of the Clearinghouse, and each file sent by the Clearinghouse and in possession of DOE, that contains personally identifiable information as to a pupil or student, and each hard copy of such information, shall be stored in a secure location, such as a locked desk or file cabinet, except when in use for the purposes for which it was provided. Automated records shall be stored in secured computer facilities with strict ADP controls.

(f) Under no circumstances shall either party disclose personally identifiable information received from DOE under this Agreement as to a pupil, student, or public assistance recipient to any third party except as provided by FERPA and Section 228.093, Florida Statutes and in accordance with this Agreement.

H. Duration and Fees.

1. The initial term of this Agreement is the date that it has been executed by both parties through June 30, 2001. The parties may renew this Agreement annually for up to two years covering the period July I through June 30 contingent upon satisfactory performance evaluations by both parties and the understanding that the program will be continued without material change.

2. In consideration of the services provided by the Clearinghouse under this Agreement, the DOE agrees to pay the Clearinghouse <u>an annual fee</u> for the initial term of this Agreement equal to $0.015 multiplied by the total postsecondary enrollment in Florida as reported by the U.S. Department of Education for the period 1998-99, subject to a minimum fee

of $250 and a maximum fee $20,000 for services through June 30, 2001.

3. The DOE agrees to pay an annual fee equal to $0.015 multiplied by the total postsecondary enrollment in Florida as reported by the U.S. Department of Education for the most recent academic year preceding the term of the Agreement for which data have been reported. The Clearinghouse will provide the DOE with ninety (90) days prior written or electronic notice of any increase in the fee for this service. No increase shall take effect without the express approval of the DOE.

4. The DOE agrees to submit payment after receipt of an invoice from the Clearinghouse in accordance with Section 215.422, Florida Statutes. Invoices may be submitted no more frequently then at the end of a month in which DOE has submitted, and Clearinghouse provided the date for, one or more Evaluator Files.

H. Contact Information.

For the Clearinghouse:

John P. Ward, Vice President
National Student Clearinghouse
2191 Fox Mill Road, Suite 300
Herndon, VA 20171

For the DOE:

Jay Pfeiffer, Director
Bureau of Workforce Education and Outcome Information Services
Florida Department of Education
844 Turlington Education Center
325 West Games Street
Tallahassee, Florida 32399-0400

I. Notices.

All notices under this Agreement must be provided to the authorized officials identified in Section H.

J. Approval.

The undersigned authorized officials of the Clearinghouse and DOE commit their respective organizations to the terms of this Agreement.

APPENDIX C: ILLINOIS AND FLORIDA RECORDING SHARING AGREEMENTS

November 20, 2001

Bill Anderson
U.S. Office of Personnel Management
Office of Workforce Information Room 7439
1900 E. Street NW
Washington, DC 20415

Dear Mr. Anderson:

This letter is a request for your assistance. In order to satisfy the requirements of the Carl D. Perkins III federal legislation, the Illinois State Board of Education (ISBE) needs to report post-program outcomes to the U.S. Dept. of Education regarding former students. Many of these students obtain Federal employment following their graduation from Illinois schools. The ISBE requests to arrange a data match between the student records from Illinois and employment records from the U.S. Office of Personnel Management (OPM) to identify former students now in Federal employment. Enclosed is a Memorandum of Understanding for your review. Please inform us as to your requirements for this match to occur.

If the requested data match is approved, the preferred method of file transfer is over the internet using a password-protected ISBE FTP site. Alternatively, computer diskettes can be sent via postal mail or Federal Express. At this time, there are two student record files for which matching is sought. One contains approximately 84,000 secondary records, and the other approximately 43,000 post secondary records. The format of the files is fixed length ASCII.

- Columns 1-9 are SSN
- Columns 10-14 are School ID
- Columns 15-24 are filler
- Column 25 is cohort level (“P” or “S”)
- Columns 26-27 are Cohort year (00)

The data fields that the ISBE seeks in return are the following:

Field	Columns
• orig file	1-27
• ssn	28-37
• agency code	38-41
• agency name	42-93
• pay plan	94-95
• grade level	96-97
• occ'l code	98-101
• code translation	102-153
• basic pay	154-159
• work sched code	160
• State code	161-162
• State name	163-180
• date of hire	181-186
• date of exit	187-192

Following the match, the files on would be returned using one of the above mentioned methods with an explanation of the new file layout. Thank you for your help and attention in this matter. If there are any questions or matters to resolve, feel free to contact Barry Pedersen at 217/782-4620.

Sincerely,

Fran Beauman, Division Administrator
Workforce Preparation Partnerships

Memorandum Of Agreement Between The
Illinois State Board Of Education And The
Office of Personnel Management

This agreement, made the _____ day of _____ 2001, between the Illinois State Board of Education (ISBE) and the Office of Personnel Management (OPM). The purpose of this agreement is to designate the OPM as an "authorized agent" of the ISBE for purposes of obtaining and reporting information concerning the placement and retention of students in employment as required by section 113 of the Carl D. Perkins Vocational and Technical Education Act of 1998 (Perkins III).

RECITALS:

1. The ISBE maintains education records on enrollees that include information on student demographics, programs of study, achievement, attainment and social security numbers. Such records also include information on students participating in vocational education programs. The OPM maintains employment wage records for federal workers.
2. Perkins III (P. L. 105-332) creates a State performance accountability system for vocational education programs. States must report annually to the U.S. Department of Education (USDE) on the progress of the state in reaching agreed upon levels of performance on core indicators specified in the law. These core indicators include placement and retention in employment.
3. In order to determine employment outcomes for those vocational education students included in Illinois' Perkins III accountability system, the ISBE will supply the OPM with a list of the social security numbers of these students. The OPM will access its wage records using these social security numbers and determine employment outcomes for any of these students present in its database. The OPM will report the results of this analysis to the ISBE.
4. The Family Educational Rights and Privacy Act (FERPA) generally prohibits the disclosure of education records without the consent of the parent for children under the age of 18 or from students attending postsecondary educational institutions. Under FERPA, education records are defined as records directly related to a student and maintained by an educational agency or institution. The records accessed by the OPM to meet Perkins III performance reporting requirements are education records, and subject to FERPA.
5. FERPA contains several exceptions to the general rule that education records may not be disclosed without prior, written parental consent. One exception allows for disclosures to authorized representatives of the Secretary of Education, the Comptroller General, the Attorney General, and state and local educational authorities. Such a disclosure must be made in connection with an audit or evaluation of a Federal of State supported education program. The disclosure may also be made for the enforcement of or compliance with Federal legal requirements related to the Federal or State education program.

6. The disclosure of personally identifiable student information by local education agencies and educational institutions to the OPM is for the purpose of complying with the performance reporting requirements of Perkins III, and is permissible under FERPA. The USDE has concluded that the OPM can be designated an authorized representative for purposes of compiling and reporting information as required by Perkins III.
7. Without access to these records, the state of Illinois will not have the most complete and accurate performance information possible for compliance with Perkins III reporting requirements.

AGREEMENT

1. The ISBE designates the OPM as its "authorized representative" under FERPA for the limited purpose of analyzing student information provided by ISBE in order to comply with the performance reporting requirements of Perkins III. This authorization is limited to data obtained from the education records (as defined by FERPA) of secondary and postsecondary education students in Illinois. It is understood and acknowledged by the parties that the OPM will not redisclose any personally identifiable information to other than the ISBE.
2. The ISBE will deliver to the OPM electronic data files containing student records for analysis to determine their possible post-program employment status in the OPM database.
3. The OPM agrees to destroy all personally identifiable information, such as social security numbers, obtained from the above-referenced education records as soon as the results of the analyses performed have been delivered to the ISBE, or when the information is no longer needed, whichever comes first. All versions of such information and data, electronic, paper, or otherwise, must be destroyed.

This agreement shall be in effect for ____ years from the date of the last signature.

_____ _____

ISBE Date

_____ _____

OPM Date

INTERAGENCY AGREEMENT
BETWEEN
DEPARTMENT OF EDUCATION
AND
AGENCY FOR WORKFORCE INNOVATION

This agreement is made and entered into between the Florida Education and Training Placement Information Program (FETPIP) of the Department of Education (DOE) and the Agency for Workforce Innovation (AWI). It replaces the current agreement between the two agencies, which expired June 30, 2001.

WITNESSETH:

WHEREAS, the Florida Education and Training Placement Information Program (FETPIP) of the Department of Education (DOE) is charged in Section 229.8075, Florida Statutes with the responsibility of annually monitoring, analyzing, and reporting the employment and educational status of students and participants exiting various public education and training programs; and,

WHEREAS, the Florida Education and Training Placement Information Program (FETPIP) is used to support the placement reporting process for community colleges and school districts participating in the Vocational Education Performance-Based Incentive Funding program established in Section 239.249 Florida Statutes; and,

WHEREAS, the AWI has certain data which may be used for purposes of collecting and reporting placement information about former participants in the state system of public education and training, provided that the individual identity of former participants and their employing entities is not publicly disclosed; and,

WHEREAS, the AWI will share said data with DOE for reimbursement of actual cost; and,

WHEREAS, the AWI is expressly authorized to release such data to the DOE for FETPIP pursuant to Sections 443.171(7) and 443.1715, Florida Statutes, and

WHEREAS, FETPIP will provide education and employment follow-up data on former Job Training Partnership Act and Job Opportunities and Basic Skill Training Program participants to AWI in exchange for shared data; and,

NOW THEREFORE, the parties agree as follows:

The following terms have the following meaning when used in connection with this Agreement:

1. DEFINITIONS

A. Initial Cost - Any actual cost incurred by the AWI in delivering the services specified in implementing this agreement.

B. Base Period Wage File - Data from the latest five-quarter (5) wage file which lists all of the reported wages paid to the employee as contained through the latest completed wage file and identifies by account number the employer who made such reports. On a quarterly basis, data that is from the latest quarterly wage file which does not include wage listings which may exist in the DLES wage audit file.

C. Employer Master File - Data from the file which lists employer name and addresses, unemployment insurance account number, standard industrial classification (SIC) code, and number of employees.

II.DISCLOSURE

The parties acknowledge that the performance of this agreement involves a process in which preexisting records maintained by each agency for purposes other than the FETPIP program will be electronically linked to create new records needed to carry out the FETPIP program. The parties further acknowledge their obligation to perform this agreement in a manner that maintains compliance with both of them with the requirements of the Public Records Law, Chapter 119, Florida Statutes, and by each of them with other applicable statutes that constitute express exceptions to Section 119.07(l), Florida Statutes by establishing rights or duties of confidentiality, privacy, and nondisclosure. To fulfill that obligation, the parties agree as follows:

A. As to preexisting records, each agency will continue to manage its respective preexisting records in conformance with applicable statutes regarding public disclosure, privacy, and confidentiality

B. FETPIP shall safeguard and maintain the confidentiality of all information received under this agreement in accordance with Federal Regulations 7 CFR 272.8(a), 42 CFR 431.300F, 45 CFR 205.50, 45 CFR 303.21, and Sections 443.171(7) and 443.1715, Florida Statutes. Information regarding individuals and/or employers should be used only for purposes of collecting and reporting placement information about former participants in the state system of public education, licensed non-public schools, and training programs, provided that the individual identity of former participants and their employing entities is not publicly disclosed. Information regarding individuals thus obtained shall not be released or made available for public inspection. Information aggregated by education or training program, major course of study, school, or program level will be the only form in which the information will be published, thereby ensuring individual anonymity and confidentiality. No records or any information acquired from DUC shall be disclosed except as expressly authorized in this agreement.

III. IMPLEMENTATION

A. The AWI agrees to quarterly provide FETPIP a magnetic tape containing the employer master files and five quarters of base period wage files to include the most recent completed quarter and the immediately preceding four quarters. The files will be provided at the point during the reporting period when they reflect complete status.

1. The employer master file will include each reporting unit's unemployment insurance account number, SIC code, name, mailing address (in- state address, when reported, for those units having an out-of-state home office), phone number, number of employees, and county code.

2. Wage file data elements will include SSN, first three letters of last name, and wages paid identified by year and quarter, and employer account number. Batch and sequence numbers will be provided when applicable.

B. FETPIP agrees to the following, it will:

1. Notify AWI annually regarding its data collection time lines. This will include a written notification of expected data submission time lines.

2. Duplicate the files and return them to AW1 and perform all matching

3. Assure that the disclosure provisions provided in paragraph IV are adhered to.

4. Abide by the terms and conditions of any USDOL policy decision, rule or directive upon receipt of written notice from the AWI directing that they apply to this agreement.

C. The AWI will invoice FETPIP for costs associated with the quarterly provision of magnetic tapes in accord with the procedure outlined in Addendum A. FETPIP agrees to accept State of Florida SAMAS schedule of allotment balances as sole documentation for contract invoicing and will pay such invoice in accordance with applicable Florida Statutes. Payment will be mailed to the following address:

Agency for Workforce Innovation
The Office of Financial Management
The Atkins Building
1320 Executive Center Drive
Tallahassee, Florida 32399-2250

D. The cost of all expenditures will not exceed ten thousand dollars ($10,000.00). AWI reserves the right to modify the cost amount as the actual cost to run the data increase or decrease. AWI will notify DOE of the change and the agreed upon change will be incorporated by any amendment to this contract.

E. FETPIP may use the data provided by the AWI for any purpose required in carrying out the duties and responsibilities as authorized in this agreement.

F. FETPIP may provide output from the match system to assist other public education and training entities with data which may be used for the purposes of collecting and reporting placement information about former participants in the state systems of education and training, provided that the individual identity of former participants, their earnings, and their employing entities is not disclosed.

G. The parties shall coordinate their duties and responsibilities under this agreement through a centralized team consisting of representatives of both parties, identified by position, and shall make their respective representatives available for such meetings as are determined necessary to fully implement this agreement. The centralized team will include designated contract managers from each agency who shall be responsible in general for seeing that each party fulfills its responsibilities under the contract and specifically for assuring and documenting that data is respectively collected and delivered, or received, and accepted as provided in this contract.

H. Each party, as an agency of this state, shall be responsible to its own officers, employees, and authorized travelers for travel expenses, pursuant to Section 112.06, Florida Statutes, to the extent that such travel is needed to perform that party's responsibilities under this agreement.

I. The State of Florida's performance and obligation to pay under this contract is contingent upon an annual appropriation by the Legislature. Since both parties are agencies of the state, this provision shall apply equally to each of them.

J. In the event that the Governor and Cabinet are required to impose a mandatory reserve on Appropriations, the parties shall amend this agreement to place in reserve the amount each party determines to be necessary because of the mandatory reserve in the appropriation. Such amendments may provide for adjustments in the deliverable products and services as may be necessary.

K. Pursuant to Section 216.349(l), Florida Statutes, no funds under this contract may be used for purposes of lobbying the Legislature or a state agency.

IV. SAFEGUARDING INFORMATION

A. That, in accordance with the Social Security Act, applicable State and Federal Laws, rules, and regulations, FETPIP shall not use or disclose any of said information which would violate the terms of this agreement. In accordance with Section 443.17 (7), and 443.1715, Florida Statutes, any person receiving confidential information who violates the confidentiality provisions is guilty of a misdemeanor of the second degree, punishable as provided in Section 775.082 or Section 775.083.

B. The DOE agrees to:

1. Furnish an annual report to AWI describing the procedures established and utilized by FETPIP for insuring the confidentiality of unemployment compensation data.

2. AWI shall periodically monitor the security and safekeeping of the unemployment compensation data and DUC shall be reimbursed for actual costs related to the monitoring. DUC shall inform DOE in advance of the monitoring and provide FETPIP an estimate of costs.

3. AWI shall not be held liable for inaccuracies that may be contained in the data.

4. FETPIP shall have all personnel accessing confidential unemployment compensation data sign an acknowledgement regarding the confidentiality requirements.

5. All electronic and paper records containing individually-identifiable data collected pursuant to this agreement, shall be maintained in secure data processing facilities and stored in securely locked cabinets.

V. RETENTION OF RECORDS

DOE shall dispose of all disclosed information and any copies thereof, after the purpose for which the information is disclosed has been served, or five years after the receipt of the information, whichever is sooner. An exception is made for any information filed in the records of any court case. The DOE shall dispose of all disclosed information in the following manner. Confidential information in report form should be shredded finely enough to prevent possible recovery of information. Electronic media such as tapes or diskettes should be totally erased, electronically overwritten, or physically destroyed. Simple deletion of files will not accomplish the destruction of data.

VI. Amendments, Extensions, and Termination

A. This agreement incorporates all prior negotiations, interpretations, and understanding between the parties and is the full and complete expression of their agreement. Any change, alteration, deletion, or addition to the terms set forth in this agreement must be by written Amendment executed by both parties.

B. No employees of the AWI or DOE other than the parties who execute this agreement, or their future designees whose name(s) shall be provided in writing to DOE by the Process manager and provided to the Division by the Commissioner of Education, shall have authority to amend or otherwise to alter, delete or waive any provisions of this agreement, either expressly or by implication. No advice or assistance that may be rendered by such employees shall relieve DOE of any of its responsibilities set forth herein or add to the obligations of the AWI.

C. The agreement may be renewed in accordance with F.S. 287.058(l)(f) on an annual basis for a maximum of two years after the initial agreement under the same conditions. The renewals shall be contingent upon satisfactory performance evaluations by the Department of Education, and the mutual agreement of the parties.

D. Either party may terminate this agreement for cause at any time, without prior notice or warning effective immediately upon receipt by the other party of written notice of termination for cause.

E. Either party may terminate this agreement, without cause, for its convenience, by providing a minimum of thirty (30) days written notice thereof to the other party.

F. The term of this agreement shall begin on July 1, 2001 or upon the date of the last signature, whichever is later, and shall expire on June 30, 2003.

IN WITNESS WHEREOF, the parties, in consideration of the mutual covenants of the agreement, have caused this agreement to be executed by their officials thereunto duly authorized.

FLORIDA EDUCATION AND TRAINING PLACEMENT INFORMATION PROGRAM OF THE DMARTMENT OF EDUCATION	FLORIDA AGENCY FOR WORKFORCE INNOVATION

Addendum A

State of Florida
Agency for Workforce Innovation

Requests for reimbursement will be based upon actual expenditures by the State of Florida Agency for Workforce Innovation in carrying out the requirements of the agreement. The requests will be computed quarterly as outlined in the example below.

EXAMPLE

Personnel Salaries and Benefits -		
# of hours (X) actual hourly rates	$75.00	
(+) benefits at standard %.		
Non-Personnel Services -		
actual costs for expense items i.e., equipment,		
supplies, communication, etc. (# of hours (X)	$25.00	
actual NPS hourly rate)		
These costs include moving data to and from tape, all I/O charges on DASD, CPU minutes, and all laser print associated with the job		
Salaries for Administrative Staff		
(approximately 15%)		$15.00
Total Requested	$115.00	

APPENDIX D: OVAE NONTRADITIONAL MEASURE GUIDEBOOK

Core Indicator 4: Nontraditional

MEASUREMENT OBJECTIVE

All secondary students should have the opportunity to pursue studies in a vocational education program area of their choice, including those that are nontraditional for their gender. To ensure all students have access to vocational programs, Congress requires state and local education agencies to track student participation in and completion of career and technical education programs that lead to nontraditional training and employment.

MEASURE CONSTRUCTION

Participation and completion rates are based on the number of students who enroll in or complete a state-identified program associated with nontraditional employment in the field. Rates are calculated using the following formula:

Participation

Numerator: Number of students in underrepresented gender groups who participated in a nontraditional secondary/postsecondary program in the reporting year.

Denominator: Number of students (male and female) who participated in a nontraditional secondary/postsecondary program in the reporting year.

Completion

Numerator: Number of students in underrepresented gender groups who completed a nontraditional secondary/postsecondary program in the reporting year.

Denominator: Number of students (male and female) who completed a nontraditional secondary/postsecondary program in the reporting year.

DEFINITIONS

Nontraditional Training and Employment

Occupations or fields of work, including careers in the computer science, technology, and other emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work.

Nontraditional Vocational Program

A vocational program area that addresses occupational areas in which underrepresented gender groups comprise less than 25 percent of employed persons.

Crosswalk of Occupations and Vocational Programs

A list that associates occupations or fields of work that are identified as nontraditional in the labor market with the vocational program areas that prepare students for entry into these fields.

DATA COLLECTION STRATEGIES

States are required to report counts of the number of students participating in, and completing nontraditional vocational program areas. To assist LEAs in identifying students, states often provide LEAs with a crosswalk that relates occupations that are nontraditional for each gender with the vocational program areas, courses, or clusters that prepare students for entry into these occupations.

STRATEGIES FOR IMPROVING DATA QUALITY

Challenge*: What should I do if my state has not identified a set of nontraditional occupations and/or provided LEAs with a consistent crosswalk of occupations and vocational educational programs?*

Solutions:

- Consult with state vocational administrators to identify national or state data sources that can be used to identify occupations that are out-of-balance in the workplace, and develop a consistent set of guidelines to assist LEA in identifying vocational courses and program areas that are nontraditional. Use the handout "Strategies for Identifying Nontraditional Vocational Programs" at the end of this unit to assist in developing state criteria.
- Develop a list of vocational course or program numbers, coded using a standardized state instructional classification system, which LEAs can use to identify instructional programs that are nontraditional.
- If no standardized state instructional classification system exists, consider developing descriptions of the skills associated with state-identified, nontraditional occupations. This will assist LEA staff in associating their instructional coursework with nontraditional occupations. Consult the Occupational Information Network (O*NET) developed by the U.S. Department of Labor for a description of job skills associated with specific occupations. The complete list can be found at the following website: http://www.doleta.gov/programs/onet/

***Challenge**: It appears that some LEAs have difficulty identifying students participating in vocational coursework or program areas associated with occupations that are out-of-balance. How can I improve reporting?*

Solutions:

- Provide LEAs with definitions of key state terms, including vocational participant, vocational completer, and nontraditional vocational program area, as well as clear descriptions of vocational program areas that prepare students for nontraditional occupations or careers.
- Encourage LEAs to use individual student record data, harvested from student transcripts, to identify individuals participating in nontraditional vocational studies.
- Develop clear, written instructions that LEA staff—including administrators or teachers of vocational programs—can consult when counting the numbers of students participating in or concentrating in nontraditional instructional programs.

***Challenge**: How can I ensure that each LEA accurately classifies nontraditional students over time?*

Solutions:

- Encourage LEAs to compare state crosswalks against their own course offerings each year to ensure that state-identified instructional programs correlate with local record systems and account for any changes over time.
- Ask LEAs to compare their annual counts of student participation and completion against prior year data to see if there are any differences that are difficult to explain.
- Suggest that LEAs assign a single individual to collect and enter data each year to lower the likelihood of mistakes and to routinize reporting.
- Hold annual state trainings geared toward new LEA staff who are responsible for collecting Perkins data.
- Develop clear written instructions that stipulate procedures for collecting and reporting data.

***Challenge**: Staff at many LEAs view reporting as a bureaucratic exercise and do not take the time or effort to collect quality data or improve student access to nontraditional programs. What can I do to promote buy-in?*

Solutions:

- Provide LEAs with summary state data that will enable them to evaluate their own success in improving student access to nontraditional vocational program areas.
- Share state data with parents, legislators, and the press.

- Consult with associations, such as the National Alliance for Partnerships in Equity, to identify strategies and materials that will support teachers and administrators in reforming instructional strategies.
- Provide technical assistance workshops at the LEA level to communicate the importance of equity and to help institution staff understand why they are collecting data.

FREQUENTLY ASKED QUESTIONS

Q: May I use course enrollments to identify nontraditional areas of study in lieu of state-identified ones?

A: No, Perkins is quite specific in requiring that nontraditional programs be identified based on the composition of the workforce. As such, LEAs must use state-identified crosswalks or program lists to identify vocational instructional areas that are associated with occupations that are out-of-balance in the workplace. This may mean that, in some instances, enrollments in local programs may not appear out-of-balance.

Q: What should I do if my state does not provide me with a list of program areas or courses that are nontraditional, but only a list of occupations that are out-of-balance in the workplace?

A: In the event that your state does not provide clear guidelines for identifying nontraditional instructional areas you will need to develop some means of relating occupations with vocational programs offered in your agency. The preferred approach is to use the Classification of Instructional Programs, a guide developed by the U.S. Department of Education that describes the vocational coursework that corresponds to a range of occupations in a given field. Electronic copies of the report are available on the U.S. Department of Education website at the following address:

http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=91396

To assist your state in interpreting your data, you should include a copy of your classification scheme with the data you submit and use the same methodology over time. Irrespective of the approach you use to identify vocational programs, you should be consistent in your measurement over time to ensure data are comparable across years.

Q: What constitutes participation in a nontraditional program area?

A: A vocational participant describes a student who enrolls in a vocational program area or course that prepares individuals for entry into a nontraditional occupation, as identified by your state.

Q: What constitutes completion of a nontraditional program area?

A: A vocational completer describes a student who fulfills a set of state-defined criteria that signifies that he or she has mastered a set of academic and/or technical skills to prepare him or her for future education and career success. Consult the definitions developed by your state to determine what constitutes completion in your state.

Q: Which students should be included in the denominator for this measure?

A: The denominator of this measure should include all students, male or female, who participate in or complete a vocational program area or course designated as nontraditional by your state.

A GUIDE TO CROSSWALKING NONTRADITIONAL OCCUPATIONS AND PROGRAMS

Step 1: Identify Occupations That Are Nontraditional in the Workforce

In collaboration with state vocational education administrators, identify a set of occupations—based on state or national data—that are nontraditional for either sex. State-specific occupational data can typically be obtained from your state's department of economic development or other employment agency. To assist states, OVAE has identified nontraditional occupations based on national data collected by the U.S. Department of Labor, Bureau of Labor Statistics, a copy of which is included in this handout.

Step 2: Identify Work Skills Associated With Nontraditional Occupations

Begin by identifying the skills associated with each nontraditional occupation. Skill lists can be obtained by reviewing O*NET, developed by the U.S. Department of Labor. Access the site by entering the following URL on your Internet browser: http://www.doleta.gov/programs/onet/

Next, search for the occupation you've identified as nontraditional and identify the skills that are required for workers in this field. Alternatively, you may consult with industry associations or educators in your state to identify the skills required for success in a given nontraditional occupation.

Step 3: Crosswalk Nontraditional Occupations with Vocational Education Programs

Identify vocational education programs within your state that prepare students for entry into the nontraditional occupations you identified above. Depending upon your state, you may have a number of options to use to associate occupations with vocational programs in your state.

1: State Classification Systems

If your state maintains a standardized classification system for vocational education that all LEAs use to code courses, then you may want to base your

crosswalk on this system. For each nontraditional occupation, link the occupational skills you identified with a vocational program area code identified by your state. Ideally, each occupation will correspond to a single course sequence; however, don't be surprised if one vocational education program area prepares students for multiple occupations. Consult with state vocational education curriculum experts if you are not sure of the skills taught within a given vocational sequence.

2: National Classification Systems

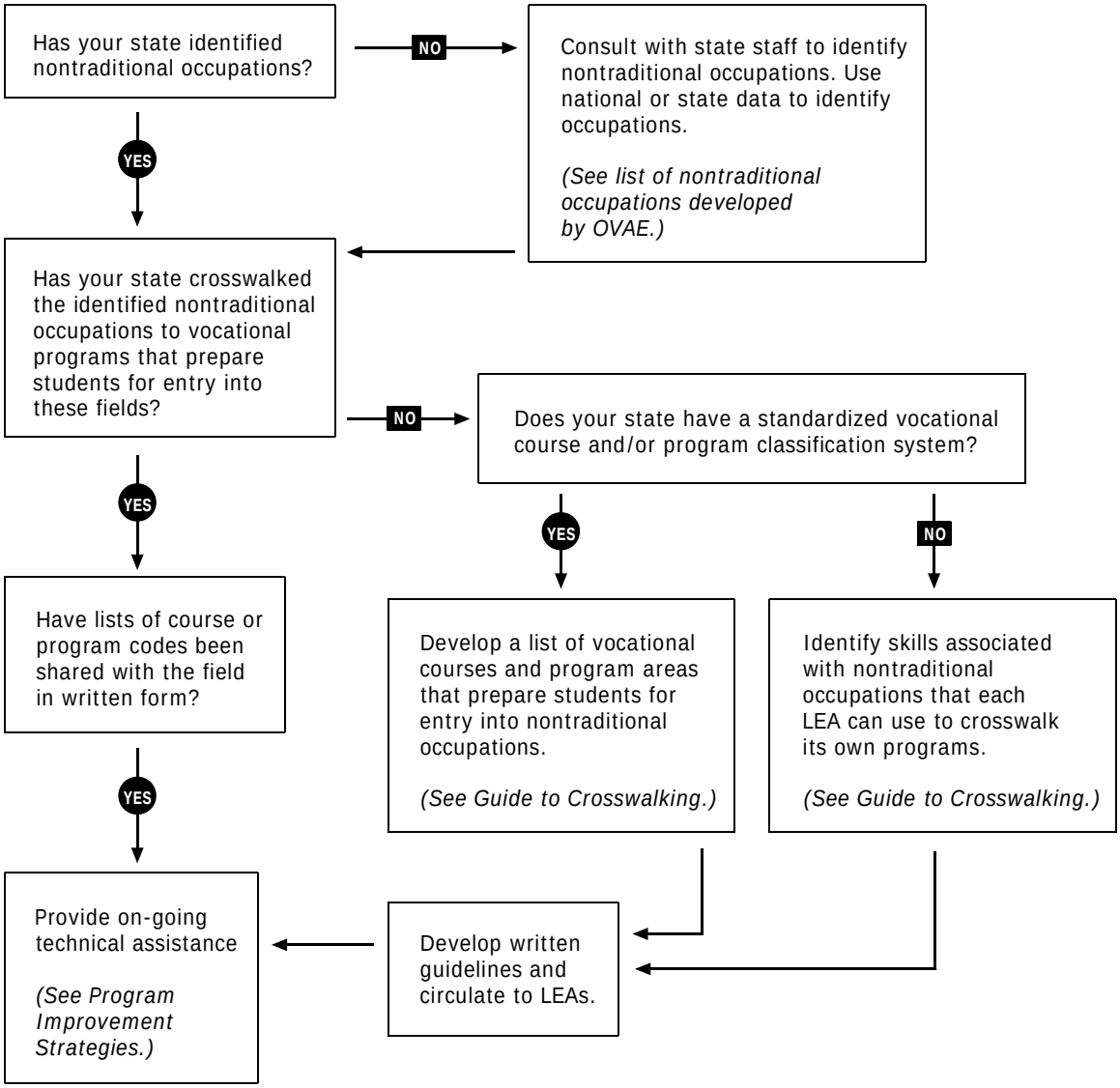
If your state relies on local agencies to develop their own course and program codes, you may want to consider using the Classification of Instructional Programs (CIP) codes developed by the US Department of Education to crosswalk occupations with vocational education programs. You may access the most current CIP by entering the following URL on your Internet browser: http://nces.ed.gov/npec/papers/cipPreface.html

For each occupational skill, search the CIP for the vocational program area that provides students with the skills required for success in the nontraditional occupations you have identified.

Step 4: Develop and Circulate Instructions to LEAs

Using the list of vocational programs you identified above, develop written guidelines to assist LEAs in identifying nontraditional programs. Ideally, these instructions will contain a list of course codes or descriptions of vocational programs that will enable all LEAs in the state to report on students participating in similar courses, irrespective of the program classification system used locally.

Strategies for Identifying Nontraditional Vocational Programs



APPENDIX E: MASSACHUSETTS NONTRADITIONAL CROSSWALK

District/School Resources PK-16 Program Support

Career & Technical Education

CTE Home
VTE Curr. Frameworks/Cert. of Occup. Proficiency
Chapter 74
Cooperative Education
High Schools That Work
Nontraditional by Gender
Perkins Act
Reporting/Data
Request for Proposals (RFP)
Safety and Health
State Director's Update
Tech Prep
Voc Tech Educator Licensure
Links and Resources
Career Development
Curriculum Resource Center
Contact CTE Staff

List of Nontraditional Occupations by CIP Codes for Secondary Schools

Non-Traditional for Females:	
Chapter 74 Programs 010301 - Agric Prod Workers/Mgrs 030401 - Forestry Harvest / Production 100104 - Radio & Tv Broadcast Tech 110201 - Computer Programming * 150101 - Architectural Engin Tech 150201 - Civil Engineering /Tech 150303 - Electric/Onic & Comm Tech 150304 - Laser & Optical Tech 150399 - Electric/Onic Tech, Other 150402 - Computer Maintenance Tech 150403 - Electromechanical Tech 150405 - Robotics Technology 150501 - Air, Cond, Heating, Ref Tech 150506 - Waste & Wastewater Tech 150507 - Environmental Control Tech 150603 - Industrial/Manufact Tech 150607 - Plastics Technology 150702 - Quality Control Tech 150803 - Automotive Engineering	460501 - Plumber & Pipefitter 470101 - Electric/Electronic Eq Inst 470103 - Communic Syst Install & Repair 470104 - Computer Installer/Repair 470106 - Maj Appliance Inst/Repair 470201 - Heating, A/C, Refrig Mech 470302 - Heavy Equip Maint & Repair 470501 - Stationary Energy Sources 470603 - Automotive Body Repair 470604 - Automotive Mechanic/Tech 470605 - Diesel Engine Mechanic 470606 - Small Engine Mech/Repair 480501 - Machinist/Machine Tech 480503 - Machine Shop Assistant 480506 - Sheet Metal Worker 480507 - Tool & Die Maker/Tech 480508 - Welder/Welding Tech 480703 - Cabinetmaker & Mill Worker 490102 - Aircraft Pilot/Navigator 490306 - Marine Maint/Ship Repair Non-Chapter 74 Programs 1500 - Engineering & Related Technology 4600 - Construction Occupations

150805 - Mechanical Engineering 150899 - Mech Engineering Tech, Other 430107 - Law Enforcement, Police Sc 430201 - Fire Protection & Safety 460101 - Mason & Tile Setter 460201 - Carpenter 460302 - Electrician 460401 - Building & Prop Maintenance	4700 - Repair and Maintenance Occupations
* The Massachusetts labor market data for 110201 COMPUTER PROGRAMMING indicate that this occupational field is now more than 25% Female. Thus, this CIP Code will no longer be considered Non-Traditional after Reporting in School Year 2004-05.	

Non-Traditional for Males:	
Chapter 74 Programs 080102 - Fashion Merchandising 080705 - Gen Retailing Operations 081104 - Tourism Promotion Oper 081105 - Travel Services Marketing 081199 - Tourism & Travel Mktg, Other 120403 - Cosmetology 131501 - Teacher Assistant/Aide 200201 - Child Care & Guidance Worker 200202 - Child Care Provider/Asst 200203 - Child Care Services Mgr 220103 - Paralegal/Legal Assistant 510205 - Sign Language Interpreter 510301 - Community Health Liaison 510601 - Dental Assistant 510602 - Dental Hygienist 510706 - Medical Records Admin 510707 - Medical Records Tech 510708 - Medical Transcription 510801 - Medical Assistant 510803 - Occupational Therapy Asst 510910 - Diagnostic Med Sonography	511601 - Nursing (R.N. Training) 511603 - Nursing, Lpn 511614 - Nursing Assistant/Aide 512306 - Occupational Therapy 512601 - Health Aide 520401 - Admin Asst/Secretary, Gen 520402 - Exec Adm Asst/Secretary 520403 - Legal Adm Asst/Secretary 520404 - Medical Adm Asst/Secretary 520407 - Info Proc/Data Entry Non-Chapter 74 Programs 1900 - Early Childhood

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APPENDIX F: MPR LITERATURE REVIEW ON NONTRADITIONAL CTE PROGRAMS

Assessing Career Technical Education Programs that Prepare Students for Careers Nontraditional by Gender: A Review of the Literature

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Prepared for:

Massachusetts Department of Education

Submitted by:

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Introduction

State and local education agencies are experimenting with strategies to increase student participation in secondary career and technical education (CTE) programs nontraditional for their gender. This review draws on the gender equity research literature, supplemented by conversations with state administrators and professional association advocates, to highlight promising approaches for improving student outcomes in secondary nontraditional CTE programs. It is anticipated that the findings of this review, coupled with analysis of state vocational data, will inform Massachusetts Department of Education's (MDOE) efforts to increase student enrollment and retention in, and completion of nontraditional CTE coursework.

In 2002, women comprised just less than half (47 percent) of the total labor force (male and female) ages 16 years and older (USDOL, 2004a). Although the proportion of females in the workplace has approached that of males, women continue to lack the technical skills to compete in a subset of occupations traditionally dominated by men. According to recent data, women remain concentrated in clerical and service jobs, with over one-half (53 percent) employed in three occupational areas—sales, services, and administrative support—compared to about one-quarter (27 percent) of male workers (USDOL, 2004b). While the reverse situation applies to a lesser extent—that of men shut out of female-dominated occupations—the reality is that gender-biased employment continues to persist in the workplace for both sexes.

While many factors contribute to gender bias in the workplace, the obstacles that prevent adults from participating in nontraditional occupations are rooted in the exploratory stages of career development, when middle and secondary students consider and reject certain fields in which to pursue coursework. Eliminating gender bias begins with providing *all* students with early and equal access to CTE coursework, and ensuring that all have the tools and support to complete their training once they enroll.

To counter the traditional gender bias that pervades many CTE programs, the Carl D. Perkins Vocational and Technical Act of 1998 (Perkins) requires states to report on

student participation in and completion of CTE programs that prepare them for employment in occupations or fields of work that are out of gender balance, defined as those in which one gender comprises less than 25 percent of employed individuals. Accountability measures built into the legislation require state administrators to establish performance targets for nontraditional programs, and hold them responsible for making continuous annual progress toward reducing gender bias.

This literature review is part of a larger research effort intended to provide the Massachusetts Department of Education with a set of recommendations for increasing student involvement in nontraditional CTE programs, along with an action plan and resources for translating these recommendations into practice. This paper profiles effective strategies reported in the research literature and promising programs currently in use by state and local educators. Its findings are intended to lay a groundwork for the development of subsequent study deliverables, as well as to direct Massachusetts's state administrators to potentially useful resources for state application.[1]

The paper opens with an overview of state policy initiatives to increase gender equity at the secondary level. This includes an analysis of statewide performance data collected under Perkins and its uses for program improvement purposes. The focus then turns to promising state-led initiatives, highlighting promising practices and quantitative evidence supporting their success. Section 2 highlights program components that research suggests are crucial to reform success, and illustrates their application with examples of innovative programmatic initiatives that educators and gender equity advocates have developed. The paper concludes with a summary of the implications of research findings for future work.

[1] It is beyond the scope of this paper to provide a detailed accounting of the mechanism and interplay of reform components within identified projects. Accordingly, project descriptions in this paper are intended to provide an overview of the reform strategy and to provide interested readers with sources for additional information.

Section 1: State-level Initiatives

Review of Perkins accountability data suggests that states are increasing student access to nontraditional CTE programs, and retaining participants until they complete their program of studies. These positive gains are tempered by evidence suggesting that states are using conflicting approaches to identify student populations and quantify performance outcomes. This section opens with a discussion of issues complicating analysis of nontraditional student outcomes under Perkins, and their implications when attempting to isolate best practices within what appear to be exemplary states.

Despite a dearth of valid data, many states have developed promising initiatives to increase student participation in CTE programs nontraditional for their gender. To assist Massachusetts state administrators in identifying programs that may have state application, the section continues with a profile of promising practices developed by states. Program summaries include brief descriptions of how programs operate and, to the extent it exists, evidence supporting their success.

State Reporting Under Perkins

Each year, the Office of Vocational and Adult Education (OVAE), US Department of Education, produces a report to Congress summarizing state performance on the core indicators of performance contained in Perkins. Included in this report are data on student participation in and completion of vocational and technical education programs that lead to nontraditional training and employment. Findings from program year 2001-02 indicate that states are making significant progress in reducing gender equity associated with student participation in CTE programs (USDOE, 2004).

According to federal analyses of state-reported outcomes, 38 states met or exceeded their performance targets for secondary nontraditional program participation in 2001-02, with nine states meeting their targets for all disaggregated student categories (i.e., economically disadvantaged, disabled, single parents, displaced homemakers, and LEP

students). Furthermore, 39 states met their performance levels for secondary nontraditional program completion, with seven states achieving their performance targets for all disaggregated categories.[2]

These positive findings suggest not only that a majority of states have been successful in reducing gender bias within CTE programs, but also that a subset states are making remarkable progress in increasing nontraditional program outcomes for all special population students. While it is tempting to use these states as a starting point when searching for exemplary programs, closer examination of state accountability systems under Perkins reveals structural issues that call into question the validity of state-reported gains.

What Constitutes a Nontraditional Program?

The federal government provides states with considerable flexibility in identifying occupations that are out of gender balance in the workplace. Some states have conducted internal analyses of gender imbalanced occupations using their own state labor market data, while others have used national data compiled by the Bureau of Labor Statistics. Since gender distributions within occupations may vary across states, states analyzing their own data may identify different occupations as gender imbalanced. Due to differences in state industrial bases, changes in economic conditions may differentially affect state outcomes. As a consequence, it can be difficult to disentangle the effect of internal state efforts to leverage change from external factors that states are unable to control.

To assist states in linking gender imbalanced occupations with educational programs, OVAE created a crosswalk of occupations based on the Classification of Instructional Programs (CIP) code developed by the National Center for Education Statistics (NCES, 1996). States seeking to develop their own crosswalks were urged to generate a list of out-of-balance occupations and their associated vocational programs, classified by course

[2] Most state administrators know these measures by the shorthand developed by OVAE: 4S1—student participation in nontraditional programs, and 4S2—student completion of nontraditional programs.

or program number. Differences in how states classify vocational coursework, as well as the courses included in CTE program sequences will affect the number of students who are counted as enrolled in nontraditional CTE coursework.

Other factors that can affect state performance outcomes include how states define key measurement terminology, which grade levels of students are included in data collection, the specification of numerator and denominators in state measures, the timing of states' measurement, and the reliability of data collection procedures used by local educators.

The result of this variation is that states have established dramatically different performance targets for Perkins nontraditional measures. To illustrate, state performance targets for nontraditional program completion in 2001-02 ranged from a low of 4.3 percent in Indiana to a high of 90.5 percent in Oregon, with most states reporting targets in the 20-30 percent range (USDOE, 2004). Moreover, it is not clear that state performance targets are grounded in reality. As an example, consider the experience of Georgia, which set a performance target for program completion of 16.4 percent in 2001-02, but recorded a rate of 37.8 percent, 130 percent higher than its performance goal.

This variation in performance targets—both across and within states—undercuts the use of federal Perkins data for use in identifying exemplary states. Without detailed information on how state performance measures are developed, it is impossible to differentiate states succeeding in reducing gender imbalance due to their measure construction from those that have introduced innovative programs worthy of replication.

Promising State Initiatives

In an effort to identify promising state (and locally) developed programs, Mimi Lufkin, Executive Director of the National Alliance for Partnerships in Equity (NAPE), sent out a request for information on the NAPE ListServ, which includes over 130 state and local gender equity experts throughout the United States. IFWC researchers also conducted their own independent review of the literature to identify promising state initiatives that can improve nontraditional student enrollments. What follows is a summary of gender

equity “best practices” that educators throughout the country are using to leverage instructional change.

Nearly all of the programs profiled focus on increasing outcomes for females participating in coursework associated with traditionally male dominated occupations. This focus is due, in large part, to states’ decision to target program improvement efforts on high wage, high skill occupations that are out of gender balance. While it has been argued that increasing male participation in traditionally female-dominated occupations could potentially bid up wages in low-paying jobs, such as childcare and cosmetology, state administrators have targeted reforms on male-dominated careers in the belief that it is better to steer females into high paying professions than to encourage males to participate in low paying ones.

Ideally, the initiatives highlighted in this report would all have been selected based on solid evidence of their effectiveness. Unfortunately, relatively little empirical evidence is available to substantiate the success of state (and local) initiatives. As a consequence, this review relies primarily on information gathered from a variety of sources, including published evaluations, program brochures, and anecdotal reports. What follows, then, is a subset of state-developed programs that, based on available evidence and a review of program components, have been proven or promise to improve female participation in, and completion of traditionally male-dominated CTE programs.

:

California's Nontraditional Careers 101

- *Key Strategies*: Professional development
- *Target Population of Students*: Secondary and postsecondary
- *Targeted Outcomes*: Awareness, recruitment, and placement
- *Internet Address*: http://www.nontrad101.org

The California Department of Education, in partnership with the Sacramento County Office of Education, has produced a free, 15-hour online course, *Nontraditional Careers 101 for Educators*. Course material can be used without requesting prior approval, and can be adapted to provide a state or regional perspective.

Course curricula address instructor awareness of nontraditional issues, student recruitment and assessment, strategies for retaining students once they enroll, and approaches for placing students in nontraditional jobs. The course features self-checks, tips, quizzes, assignments and resources. A certificate of completion for 15 hours can be used to document professional development.

Although there is no formal evaluation available of the Internet-based program, in its first eight months of operation, approximately 500 participants logged on to access available tools.

Family Tools and Technology (New Jersey)

- *Key Strategies*: Curriculum and instruction; Parent involvement
- *Target Population of Students*: Grades 4-7
- *Targeted outcomes*: Awareness, recruitment, and placement
- *Internet Address*: see for example **http://www.trenton.k12.nj.us/Franklin/FTTnights.htm** or **http://www.rci.rutgers.edu/~cfis/ftt.html**

Rated a promising program by the 2000 OVAE Gender Equity Expert Panel, Family Tools and Technology (FT&T) is a coeducational after-school program targeting girls in grades 4-7, along with their parents. The program challenges traditional gender expectations by providing career role models and activities that allow girls to gain the same technology and pre-engineering experience as boys. Children and parents collaborate in problem-solving activities that illustrate the importance of mathematics, science, technology and engineering in the world beyond the classroom.

The program is a basis for New Jersey's Statewide Systemic Initiative to strengthen mathematics, science, and technology education for all students in the state. Project supports include training, manuals, tools, materials, and continuing technical support project trainers. Although all original sites were in New Jersey, the project's outreach has since expanded to New York, South Carolina, and California. FT&T is designed for use with diverse multigenerational family members in mixed-sex settings, and program activities are aligned with and reinforce national mathematics, science, and technology education standards, in addition to New Jersey State Core Curriculum Content Standards.

Evaluations in 1996 and 1997 relied on pre- and post-questionnaires for students, teachers, and parents. Participants all showed improvement as a result of participating in the program, especially regarding issues of gender equity in science and technology. For example, there was some evidence of increased use of tools by girls and decreased gender stereotyping; parents reported encouraging their children to use tools and technology; and teachers reported modifying their instructional practices to ensure texts and activities were unbiased, keeping track of the number of times girls and boys asked and answered questions in class, and including research projects on women scientists in the curriculum.

The Tackle Box Project (Wisconsin)

- *Key Strategies*: Professional development, Curriculum and instruction, Parent involvement, Business and industry involvement
- *Target Population of Students*: High school students
- *Targeted outcomes*: Awareness, recruitment, retention, completion
- *Internet Address*: *http://www.cew.wisc.edu/tackleBox/*

The Technology Action Coalition to Kindle Lifelong Equity (TACKLE) Box Project is a comprehensive initiative that provides training and information to increase the number of girls and young women in technology education and is a component of the Wisconsin statewide reform movement in technology education. A secondary goal is to provide a model for educational equity in all career and technical education programs. The initiative receives Perkins funds and includes a full spectrum of strategies that involve teachers, school administrators, counselors, parents, industry partners and the students themselves.

All of the strategies address one or more factors that research has shown to influence gender equity, including social fit, classroom climate, gender inclusive curriculum and instruction, role models and mentors, and messages from counselors. Key partners on the project include the University of Wisconsin at Madison, University of Wisconsin-Stout, and educators from across the state. Even though the TACKLE Box Project is gaining popularity as an effective model for increasing nontraditional participation in technology education, no evaluation data is currently available.

Destination Success (MAVCC)

- *Key Strategies*: Toolkit: Professional development, Mentoring, Business and industry involvement
- *Target Population of Students*: Secondary
- *Targeted outcomes*: Awareness, recruitment, retention, placement
- Internet Address: *http://www.mavcc.com/nontrad.htm*

The Multistate Academic Vocational Curriculum Consortium (MAVCC) is a nonprofit organization consisting of the ten member states of Arkansas, Georgia, Iowa, Kansas, Louisiana, Oklahoma, Pennsylvania, South Dakota, Tennessee, and Texas. Founded in 1974, MAVCC is located in Stillwater, Oklahoma, at the Oklahoma Department of Career and Technology Education, which administers the agency. Member states pay $20,000 per year; in return, MAVCC staff produce instructional materials that no one state could afford to produce; these materials are disseminated at minimum cost to both instructors and students.

The organization's newest product is called *Destination Success: Tools for Improving Student Outcomes in Nontraditional Programs.* The toolkit draws upon extensive research on gender equity in traditionally male-dominated fields summarized by Mimi Lufkin in her paper, *Taking the Road Less Traveled.* Produced as a CD, the product contains "How to" materials designed to provide educators with concrete examples to support the original *Taking the Road less Traveled* Toolkit. The CD also contains a number of different resources, including tip sheets, activities, projects, surveys, and forms for each of the four areas addressed in the original tool kit. While no formal evaluation of project materials exists, gender equity administrators from the field reported that MAVCC is currently in use by many states to increase enrollment in nontraditional CTE programs.

United Connecticut for Women in Science, Mathematics, and Engineering (Connecticut)

- *Key Strategies*: Professional development, partnerships with education institutions and business/industry, gender equity toolkit and other resources
- *Target Population of Students*: Secondary and postsecondary
- *Targeted outcomes*: Awareness, recruitment, retention, placement
- Internet Address: http://biology.easternct.edu/Cid/UCWSME/UCWSME.html

Supported by the NSF, the United Connecticut for Women in Science, Mathematics, and Engineering is a coalition to unite the state's education programs (K-16), community groups, and businesses in working toward attracting and keeping girls and women in science and technological studies and careers. The project established a clearinghouse of information on Connecticut's gender equity programs, increased public awareness of gender equity issues, informed Connecticut's urban middle school girls about Science, Technology, Engineering and Mathematics careers, and increased their confidence about pursuing them. The project also provided training in gender-equitable teaching. The coalition's work has resulted in the following key alliances: a new state chapter of the Association for Women in Science that assists with gender-equity workshops and mentoring activities for girls and women; and, partnerships between schools, postsecondary institutions, and businesses/industries designed to enhance middle- and high-school girls' self-esteem and knowledge about science and technology.

Project products include a CD-ROM, tip-sheets for parents and teachers, and a gender-equity resource guide.

Training-the-Trainer Program

- *Key Strategies*: Professional development
- *Target Population of Students*: Grades 4-7
- *Targeted outcomes*: Recruitment, retention and completion
- *Internet Address*: http://www.iwitts.com/html/state___local_training.html

Developed by the Institute for Women in Trades, Technology and Science (IWITTS), the Train-the-Trainer program has been used by many states to provide professional development to teachers to prepare girls and women for technology careers. As one example of this program, this review presents the use of the model in North Carolina where training was funded through an NSF grant. With the goal of saturating the education system with school-to-work and gender equity workshops using the IWITTS model, North Carolina's emphasis was on training teachers and counselors to prepare girls for such nontraditional careers as electrician, computer network engineer, and automotive technician. In July 1998 IWITTS held a demonstration train-the-trainer workshop for 32 teachers, guidance counselors, and school-to-work coordinators.

Training materials included videos, printed materials, and Internet support strategies. Teachers reported that the video, *Futures: Preparing Young Women for High Skilled, High Wage Careers*, was particularly useful because it combined examples of gender equity bias in the workplace and interviews with teachers, students, and parents to communicate practical strategies for involving female students in traditionally male-dominated classes. The video also provided strategies for easing their integration into the workplace through work-based learning experiences, such as internships, job shadowing, cooperative education, apprenticeships, and school-based enterprises.

Although the low response rate to post-project questionnaires makes it difficult to draw conclusions about program impacts, participants reported that the proportion of girls selecting traditionally male career majors increased dramatically—from 20 percent in 1998 to 50 percent in 1999. Girls enrolling in work-based learning activities increased from 19 percent to 42 percent over one year. Vocational/technical teachers also reported an increase in female students enrolled in nontraditional career courses—from 15 percent to 26 percent over a year.

Women in Engineering (Maryland)

- *Key Strategies*: Mentoring, Role models
- *Target Population of Students*: Secondary and postsecondary
- *Targeted outcomes*: Awareness, recruitment, retention
- *Internet Address*: http://www.engr.umd.edu/wie

The goal of the Women in Engineering program at the University of Maryland is to recruit and retain women engineering students at the pre-college, undergraduate, and graduate levels. The program has the following three components: Exploring Engineering, a summer camp for 10th and 11th grade students; KEYS to Empowering Youth, a summer camp for 7th and 8th grade students; and RISE, a first-year orientation program for incoming college students.

As part of the Exploring Engineering program, students live on campus for a week and explore the world of engineering through hands-on activities, laboratory experiments, workshops, and seminars with professional engineers. Students also learn to integrate computer programming with engineering concepts. The program provides female students with positive role models and a collaborative learning environment, while also encouraging them to pursue engineering at the postsecondary level. The KEYS to Empowering Youth is a mentoring program for 11-13 year old girls designed to provide them with opportunities to interact with and learn from women in science and engineering. The program uses interactive, hands-on activities that stress the importance of engineering, science, and technology.

Other State Efforts

In addition to the initiatives discussed above, some states are experimenting with smaller, focused approaches to infusing gender equity in career and technical education, while others are in the process of developing statewide initiatives. Information about these initiatives is limited as many of them are still in their infancy.

Maryland has been successful in getting legislation passed to create a task force to examine nontraditional participation in education and careers. The state is also expanding its efforts to involve business and industry by providing small incentive grants to the construction association in Baltimore to explore the role industry-school collaboration can play in engaging more young women in nontraditional CTE programs, especially programs that lead to work in high-growth industries. As another example of collaborating with industry, the state is also working with the New Car and Truck Dealers Association to increase the number of young women in auto technology programs (personal communication with state staff, Maryland State Department of Education, May 2004).

In recognition of the importance of raising awareness of nontraditional programs through effective marketing, ***Utah*** implemented a statewide marketing campaign to increase nontraditional enrollment in CTE programs (NASDCTEC, 2003). The campaign consisted of radio and television advertisements that educated parents and students about nontraditional employment opportunities. Finally, many states are emphasizing self-assessment by local programs as a means of improving nontraditional participation. For example, the Vocational Equity Research, Training and Evaluation Center and the State Department of Education in ***Connecticut*** make available to all schools a booklet intended to help schools assess the status of their nontraditional programs and activities, and their progress towards meeting their goals of increasing enrollment and completion in these areas.

Section 2: Critical Elements for Reform Success

Reducing gender imbalance in CTE programs is a complex undertaking, one that entails changing societal expectations of the appropriate roles of males and females in the workplace. Since our institutions often shape our perceptions, it has been suggested that educational systems themselves must change, ranging from how schools are financed and organized, to how instructional content is delivered and assessed (NAPE, 1997). While systemic reform may be needed, in practice state administrators have a limited set of resources and opportunities to leverage school change. The challenge for most administrators lies in finding the most effective, cost efficient mechanism for promoting statewide reform in the context of existing school settings.

This section highlights program components that research suggests are critical to reform success. To illustrate how these components can be integrated into programs, the section includes examples of innovative initiatives that local educators, professional associations, and gender equity advocates have created. Unlike large-scale state-developed models, programs profiled in this section have been developed and implemented on a smaller scale, often at the district or individual high school level.

Critical Elements

Research into the causes of gender imbalance within CTE programs suggests that there are a large number of direct and indirect factors that affect student participation and completion rates. Direct factors describe causes over which educators have some level of control, such as the manner in which instruction is delivered. Indirect factors describe external causes over which educators have limited control, such as the wages that employers choose to pay workers once they enter the workforce.

While there is value in understanding the factors that contribute to gender imbalances, it is beyond the scope of this literature review to attempt to summarize this information. Nor is such work warranted: As part of its efforts to support states in using research to develop improvement strategies under Perkins, OVAE commissioned experts from the

field to conduct a comprehensive literature review centered on each of the core indicators contained in the Act. This research summary identifies root causes that underlie student participation and completion of nontraditional programs, as well as improvement strategies that align with these causes.[3]

In practice, most successful gender equity programs combine several strategies to achieve positive results. Although program components invariably differ, promising reform initiatives generally include a set of complementary activities that span a set of critical elements. Therefore, each program's support strategies are also highlighted. For example, a program that emphasizes the development of mentoring relationships is profiled under the Role Models and Mentors strategy, even though it may also include after-school activities for girls. Using this framework, the programs reviewed for this section fall into three key areas: Curricular Materials, Instruction, and Assessment; Career Guidance and Mentoring; and Marketing and Outreach. These elements encompass the following areas:

1. Curricular Materials, Instruction, and Assessment

What is taught and how it is delivered can affect students' decision to enroll and persist in nontraditional coursework. The climate of a classroom includes not only the physical space but also, more importantly, teacher-to-student interactions, and student-to-student interactions.

The effect of the classroom environment is manifested by a tendency for girls to avoid technology-related classrooms and related careers because they are intimidated by what they perceive as rough, stressful, and physically demanding environments. For boys the reverse situation applies, with boys hesitant to participate in programs such as childcare or consumer science that may invoke skills traditionally seen as effeminate. Teachers' differential behavior towards boys and girls can also affect classroom climate, as can students' treatment of one another as intruders in their traditional realm.

[3] A copy of this publication may be downloaded from OVAE's *Peer Collaborative Resource Network* website, at http://www.edcountability.net/downloads/LITERATURE_REVIEW.DOC

Promising education reform initiatives typically incorporate a programmatic element that addresses program content and differences in students' learning styles. Specific elements may include:

- Gender-Neutral Curricula—that avoids stereotyping careers as either male or female. Curricular materials may also use positive, nontraditional role models to ensure that students see a reflection of themselves in the materials they study.

- Alternative Instructional Environments—that recognize that girls tend to do things in groups, and that peer relationships play an important role in girls' learning processes. Girls are much less inhibited in asking questions or trying something new with technology when they work collaboratively.

- Alternative Assessments—which account for the different ways that students process information. These may include authentic tests such as performance-based or portfolio assessments.

- Integrated Academic Curricula—that strives to make CTE programs relevant to all students by aligning CTE instruction with state academic content standards, as well as standards endorsed by professional associations.

- Professional Development—to sensitize teachers and administrators to the different learning styles and instructional needs of males and females students.

Example of specific programs include:

Cisco Learning Institute Gender Initiative

- *Supporting strategies:* Professional development, marketing
- *Target Population of Students:* Secondary and postsecondary
- *Targeted outcomes:* Recruitment, retention, completion, placement
- *Internet Address*: http://gender.ciscolearning.org/About_the_Project/Index.html

Recognizing the gender gap in the Information Technology (IT) field, Cisco Learning Institute partnered with Cisco Systems, Inc., in April 2000 and established the Cisco Gender Initiative to increase females' access to IT training and career opportunities through networking academies. In addition to academies, the Initiative also provides the following resources: information on best practice recruitment and retention strategies; gender modules; marketing materials; online resources; and, success stories. Other partners in the initiative include the Academy for Educational Development (AED), IWITTS, the International Youth Foundation (IYF), and the Trust for the Americas/Organization of American States. Cisco Academies have been implemented successfully in the following locations, among others [4]:

- Citronelle High School, Alabama. http://technology.mcpss.com/~citronellehigh
- Hagerman Municipal Schools, New Mexico. http://www.bobcat.net
- IGNITE (Inspiring Girls Now in Technology Education), Seattle School System, http://www.ignite-us.org
- Chicago Public Schools (13 academy programs in 78 high schools), http://www.cps.k12.il.us
- Franklin High School, Seattle, http://www.seattleschools.org/area/main/index.dxml
- Lakewood High School, South Carolina, http://www.myschoolonline.com

Although, individual schools report program success, a comprehensive evaluation of the Cisco Gender Initiative is not currently available.

[4] Site-specific academies are not reviewed in detail in the interest of conserving space. More information is available through their respective websites, or through the Cisco Learning Institute website.

World of Technology (Connecticut)

- *Supporting strategies:* Gender balanced curriculum, Mentors, Business and industry involvement, Professional development, Marketing
- *Target Population of Students:* 9th and 10th graders
- *Targeted outcomes:* Recruitment, Enrollment
- Internet Address: http://www.cwealf.org/pdf/wotpromo.pdf and http://www.cwealf.org/pdf/wotreport9900.pdf

A collaboration between the Connecticut Department of Education and the Connecticut Women's Education and Legal Fund (CWEALF), the World of Technology (WOT) is a technology education course that emphasizes a gender-sensitive curriculum for teaching technological skills, exploring careers in math, science, and technology, and making connections between the classroom and the world of work. The course is designed for 9th and 10th grade students and includes:

- Gender-inclusive learning activities emphasizing hands-on projects
- Female mentors who act as role models
- Student trips to the workplace to experience careers
- Integrated instruction that links coursework to state Curriculum Frameworks for math, science and technology education
- Career education about math, science and technology-related occupations
- Effective marketing and recruitment through teachers, guidance counselors, parents, and the students themselves

First implemented at Manchester High School, the WOT program has since expanded to other schools. In 2000, all six high schools with a WOT program participated in an evaluation to assess the impact of the course on student participation and achievement, as well as course and career decisions. Key findings indicate that WOT encouraged career exploration, particularly in technical careers; female students reported a more positive environment in the classroom without male students; and the course promoted female participation in further technology education.

Techbridge (Oakland, California)

- *Other supporting strategies:* Role models, Professional development, Family involvement, Business and industry involvement, Project-based learning
- *Target Population of Students:* Middle and high school
- *Targeted outcomes:* Awareness, Recruitment
- *Internet Address*: http://www.chabotspace.org/visit/programs/techbridge.asp

Before- and after-school programs for girls that include field trips and project-based learning are the key components of Techbridge. The three-year project served approximately 170 students and their families and demonstrated that girls can be interested in technology when a program includes the following elements: activities that demystify technology; activities that build both skills and confidence in handling technology; a welcoming place to learn and work with computers; projects that address girls' real needs and interests; and tasks that are challenging but not intimidating. Underlying all program activities is the goal of bridging the information gap for middle school girls who often do not receive the academic guidance they need. Another key strategy is extensive collaboration with business and industry, and other local associations and higher education institutions.

Hosted by the Chabot Space and Science Center and funded primarily by the NSF, Techbridge receives additional support from Autodesk, Inc., the City of Oakland, the Oakland-Piedmont branch of the American Association of University Women, and the Mitsubishi Electric America Foundation. Although Techbridge appears to be a successful program by all accounts, no formal evaluation information is currently available.

2. Career Guidance and Mentoring

Young adults are particularly sensitive to how they are perceived by friends and other students. Lacking information on the opportunities associated with different occupations can deter students from participating in nontraditional training programs, particularly if they believe enrolling in certain coursework may call their sexuality or self-image into question.

Recent research has begun to focus on the importance of adult male role models in creating supportive environments for boys through learning opportunities in which they can explore gender roles openly (Flood and Shaffer, 2000). Access to such role models in schools and communities helps boys confront issues of homophobia, allowing them to question traditional notions about masculinity. While this research does not directly address the area of nontraditional education, it is a reasonable assumption that as boys begin to question gender stereotypes, there will be an accompanying shift in what constitutes gender-appropriate education and careers.

Effective programs include specific components to demystify occupations. Specific elements may include:

- Guidance and Counseling—that helps students make the connection between their own interests and the skills required in nontraditional careers.
- Role Modeling—that pairs students with nontraditional role models who are currently working and succeeding in their career.
- Industry Education Partnerships—designed to provide students with direct experiences in nontraditional careers.

Examples of programs include:

Girls Go For IT, Millard South High School (Omaha, Nebraska)

- *Other supporting strategies:* Role models, Professional development, After-school activities, Marketing
- *Target Population of Students:* High school
- *Targeted outcomes:* Recruitment, Retention
- *Internet Address*: Not available. Information provided by Nebraska Department of Education staff.

Millard South High School in Omaha is the location for the district's Information Technology career cluster program known as STARS (Students, Technology, Achievement, Responsibility, Success). Since the inception of this program during the 2000-2001 school year, data revealed that female students were generally not attracted to the classes in the program and the few that enrolled did not continue with the program after completing an introductory class. In the spring of 2002, a plan was formulated to enhance female participation in this program by creating a sub-program titled, *Girls Go For IT*, which was funded by a Perkins grant. Program activities were based on current research on gender learning styles and included:

- Nontraditional speakers and role models
- Hands-on learning
- Field trips with nontraditional guides
- Teacher training on gender bias
- Marketing to the community and teachers in the district through presentations, information packets, and programs on the local television station.
- Targeted recruitment by female participants to increase female and minority involvement.

The project evaluation included an analysis of participation and enrollment data, along with follow-up surveys. Year-end program evaluations indicated that girls were very satisfied with career speaker sessions and field trips. Many stated that they had been afraid to make the connection to a postsecondary program and the field trips helped to put a face on the institution. Despite these positive outcomes, the program continued to struggle retaining girls in IT classes at the second level. As one area of improvement, program administrators expressed the need for better communication with middle school staff and students regarding nontraditional career and high school course offerings.

Girls Rise (Raising Interest in Science and Engineering) (Miami, Florida)

- *Other supporting strategies:* Mentors and role models;Iinternships; Parent involvement
- *Target Population of Students:* middle school
- *Targeted outcomes:* Recruitment, retention
- *Internet Address*: http://www.miamisci.org/girlsrise/overview.html

The goal of Girls RISE is to foster sustained participation in engineering-related studies to reduce the attrition that occurs as girls move from middle to high school. Program objectives are to expose girls to a variety of careers in technology/engineering through interaction with professional women employed in science and engineering related fields, and increase girls' confidence in their ability to perform in traditionally male-dominated technical and engineering arenas while improving their problem solving, decision making, critical thinking and information processing skills.

To achieve these objectives, Project RISE emphasizes the following strategies: acquisition of advanced computer skills; use of college-level mentors as instructors; interaction with professionals in the workplace; project-based learning; and paid internships. The different phases of the program include Saturday sessions, Career Academies, and a summer Academy. The Southeastern Consortia for Majority Engineers (SECME, Inc.) has significantly expanded the Girls RISE model by integrating RISE strategies into SECME activities in 47 Miami-Dade County middle schools.

The program was evaluated in 1997 using student questionnaires, student interviews, interviews with project staff, and classroom observations. Findings from the evaluation showed that program staff was successful in establishing an informal, non-competitive learning environment in which students felt safe to experiment with engineering concepts and processes. The findings also indicate that the program's short-term goals were accomplished. All participants stated that, as a result of the program, they knew more about engineering, knew more female engineers, and were more interested in science and engineering activities.

Project EDGE (Eliminating Discrimination by Gender in Education) (New York)

- *Supporting strategies:* Curriculum and instruction, Professional development, Interactive distance learning technologies
- *Target Population of Students:* High school
- *Targeted outcomes:* Recruitment, Retention, Completion
- *Internet Address*: http://www.rit.edu/~edge/

Hosted by the Rochester Institute of Technology, Project EDGE is a mentoring project that targets young women at key educational transition points. The project also provides training for teachers, counselors, and college professors in gender equity techniques for the classroom, and in developing peer-coaching systems to monitor reform. The project emphasizes systemic changes in teachers' instructional styles, connecting young women's learning in science and technology fields with real-life experiences, and encouraging program staff to share resources and data with others.

The mentoring gave students a chance to realistically view their career options. Computer interactions enabled girls to converse with RTI staff, professionals, and mentors in ways that were uninhibited by age, appearance, or subject discipline. But the project investigators also learned that early and fairly frequent face-to-face interaction gave participants more of a sense of the "real" people with whom they were conversing. There is no evaluation data available.

Eyes to the Future (Cambridge, Massachusetts)

- *Key Strategies*: Mentoring, role models, after-school activities
- *Target Population of Students*: middle school
- *Targeted outcomes*: Awareness, recruitment, retention
- *Internet Address*: http://www.terc.edu/etf/about.html

Developed by TERC, Inc., a center for math and science learning, Eyes to the Future is a mentoring program that uses the Internet to connect middle-school girls with two groups of mentors--high-school girls who have retained an interest in science and technology, and women who use science and technology in their careers. The mentoring program not only helps middle-school girls learn about technology-related careers, but it also encourages their personal and social development through interactions with older girls and women who can provide emotional and academic support. The program was first implemented in 1997 as a pilot program in one middle school and one high school in Somerville, MA. The continued success of the pilot resulted in a full implementation of the program in other middle- and high schools through a multi-year NSF grant.

A preliminary qualitative evaluation of the pilot program provides evidence of the program's success with using network-supported mentoring to engage female students with all level of academic achievement in mathematics and science content. A key finding was that high school and adult mentors provided important and complementary perspectives on the fields of science and technology. While high-school students provided middle school girls with important information about negotiating science- and technology-related coursework in high school, adult mentors provided important insights about using science and technology in the real world.

3. Marketing and Outreach

Early exposure to societal norms, communicated by parents and the media, can affect students' subsequent career choices. According to a recent national survey of high school-aged youth, 78 percent of those surveyed reported that their parents were primarily responsible for helping to plan their career, compared to only 10 percent who indicated that a teacher or counselor had influenced their decision (Ferris State University, 2002).

Successful programs recognize the importance of providing youth and parents with early and repeated exposure to nontraditional career options. Specific elements may include:

- Marketing at the Middle and Grade School Levels—to make students aware of the options available to them at the high school level. Program activities may include career counseling or modified hands-on experiences.

- Targeted Recruitment—to attract students who have expressed an interest or have the requisite skills enroll in coursework. Many programs have capitalized on girls' camaraderie and their inclination to form their own "club" by encouraging female participants to bring a friend to the next activity.

- Parent Involvement—to help parents recognize the role they play in shaping their child's career development. Parental involvement activities can range from counseling their children to providing supportive learning environments at home.

Examples of these type of programs include:

Sweetwater Girl Power Program (Chula Vista, California)

- *Supporting strategies:* Parent involvement, Counselor support, Professional development
- *Target Population of Students:* Middle school
- *Targeted outcomes:* Awareness, Recruitment
- *Internet Address*: Not available. Description obtained from NSF report (2003). For information contact Nancy Stubbs, Program Coordinator, at (619-691-5415).

In collaboration with university, business, and community partners, the Sweetwater Union High School district developed a project to bring about systemic change that would help underrepresented middle school girls (mostly ethnic minorities) prepare for technically challenging careers. Many of the girls came from homes in which neither parent had a high school diploma and where English was a second language. The girls had few if any role models of women in science and technical fields. Girls in 11 schools participated in 48 after-school club activities, summer classes, and intersession classes. Each subject area also included career and counseling activities that supported the girls' personal and social development, and encouraged them to explore different careers.

A key aspect of the program's success was the active involvement of the local scientific community. Area scientists and engineers volunteered to provide workshops for teachers, speak at career fairs, and act as mentors for the middle school girls. Program staff attributed the success of the program to the combination of mentoring and relevant hands-on activities. Another important aspect of the program was the professional development component that trains teachers and counselors in strategies that enhance learning for girls. Additionally, collaboration between teachers and counselors provided a powerful environment for success.

Flowing Wells Agriscience Program (Tucson, Arizona)

- *Supporting strategies:* Curriculum and instruction; clear articulation between secondary and postsecondary institutions
- *Target Population of Students:* High school
- *Targeted outcomes:* Recruitment, retention, completion, placement
- Internet address: http://www.nccte.org/exemplary/showcase/programDetail.asp?ep=4

The Flowing Wells Agriscience program has been nationally recognized for its success with nontraditional placement, and is regarded as an exemplary and promising program by the National Center for Career and Technical Education (NCCTE). This high school program serves an ethnically diverse and urban student population. The traditionally male dominated program now successfully recruits, retains, and places equal numbers of males and females, as well as ELL, low-income, and at-risk students.

Because of the urban nature of this program, students participate in lab-based Supervised Agricultural Experiences (SAEs) in hydroponics, aquaculture, landscaping, biotechnology, and greenhouse management. One of the required courses in the Agriscience Program, Applied Biological Systems, is recognized as a lab science credit for college admission by three Arizona universities. The program's FFA chapter hosts the annual Science Alive conference, a three-day national event focused on teaching science-based hydroponics in public schools. The University of Arizona and numerous biotech industries partner with the program to create seamless career pathways to postsecondary education and careers.

Summary and Recommendations

Improving gender equity in CTE education entails changing societal preconceptions about the appropriate workplace roles of males and females. In an attempt to jumpstart this process, state and local educators are experimenting with a variety of initiatives to increase student enrollment and retention in, and completion of nontraditional programs. The enormity of the task complicates reform efforts; consequently, there is no single reform or "quick fix" that will lead to a more equitable distribution of students in CTE programs.

In this review we highlighted a subset of strategies that state and local educators are employing to increase student participation in nontraditional CTE programs. This task was complicated by a lack of consistent, reliable data that can be used to identify promising programs or assess their effectiveness. To meet accountability requirements contained in the federal Perkins Act, all states report comprehensive data on student participation and completion of CTE nontraditional for their gender. Unfortunately, differences in how states define student populations and construct performance measures invalidate existing data. The absence of published, scientifically rigorous literature further complicates this research agenda.[5]

Findings from this review of the literature are drawn primarily from recommendations proposed by gender equity experts in the field, as well as a review of programs identified in the literature and posted on the Internet. With few exceptions, program evaluations are based on anecdotal evidence provided by project staff. For this reason, it is difficult to determine the relative benefits or cost-efficiency of programs, much less whether they will readily translate for use in Massachusetts.

[5] Recognizing the need to better document the existence of successful and innovative gender equity programs, the National Association of State Directors of Career and Technical Education Consortium is partnering with Association of Career and Technical Education, the National Alliance for Partnerships in Equity, and the National Women's Law Center to identify local and/or state education programs that are improving students' access to and completion of CTE programs nontraditional for their gender. Selected programs will be published in a report that will highlight effective programs and practices. For more information on this effort, log onto http://www.napequity.org/ and click on the *Programs that Work* link.

What is clear from the review is that most programs utilize a combination of strategies to improve students' participation in nontraditional programs. It is also evident from program descriptions that, although there are many efforts in place to improve recruitment and enrollment, retention in programs continues to be a challenge. Even though researchers and practitioners are beginning to experiment with different approaches to keeping students engaged and motivated in nontraditional programs, the focus continues to be on getting students to initially enroll.

Limitations and Suggestions for Future Research

The most apparent limitation of this review is the lack of rigorous evaluation data about the nontraditional programs reviewed. For the most part, program documentation was limited to simple descriptions of program operations. To the extent that reports of program success were available, most were based on subjective responses and informal survey efforts. In the absence of rigorous research that compares and contrasts different approaches to improving nontraditional participation, it is almost impossible to assess the relative strengths and weaknesses of programs and to identify factors that make a program unique from or more likely to succeed than other interventions.

Although reviews of the nationwide status of participation in nontraditional CTE programs suggest that states are working towards improving gender equity, the current review found little evidence within states of coordinated efforts at the state and local level to "shift the paradigm" towards a more inclusive and equitable one. For that matter, even at the local level, few conclusions can be drawn about the overall school climate that supports the gender equity efforts described in this review. It is possible, however, that this gap in information reflects the general lack of documentation of state and local efforts to increase gender equity, rather than an actual lack of coordination. It is conceivable that a different strategy to collect this information—structured telephone interviews or mailed surveys, for example—might yield more useful information about states' cohesive efforts to improve enrollment in and completion of nontraditional CTE programs.

Critical questions that need to be addressed by further research could include the following: Is there systemic change that supports the inclusion of nontraditional students in all programs and that ensures equity for all students? What gender-fair institutional strategies exist at the school level? How do classroom-level efforts to implement nontraditional curricula and encourage nontraditional participation connect with other school-level reform efforts?

Finally, to the extent that available gender equity and nontraditional education literature focuses almost exclusively on girls, this review, too, is limited in its coverage of state and local efforts to increase the participation of boys in CTE programs nontraditional for their gender. Moreover, the current review focuses on secondary nontraditional CTE programs; it is conceivable that nontraditional CTE programs that target men in areas such as nursing exist primarily at the postsecondary level.

Bibliography

Brown, B. L. (2001). Women and minorities in high-tech careers, ERIC Digest no. 226. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education (ED 452 367).

Ferris State University, 2002. Decisions Without Direction: Career Guidance and Decision-Making Among American Youth.

Kerka, S. (2001). Nontraditional employment and training. Trends and issues alert no. 30, U. S. Department of Education, Washington, D.C.

Lufkin, M. (2002). Root causes for nontraditional participation (4S1 and 4P1). Office of Vocational and Adult Education.

Lufkin, M. (undated). Taking the road less traveled: School counselors play and important role in eliminating barriers for students interested in pursuing nontraditional careers. School Counselor Magazine, American School Counselor Association.

Morgan, R.L, Hunt, E.S., and Carpenter, J.M. December 1996. *Classification of Instructional Programs.* Washington, D.C.: U.S. Government Printing Office. Ed

National Association of State Directors of Career Technical Education Consortium. (date?). Indicators of success: CTE and research.

National Women's Law Center. (2002). Title IX and equal opportunity in vocational and technical education: a promise still owed to the nation's young women. Washington, DC: Author.

National Women's Law Center. (2001). Opening the doors to economic security: Making career education programs work for women and girls. Washington, DC: Author.

National Alliance for Partnerships in Equity. (). Creating opportunities for special populations and students in nontraditional training.

National Alliance for Partnerships in Equity. 1997. System-Building Standards for Education Reform: An Equity Perspective. Washington, D.C.

National Coalition for Women and Girls in Education. (2001). Invisible again: The impact of changes in federal funding on vocational programs for women and girls. Washington, DC: Author.

National Science Foundation. New Formulas for America's Workforce: Girls in Science and Engineering. Washington, DC: National Science Foundations, 2003.

States' implementation of Perkins equity requirements (results from the 2002 Implementation survey)

Silverman, S. (1999) Gender equity and school-to-career. A guide to strengthening the links to nontraditional careers. Hartford: Connecticut Women's Education and Legal Fund. (ED439291).

U.S. Department of Education, Office of Vocational and Adult Education, *Carl D. Perkins Vocational and Technical Education Act of 1998, Report to Congress on State Performance, Program Year 2001-2002*, Washington, DC, 2004.

U.S. Department of Labor, Women's Bureau. (2004a). Website: http://www.dol.gov/wb/stats/main.htm

U.S. Department of Labor, Women's Bureau. (2004b). Website: http://www.bls.gov/cps/wlf-databook.htm

Welty, K., and Puck, B. (2001). Modeling Athena: Preparing young women for citizenship and work in a technological society. University of Wisconsion-Stout.

Wonacott, M. E. (2002). Equity in Career and Technical Education: Myths and realities. ERIC digest no. 20. Available at: http://www.cete.org/acve/docgen.asp?tbl=mr&ID=110

Women at Work: A Visual Essay. Monthly Labor Review. October 2003.

APPENDIX G: MPR ANALYTIC REPORT ON USING NONTRADITIONAL DATA

INSTITUTE
FOR THE STUDY OF
FAMILY, WORK, AND
COMMUNITY

Nontraditional by Gender—Career and Technical Education Program Study

Analysis of Student Participation

Prepared for:
Massachusetts Department of Education
Career and Technical Education Division

Submitted by:
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October 14, 2004

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INSTITUTE
FOR THE STUDY OF
FAMILY, WORK, AND
COMMUNITY

Nontraditional by Gender—Career and Technical Education Program Study

Analysis of Student Participation

October 14, 2004

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Overview of Study

The Massachusetts Department of Education (MDOE) has a long-standing commitment to expanding career and economic advancement opportunities for students. To support efforts to increase the enrollment, retention, and completion of students in career and technical education (CTE) programs that are nontraditional for their gender, MDOE contracted with the Institute for the Study of Family, Work, and Community (IFWC)—a non-profit educational research and policy group based in Berkeley, California—to study state data and recommend strategies to improve student involvement.

The study included three components. To ground project design efforts, the research team initially conducted a comprehensive review of the literature to identify promising programs that state and local education agencies are using to promote secondary student participation in programs nontraditional for their gender. This review included an examination of state policies and initiatives promoting gender equity, descriptions of program components that are critical to reform success, and a summary of the implications of research findings for future work.

To gain perspective on issues faced by local educators, researchers also developed and analyzed a survey of CTE administrators and teachers to assess obstacles to student participation in and completion of nontraditional programs, and the quality of school services that support student participation in such programs. The final component of the study included a detailed analysis of existing CTE data. Specifically, the analysis on student participation in programs nontraditional for their gender sought to answer the following questions using annual outcome data supplied by the state

- What is the true picture in historically nontraditional Chapter 74 programs in Massachusetts? For example, what is the historical picture of programs with very low nontraditional participation in the labor market such as carpentry, nursing or automotive?
- What percentage of nontraditional students met various Perkins measures by type of program?
- How likely are secondary CTE students to participate in and complete programs nontraditional for their gender by school district?
- How do Chapter 74 nontraditional program enrollments compare with statewide labor market participation rates in corresponding program areas?

Report Organization

This report contains four sections. The first section provides a general summary of literature review findings. The second section presents findings from the educator survey, detailing obstacles educators

face when attempting to increase gender equity among CTE students. The third section analyzes enrollment data and Perkins measures across various years and by school and program characteristics. The report concludes with recommendations for further consideration. Tables developed by IFWC using state data can found in Appendix A.

Section 1: Literature Review

This section presents key findings from the literature review. Specifically, it lists promising state initiatives and critical elements for reform success. This section also details study limitations and concludes with further research recommendations. The main finding from the review of literature is that a combination of strategies and initiatives is needed to successfully promote student participation in programs nontraditional for their gender.

Promising State Initiatives

A review of state initiatives revealed several promising programs that employ a variety of strategies—ranging from professional development for teachers to parental involvement—to promote awareness, recruitment and placement of students in programs nontraditional for their gender. Some of the more innovative programs include: California's Nontraditional Careers 101; Family Tools and Technology (New Jersey); The Tackle Box Project (Wisconsin); Destination Success (MAVCC)[1]; United Connecticut for Women in Science, Mathematics and Engineering; Train-the-Trainer Program[2] and Women in Engineering (Maryland).[3]

Critical Elements for Reform Success

In practice, most successful gender equity programs combine several strategies to achieve positive results. Although program components invariably differ, promising reform initiatives generally include a set of complementary activities that span a set of critical elements: 1) Curricular materials, instruction and assessment, 2) career guidance and mentoring and 3) marketing and outreach. The types of strategies used within each initiative area are listed below (see the literature review for detailed descriptions).

Curricular materials, instruction and assessment

- Gender-neutral curricula
- Alternative instructional environments
- Alternative assessments
- Integrated academic curricula

Career guidance and mentoring

- Guidance and counseling
- Role modeling
- Industry education partnerships

Marketing and outreach

- Marketing at the middle and grade school levels
- Targeted recruitment
- Parent involvement

[1] MAVCC is the Multi-state Academic Vocational Curriculum Consortium

[2] Developed by the Institute for Women in Trades, Technology and Science (IWITTS)

[3] See Literature Review documents for detailed description of programs pg. 8–15.

Limitations and Suggestions for Future Research

Much of the existing literature on nontraditional education is based on anecdotal information or unscientific summaries of program outcomes. In the absence of statistically rigorous research designed to quantify student outcomes, it is impossible to assess the relative strengths and weaknesses of programs or to identify factors that make a program unique from or more likely to succeed than other interventions.

Although reviews of the nationwide status of participation in nontraditional CTE programs suggest that states are working towards improving gender equity, the current review found little evidence within states of coordinated efforts at the state and local level to "shift the paradigm" towards a more inclusive, equitable approach. For that matter, even at the local level, few conclusions can be drawn about the overall school climate that supports the gender equity efforts described in this review.

It is possible, however, that this gap in information reflects the general lack of documentation of state and local efforts to increase gender equity, rather than an actual lack of coordination. Consequently, it is conceivable that a different strategy to collect this information—structured telephone interviews or mailed surveys, for example—might yield more useful information about states' cohesive efforts to improve enrollment in and completion of nontraditional CTE programs.

Critical questions that need to be addressed by further research could include: Is there evidence that supports the inclusion of nontraditional students in all types of programs? What gender-fair institutional strategies exist at the school level? How do classroom-level efforts to implement nontraditional curricula and encourage nontraditional participation connect with other school reform efforts?

Finally, due to a lack of published studies, this review is limited in its coverage of state and local efforts to increase the participation of boys in CTE programs nontraditional for their gender. Moreover, the current review focuses on secondary nontraditional CTE programs; it is conceivable that nontraditional CTE programs that target men in areas such as nursing exist primarily at the postsecondary level.

Section 2: Survey Analysis

To identify the barriers educators face in promoting nontraditional program enrollment and to assess the quality of support services currently available, IFWC researchers developed a survey for administration to CTE instructors attending the MDOE's annual CTE conference (see Appendix B). The survey also asked educators to inform MDOE of any concerns or issues not addressed in the survey and to identify any programs they believe to be exemplary.

The survey was administered by MDOE staff at their summer CTE conference, held June, 2004. A total of 46 surveys were collected from a subset of school administrators and teachers attending the conference. Given the limited number of respondents, results from the survey analysis are neither representative of Massachusetts's CTE educators, nor sufficient to make statistically significant statements about educators' experiences. Results can, however, be used to obtain a snapshot of what some educators think about enrollment in nontraditional programs.

Results from the data suggest that increasing student participation in nontraditional programs, while important, is not high on most educators' list of priorities. Educators also appear to believe there are a multitude of societal and cultural barriers inhibiting student participation in these programs. Survey respondents were "somewhat dissatisfied" with support services and resources provided to nontraditional students. Some variation to these findings exists by type of respondent, region, cluster area and years of educator experience. What follows are the major findings from the analysis.

General Findings

The CTE survey initially asked respondents to rate the need to increase student participation in and completion of nontraditional using a scale of 1 = "no need" to 4 = "critical need." On average, respondents rated the need to increase nontraditional services as 2.17 (table 1), suggesting that most were satisfied with current program enrollment conditions.

The survey also asked respondents to rate several potential obstacles to student participation in nontraditional programs on a scale of 1 = "not a significant obstacle" to 5 = "significant obstacle." Teachers and administrators were most likely to rate external factors, such as peer pressure and family, cultural, and societal factors as the greatest obstacles to student participation in nontraditional programs.

Factors that educators could control, such as classroom climate and teacher sensitivity, were generally not rated as presenting an obstacle to learning. Specifically, respondents ranked peer pressure from

other students (3.52), family and personal background (3.67), societal expectations (3.54), and cultural expectations (3.67) as the greatest obstacles to student participation in nontraditional programs (table 2).

Finally, the survey asked respondents to evaluate the quality of services or resources provided within their school or district to support students in nontraditional programs on a scale of 1 = "poor" to 5 = "excellent." Overall, respondents were somewhat unhappy with the quality of support services and resources provided to nontraditional students. Of the services and resources offered, respondents rated only two—"recruitment efforts to encourage students to enroll" (3.13) and the "availability of non-gender biased materials" (3.05) as adequate. Respondents were least satisfied with the "level of state funding provided for nontraditional activities" (2.64) (table 6).

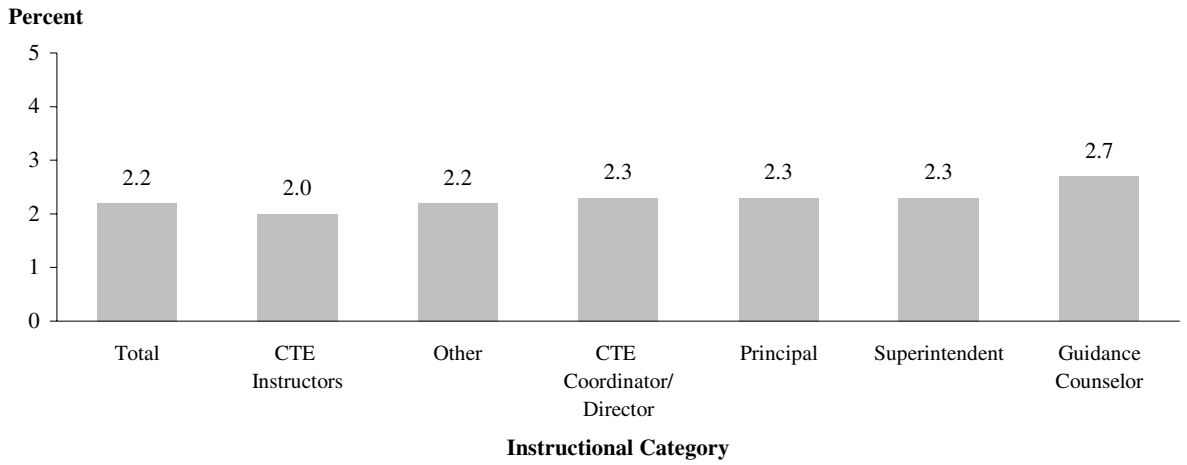
Instructional Category

A teacher, counselor or administrator may have varying opinions about nontraditional participation. Consequently, survey respondents were asked to self-identify into one of five instructional categories—CTE Instructor, Guidance Counselor, School Principal, District Superintendent, or Other. Where appropriate, individuals identifying themselves as "Other" were reassigned into the existing four categories or into a fifth category, identified as "CTE Coordinator or Director." A total of 5 respondents, employed in either academic or administrative support fields, remained unassigned. Overall findings indicate extensive variation in responses by respondent's current position.

The largest proportion of survey respondents (43 percent) identified themselves as instructors. Just over one-quarter (26 percent) described their position as a CTE coordinator or Director, with the remaining individuals distributed nearly evenly over the remaining instructional categories (table 1).

On average, CTE instructors rated the need to increase student participation in nontraditional programs lower than all other groups. Guidance Counselors reported the greatest need for improving student participation, with a 2.67 average rating (figure 1).

Figure 1. Average rating of the need to increase student participation and completion of CTE programs according to instructional category: 2002–2003



SOURCE: MPR Associates, Inc. Survey, June 2004.

When asked about the quality of support services and resources for nontraditional students, CTE instructors appeared generally satisfied with the quality of training they received to support students in nontraditional programs (3.21). In contrast, guidance counselors and superintendents appeared dissatisfied with the quality of teacher training services provided (2.00 ranking for both groups) (table 6). CTE instructors were least satisfied with the level of state funding provided for nontraditional activities (2.82), quality of training provided to guidance counselors (3.00), and quality of support services to retain nontraditional students once they enroll (3.00) (table 6).

Years of Experience

Survey respondents were also asked to self-identify the number of years they were employed in the Massachusetts public school system—1 year; 2 to 4 years; 5 to 7 years; 8 to 10 years; or 11 or more years. Findings indicate that teacher with the most years of experience were generally more concerned with increasing nontraditional participation and less satisfied with quality of support services and resources for nontraditional students.

Nearly three-quarters of respondents have worked in the Massachusetts public school system for 11 or more years (72 percent) (table 3). Relative to other issues faced as an educator, individuals with 11 or more years of experience were more likely to identify increasing nontraditional student participation as a pressing concern (2.30) (table 3). Teaches and administrators with 11 or more years of experience were generally less satisfied with the quality of support services or resources than teachers of lesser experience. For example, on average teachers with 11 or more years of experience rated the quality of teacher training

as less than adequate (2.71) compared to those with 1-year (4.00) and 2 to 4 years of experience (4.00) (table 7).

Region

Survey respondents were asked to self-identify the region of the state in which they were located—North, South, East, West, or Metro. Respondents were relatively evenly distributed throughout the state, with the largest representation from the Southern (27 percent) and Northern (22 percent) regions. State representation was lowest among educators from the East (13 percent) (table 3).

Relative to other issues faced as an educator, educators from the Northern and (2.30) and Eastern (2.33) regions of the state were more likely to identify the need to increase nontraditional student participation as a pressing concern. Educators from the Southern region were least likely to identify nontraditional student participation as a pressing concern (1.92) (table 4).

Teachers and administrators located in the Metro region were more likely to rate sexual harassment (3.29) as an obstacle, and less likely to rate teacher insensitivity (2.14), gender bias in curricular materials (2.38), and an absence of role models (2.88) as obstacles to student participation in nontraditional programs than educators from all other regions (table 4).

Teachers and administrators from the South and Metro regions were on average more satisfied with the quality of support services and resources to support students in nontraditional programs than those from Northern, Eastern, or Western regions (table 8). With few exceptions, teachers and administrators from the Western region of the state were less satisfied with the quality of support services. For example, educators from the West provided an average ranking of only 2.44 for the availability of non-gender biased materials, compared to an average ranking of more than 3.00 or higher in other regions (table 8).

Cluster Area

Survey respondents were asked to identify the occupational cluster area in which they taught or, if they were not employed as an instructor, the program areas offered in their school. Since respondents may teach in or have multiple programs offered in their school, respondents may be double-counted in response categories.

More than one-half (57 percent) of survey respondents taught or were employed in school districts that offered Construction programs (table 1). Other programs widely available included Health Services (48 percent), Exploratory (46 percent) and Information Technology 43 percent).

Relative to other issues faced as an educator, instructors and administrators in schools offering Exploratory CTE programs were more likely (2.38) to rank the need to increase nontraditional student par-

ticipation as a pressing issue (table 1). Instructors in Information Technology programs reported the lowest rankings (2.0).

Respondents who worked in the Business and Administration cluster were more likely to identify peer pressure (3.88), sexual harassment (3.06), and unsupportive classroom climates (3.00) as obstacles to student participation in nontraditional programs than educators working in other cluster areas (table 5).

With the exception of family/personal background and cultural or societal expectations, respondents in the Manufacturing cluster were less likely than those from other cluster areas to rate the identified issues as presenting significant obstacles to student participation and completion of nontraditional programs (table 5).

Educators in the Business and Administration cluster were generally more satisfied with the quality of training provided to teachers (2.94), counselors (2.60), and administrators (2.79) than those in other cluster areas. These educators also were more likely to be satisfied with the availability of non-gender biased materials (3.25), business and industry involvement (3.18), state technical support (3.00), and the level of state funding for program services (2.75) (table 9).

Implications

It is clear that some educators are dissatisfied with the level of participation and the quality of services provided to nontraditional students, indicating that MDOE may wish to conduct a more representative survey of educators to clarify these findings. Irrespective of further data gathering efforts, these findings nonetheless have implications for further action, particularly as they relate to findings from the literature review.

Given the survey evidence that there are some perceived barriers to student participation in nontraditional programs, MDOE staff may wish to look nationwide for promising strategies that may be used to increase student participation in programs nontraditional for their gender. Specifically, MDOE should take a closer look at promising programs that use targeted marketing to increase student participation, as well as interventions that have been used to overcome societal barriers to participation.

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Section 3: Data Analysis

To assess patterns of student enrollment in CTE programs, along with state performance on selected Perkins performance measures, IFWC staff analyzed CTE program data provided by the state. Findings indicate that students who enroll in programs nontraditional for their gender perform either slightly better or at least as well as their counterparts in regard to transition to postsecondary or work. Students attending comprehensive high schools and Chapter 74 programs were also more likely than their counterparts to do so.

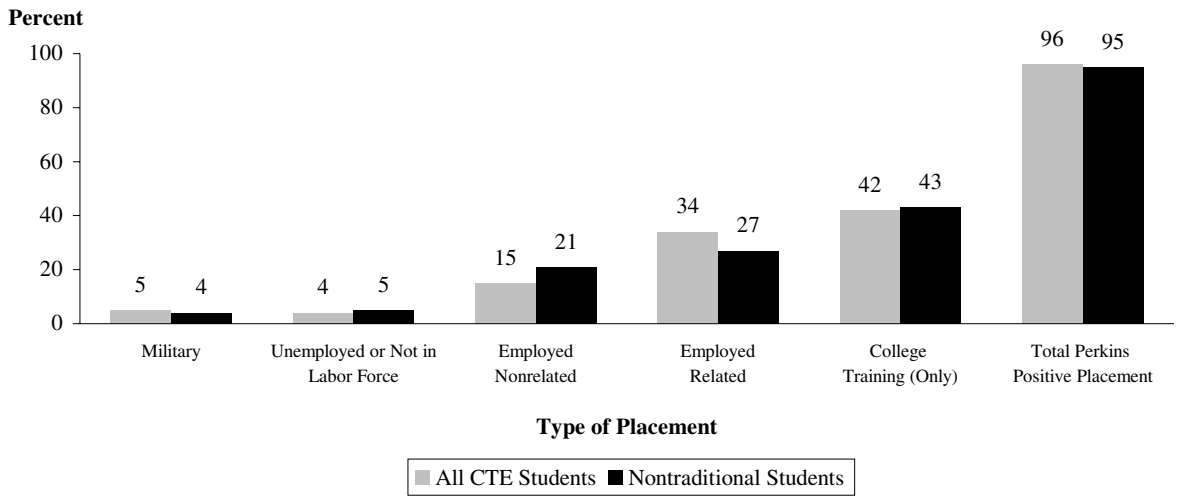
When reviewing findings, it is important to note that the 2002–2003 school year is the first year certification data has been collected and as such caution should be taken when reviewing these data. Additionally, since females participate in nontraditional programs at higher rates than males, analysis results may not fully capture the experience of males. Finally, findings indicate that schools are making progress in increasing student enrollment in certain nontraditional programs.

Perkins Measures

In 2002–2003, 85 percent of nontraditional students completed CTE programs and graduated with a diploma compared with 89 percent of their gender-neutral counterparts (table 10). Comprehensive and vocational-technical schools also posted similar rates of graduation (89 percent respectively), as did Chapter 74 and non-Chapter 74 programs (89–90 percent) (table 11).

Similar percentages of traditional and nontraditional students reported placement or transition to a postsecondary institution or employment (96 percent each). No differences were found between comprehensive and vocational schools and between Chapter 74 and non-Chapter 74 programs in this regard. However, nontraditional students were less likely than overall CTE students to report working in a related employment (27 percent versus 34 percent) (figure 2). Conversely, nontraditional students were more likely than overall CTE students to report working in non-related employment (21 percent versus 15 percent).

Figure 2. Results from one-year follow-up surveys of Chapter 74 graduates from 2000, 2001 and 2002



SOURCE: Massachusetts Department of Education.

Generally, students participating in Chapter 74 programs were more likely than their counterparts in non-Chapter 74 programs to earn certification (38 percent versus 4 percent, respectively) (table 11), as might be expected given that Chapter 74 programs are more likely to provide training in fields that offer certification opportunities.

In Massachusetts, among the CTE programs that are defined as nontraditional a variety of certificate programs exist, including those in health careers, construction trades, and information technology. According to data provided by the MDOE, these programs outperform other programs on several employment-related measures. For example, students in these fields are more likely to earn certificates and licenses. In the nontraditional set of CTE programs, 40 percent of graduates earn certificates or licenses, compared with 12 percent of graduates of other programs.

Additionally, graduates of these fields are also more likely to enter related employment. Follow-up surveys show that 47 percent of graduates from the nontraditional set of programs are in related employment, compared with 30 percent of graduates from other programs. Overall, graduates of the nontraditional set of programs that include carpentry, electrician, auto mechanic, cosmetology etc. are more likely to enter related employment, most likely because of the specificity of skills that they obtain.

Finally, graduates who are employed in these nontraditional fields show higher average wages. Graduates from the nontraditional set of programs who are employed in a related job earn an average of $9.55 per hour, compared with $8.93 for graduates of other programs.

This suggests that educators may wish to consider expanding nontraditional enrollment in CTE programs not only for social reasons (i.e., to reduce gender bias in program choice) but for economic reasons as well, since these fields offer promising employment opportunities that should not be overlooked by either gender.

Program Enrollment

In 2002–2003, approximately 11 percent of all career-technical students enrolled in nontraditional programs (table 12). Among female CTE students, 13 percent enrolled in nontraditional programs while among males CTE students only 5 percent did so. This pattern held true over the five years of data reported. For enrollment participation and completion rates by school see table 13.

Chapter 74 Programs

Chapter 74 nontraditional program enrollments were compared against state labor market nontraditional estimates to assess which CTE programs are enrolling nontraditional students at rates comparable to or above the state labor market. Labor market occupations and CTE programs were matched using the 2000 CIP code database which provided a crosswalk of CIP codes used to classify secondary CTE programs to Census/SOC codes (used to classify occupations). In the few instances where matches were not self evident, manual alignment of CIP and SOC codes was conducted.

When examining Chapter 74 programs, findings indicate certain programs are exceeding labor market participation rates. The following programs were found to exceed labor market participation rates by more than 10 percentage points (see table A below and table 14 for a full listing of schools).

Table A. Nontraditional program enrollment, labor market participation, statewide enrollment and CTE program percentage points above labor market participation: 2002–2003

CIP title	CTE enrollment: percent nontraditional	Labor market: approx. percent nontraditional	Statewide CTE enrollment	Percentage points above labor market
Environmental & Pollution Control Technology	48.39	20.68	62	27.71
Radio &TV Broadcast Technology	38.00	14.10	50	23.90
Diesel Engine Mechanic	20.55	1.08	73	19.47
Mason & Tile Setter	15.45	0.54	220	14.92
Office Technology	21.76	7.40	455	14.36
Biomedical Engineering-Related Technology	58.82	45.88	34	12.94
Computer Programming	40.57	29.11	663	11.47
Automotive Body Repairer	13.22	2.11	1,180	11.11
Cabinetmaker & Mill Worker	20.13	9.40	149	10.74

SOURCE: Massachusetts Department of Education.

Additionally, several programs were found to have enrollment rates below the corresponding labor market participation rates. Of these, two programs were 10 percentage points below labor market rates: Cosmetology and Engineering Technology.

Table B. Nontraditional program enrollment, labor market participation, statewide enrollment and CTE program percentage points below labor market participation: 2002–2003

CIP title	CTE enrollment: percent nontraditional	Labor market: approx. percent nontraditional	Statewide CTE enrollment	Percentage points above labor market
Cosmetology	2.19	12.41	1,736	-10.22
Engineering Technology	8.85	20.68	113	-11.83

SOURCE: Massachusetts Department of Education.

Participation rates for nontraditional CTE programs were also calculated at the school level. Several schools had participation rates that were well above the state average (table 15). Table C, below, lists the names of those schools with at least 5 percentage points above state average.

Table C. Schools that enroll CTE students at five or more percentage points above the statewide average: 2002–2003

School name	School nontraditional enrollment	Statewide nontraditional enrollment[1]	Difference from statewide average
	Percent		
Bristol-Plymouth Voc Tech	21.12	9.81	11.30
Holyoke PS	23.31	14.72	8.59
Northern Berkshire Voc Tech	20.66	13.81	6.84
Brockton PS	16.13	9.33	6.80
Northampton-Smith	18.25	11.67	6.58
Nashoba Valley Tech	14.52	9.02	5.50
Tantasqua Regular	13.40	8.33	5.07

[1]Weighted based on a mix of nontraditional programs in the school. See note at end of table 15.
SOURCE: Massachusetts Department of Education.

Programs Nontraditional for Males and Females

In addition to analyzing program enrollment for nontraditional programs overall for each program and for each school, analysis was also conducted by school for specific programs that are nontraditional for males and females. Specifically, programs analyzed that are nontraditional for males include: cosmetology, childcare, and programs in the health services cluster. Programs analyzed that are nontraditional for females include: programs in the construction, information technology, manufacturing and science/engineering and technical services. Tables 16 and 17 list program enrollment by school for each of the programs listed above.

To assess the extent to which schools are preparing students for nontraditional careers, programs were aggregated across schools. Findings suggest that of schools that offer these nontraditional programs, the majority enroll students at below state average rates. For example, of the 32 schools offering cosmetology services, only 10 schools (31 percent) recorded enrollments above the state average for nontraditional enrollment (2.19 percent). Table D, below, illustrates the number of schools within each program that enroll students at or above the state average. While some programs appear to have enrollment rates substantially above the state average, in most cases these programs of study have a relatively low number of schools offering such programs. For example, while 60 percent of schools offering medical assistant programs were above the state average, only five schools were noted to offer these programs. It appears

that while some schools are making progress in increasing enrollment, the vast majority of schools have room for improvement.

Finally, to assess how effective schools are in providing nontraditional services, an analysis of nontraditional program offerings within schools was conducted (table 18). Generally, enrollment rates varied across programs within schools, suggesting that it may be the action of an individual committed to improving nontraditional enrollment within a specific program area, rather than a school-wide reform strategy that accounts for increased enrollments within some sites. Further analysis of this state data, combined with follow-up with schools evidencing above average rates of nontraditional student enrollment could provide useful information for the state.

Table D. Number of schools offering various nontraditional programs: 2002–2003

Name of program	Schools offering program	Schools enrolling students at or above the state average	
	Number	Number	Percent
Nontraditional for Males			
Wholesale/Retail Sales And Services:			
Cosmetology	32	10	31.3
Human Services:			
Child Care & Guidance Worker/Manager	20	6	30.0
Health Services:			
Community Health Liaison	19	6	31.6
Dental Assistant	5	2	40.0
Medical Assistant	5	3	60.0
Nursing Assistant/Aide	19	6	31.6
Nontraditional for Females			
Construction			
Building & Property Maintenance	10	6	60.0
Carpenter	51	21	41.2
Electric/Electronic Equipment Installation	1	1	100.0
Electrician	43	18	41.9
Heating, A/C, Refrigerator Mechanic	18	7	38.9
Major Appliance Inst/Repair	3	1	33.3
Mason & Tile Setter	8	4	50.0
Plumber & Pipe fitter	25	9	36.0
Stationary Energy Sources	1	1	100.0
Information Technology Services:			
Communication Systems Installation/Repair	1	1	100.0
Manufacturing:			
Machinist/Machine Technology	18	7	38.9
Machine Shop Assistant	34	14	41.2
Science, Engineering and Technical Services:			
Engineering Technology	33	18	54.5
Biomedical Engineering-Related Technology	1	1	100.0
Electromechanical Technology	2	1	50.0
Engineering Technology	3	2	66.7

SOURCE: Massachusetts Department of Education.

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Section 4: Recommendations

The current literature review found little evidence within states of coordinated efforts at the state and local level to "shift the paradigm" towards more inclusive, equitable nontraditional programs. At the state level, findings from a quantitative analysis of program enrollment data, in conjunction with a survey of state CTE administrators and teachers suggests that the Massachusetts's Department of Education has a number of opportunities to improve the provision of CTE programs serving nontraditional students.

Study recommendations include:

1. The educator survey methodology while limited, can nonetheless, be used to obtain a snapshot of what some educators think about enrollment in nontraditional programs. Survey results indicate that MDOE should take a closer look at promising programs that use targeted marketing to increase student participation, as well as interventions that have been used to overcome societal barriers to student participation.

2. It appears that while some schools are making progress in increasing enrollments, the majority of schools have room for improvement. Enrollment rates varied across programs within schools, suggesting that it may be the action of an individual committed to improving nontraditional enrollment within a specific program area, rather than a school-wide reform strategy that accounts for increased enrollments within some sites. Further analysis of this state data, combined with follow-up with schools showing evidence of above average rates of nontraditional student enrollment could provide useful information.

3. MDOE staff may wish to develop new approaches to collect information on nontraditional program operations. Current data collection efforts under Perkins do not provide detailed information on program outcomes or instructional processes that may be used to improve program provision. Structured telephone interviews or mailed surveys, for example—might yield more useful information about states' cohesive efforts to improve enrollment in, and completion of, nontraditional CTE programs. MDOE staff may wish to conduct a more representative survey of educators to clarify the report findings as well.

4. Educators should be encouraged to consider expanding nontraditional enrollment in CTE programs not only for social reasons (i.e., to reduce gender bias in program choice) but for economic reasons as well, since these fields offer promising employment opportunities that should not be overlooked by either gender. MDOE staff may wish to develop resource

materials summarizing the economic benefits of program participation for nontraditional students to assist educators in understanding the importance of expanding nontraditional enrollments.

Appendix A—Tables

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Table 1: Number and percent of respondents by various characteristics and corresponding average rating of the extent of need for participation and completion of nontraditional CTE programs: 2004

	Respondents		Need to increase nontraditional student participation (Average rating[1])
Total	**46**	**100%**	**2.17**
Instructional category			
CTE Instructors	20	43%	2.00
CTE Coordinator/Director	12	26%	2.25
Guidance Counselor	3	7%	2.67
Principal	3	7%	2.33
Superintendent	3	7%	2.33
Other	5	11%	2.20
Years of experience			
1 year	3	7%	2.00
2 to 4 years	3	7%	2.00
5 to 7 years	3	7%	1.33
8 to 10 years	4	9%	2.00
11 or more years	33	72%	2.30
Region			
North	10	22%	2.30
South	12	27%	1.92
East	6	13%	2.33
West	9	20%	2.11
Metro	8	18%	2.25
Cluster area			
Business & Administration	17	37%	2.18
Construction	26	57%	2.19
Exploratory	21	46%	2.38
Health Services	22	48%	2.18
Information Technology	20	43%	2.00
Manufacturing	13	28%	2.38

[1]Ranking based on 4 point Likert scale with 1 = “no need” and 4 = “critical need”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 2: Average ranking[1] of obstacles to student participation in nontraditional programs according to instructional category: 2004

		Instructional category					
	Total ranking	CTE Instructors	CTE Coordinator/ Director	Guidance Counselor	Principal	Superin-tendent	Other
Obstacle							
Peer pressure	3.52	3.25	3.92	3.00	4.00	3.67	3.60
Sexual harassment	2.82	2.53	3.08	2.33	2.67	3.33	3.50
Unsupportive classroom climate	2.65	2.35	2.83	1.67	3.33	3.33	3.20
Lack of teacher sensitivity	2.76	2.47	2.83	2.33	2.67	4.00	3.20
Gender bias in curricular materials	2.61	2.30	2.67	2.67	2.67	3.33	3.20
Lack of career guidance materials/counselors	2.89	2.53	3.08	2.33	2.67	4.00	3.60
Absence of role models	3.22	2.75	3.50	2.67	3.67	4.00	4.00
Family/personal background	3.67	3.58	4.00	3.00	3.33	3.33	4.00
Cultural expectations	3.67	3.35	4.08	3.00	3.67	4.33	4.00
Societal expectations	3.54	3.55	3.50	3.33	4.00	3.00	3.80
Wage potential (males)	3.21	2.94	3.25	3.33	3.67	3.00	3.80

[1]Ranking based on 5-point Likert scale with 1 = "not a significant obstacle" and 5 = "significant obstacle".

SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 3: Average ranking[1] of obstacles to student participation in nontraditional programs according to years worked: 2004

	Total ranking	Years worked				
		1 year	2 to 4 years	5 to 7 years	8 to 10 years	11 or more years
Obstacle						
Peer pressure	3.52	4.00	3.33	3.33	3.00	3.58
Sexual harassment	2.82	3.00	1.67	2.00	3.00	2.97
Unsupportive classroom climate	2.65	2.33	2.00	3.33	2.75	2.67
Lack of teacher sensitivity	2.76	2.33	2.33	3.00	3.75	2.69
Gender bias in curricular materials	2.61	3.00	1.67	2.33	3.00	2.64
Lack of career guidance materials/counselors	2.89	2.33	3.00	2.67	3.50	2.88
Absence of role models	3.22	2.33	2.33	2.67	4.25	3.30
Family/personal background	3.67	3.33	4.00	4.33	4.25	3.53
Cultural expectations	3.67	3.67	2.67	4.00	4.25	3.67
Societal expectations	3.54	3.33	4.00	4.33	3.75	3.42
Wage potential (males)	3.21	3.00	3.00	3.67	3.75	3.13

[1]Ranking based on 5-point Likert scale with 1 = “not a significant obstacle” and 5 = “significant obstacle”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 4: Average ranking[1] of obstacles to student participation in nontraditional programs according to region: 2004

	Total ranking	Region				
		North	South	East	West	Metro
Obstacle						
Peer pressure	3.52	3.60	3.33	3.67	3.44	3.75
Sexual harassment	2.82	3.00	2.42	2.80	2.78	3.29
Unsupportive classroom climate	2.65	2.40	3.08	2.83	2.56	2.38
Lack of teacher sensitivity	2.76	2.70	2.67	3.50	2.78	2.14
Gender bias in curricular materials	2.61	2.50	2.58	2.67	2.89	2.38
Lack of career guidance materials/counselors	2.89	2.60	3.08	3.17	3.11	2.57
Absence of role models	3.22	3.00	3.08	3.67	3.67	2.88
Family/personal background	3.67	3.30	3.83	3.67	4.00	3.71
Cultural expectations	3.67	3.50	3.75	3.83	3.67	3.87
Societal expectations	3.54	3.10	3.92	3.67	3.78	3.25
Wage potential (males)	3.21	2.60	3.42	3.33	3.50	3.17

[1]Ranking based on 5-point Likert scale with 1 = “not a significant obstacle” and 5 = “significant obstacle”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 5: Average ranking[1] of obstacles to student participation in nontraditional programs according to cluster area: 2004

	Cluster area					
	Business & Administration	Construction	Exploratory	Health Services	Information Technology	Manufacturing
Obstacle						
Peer pressure	3.88	3.62	3.57	3.68	3.75	3.46
Sexual harassment	3.06	3.08	2.95	3.00	2.80	2.69
Unsupportive classroom climate	3.00	3.00	2.81	2.77	2.85	2.62
Lack of teacher sensitivity	2.94	3.00	3.00	2.95	2.90	2.69
Gender bias in curricular materials	2.88	2.85	2.90	2.77	2.75	2.62
Lack of career guidance materials/counselors	3.00	3.08	3.10	3.14	3.15	3.00
Absence of role models	3.29	3.50	3.48	3.45	3.50	3.31
Family/personal background	3.76	3.58	3.67	3.62	3.90	3.77
Cultural expectations	3.88	3.69	3.76	3.73	4.00	3.85
Societal expectations	3.47	3.50	3.29	3.41	3.55	3.31
Wage potential (males)	3.44	3.31	3.43	3.29	3.45	3.08
Wage potential (males)	3.44	3.31	3.43	3.29	3.45	3.08

[1]Ranking based on 5-point Likert scale with 1 = “not a significant obstacle” and 5 = “significant obstacle”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 6: Average ranking[1] of quality of school services for nontraditional students according to instructional category: 2004

		Instructional category					
	Total ranking	CTE Instructors	CTE Coordinator/ Director	Guidance Counselor	Principal	Superintendent	Other
School services							
Training for teachers	2.84	3.21	2.67	2.00	3.00	2.00	2.60
Training for counselors	2.68	3.00	2.55	2.00	2.67	2.00	2.80
Training for administrators	2.77	3.07	2.55	2.00	2.67	2.00	3.20
Student recruitment	3.13	3.32	3.00	3.00	3.00	2.67	3.20
Retention services	2.89	3.00	2.75	3.00	3.00	3.00	2.60
Non-gender biased materials	3.05	3.17	3.00	3.00	3.00	3.00	2.80
Business/Industry involvement	2.98	3.16	2.75	3.50	3.00	2.33	3.00
State technical support	2.91	3.17	2.75	3.50	2.67	2.67	2.40
State funding	2.64	2.82	2.50	3.50	2.33	2.67	2.20

[1]Ranking based on 5-point Likert scale with 1 = “poor” and 5 = “excellent”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 7: Average ranking[1] of quality of school services for nontraditional students according to years worked: 2004

	Total ranking	Years worked				
		1 year	2 to 4 years	5 to 7 years	8 to 10 years	11 or more years
School services						
Training for teachers	2.84	4.00	4.00	2.33	2.50	2.71
Training for counselors	2.68	3.50	4.00	2.33	2.50	2.59
Training for administrators	2.77	3.50	5.00	3.33	2.50	2.54
Student recruitment	3.13	3.67	4.33	2.67	3.00	3.03
Retention services	2.89	3.33	4.00	2.33	1.75	2.94
Non-gender biased materials	3.05	3.00	3.67	3.00	3.25	2.97
Business/Industry involvement	2.98	4.00	3.67	3.67	2.25	2.84
State technical support	2.91	3.67	3.33	2.00	3.25	2.83
State funding	2.64	3.50	3.00	2.00	3.00	2.57

[1]Ranking based on 5-point Likert scale with 1 = “poor” and 5 = “excellent”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 8: Average ranking[1] of quality of school services for nontraditional students according to region: 2004

	Total ranking	Region				
		North	South	East	West	Metro
School services						
Training for teachers	2.84	2.60	3.25	2.67	2.11	3.57
Training for counselors	2.67	2.30	3.40	2.67	2.00	3.20
Training for administrators	2.77	2.20	3.50	2.67	2.38	3.20
Student recruitment	3.13	3.10	3.58	2.50	2.78	3.43
Retention services	2.89	3.20	3.08	2.33	2.44	3.14
Non-gender biased materials	3.05	3.00	3.17	3.17	2.44	3.50
Business/Industry involvement	2.98	2.80	3.25	2.50	2.75	3.29
State technical support	2.91	2.67	2.92	2.83	2.63	3.43
State funding	2.64	2.44	2.83	2.83	2.13	2.83

[1]Ranking based on 5-point Likert scale with 1 = “poor” and 5 = “excellent”.
SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 9: Average ranking[1] of quality of school services for nontraditional students according to cluster area: 2004

		Cluster area					
	Total ranking	Business & Adminis-tration	Construction	Exploratory	Health Services	Information Technology	Manu-facturing
School services							
Training for teachers	2.84	2.94	2.60	2.55	2.55	2.65	2.62
Training for counselors	2.67	2.60	2.43	2.35	2.35	2.47	2.17
Training for administrators	2.77	2.79	2.55	2.53	2.47	2.63	2.42
Student recruitment	3.13	3.00	2.92	3.00	2.95	3.05	3.00
Retention services	2.89	2.94	2.81	2.90	2.81	2.80	3.08
Non-gender biased materials	3.05	3.25	3.00	3.00	3.05	3.00	3.15
Business/Industry involvement	2.98	3.18	2.76	2.75	3.00	2.95	3.00
State technical support	2.91	3.00	2.72	2.75	2.84	2.84	2.83
State funding	2.64	2.75	2.52	2.45	2.58	2.53	2.58

[1]Ranking based on 5-point Likert scale with 1 = “poor” and 5 = “excellent”.

SOURCE: MPR Associates, Inc. Survey, June 2004.

Table 10. Percentage of secondary CTE concentrators who completed CTE program and graduated with a diploma, by type of student: 1999–2003

	Percentage who graduated with a high school diploma (Perkins measures 1a and 2)				
	1999	2000	2001	2002	2003
Total[1]	**93.3**	**93.7**	**94.5**	**94.8**	**88.7**
Type of course					
Gender neutral	94.2	93.8	94.6	95.0	88.5
Nontraditional[2]	92.0	97.5	95.8	93.0	84.9
Male	92.6	82.5	97.7	92.8	72.7
Female	91.4	99.8	95.6	93.0	87.6

[1] Percentage calculated by dividing the total number of enrolled students by the total number of students who graduated.

[2] Percentage calculated by dividing the number of CTE concentrators in programs nontraditional for their gender who met requirements by the total number of CTE concentrators enrolled in these programs.

Note: Program concentrator is defined as a student who enrolled at least 2 years in a program.

SOURCE: Massachusetts Department of Education.

Table 11. Percentage of secondary CTE program completers who achieved an occupational certificate and who reported placement in a postsecondary institution or employment, by type of student: 2002–2003

	Percentage of CTE program concentrators who graduated with a high school diploma (Perkins measures 1a and 2)	Percentage who achieved an occupational certificate (Perkins measure 1b)	Percentage who reported placement or transition to postsecondary institution or employment[2] (Perkins measure 3)
Type of school	88.7	24.3	96.3
Comprehensive	89.0	33.2	96.2
Vocational-technical	88.5	8.4	96.4
Type of course	93.3	24.8	96.3
Gender neutral	94.2	12.0	96.2
Nontraditional[1]	92.1	39.7	96.5
Type of program			
Non-chapter 74	88.8	4.3	96.4
Chapter 74	89.7	37.8	97.3

[1] Percentage calculated by dividing the number of CTE completers in programs nontraditional met requirements by the total number of CTE completers enrolled in these programs.

[2] Postsecondary institution includes reporting transition to advanced training and employment includes military service.

Note: "Program completers" are a subset of concentrators who were seniors and completed their CTE program and graduated from high school. Measure 3 is based on follow-up surveys administered by each secondary institution.

SOURCE: Massachusetts Department of Education.

Table 12. Percentage of secondary CTE students participating in and CTE program completers in programs nontraditional for their gender, by type of student: 1999–2003

	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)				
	1999	2000	2001	2002	2003
Type of course					
Gender neutral	100.0	100.0	100.0	100.0	100.0
Male	51.3	51.7	52.0	52.3	52.6
Female	48.7	48.5	47.4	47.7	46.8
Nontraditional[1]	10.9	10.9	10.9	10.8	11.0
Male	5.0	5.1	5.4	5.6	5.2
Female	12.5	12.6	12.5	12.4	12.8

[1] Percentage calculated by dividing the number of CTE students in programs non-traditional for their gender by the total number of CTE students participating in or completing these programs.
SOURCE: Massachusetts Department of Education.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
	Total	**10.9**	**10.9**	**10.9**	**10.8**	**11.0**	**92.0**	**97.5**	**95.8**	**93.0**	**84.9**
Schools with enrollment in nontraditional programs											
913	ESSEX AGR TECH	41.5	43.4	66.7	56.1	57.6	100.0	100.0	100.0	100.0	100.0
740	OLD ROCHESTER REG	33.9	NA	NA	20.0	NA	NA	NA	NA	100.0	NA
823	GREATER LAWRENCE TECH	27.3	26.2	26.3	18.0	18.0	97.0	100.0	100.0	96.2	88.6
144	IPSWICH	26.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
137	HOLYOKE PS	24.1	26.5	23.1	24.3	23.8	80.0	100.0	100.0	95.5	60.0
46	BROOKLINE PS	22.1	11.1	0.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0
57	CHELSEA PS	21.4	NA	NA	NA	NA	NA	85.7	NA	NA	NA
851	NORTHERN BERKSHIRE VOC TECH	18.7	23.0	21.0	22.1	20.7	80	100.0	93.3	100.0	83.3
49	CAMBRIDGE PS	18.2	12.4	0.0	0.0	12.0	100.0	93.3	100.0	0.0	NA
163	LYNN PS	17.0	17.4	14.3	12.1	13.4	90.9	95.0	80.0	95.7	100.0
281	SPRINGFIELD PS	16.4	12.7	7.7	9.9	11.1	100.0	100.0	94.4	90.0	62.5
830	MINUTEMAN VOC TECH	15.2	14.7	15.5	12.3	12.2	88.2	92.9	100.0	91.7	94.1
805	BLACKSTONE VALLEY VOC TECH	15.2	11.8	11.9	10.5	7.7	100.0	100.0	100.0	100.0	100.0
853	NORTHEAST METRO VOC TECH	15.1	15.4	13.5	12.5	12.6	84.6	100.0	100.0	97.9	100.0
35	BOSTON PS	13.9	13.0	10.4	10.1	NA	89.5	100.0	100.0	100.0	73.3
885	WHITTIER VOC TECH	13.7	12.9	10.5	10.8	9.6	85.0	71.4	90.3	100.0	80.0
618	BERKSHIRE HILLS REG	13.3	9.5	5.6	2.0	NA	0	0	0.0	0.0	NA
258	SALEM PS	13.1	5.9	NA	6.2	NA	0	100.0	100.0	100.0	NA
274	SOMERVILLE PS	12.3	5.0	2.9	4.3	7.8	100.0	100.0	0.0	0.0	160.0
86	EASTHAMPTON PS	11.8	35.5	18.8	8.2	15.1	NA	NA	100.0	100.0	100.0
879	UPPER CAPE COD VOC TECH	11.7	15.4	16.1	15.8	13.9	100.0	100.0	100.0	100.0	80.0
860	PATHFINDER RVTHS	11.3	13.6	12.5	12.3	10.7	90.0	83.3	100.0	100.0	93.8
50	CANTON PS	11.1	25.0	NA	NA	NA	NA	NA	NA	NA	NA
94	FAIRHAVEN PS	11.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
872	SOUTHEASTERN VOC TECH	10.8	13.8	14.2	13.3	12.8	88.2	175.0	100.0	90.0	92.9

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
149	LAWRENCE PS	10.7	15.8	NA	NA	NA	0	100.0	100.0	NA	NA
829	SO MIDDLESEX VOC TECH	10.7	10.7	10.5	11.1	10.5	100.0	100.0	94.4	84.6	85.7
243	QUINCY PS	10.6	10.8	8.3	8.3	9.1	100.0	92.3	100.0	70.0	77.8
818	FRANKLIN COUNTY VOC TECH	9.7	8.0	7.1	5.1	5.9	100.0	100.0	100.0	85.7	100.0
825	GREATER NEW BEDFORD	9.7	11.6	12.7	12.9	11.4	97.3	96.2	96.7	90.6	75.8
832	MONTACHUSETT REG VOC TECH	9.2	11.7	13.0	13.3	12.0	73.7	81.0	76.2	85.7	75.6
821	GREATER FALL RIVER RVTS	9.0	7.1	7.3	8.5	10.3	100.0	100.0	100.0	85.7	88.2
810	BRISTOL-PLYMOUTH VOC TECH	9.0	9.3	8.7	17.7	21.1	91.7	100.0	100.0	100.0	100.0
406	NORTHAMPTON-SMITH	9.0	12.4	23.4	14.0	18.2	100.0	100.0	NA	90.0	100.0
44	BROCKTON PS	8.9	10.3	17.1	13.8	16.1	0	100.0	100.0	100.0	NA
801	ASSABET VALLEY VOC TECH	8.8	8.7	6.7	8.3	8.7	69.2	100.0	100.0	100.0	92.9
878	TRI COUNTY VOC TECH	8.8	10.0	11.2	9.4	7.5	95.2	100.0	100.0	68.8	94.4
61	CHICOPEE PS	8.7	9.8	11.0	10.2	11.4	100.0	100.0	100.0	100.0	100.0
871	SHAWSHEEN VALLEY TECH	8.5	9.0	10.5	9.4	10.7	92.9	100.0	100.0	93.8	92.3
72	DARTMOUTH PS	8.3	9.2	1.5	9.2	7.5	NA	NA	100.0	0.0	100
876	S WORCESTER COUNTY VOC TECH	8.0	6.9	7.8	9.2	7.9	100.0	90.0	100.0	100.0	85.7
852	NASHOBA VALLEY TECH	7.8	10.1	14.0	12.2	14.3	91.7	83.3	100.0	88.9	92.3
93	EVERETT PS	7.3	7.1	NA	NA	NA	0	100.0	NA	NA	NA
176	MEDFORD PS	7.2	7.6	8.5	8.7	5.4	100.0	100.0	100.0	0.0	42.9
855	OLD COLONY VOC TECH	7.2	8.4	7.0	8.2	5.2	100.0	100.0	100.0	66.7	81.8
765	SO BERKSHIRE REG	7.1	7.7	NA	NA	NA	NA	NA	NA	NA	NA
153	LEOMINSTER PS	7.0	10.4	11.4	12.7	9.5	100.0	0.0	100.0	100.0	100.0
1114	LOWER PIONEER EDUC COLLAB	6.8	4.9	1.8	2.0	2.8	100	0	100	0	0
314	WATERTOWN PS	6.8	5.0	9.0	7.7	0.0	87.5	100.0	100.0	100.0	100.0
325	WESTFIELD PS	6.6	8.9	10.9	12.9	9.0	100.0	100.0	100.0	85.7	100.0
806	BLUE HILLS VOC TECH	6.4	6.6	7.4	7.6	8.4	88.9	87.5	NA	100.0	100.0
171	MARSHFIELD PS	6.4	6.9	12.7	20.5	0.0	100.0	0.0	100.0	0.0	100.0
815	CAPE COD REG TECH HS	6.3	7.6	6.5	7.2	7.3	100.0	80.0	66.7	85.7	66.7
873	SOUTH SHORE VOC TECH	5.8	4.8	5.9	9.1	6.4	83.3	100.0	100.0	100.0	100.0

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
239	PLYMOUTH PS	5.6	6.9	4.9	4.2	5.3	100.0	100.0	100.0	100.0	100.0
854	NORTH SHORE VOC TECH	5.3	6.8	7.4	6.3	11.0	100.0	100.0	100.0	66.7	100.0
672	GATEWAY REGIONAL	5.3	7.1	10.0	NA	25.2	0	0	0.0	100.0	70.0
16	ATTLEBORO PS	5.0	2.2	4.8	5.1	6.1	0	0	100.0	100.0	0.0
181	METHUEN PS	5.0	13.5	NA	NA	16.9	NA	NA	NA	NA	NA
236	PITTSFIELD PS	4.9	5.7	3.9	4.4	3.0	100.0	100.0	100.0	100.0	100.0
770	TANTASQUA REG	4.8	7.0	15.6	15.6	13.6	100.0	100.0	100.0	80.0	100.0
336	WEYMOUTH PS	4.7	2.5	3.5	2.2	3.4	100.0	100.0	100.0	100.0	100.0
348	WORCESTER PS	3.9	4.5	6.7	10.0	9.0	100.0	100.0	83.3	77.8	93.3
828	GREATER LOWELL VOC TECH	3.5	4.1	5.3	6.6	11.8	85.7	80.0	100.0	100.0	21.9
760	SILVER LAKE REG	3.5	2.4	4.5	4.2	7.3	0	100.0	0.0	100.0	NA
95	FALL RIVER PS	3.2	9.6	10.2	5.7	11.5	100.0	100.0	100.0	100.0	100.0
229	PEABODY PS	2.2	0.8	5.0	0.9	0.8	0	0	0.0	100.0	NA
308	WALTHAM PS	2.1	3.9	1.1	1.3	1.8	0	NA	100.0	0.0	100.0
650	DIGHTON-REHOBOTH REG	1.4	1.5	0.0	0.0	7.6	NA	NA	100.0	0.0	0.0
71	DANVERS	0.0	9.7	37.5	36.7	NA	NA	NA	100.0	100.0	NA
128	HAVERHILL PS	0.0	4.5	NA	NA	NA	NA	NA	NA	NA	NA
150	LEE PS	0.0	0.0	0.0	0.0	8.7	100.0	0.0	0.0	0.0	0.0
151	LEICESTER PS	0.0	0.0	NA	0.0	0.0	0	0	NA	0.0	0.0
207	NEWTON PS	0.0	1.7	1.9	8.0	9.5	100.0	100.0	0.0	0.0	33.3
700	MARTHAS VINEYARD REG	0.0	3.2	3.0	3.6	4.9	100	0.0	100.0	0.0	0.0
775	WACHUSETT REG	0.0	0.0	NA	12.5	33.3	0	0	NA	0.0	0.0
1177	SO BERKSHIRE EDUC COLLAB	0.0	0.0	6.7	11.1	0.0	0	0	0	0	NA
683	HAMPSHIRE REG	NA	NA	NA	NA	25.0	NA	NA	NA	NA	NA
191	MONSON PS	NA	NA	NA	NA	16.7	NA	NA	NA	NA	NA
674	GILL-MONTAGUE REG (Turners Falls Reg HS)	NA	NA	NA	NA	50.0	NA	NA	NA	NA	100.0
107	GLOUCESTER PS	NA	NA	0.7	4.4	3.3	NA	NA	0.0	0.0	0.0
7	AMESBURY PS	NA	NA	NA	NA	46.2	NA	NA	NA	NA	NA
96	FALMOUTH PS	NA	NA	NA	NA	2.0	NA	NA	NA	NA	100.0

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
162	LUNENBURG PS	NA	NA	NA	NA	4.8	NA	NA	NA	NA	NA
735	NORTH MIDDLESEX REG	NA	NA	NA	NA	3.3	NA	NA	NA	NA	NA
750	PIONEER VALLEY REG HS	NA	NA	NA	NA	33.3	NA	NA	NA	NA	NA
753	QUABBIN REG	NA	NA	NA	NA	11.8	NA	NA	NA	NA	NA
55	CHATHAM PS	NA	27.3	NA	20.0	18.0	NA	NA	NA	100.0	100.0
56	CHELMSFORD PS	NA	NA	NA	NA	20.0	NA	NA	NA	NA	100.0
670	FRONTIER REG	NA	NA	NA	NA	11.1	NA	NA	NA	NA	0.0
201	NEW BEDFORD PS	NA	NA	NA	NA	6.0	NA	NA	NA	NA	NA
97	FITCHBURG PS	NA	NA	NA	NA	10.0	NA	NA	NA	NA	0
262	SAUGUS PS	NA	NA	NA	NA	19.7	NA	NA	NA	NA	NA
227	PALMER PS	NA	NA	NA	NA	20.0	NA	NA	NA	NA	NA
School Districts with no enrollment reported for nontraditional programs											
1	ABINGTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
603	ADAMS-CHESHIRE REG (Hoosac Valley)	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA
5	AGAWAM HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
605	AMHERST-PELHAM REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
610	ASHBURNHAM-WESTMINSTER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
615	ATHOL - ROYALSTON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17	AUBURN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18	AVON HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19	AYER PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20	BARNSTABLE	NA	NA	NA	NA	NA	NA	NA	100.0	NA	NA
24	BELCHERTOWN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25	BELLINGHAM PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
620	BERLIN-BOYLSTON REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	BEVERLY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
31	BILLERICA PS	NA	NA	NA	NA	0.0	NA	NA	NA	NA	0
36	BOURNE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
625	BRIDGEWATER-RAYNHAM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
910	BRISTOL COUNTY AGR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
635	CENTRAL BERKSHIRE REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
64	CLINTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
645	DENNIS - YARMOUTH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
79	DRACUT PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
658	DUDLEY-CHARLTON REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
83	EAST BRIDGEWATER PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
87	EAST LONGMEADOW PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99	FOXBOROUGH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100	FRAMINGHAM PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
101	FRANKLIN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
665	FREETOWN-LAKEVILLE REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
103	GARDNER PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
105	GEORGETOWN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
110	GRAFTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1828	GREATER LOWELL CONS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
114	GREENFIELD PS	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA
673	GROTON-DUNSTABLE REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
680	HAMPDEN - WILBRAHAM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1094	HAMPSHIRE EDUC COLLAB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
126	HARWICH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
131	HINGHAM PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
133	HOLBROOK PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
142	HULL PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
690	KING PHILIP REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
152	LENOX PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
159	LONGMEADOW HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
160	LOWELL PS	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
161	LUDLOW HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
165	MALDEN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
168	MARBLEHEAD PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
705	MASCONOMET HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
172	MASHPEE HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
710	MENDON-UPTON REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
182	MIDDLEBOROUGH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
185	MILFORD PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
186	MILLBURY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
717	MOHAWK TRAIL REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
715	MT. GREYLOCK REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
197	NANTUCKET PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
720	NARRAGANSET REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
198	NATICK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
660	NAUSET REG HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
915	NORFOLK COUNTY AGR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
209	NORTH ADAMS PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
212	NORTH ATTLEBORO PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
215	NORTH BROOKFIELD PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
217	NORTH READING PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
210	NORTHAMPTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
730	NORTHBORO-SOUTHBORO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
218	NORTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
226	OXFORD PS	0.0	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA
242	PROVINCETOWN HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
755	RALPH MAHAR REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
244	RANDOLPH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
246	READING PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
248	REVERE PS	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
251	ROCKLAND PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
261	SANDWICH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
264	SCITUATE PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
265	SEEKONK HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
564	SHORE EDUCATIONAL COLLABORATIVE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
271	SHREWSBURY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
273	SOMERSET PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
278	SOUTH HADLEY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
277	SOUTHBRIDGE PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
766	SOUTHWICK - TOLLAND REG HS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
767	SPENCER E BROOKFIELD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
285	STOUGHTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
290	SUTTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
291	SWAMPSCOTT PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
292	SWANSEA PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
293	TAUNTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
295	TEWKSBURY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
773	TRITON REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
301	TYNGSBOROUGH PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
305	WAKEFIELD PS	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
309	WARE PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
310	WAREHAM PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
778	WARREN BROOKFIELD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
316	WEBSTER PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
317	WELLESLEY PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
322	WEST BOYLSTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
323	WEST BRIDGEWATER PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
332	WEST SPRINGFIELD PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
331	WESTPORT PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 13. Percentage of secondary CTE students participating in and CTE program completers completing programs nontraditional for their gender by school district: 1999–2003—Continued

LEA no.	School name	Percentage of CTE students participating in programs nontraditional for their gender (Perkins measure 4)					Percentage of CTE program completers in programs nontraditional for their gender (Perkins measure 4b)				
		1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
780	WHITMAN-HANSON REG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
342	WILMINGTON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
343	WINCHENDON PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
346	WINTHROP PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
347	WOBURN PS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Percentage calculated by dividing the number of CTE students in programs non-traditional for their gender by the total number of CTE students participating in these programs.

Note: NA indicates no enrollment in nontraditional programs. A zero value indicates enrollment in nontraditional programs, however, not by students with gender of interest.

SOURCE: Massachusetts Department of Education

Table 14. Nontraditional program enrollment, labor market participation, statewide enrollment and CTE program percentage points above labor market participation: 2002–2003

CIP code	CIP title	CTE enrollment: percent non-traditional	Labor market: approximate percent non-traditional	Statewide CTE enrollment	Percentage points above labor market
150507	ENVIR AND POLL CNTRL TECH	48.39%	20.68%	62	27.71%
100104	RADIO&TV BROADCAST TECH	38.00%	14.10%	50	23.90%
470605	DIESEL ENGINE MECHANIC	20.55%	1.08%	73	19.47%
460101	MASON & TILE SETTER	15.45%	0.54%	220	14.92%
520407	OFFICE TECHNOLOGY	21.76%	7.40%	455	14.36%
150401	BIOMEDICAL ENGIN-REL TECH	58.82%	45.88%	34	12.94%
110201	COMPUTER PROGRAMMING	40.57%	29.11%	663	11.47%
470603	AUTOMOTIVE BODY REPAIRER	13.22%	2.11%	1,180	11.11%
480703	CABINETMAKER & MILLWORKER	20.13%	9.40%	149	10.74%
480501	MACHINIST/MACHINE TECHNOLOGY	13.98%	4.23%	615	9.76%
460401	BUILDING & PROPERTY MAINT	28.17%	18.50%	394	9.68%
470604	AUTOMOTIVE MECHANIC/TECH	9.98%	1.56%	2,065	8.42%
490306	MARINE MAINT/SHIP REPAIR	8.20%	0.00%	61	8.20%
460201	CARPENTER	8.81%	1.51%	2,226	7.30%
480503	MACHINE SHOP ASSISTANT	10.90%	4.15%	1,018	6.76%
470606	SMALL ENGINE MECH/REPAIR	6.33%	0.00%	79	6.33%
480506	SHEET METAL WORKER	8.33%	2.40%	288	5.93%
470106	MAJOR APPLIANCE INST/REPAIR	8.60%	2.70%	93	5.90%
511613	PRACTICAL NURSE (LPN)	12.16%	7.16%	329	5.00%
460302	ELECTRICIAN	6.48%	2.10%	1,853	4.37%
010301	AGRIC PROD WORKERS/MGRS	26.23%	22.24%	61	3.98%
460501	PLUMBER & PIPEFITTER	4.75%	1.33%	969	3.42%
470201	HEATING, A/C, REFRIG MECH	4.01%	1.31%	599	2.70%
470101	ELECTRIC/ELECTRON EQUIP INST	5.88%	3.39%	17	2.50%
510601	DENTAL ASSISTANT	6.38%	4.40%	126	1.98%
150403	ELECTROMECHANICAL TECH	18.18%	20.68%	77	-2.49%
200201	CHILD CARE & GUID WRK/MGR	2.25%	6.44%	579	-4.19%
480508	WELDER/WELDING TECH	10.39%	15.15%	279	-4.76%
511614	NURSING ASSISTANT	7.27%	13.80%	853	-6.53%
150303	ELECTRONIC & COMM TECH	12.54%	20.68%	1,124	-8.13%
510801	MEDICAL ASSISTANT	5.86%	14.60%	256	-8.74%
470103	COMMUNIC SYSTEMS INST/REP	0.00%	8.85%	1	-8.85%
510301	COMMUNITY LIASON	3.93%	13.80%	1,169	-9.87%
120403	COSMETOLOGY	2.19%	12.41%	1,736	-10.22%
151101	ENGINEERING TECHNOLOGY	8.85%	20.68%	113	-11.83%

SOURCE: Massachusetts Department of Education.

Table 15. List of school enrollment in nontraditional programs, district percent of nontraditional, statewide percent nontraditional and percentage points above state average: 2002–2003

LEA no.	LEA name	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment [1]	Difference from statewide average
0810	BRISTOL-PLYMOUTH VOC TECH	102	483	21.12%	9.81%	11.30%
0137	HOLYOKE PS	86	369	23.31%	14.72%	8.59%
0851	NORTHERN BERKSHIRE VOC TE	44	213	20.66%	13.81%	6.84%
0044	BROCKTON PS	5	31	16.13%	9.33%	6.80%
0406	NORTHAMPTON-SMITH	50	274	18.25%	11.67%	6.58%
0852	NASHOBA VALLEY TECH	35	241	14.52%	9.02%	5.50%
0770	TANTASQUA REG	13	97	13.40%	8.33%	5.07%
0823	GREATER LAWRENCE TECH	108	706	15.30%	11.62%	3.67%
0829	SO MIDDLESEX VOC TECH	29	276	10.51%	7.23%	3.27%
0281	SPRINGFIELD PS	53	488	10.86%	8.16%	2.70%
0049	CAMBRIDGE PS	3	25	12.00%	9.41%	2.59%
0872	SOUTHEASTERN VOC TECH	88	685	12.85%	10.59%	2.26%
0871	SHAWSHEEN VALLEY TECH	59	551	10.71%	8.54%	2.17%
0061	CHICOPEE PS	14	124	11.29%	9.16%	2.13%
0153	LEOMINSTER PS	29	281	10.32%	8.22%	2.10%
0853	NORTHEAST METRO VOC TECH	87	675	12.89%	10.86%	2.03%
0163	LYNN PS	65	471	13.80%	11.92%	1.88%
0879	UPPER CAPE COD VOC TECH	48	345	13.91%	12.24%	1.67%
0207	NEWTON PS	4	42	9.52%	7.99%	1.54%
0825	GREATER NEW BEDFORD	114	999	11.41%	10.24%	1.17%
0832	MONTACHUSETT REG VOC TECH	77	640	12.03%	10.91%	1.12%
0854	NORTH SHORE VOC TECH	26	236	11.02%	9.93%	1.09%
0821	GREATER FALL RIVER RVTS	66	640	10.31%	9.60%	0.71%
0828	GREATER LOWELL VOC TECH	108	992	10.89%	10.20%	0.69%
0274	SOMERVILLE PS	20	258	7.75%	7.58%	0.17%
0913	ESSEX AGR TECH	10	23	43.48%	43.48%	0.00%
0150	LEE PS	2	23	8.70%	8.81%	-0.11%
0243	QUINCY PS	44	481	9.15%	9.27%	-0.13%
0815	CAPE COD REG TECH HS	27	371	7.28%	7.71%	-0.43%
0885	WHITTIER VOC TECH	69	719	9.60%	10.29%	-0.69%
0348	WORCESTER PS	30	410	7.32%	8.23%	-0.91%
0095	FALL RIVER PS	7	199	3.52%	4.52%	-1.01%
0860	PATHFINDER RVTHS	37	346	10.69%	11.75%	-1.06%
0035	BOSTON PS	57	587	9.71%	10.81%	-1.10%
0325	WESTFIELD PS	25	278	8.99%	10.53%	-1.54%
0806	BLUE HILLS VOC TECH	37	442	8.37%	9.99%	-1.62%
0878	TRI COUNTY VOC TECH	34	456	7.46%	9.19%	-1.73%
0700	MARTHAS VINEYARD REG	4	81	4.94%	6.68%	-1.74%
0176	MEDFORD PS	7	119	5.88%	7.65%	-1.76%
0801	ASSABET VALLEY VOC TECH	39	450	8.67%	10.60%	-1.93%
0873	SOUTH SHORE VOC TECH	18	303	5.94%	8.59%	-2.65%
0876	S WORCESTER COUNTY VOC TE	40	509	7.86%	10.62%	-2.76%

See notes at end of table.

Table 15. List of school enrollment in nontraditional programs, district percent of nontraditional, statewide percent nontraditional and percentage points above state average: 2002–2003—Continued

LEA no.	LEA name	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average
0818	FRANKLIN COUNTY VOC TECH	15	254	5.91%	8.78%	-2.87%
0336	WEYMOUTH PS	7	206	3.40%	6.80%	-3.40%
0805	BLACKSTONE VALLEY VOC TEC	32	412	7.77%	11.35%	-3.59%
0830	MINUTEMAN VOC TECH	48	395	12.15%	15.96%	-3.81%
0760	SILVER LAKE REG	8	109	7.34%	11.25%	-3.91%
1177	SO BERKSHIRE EDUC COLLAB	0	9	0.00%	3.93%	-3.93%
0672	GATEWAY REGIONAL	3	54	5.56%	10.39%	-4.84%
0016	ATTLEBORO PS	10	289	3.46%	8.59%	-5.13%
0239	PLYMOUTH PS	13	257	5.06%	10.43%	-5.37%
0107	GLOUCESTER PS	5	152	3.29%	8.71%	-5.42%
0650	DIGHTON-REHOBOTH REG	1	69	1.45%	7.65%	-6.20%
0236	PITTSFIELD PS	6	198	3.03%	9.48%	-6.45%
1114	LOWER PIONEER EDUC COLLAB	1	60	1.67%	8.16%	-6.50%
0308	WALTHAM PS	3	170	1.76%	8.44%	-6.67%
0855	OLD COLONY VOC TECH	16	310	5.16%	12.08%	-6.92%
0229	PEABODY PS	1	121	0.83%	8.58%	-7.75%
0181	METHUEN PS	23	136	16.91%	40.57%	-23.66%

[1]Weighted based on the mix of nontraditional programs in the school.
SOURCE: Massachusetts Department of Education.

Table 16. Top performing schools' vocational programs that are nontraditional for males and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Wholesale/Retail Sales and Services: COSMETOLOGY								
0137	HOLYOKE PS	120403	8	50	16.00%	2.19%	13.81%	12.41%
0406	NORTHAMPTON-SMITH	120403	3	25	12.00%	2.19%	9.81%	12.41%
0035	BOSTON PS	120403	6	63	9.52%	2.19%	7.33%	12.41%
0832	MONTACHUSETT REG VOC TECH	120403	3	44	6.82%	2.19%	4.63%	12.41%
0095	FALL RIVER PS	120403	3	59	5.08%	2.19%	2.90%	12.41%
0348	WORCESTER PS	120403	2	40	5.00%	2.19%	2.81%	12.41%
0854	NORTH SHORE VOC TECH	120403	1	27	3.70%	2.19%	1.51%	12.41%
0828	GREATER LOWELL VOC TECH	120403	3	98	3.06%	2.19%	0.87%	12.41%
0236	PITTSFIELD PS	120403	1	33	3.03%	2.19%	0.84%	12.41%
0872	SOUTHEASTERN VOC TECH	120403	1	33	3.03%	2.19%	0.84%	12.41%
0806	BLUE HILLS VOC TECH	120403	1	48	2.08%	2.19%	-0.11%	12.41%
0336	WEYMOUTH PS	120403	1	53	1.89%	2.19%	-0.30%	12.41%
0876	S WORCESTER COUNTY VOC TE	120403	1	59	1.69%	2.19%	-0.49%	12.41%
0885	WHITTIER VOC TECH	120403	1	74	1.35%	2.19%	-0.84%	12.41%
0163	LYNN PS	120403	0	49	0.00%	2.19%	-2.19%	12.41%
0176	MEDFORD PS	120403	0	24	0.00%	2.19%	-2.19%	12.41%
0229	PEABODY PS	120403	0	35	0.00%	2.19%	-2.19%	12.41%
0239	PLYMOUTH PS	120403	0	47	0.00%	2.19%	-2.19%	12.41%
0274	SOMERVILLE PS	120403	0	42	0.00%	2.19%	-2.19%	12.41%
0281	SPRINGFIELD PS	120403	0	78	0.00%	2.19%	-2.19%	12.41%
0801	ASSABET VALLEY VOC TECH	120403	0	35	0.00%	2.19%	-2.19%	12.41%
0815	CAPE COD REG TECH HS	120403	0	25	0.00%	2.19%	-2.19%	12.41%
0818	FRANKLIN COUNTY VOC TECH	120403	0	31	0.00%	2.19%	-2.19%	12.41%
0823	GREATER LAWRENCE TECH	120403	0	61	0.00%	2.19%	-2.19%	12.41%
0825	GREATER NEW BEDFORD	120403	0	52	0.00%	2.19%	-2.19%	12.41%
0829	SO MIDDLESEX VOC TECH	120403	0	39	0.00%	2.19%	-2.19%	12.41%
0830	MINUTEMAN VOC TECH	120403	0	38	0.00%	2.19%	-2.19%	12.41%

See notes at end of table.

Table 16. Top performing schools' vocational programs that are nontraditional for males and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0853	NORTHEAST METRO VOC TECH	120403	0	52	0.00%	2.19%	-2.19%	12.41%
0855	OLD COLONY VOC TECH	120403	0	42	0.00%	2.19%	-2.19%	12.41%
0860	PATHFINDER RVTHS	120403	0	45	0.00%	2.19%	-2.19%	12.41%
0871	SHAWSHEEN VALLEY TECH	120403	0	48	0.00%	2.19%	-2.19%	12.41%
0873	SOUTH SHORE VOC TECH	120403	0	38	0.00%	2.19%	-2.19%	12.41%
0878	TRI COUNTY VOC TECH	120403	0	61	0.00%	2.19%	-2.19%	12.41%
0879	UPPER CAPE COD VOC TECH	120403		40		2.19%		12.41%
Human Services: CHILD CARE & GUID WRK/MGR								
0239	PLYMOUTH PS	200201	2	23	8.70%	2.25%	6.45%	6.44%
0878	TRI COUNTY VOC TECH	200201	3	36	8.33%	2.25%	6.09%	6.44%
0825	GREATER NEW BEDFORD	200201	4	63	6.35%	2.25%	4.10%	6.44%
0274	SOMERVILLE PS	200201	1	16	6.25%	2.25%	4.00%	6.44%
0815	CAPE COD REG TECH HS	200201	1	22	4.55%	2.25%	2.30%	6.44%
0832	MONTACHUSETT REG VOC TECH	200201	1	36	2.78%	2.25%	0.53%	6.44%
0095	FALL RIVER PS	200201	1	60	1.67%	2.25%	-0.58%	6.44%
0016	ATTLEBORO PS	200201	0	50	0.00%	2.25%	-2.25%	6.44%
0035	BOSTON PS	200201	0	38	0.00%	2.25%	-2.25%	6.44%
0176	MEDFORD PS	200201	0	12	0.00%	2.25%	-2.25%	6.44%
0207	NEWTON PS	200201	0	4	0.00%	2.25%	-2.25%	6.44%
0308	WALTHAM PS	200201	0	37	0.00%	2.25%	-2.25%	6.44%
0336	WEYMOUTH PS	200201	0	27	0.00%	2.25%	-2.25%	6.44%
0348	WORCESTER PS	200201	0	25	0.00%	2.25%	-2.25%	6.44%
0650	DIGHTON-REHOBOTH REG	200201	0	19	0.00%	2.25%	-2.25%	6.44%
0700	MARTHAS VINEYARD REG	200201	0	30	0.00%	2.25%	-2.25%	6.44%
0806	BLUE HILLS VOC TECH	200201	0	21	0.00%	2.25%	-2.25%	6.44%
0828	GREATER LOWELL VOC TECH	200201	0	33	0.00%	2.25%	-2.25%	6.44%
0830	MINUTEMAN VOC TECH	200201	0	15	0.00%	2.25%	-2.25%	6.44%
0852	NASHOBA VALLEY TECH	200201	0	7	0.00%	2.25%	-2.25%	6.44%

See notes at end of table.

Table 16. Top performing schools' vocational programs that are nontraditional for males and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Health Services: COMMUNITY HEALTH LIAISON								
0830	MINUTEMAN VOC TECH	510301	4	27	14.81%	3.93%	10.88%	13.84%
0406	NORTHAMPTON-SMITH	510301	4	29	13.79%	3.93%	9.86%	13.84%
0871	SHAWSHEEN VALLEY TECH	510301	9	69	13.04%	3.93%	9.11%	13.84%
0815	CAPE COD REG TECH HS	510301	2	30	6.67%	3.93%	2.73%	13.84%
0872	SOUTHEASTERN VOC TECH	510301	5	110	4.55%	3.93%	0.61%	13.84%
0818	FRANKLIN COUNTY VOC TECH	510301	1	23	4.35%	3.93%	0.41%	13.84%
0879	UPPER CAPE COD VOC TECH	510301	1	26	3.85%	3.93%	-0.09%	13.84%
0860	PATHFINDER RVTHS	510301	1	30	3.33%	3.93%	-0.60%	13.84%
0853	NORTHEAST METRO VOC TECH	510301	4	126	3.17%	3.93%	-0.76%	13.84%
0885	WHITTIER VOC TECH	510301	3	98	3.06%	3.93%	-0.87%	13.84%
0832	MONTACHUSETT REG VOC TECH	510301	1	36	2.78%	3.93%	-1.16%	13.84%
0243	QUINCY PS	510301	5	184	2.72%	3.93%	-1.22%	13.84%
0823	GREATER LAWRENCE TECH	510301	2	77	2.60%	3.93%	-1.34%	13.84%
0821	GREATER FALL RIVER RVTS	510301	3	121	2.48%	3.93%	-1.46%	13.84%
0810	BRISTOL-PLYMOUTH VOC TECH	510301	1	55	1.82%	3.93%	-2.12%	13.84%
0163	LYNN PS	510301	0	35	0.00%	3.93%	-3.93%	13.84%
0825	GREATER NEW BEDFORD	510301	0	50	0.00%	3.93%	-3.93%	13.84%
0855	OLD COLONY VOC TECH	510301	0	34	0.00%	3.93%	-3.93%	13.84%
1177	SO BERKSHIRE EDUC COLLAB	510301	0	9	0.00%	3.93%	-3.93%	13.84%
Health Services: DENTAL ASSISTANT								
0035	BOSTON PS	510601	6	27	22.22%	6.35%	15.87%	4.44%
0852	NASHOBA VALLEY TECH	510601	2	20	10.00%	6.35%	3.65%	4.44%
0815	CAPE COD REG TECH HS	510601	0	12	0.00%	6.35%	-6.35%	4.44%
0825	GREATER NEW BEDFORD	510601	0	51	0.00%	6.35%	-6.35%	4.44%
0832	MONTACHUSETT REG VOC TECH	510601	0	16	0.00%	6.35%	-6.35%	4.44%

See notes at end of table.

Table 16. Top performing schools' vocational programs that are nontraditional for males and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Health Services: MEDICAL ASSISTANT								
0035	BOSTON PS	510801	6	52	11.54%	5.86%	5.68%	14.67%
0852	NASHOBA VALLEY TECH	510801	1	13	7.69%	5.86%	1.83%	14.67%
0828	GREATER LOWELL VOC TECH	510801	6	100	6.00%	5.86%	0.14%	14.67%
0825	GREATER NEW BEDFORD	510801	2	52	3.85%	5.86%	-2.01%	14.67%
0832	MONTACHUSETT REG VOC TECH	510801	0	39	0.00%	5.86%	-5.86%	14.67%
Health Services: NURSING ASSISTANT/AIDE								
0854	NORTH SHORE VOC TECH	511614	13	33	39.39%	7.27%	32.13%	13.84%
0274	SOMERVILLE PS	511614	8	43	18.60%	7.27%	11.34%	13.84%
0770	TANTASQUA REG	511614	4	28	14.29%	7.27%	7.02%	13.84%
0829	SO MIDDLESEX VOC TECH	511614	5	44	11.36%	7.27%	4.10%	13.84%
0348	WORCESTER PS	511614	4	42	9.52%	7.27%	2.26%	13.84%
0801	ASSABET VALLEY VOC TECH	511614	3	32	9.38%	7.27%	2.11%	13.84%
0828	GREATER LOWELL VOC TECH	511614	6	90	6.67%	7.27%	-0.60%	13.84%
0806	BLUE HILLS VOC TECH	511614	3	56	5.36%	7.27%	-1.91%	13.84%
0281	SPRINGFIELD PS	511614	6	115	5.22%	7.27%	-2.05%	13.84%
0035	BOSTON PS	511614	3	59	5.08%	7.27%	-2.18%	13.84%
0325	WESTFIELD PS	511614	1	20	5.00%	7.27%	-2.27%	13.84%
1114	LOWER PIONEER EDUC COLLAB	511614	1	25	4.00%	7.27%	-3.27%	13.84%
0876	S WORCESTER COUNTY VOC TE	511614	1	34	2.94%	7.27%	-4.33%	13.84%
0095	FALL RIVER PS	511614	1	39	2.56%	7.27%	-4.70%	13.84%
0137	HOLYOKE PS	511614	1	40	2.50%	7.27%	-4.77%	13.84%
0878	TRI COUNTY VOC TECH	511614	1	41	2.44%	7.27%	-4.83%	13.84%
0153	LEOMINSTER PS	511614	1	65	1.54%	7.27%	-5.73%	13.84%
0805	BLACKSTONE VALLEY VOC TEC	511614	0	29	0.00%	7.27%	-7.27%	13.84%
0873	SOUTH SHORE VOC TECH	511614	0	18	0.00%	7.27%	-7.27%	13.84%

[1]Based on unweighted state nontraditional enrollment data.

SOURCE: Massachusetts Department of Education.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Construction: BUILDING & PROPERTY MAINT								
0821	GREATER FALL RIVER RVTS	460401	15	36	41.67%	28.17%	13.49%	18.50%
0825	GREATER NEW BEDFORD	460401	11	29	37.93%	28.17%	9.76%	18.50%
0823	GREATER LAWRENCE TECH	460401	22	60	36.67%	28.17%	8.49%	18.50%
0137	HOLYOKE PS	460401	13	37	35.14%	28.17%	6.96%	18.50%
0801	ASSABET VALLEY VOC TECH	460401	8	25	32.00%	28.17%	3.83%	18.50%
0851	NORTHERN BERKSHIRE VOC TE	460401	13	45	28.89%	28.17%	0.72%	18.50%
0832	MONTACHUSETT REG VOC TECH	460401	15	71	21.13%	28.17%	-7.05%	18.50%
0876	S WORCESTER COUNTY VOC TE	460401	5	26	19.23%	28.17%	-8.94%	18.50%
0878	TRI COUNTY VOC TECH	460401	7	45	15.56%	28.17%	-12.62%	18.50%
0035	BOSTON PS	460401	2	20	10.00%	28.17%	-18.17%	18.50%
Construction: CARPENTER								
0406	NORTHAMPTON-SMITH	460201	13	36	36.11%	8.81%	27.31%	1.51%
0137	HOLYOKE PS	460201	9	35	25.71%	8.81%	16.91%	1.51%
0061	CHICOPEE PS	460201	7	32	21.88%	8.81%	13.07%	1.51%
0810	BRISTOL-PLYMOUTH VOC TECH	460201	12	62	19.35%	8.81%	10.55%	1.51%
0163	LYNN PS	460201	13	69	18.84%	8.81%	10.04%	1.51%
0871	SHAWSHEEN VALLEY TECH	460201	9	50	18.00%	8.81%	9.19%	1.51%
0823	GREATER LAWRENCE TECH	460201	9	53	16.98%	8.81%	8.18%	1.51%
0815	CAPE COD REG TECH HS	460201	7	42	16.67%	8.81%	7.86%	1.51%
0281	SPRINGFIELD PS	460201	13	84	15.48%	8.81%	6.67%	1.51%
0818	FRANKLIN COUNTY VOC TECH	460201	5	34	14.71%	8.81%	5.90%	1.51%
0885	WHITTIER VOC TECH	460201	12	84	14.29%	8.81%	5.48%	1.51%
0770	TANTASQUA REG	460201	3	22	13.64%	8.81%	4.83%	1.51%
0852	NASHOBA VALLEY TECH	460201	3	22	13.64%	8.81%	4.83%	1.51%
0044	BROCKTON PS	460201	2	17	11.76%	8.81%	2.96%	1.51%
0830	MINUTEMAN VOC TECH	460201	3	26	11.54%	8.81%	2.73%	1.51%
0876	S WORCESTER COUNTY VOC TE	460201	5	45	11.11%	8.81%	2.31%	1.51%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0825	GREATER NEW BEDFORD	460201	10	96	10.42%	8.81%	1.61%	1.51%
0872	SOUTHEASTERN VOC TECH	460201	6	58	10.34%	8.81%	1.54%	1.51%
0878	TRI COUNTY VOC TECH	460201	3	29	10.34%	8.81%	1.54%	1.51%
0150	LEE PS	460201	2	23	8.70%	8.81%	-0.11%	1.51%
0853	NORTHEAST METRO VOC TECH	460201	6	71	8.45%	8.81%	-0.35%	1.51%
0049	CAMBRIDGE PS	460201	1	12	8.33%	8.81%	-0.47%	1.51%
0821	GREATER FALL RIVER RVTS	460201	5	61	8.20%	8.81%	-0.61%	1.51%
0325	WESTFIELD PS	460201	3	38	7.89%	8.81%	-0.91%	1.51%
0829	SO MIDDLESEX VOC TECH	460201	3	39	7.69%	8.81%	-1.11%	1.51%
0153	LEOMINSTER PS	460201	3	41	7.32%	8.81%	-1.49%	1.51%
0700	MARTHAS VINEYARD REG	460201	2	30	6.67%	8.81%	-2.14%	1.51%
0828	GREATER LOWELL VOC TECH	460201	6	90	6.67%	8.81%	-2.14%	1.51%
0832	MONTACHUSETT REG VOC TECH	460201	3	45	6.67%	8.81%	-2.14%	1.51%
0207	NEWTON PS	460201	1	18	5.56%	8.81%	-3.25%	1.51%
0879	UPPER CAPE COD VOC TECH	460201	2	37	5.41%	8.81%	-3.40%	1.51%
0308	WALTHAM PS	460201	1	22	4.55%	8.81%	-4.26%	1.51%
0860	PATHFINDER RVTHS	460201	2	44	4.55%	8.81%	-4.26%	1.51%
0107	GLOUCESTER PS	460201	2	48	4.17%	8.81%	-4.64%	1.51%
0801	ASSABET VALLEY VOC TECH	460201	2	52	3.85%	8.81%	-4.96%	1.51%
0236	PITTSFIELD PS	460201	1	28	3.57%	8.81%	-5.23%	1.51%
0760	SILVER LAKE REG	460201	1	36	2.78%	8.81%	-6.03%	1.51%
0348	WORCESTER PS	460201	1	40	2.50%	8.81%	-6.31%	1.51%
0854	NORTH SHORE VOC TECH	460201	1	40	2.50%	8.81%	-6.31%	1.51%
0336	WEYMOUTH PS	460201	1	49	2.04%	8.81%	-6.76%	1.51%
0806	BLUE HILLS VOC TECH	460201	1	65	1.54%	8.81%	-7.27%	1.51%
0016	ATTLEBORO PS	460201	1	77	1.30%	8.81%	-7.51%	1.51%
0035	BOSTON PS	460201	0	39	0.00%	8.81%	-8.81%	1.51%
0229	PEABODY PS	460201	0	25	0.00%	8.81%	-8.81%	1.51%
0239	PLYMOUTH PS	460201	0	29	0.00%	8.81%	-8.81%	1.51%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0274	SOMERVILLE PS	460201	0	18	0.00%	8.81%	-8.81%	1.51%
0650	DIGHTON-REHOBOTH REG	460201	0	23	0.00%	8.81%	-8.81%	1.51%
0805	BLACKSTONE VALLEY VOC TEC	460201	0	55	0.00%	8.81%	-8.81%	1.51%
0855	OLD COLONY VOC TECH	460201	0	31	0.00%	8.81%	-8.81%	1.51%
0873	SOUTH SHORE VOC TECH	460201	0	30	0.00%	8.81%	-8.81%	1.51%
1114	LOWER PIONEER EDUC COLLAB	460201	0	35	0.00%	8.81%	-8.81%	1.51%
Construction: ELECTRIC/ELECTRON EQ INST								
0239	PLYMOUTH PS	470101	1	17	5.88%	5.88%	0.00%	3.39%
Construction: ELECTRICIAN								
0406	NORTHAMPTON-SMITH	460302	6	29	20.69%	6.48%	14.21%	2.10%
0137	HOLYOKE PS	460302	4	20	20.00%	6.48%	13.52%	2.10%
0851	NORTHERN BERKSHIRE VOC TE	460302	8	44	18.18%	6.48%	11.71%	2.10%
0853	NORTHEAST METRO VOC TECH	460302	10	74	13.51%	6.48%	7.04%	2.10%
0153	LEOMINSTER PS	460302	4	34	11.76%	6.48%	5.29%	2.10%
0815	CAPE COD REG TECH HS	460302	4	34	11.76%	6.48%	5.29%	2.10%
0818	FRANKLIN COUNTY VOC TECH	460302	3	28	10.71%	6.48%	4.24%	2.10%
0281	SPRINGFIELD PS	460302	4	39	10.26%	6.48%	3.78%	2.10%
0860	PATHFINDER RVTHS	460302	3	30	10.00%	6.48%	3.52%	2.10%
0829	SO MIDDLESEX VOC TECH	460302	4	43	9.30%	6.48%	2.83%	2.10%
0035	BOSTON PS	460302	5	57	8.77%	6.48%	2.30%	2.10%
0770	TANTASQUA REG	460302	2	23	8.70%	6.48%	2.22%	2.10%
0016	ATTLEBORO PS	460302	3	35	8.57%	6.48%	2.10%	2.10%
0810	BRISTOL-PLYMOUTH VOC TECH	460302	5	61	8.20%	6.48%	1.72%	2.10%
0061	CHICOPEE PS	460302	3	39	7.69%	6.48%	1.22%	2.10%
0806	BLUE HILLS VOC TECH	460302	5	66	7.58%	6.48%	1.10%	2.10%
0805	BLACKSTONE VALLEY VOC TEC	460302	2	28	7.14%	6.48%	0.67%	2.10%
0873	SOUTH SHORE VOC TECH	460302	3	45	6.67%	6.48%	0.19%	2.10%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0872	SOUTHEASTERN VOC TECH	460302	3	47	6.38%	6.48%	-0.09%	2.10%
0871	SHAWSHEEN VALLEY TECH	460302	4	66	6.06%	6.48%	-0.42%	2.10%
0830	MINUTEMAN VOC TECH	460302	1	18	5.56%	6.48%	-0.92%	2.10%
0823	GREATER LAWRENCE TECH	460302	3	55	5.45%	6.48%	-1.02%	2.10%
0852	NASHOBA VALLEY TECH	460302	3	55	5.45%	6.48%	-1.02%	2.10%
0878	TRI COUNTY VOC TECH	460302	3	55	5.45%	6.48%	-1.02%	2.10%
0885	WHITTIER VOC TECH	460302	5	92	5.43%	6.48%	-1.04%	2.10%
0163	LYNN PS	460302	3	56	5.36%	6.48%	-1.12%	2.10%
0821	GREATER FALL RIVER RVTS	460302	3	57	5.26%	6.48%	-1.21%	2.10%
0348	WORCESTER PS	460302	2	41	4.88%	6.48%	-1.60%	2.10%
0825	GREATER NEW BEDFORD	460302	5	105	4.76%	6.48%	-1.71%	2.10%
0832	MONTACHUSETT REG VOC TECH	460302	2	55	3.64%	6.48%	-2.84%	2.10%
0239	PLYMOUTH PS	460302	1	28	3.57%	6.48%	-2.90%	2.10%
0274	SOMERVILLE PS	460302	1	28	3.57%	6.48%	-2.90%	2.10%
0243	QUINCY PS	460302	1	29	3.45%	6.48%	-3.03%	2.10%
0801	ASSABET VALLEY VOC TECH	460302	1	51	1.96%	6.48%	-4.52%	2.10%
0828	GREATER LOWELL VOC TECH	460302	1	59	1.69%	6.48%	-4.78%	2.10%
0107	GLOUCESTER PS	460302	0	44	0.00%	6.48%	-6.48%	2.10%
0176	MEDFORD PS	460302	0	22	0.00%	6.48%	-6.48%	2.10%
0207	NEWTON PS	460302	0	9	0.00%	6.48%	-6.48%	2.10%
0308	WALTHAM PS	460302	0	10	0.00%	6.48%	-6.48%	2.10%
0325	WESTFIELD PS	460302	0	32	0.00%	6.48%	-6.48%	2.10%
0855	OLD COLONY VOC TECH	460302	0	28	0.00%	6.48%	-6.48%	2.10%
0876	S WORCESTER COUNTY VOC TE	460302	0	37	0.00%	6.48%	-6.48%	2.10%
0879	UPPER CAPE COD VOC TECH	460302	0	29	0.00%	6.48%	-6.48%	2.10%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Construction: HEATING, A/C, REFRIG MECH								
0821	GREATER FALL RIVER RVTS	470201	5	37	13.51%	4.01%	9.51%	1.31%
0810	BRISTOL-PLYMOUTH VOC TECH	470201	6	53	11.32%	4.01%	7.31%	1.31%
0805	BLACKSTONE VALLEY VOC TEC	470201	3	31	9.68%	4.01%	5.67%	1.31%
0806	BLUE HILLS VOC TECH	470201	2	23	8.70%	4.01%	4.69%	1.31%
0825	GREATER NEW BEDFORD	470201	2	27	7.41%	4.01%	3.40%	1.31%
0860	PATHFINDER RVTHS	470201	2	28	7.14%	4.01%	3.14%	1.31%
0325	WESTFIELD PS	470201	2	34	5.88%	4.01%	1.88%	1.31%
0878	TRI COUNTY VOC TECH	470201	1	29	3.45%	4.01%	-0.56%	1.31%
0873	SOUTH SHORE VOC TECH	470201	1	30	3.33%	4.01%	-0.67%	1.31%
0153	LEOMINSTER PS	470201	0	23	0.00%	4.01%	-4.01%	1.31%
0348	WORCESTER PS	470201	0	8	0.00%	4.01%	-4.01%	1.31%
0815	CAPE COD REG TECH HS	470201	0	22	0.00%	4.01%	-4.01%	1.31%
0828	GREATER LOWELL VOC TECH	470201	0	41	0.00%	4.01%	-4.01%	1.31%
0830	MINUTEMAN VOC TECH	470201	0	33	0.00%	4.01%	-4.01%	1.31%
0871	SHAWSHEEN VALLEY TECH	470201	0	50	0.00%	4.01%	-4.01%	1.31%
0872	SOUTHEASTERN VOC TECH	470201	0	28	0.00%	4.01%	-4.01%	1.31%
0876	S WORCESTER COUNTY VOC TE	470201	0	26	0.00%	4.01%	-4.01%	1.31%
0885	WHITTIER VOC TECH	470201	0	49	0.00%	4.01%	-4.01%	1.31%
Construction: MAJ APPLIANCE INST/REPAIR								
0801	ASSABET VALLEY VOC TECH	470106	5	31	16.13%	8.60%	7.53%	2.70%
0825	GREATER NEW BEDFORD	470106	1	20	5.00%	8.60%	-3.60%	2.70%
0095	FALL RIVER PS	470106	2	41	4.88%	8.60%	-3.72%	2.70%
Construction: MASON & TILE SETTER								
0832	MONTACHUSETT REG VOC TECH	460101	7	23	30.43%	15.45%	14.98%	0.54%
0879	UPPER CAPE COD VOC TECH	460101	6	26	23.08%	15.45%	7.62%	0.54%
0854	NORTH SHORE VOC TECH	460101	5	27	18.52%	15.45%	3.06%	0.54%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0876	S WORCESTER COUNTY VOC TE	460101	5	27	18.52%	15.45%	3.06%	0.54%
0871	SHAWSHEEN VALLEY TECH	460101	5	36	13.89%	15.45%	-1.57%	0.54%
0828	GREATER LOWELL VOC TECH	460101	3	34	8.82%	15.45%	-6.63%	0.54%
0885	WHITTIER VOC TECH	460101	2	29	6.90%	15.45%	-8.56%	0.54%
0815	CAPE COD REG TECH HS	460101	1	18	5.56%	15.45%	-9.90%	0.54%
Construction: PLUMBER & PIPEFITTER								
0829	SO MIDDLESEX VOC TECH	460501	9	44	20.45%	4.75%	15.71%	1.33%
0153	LEOMINSTER PS	460501	6	31	19.35%	4.75%	14.61%	1.33%
0823	GREATER LAWRENCE TECH	460501	4	50	8.00%	4.75%	3.25%	1.33%
0885	WHITTIER VOC TECH	460501	3	39	7.69%	4.75%	2.95%	1.33%
0876	S WORCESTER COUNTY VOC TE	460501	2	28	7.14%	4.75%	2.40%	1.33%
0871	SHAWSHEEN VALLEY TECH	460501	3	45	6.67%	4.75%	1.92%	1.33%
0878	TRI COUNTY VOC TECH	460501	2	31	6.45%	4.75%	1.70%	1.33%
0879	UPPER CAPE COD VOC TECH	460501	2	32	6.25%	4.75%	1.50%	1.33%
0832	MONTACHUSETT REG VOC TECH	460501	2	42	4.76%	4.75%	0.01%	1.33%
0239	PLYMOUTH PS	460501	1	26	3.85%	4.75%	-0.90%	1.33%
0853	NORTHEAST METRO VOC TECH	460501	3	82	3.66%	4.75%	-1.09%	1.33%
0163	LYNN PS	460501	1	28	3.57%	4.75%	-1.18%	1.33%
0243	QUINCY PS	460501	1	34	2.94%	4.75%	-1.81%	1.33%
0348	WORCESTER PS	460501	1	34	2.94%	4.75%	-1.81%	1.33%
0828	GREATER LOWELL VOC TECH	460501	2	70	2.86%	4.75%	-1.89%	1.33%
0872	SOUTHEASTERN VOC TECH	460501	1	37	2.70%	4.75%	-2.04%	1.33%
0825	GREATER NEW BEDFORD	460501	1	41	2.44%	4.75%	-2.31%	1.33%
0830	MINUTEMAN VOC TECH	460501	1	42	2.38%	4.75%	-2.37%	1.33%
0821	GREATER FALL RIVER RVTS	460501	1	49	2.04%	4.75%	-2.71%	1.33%
0406	NORTHAMPTON-SMITH	460501	0	22	0.00%	4.75%	-4.75%	1.33%
0801	ASSABET VALLEY VOC TECH	460501	0	30	0.00%	4.75%	-4.75%	1.33%
0805	BLACKSTONE VALLEY VOC TEC	460501	0	30	0.00%	4.75%	-4.75%	1.33%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0815	CAPE COD REG TECH HS	460501	0	33	0.00%	4.75%	-4.75%	1.33%
0818	FRANKLIN COUNTY VOC TECH	460501	0	24	0.00%	4.75%	-4.75%	1.33%
0852	NASHOBA VALLEY TECH	460501	0	32	0.00%	4.75%	-4.75%	1.33%
Construction: STATIONARY ENERGY SOURCES								
0825	GREATER NEW BEDFORD	470501	2	25	8.00%	8.00%	0.00%	2.80%
Information Technology Services: COMMUNIC SYSTEMS INST/REP								
0830	MINUTEMAN VOC TECH	470103	0	1	0.00%	0.00%	0.00%	8.85%
Manufacturing: MACHINIST/MACHINE TECH								
0137	HOLYOKE PS	480501	11	22	50.00%	13.98%	36.02%	4.23%
0821	GREATER FALL RIVER RVTS	480501	14	63	22.22%	13.98%	8.24%	4.23%
0805	BLACKSTONE VALLEY VOC TEC	480501	10	46	21.74%	13.98%	7.76%	4.23%
0871	SHAWSHEEN VALLEY TECH	480501	7	33	21.21%	13.98%	7.23%	4.23%
0061	CHICOPEE PS	480501	3	17	17.65%	13.98%	3.66%	4.23%
0806	BLUE HILLS VOC TECH	480501	3	17	17.65%	13.98%	3.66%	4.23%
0823	GREATER LAWRENCE TECH	480501	7	42	16.67%	13.98%	2.68%	4.23%
0872	SOUTHEASTERN VOC TECH	480501	10	65	15.38%	13.98%	1.40%	4.23%
0853	NORTHEAST METRO VOC TECH	480501	5	39	12.82%	13.98%	-1.16%	4.23%
0828	GREATER LOWELL VOC TECH	480501	4	40	10.00%	13.98%	-3.98%	4.23%
0760	SILVER LAKE REG	480501	3	33	9.09%	13.98%	-4.89%	4.23%
0829	SO MIDDLESEX VOC TECH	480501	2	23	8.70%	13.98%	-5.29%	4.23%
0873	SOUTH SHORE VOC TECH	480501	2	27	7.41%	13.98%	-6.58%	4.23%
0239	PLYMOUTH PS	480501	2	35	5.71%	13.98%	-8.27%	4.23%
0163	LYNN PS	480501	1	20	5.00%	13.98%	-8.98%	4.23%
0818	FRANKLIN COUNTY VOC TECH	480501	1	24	4.17%	13.98%	-9.82%	4.23%
0016	ATTLEBORO PS	480501	1	43	2.33%	13.98%	-11.66%	4.23%
0236	PITTSFIELD PS	480501	0	25	0.00%	13.98%	-13.98%	4.23%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
Manufacturing: MACHINE SHOP ASSISTANT								
0810	BRISTOL-PLYMOUTH VOC TECH	480503	11	28	39.29%	10.90%	28.38%	4.15%
0281	SPRINGFIELD PS	480503	12	42	28.57%	10.90%	17.67%	4.15%
0871	SHAWSHEEN VALLEY TECH	480503	4	20	20.00%	10.90%	9.10%	4.15%
0821	GREATER FALL RIVER RVTS	480503	12	62	19.35%	10.90%	8.45%	4.15%
0823	GREATER LAWRENCE TECH	480503	9	52	17.31%	10.90%	6.40%	4.15%
0770	TANTASQUA REG	480503	4	24	16.67%	10.90%	5.76%	4.15%
0825	GREATER NEW BEDFORD	480503	11	67	16.42%	10.90%	5.51%	4.15%
0832	MONTACHUSETT REG VOC TECH	480503	4	25	16.00%	10.90%	5.10%	4.15%
0137	HOLYOKE PS	480503	5	32	15.63%	10.90%	4.72%	4.15%
0274	SOMERVILLE PS	480503	3	21	14.29%	10.90%	3.38%	4.15%
0348	WORCESTER PS	480503	2	15	13.33%	10.90%	2.43%	4.15%
0872	SOUTHEASTERN VOC TECH	480503	7	56	12.50%	10.90%	1.60%	4.15%
0153	LEOMINSTER PS	480503	2	17	11.76%	10.90%	0.86%	4.15%
0851	NORTHERN BERKSHIRE VOC TE	480503	4	35	11.43%	10.90%	0.52%	4.15%
0325	WESTFIELD PS	480503	3	29	10.34%	10.90%	-0.56%	4.15%
0801	ASSABET VALLEY VOC TECH	480503	2	23	8.70%	10.90%	-2.21%	4.15%
0885	WHITTIER VOC TECH	480503	2	23	8.70%	10.90%	-2.21%	4.15%
0828	GREATER LOWELL VOC TECH	480503	4	51	7.84%	10.90%	-3.06%	4.15%
0876	S WORCESTER COUNTY VOC TE	480503	1	19	5.26%	10.90%	-5.64%	4.15%
0873	SOUTH SHORE VOC TECH	480503	1	20	5.00%	10.90%	-5.90%	4.15%
0854	NORTH SHORE VOC TECH	480503	1	21	4.76%	10.90%	-6.14%	4.15%
0878	TRI COUNTY VOC TECH	480503	1	21	4.76%	10.90%	-6.14%	4.15%
0860	PATHFINDER RVTHS	480503	1	25	4.00%	10.90%	-6.90%	4.15%
0163	LYNN PS	480503	1	27	3.70%	10.90%	-7.20%	4.15%
0016	ATTLEBORO PS	480503	1	28	3.57%	10.90%	-7.33%	4.15%
0855	OLD COLONY VOC TECH	480503	1	32	3.13%	10.90%	-7.78%	4.15%
0406	NORTHAMPTON-SMITH	480503	1	36	2.78%	10.90%	-8.13%	4.15%
0061	CHICOPEE PS	480503	0	5	0.00%	10.90%	-10.90%	4.15%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0107	GLOUCESTER PS	480503	0	19	0.00%	10.90%	-10.90%	4.15%
0236	PITTSFIELD PS	480503	0	32	0.00%	10.90%	-10.90%	4.15%
0308	WALTHAM PS	480503	0	5	0.00%	10.90%	-10.90%	4.15%
0650	DIGHTON-REHOBOTH REG	480503	0	14	0.00%	10.90%	-10.90%	4.15%
0818	FRANKLIN COUNTY VOC TECH	480503	0	29	0.00%	10.90%	-10.90%	4.15%
0852	NASHOBA VALLEY TECH	480503	0	10	0.00%	10.90%	-10.90%	4.15%
Science, Engineering and Technical Services: ELECTRONIC & COMM TECH								
0810	BRISTOL-PLYMOUTH VOC TECH	150303	15	34	44.12%	12.54%	31.57%	20.68%
0879	UPPER CAPE COD VOC TECH	150303	5	17	29.41%	12.54%	16.87%	20.68%
0851	NORTHERN BERKSHIRE VOC TE	150303	11	43	25.58%	12.54%	13.04%	20.68%
0243	QUINCY PS	150303	16	68	23.53%	12.54%	10.98%	20.68%
0801	ASSABET VALLEY VOC TECH	150303	6	27	22.22%	12.54%	9.68%	20.68%
0876	S WORCESTER COUNTY VOC TE	150303	6	28	21.43%	12.54%	8.88%	20.68%
0873	SOUTH SHORE VOC TECH	150303	6	29	20.69%	12.54%	8.15%	20.68%
0823	GREATER LAWRENCE TECH	150303	16	81	19.75%	12.54%	7.21%	20.68%
0852	NASHOBA VALLEY TECH	150303	4	25	16.00%	12.54%	3.46%	20.68%
0830	MINUTEMAN VOC TECH	150303	1	7	14.29%	12.54%	1.74%	20.68%
0832	MONTACHUSETT REG VOC TECH	150303	5	36	13.89%	12.54%	1.34%	20.68%
0325	WESTFIELD PS	150303	4	29	13.79%	12.54%	1.25%	20.68%
0855	OLD COLONY VOC TECH	150303	3	22	13.64%	12.54%	1.09%	20.68%
0878	TRI COUNTY VOC TECH	150303	6	45	13.33%	12.54%	0.79%	20.68%
0153	LEOMINSTER PS	150303	3	23	13.04%	12.54%	0.50%	20.68%
0336	WEYMOUTH PS	150303	2	16	12.50%	12.54%	-0.04%	20.68%
0815	CAPE COD REG TECH HS	150303	3	29	10.34%	12.54%	-2.20%	20.68%
0885	WHITTIER VOC TECH	150303	4	42	9.52%	12.54%	-3.02%	20.68%
0871	SHAWSHEEN VALLEY TECH	150303	3	33	9.09%	12.54%	-3.45%	20.68%
0806	BLUE HILLS VOC TECH	150303	4	48	8.33%	12.54%	-4.21%	20.68%
0805	BLACKSTONE VALLEY VOC TEC	150303	4	52	7.69%	12.54%	-4.85%	20.68%

See notes at end of table.

Table 17. Top performing schools' vocational clusters that are nontraditional for females and corresponding enrollment information, statewide average enrollment and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Nontra-ditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0163	LYNN PS	150303	3	40	7.50%	12.54%	-5.04%	20.68%
0828	GREATER LOWELL VOC TECH	150303	4	67	5.97%	12.54%	-6.57%	20.68%
0860	PATHFINDER RVTHS	150303	2	34	5.88%	12.54%	-6.66%	20.68%
0236	PITTSFIELD PS	150303	1	20	5.00%	12.54%	-7.54%	20.68%
0854	NORTH SHORE VOC TECH	150303	1	29	3.45%	12.54%	-9.10%	20.68%
0872	SOUTHEASTERN VOC TECH	150303	1	33	3.03%	12.54%	-9.51%	20.68%
0035	BOSTON PS	150303	1	34	2.94%	12.54%	-9.60%	20.68%
0821	GREATER FALL RIVER RVTS	150303	1	35	2.86%	12.54%	-9.69%	20.68%
0137	HOLYOKE PS	150303	0	3	0.00%	12.54%	-12.54%	20.68%
0229	PEABODY PS	150303	0	20	0.00%	12.54%	-12.54%	20.68%
0308	WALTHAM PS	150303	0	24	0.00%	12.54%	-12.54%	20.68%
0853	NORTHEAST METRO VOC TECH	150303	0	31	0.00%	12.54%	-12.54%	20.68%
Science, Engineering and Technical Services: BIOMEDICAL ENGIN-REL TECH								
0049	CAMBRIDGE PS	150401	0	0		58.82%		45.88%
0830	MINUTEMAN VOC TECH	150401	20	34	58.82%	58.82%	0.00%	45.88%
Science, Engineering and Technical Services: ELECTROMECHANICAL TECH								
0243	QUINCY PS	150403	13	65	20.00%	18.18%	1.82%	20.68%
0830	MINUTEMAN VOC TECH	150403	1	12	8.33%	18.18%	-9.85%	20.68%
Science, Engineering and Technical Service ENGINEERING TECHNOLOGY								
0830	MINUTEMAN VOC TECH	151101	4	28	14.29%	8.85%	5.44%	20.68%
0348	WORCESTER PS	151101	3	24	12.50%	8.85%	3.65%	20.68%
0825	GREATER NEW BEDFORD	151101	3	61	4.92%	8.85%	-3.93%	20.68%

[1]Based on unweighted state nontraditional enrollment data.

SOURCE: Massachusetts Department of Education.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0016	**ATTLEBORO PS**			**10**	**289**	**3.46%**	**8.59%**	**-5.13%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	56	7.14%	9.98%	-2.83%	1.56%
	CARPENTER	460201	Construction	1	77	1.30%	8.81%	-7.51%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	50	0.00%	2.25%	-2.25%	6.44%
	ELECTRICIAN	460302	Construction	3	35	8.57%	6.48%	2.10%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	28	3.57%	10.90%	-7.33%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	1	43	2.33%	13.98%	-11.66%	4.23%
0035	**BOSTON PS**			**57**	**587**	**9.71%**	**10.81%**	**-1.10%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	1	26	3.85%	13.22%	-9.37%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	65	3.08%	9.98%	-6.90%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	2	20	10.00%	28.17%	-18.17%	18.50%
	CARPENTER	460201	Construction	0	39	0.00%	8.81%	-8.81%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	38	0.00%	2.25%	-2.25%	6.44%
	COMPUTER PROGRAMMING	110201	Information Technology Services	2	6	33.33%	40.57%	-7.24%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	6	63	9.52%	2.19%	7.33%	12.41%
	DENTAL ASSISTANT	510601	Health Services	6	27	22.22%	6.35%	15.87%	4.44%
	ELECTRICIAN	460302	Construction	5	57	8.77%	6.48%	2.30%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	34	2.94%	12.54%	-9.60%	20.68%
	MEDICAL ASSISTANT	510801	Health Services	6	52	11.54%	5.86%	5.68%	14.67%
	NURSING ASSISTANT/AIDE	511614	Health Services	3	59	5.08%	7.27%	-2.18%	13.84%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	RADIO&TV BROADCAST TECH	100104	Arts and Communications Services	19	50	38.00%	38.00%	0.00%	14.10%
	SHEET METAL WORKER	480506	Construction	2	28	7.14%	8.33%	-1.19%	2.40%
	SMALL ENGINE MECH/REPAIR	470606	Transportation	2	23	8.70%	6.33%	2.37%	0.00%
0044	**BROCKTON PS**			**5**	**31**	**16.13%**	**9.33%**	**6.80%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	14	21.43%	9.98%	11.45%	1.56%
	CARPENTER	460201	Construction	2	17	11.76%	8.81%	2.96%	1.51%
0049	**CAMBRIDGE PS**			**3**	**25**	**12.00%**	**9.41%**	**2.59%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	13	15.38%	9.98%	5.41%	1.56%
	CARPENTER	460201	Construction	1	12	8.33%	8.81%	-0.47%	1.51%
0061	**CHICOPEE PS**			**14**	**124**	**11.29%**	**9.16%**	**2.13%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	31	3.23%	9.98%	-6.75%	1.56%
	CARPENTER	460201	Construction	7	32	21.88%	8.81%	13.07%	1.51%
	ELECTRICIAN	460302	Construction	3	39	7.69%	6.48%	1.22%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	5	0.00%	10.90%	-10.90%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	3	17	17.65%	13.98%	3.66%	4.23%
0095	**FALL RIVER PS**			**7**	**199**	**3.52%**	**4.52%**	**-1.01%**	**NA**
	CHILD CARE & GUID WRK/MGR	200201	Human Services	1	60	1.67%	2.25%	-0.58%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	3	59	5.08%	2.19%	2.90%	12.41%
	MAJ APPLIANCE INST/REPAIR	470106	Construction	2	41	4.88%	8.60%	-3.72%	2.70%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	39	2.56%	7.27%	-4.70%	13.84%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0107	**GLOUCESTER PS**			**5**	**152**	**3.29%**	**8.71%**	**-5.42%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	41	7.32%	9.98%	-2.66%	1.56%
	CARPENTER	460201	Construction	2	48	4.17%	8.81%	-4.64%	1.51%
	ELECTRICIAN	460302	Construction	0	44	0.00%	6.48%	-6.48%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	19	0.00%	10.90%	-10.90%	4.15%
0137	**HOLYOKE PS**			**86**	**369**	**23.31%**	**14.72%**	**8.59%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	5	35	14.29%	13.22%	1.07%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	32	9.38%	9.98%	-0.60%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	13	37	35.14%	28.17%	6.96%	18.50%
	CARPENTER	460201	Construction	9	35	25.71%	8.81%	16.91%	1.51%
	COMPUTER PROGRAMMING	110201	Information Technology Services	17	39	43.59%	40.57%	3.02%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	8	50	16.00%	2.19%	13.81%	12.41%
	DIESEL ENGINE MECHANIC	470605	Transportation	10	24	41.67%	20.55%	21.12%	1.08%
	ELECTRICIAN	460302	Construction	4	20	20.00%	6.48%	13.52%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	0	3	0.00%	12.54%	-12.54%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	5	32	15.63%	10.90%	4.72%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	11	22	50.00%	13.98%	36.02%	4.23%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	40	2.50%	7.27%	-4.77%	13.84%
0150	**LEE PS**			**2**	**23**	**8.70%**	**8.81%**	**-0.11%**	**NA**
	CARPENTER	460201	Construction	2	23	8.70%	8.81%	-0.11%	1.51%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0153	**LEOMINSTER PS**			**29**	**281**	**10.32%**	**8.22%**	**2.10%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	6	23	26.09%	13.22%	12.87%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	24	16.67%	9.98%	6.69%	1.56%
	CARPENTER	460201	Construction	3	41	7.32%	8.81%	-1.49%	1.51%
	ELECTRICIAN	460302	Construction	4	34	11.76%	6.48%	5.29%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	3	23	13.04%	12.54%	0.50%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	23	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	2	17	11.76%	10.90%	0.86%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	65	1.54%	7.27%	-5.73%	13.84%
	PLUMBER & PIPEFITTER	460501	Construction	6	31	19.35%	4.75%	14.61%	1.33%
0163	**LYNN PS**			**65**	**471**	**13.80%**	**11.92%**	**1.88%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	51	3.92%	13.22%	-9.30%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	45	8.89%	9.98%	-1.09%	1.56%
	CARPENTER	460201	Construction	13	69	18.84%	8.81%	10.04%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	0	35	0.00%	3.93%	-3.93%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	37	51	72.55%	40.57%	31.98%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	49	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	56	5.36%	6.48%	-1.12%	2.10%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	3	40	7.50%	12.54%	-5.04%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	27	3.70%	10.90%	-7.20%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	1	20	5.00%	13.98%	-8.98%	4.23%
	PLUMBER & PIPEFITTER	460501	Construction	1	28	3.57%	4.75%	-1.18%	1.33%
0176	**MEDFORD PS**			**7**	**119**	**5.88%**	**7.65%**	**-1.76%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	1	10	10.00%	13.22%	-3.22%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	0	15	0.00%	9.98%	-9.98%	1.56%
	CABINETMAKER & MILLWORKER	480703	Construction	3	9	33.33%	20.13%	13.20%	9.40%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	12	0.00%	2.25%	-2.25%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	24	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	0	22	0.00%	6.48%	-6.48%	2.10%
	SHEET METAL WORKER	480506	Construction	3	27	11.11%	8.33%	2.78%	2.40%
0181	**METHUEN PS**			**23**	**136**	**16.91%**	**40.57%**	**-23.66%**	**NA**
	COMPUTER PROGRAMMING	110201	Information Technology Services	23	136	16.91%	40.57%	-23.66%	29.11%
0207	**NEWTON PS**			**4**	**42**	**9.52%**	**7.99%**	**1.54%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	11	27.27%	9.98%	17.30%	1.56%
	CARPENTER	460201	Construction	1	18	5.56%	8.81%	-3.25%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	4	0.00%	2.25%	-2.25%	6.44%
	ELECTRICIAN	460302	Construction	0	9	0.00%	6.48%	-6.48%	2.10%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0229	**PEABODY PS**			**1**	**121**	**0.83%**	**8.58%**	**-7.75%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	1	25	4.00%	13.22%	-9.22%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	0	16	0.00%	9.98%	-9.98%	1.56%
	CARPENTER	460201	Construction	0	25	0.00%	8.81%	-8.81%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	35	0.00%	2.19%	-2.19%	12.41%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	0	20	0.00%	12.54%	-12.54%	20.68%
0236	**PITTSFIELD PS**			**6**	**198**	**3.03%**	**9.48%**	**-6.45%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	18	11.11%	13.22%	-2.11%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	29	3.45%	9.98%	-6.53%	1.56%
	CARPENTER	460201	Construction	1	28	3.57%	8.81%	-5.23%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	33	3.03%	2.19%	0.84%	12.41%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	20	5.00%	12.54%	-7.54%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	32	0.00%	10.90%	-10.90%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	0	25	0.00%	13.98%	-13.98%	4.23%
	SMALL ENGINE MECH/REPAIR	470606	Transportation	0	13	0.00%	6.33%	-6.33%	0.00%
0239	**PLYMOUTH PS**			**13**	**257**	**5.06%**	**10.43%**	**-5.37%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	24	12.50%	9.98%	2.52%	1.56%
	CARPENTER	460201	Construction	0	29	0.00%	8.81%	-8.81%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	2	23	8.70%	2.25%	6.45%	6.44%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	COMPUTER PROGRAMMING	110201	Information Technology Services	3	28	10.71%	40.57%	-29.86%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	47	0.00%	2.19%	-2.19%	12.41%
	ELECTRIC/ELECTRON EQ INST	470101	Construction	1	17	5.88%	5.88%	0.00%	3.39%
	ELECTRICIAN	460302	Construction	1	28	3.57%	6.48%	-2.90%	2.10%
	MACHINIST/MACHINE TECH	480501	Manufacturing	2	35	5.71%	13.98%	-8.27%	4.23%
	PLUMBER & PIPEFITTER	460501	Construction	1	26	3.85%	4.75%	-0.90%	1.33%
0243	**QUINCY PS**			**44**	**481**	**9.15%**	**9.27%**	**-0.13%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	22	9.09%	13.22%	-4.13%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	5	31	16.13%	9.98%	6.15%	1.56%
	CABINETMAKER & MILLWORKER	480703	Construction	1	26	3.85%	20.13%	-16.29%	9.40%
	COMMUNITY HEALTH LIAISON	510301	Health Services	5	184	2.72%	3.93%	-1.22%	13.84%
	ELECTRICIAN	460302	Construction	1	29	3.45%	6.48%	-3.03%	2.10%
	ELECTROMECHANICAL TECH	150403	Science, Engineering and Technical Services	13	65	20.00%	18.18%	1.82%	20.68%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	16	68	23.53%	12.54%	10.98%	20.68%
	PLUMBER & PIPEFITTER	460501	Construction	1	34	2.94%	4.75%	-1.81%	1.33%
	WELDER/WELDING TECH	480508	Construction	0	22	0.00%	10.39%	-10.39%	15.15%
0274	**SOMERVILLE PS**			**20**	**258**	**7.75%**	**7.58%**	**0.17%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	26	11.54%	13.22%	-1.68%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	43	4.65%	9.98%	-5.32%	1.56%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	CARPENTER	460201	Construction	0	18	0.00%	8.81%	-8.81%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	1	16	6.25%	2.25%	4.00%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	42	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	1	28	3.57%	6.48%	-2.90%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	3	21	14.29%	10.90%	3.38%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	8	43	18.60%	7.27%	11.34%	13.84%
	SHEET METAL WORKER	480506	Construction	2	21	9.52%	8.33%	1.19%	2.40%
0281	**SPRINGFIELD PS**			**53**	**488**	**10.86%**	**8.16%**	**2.70%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	9	71	12.68%	13.22%	-0.54%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	9	59	15.25%	9.98%	5.28%	1.56%
	CARPENTER	460201	Construction	13	84	15.48%	8.81%	6.67%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	78	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	4	39	10.26%	6.48%	3.78%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	12	42	28.57%	10.90%	17.67%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	6	115	5.22%	7.27%	-2.05%	13.84%
0308	**WALTHAM PS**			**3**	**170**	**1.76%**	**8.44%**	**-6.67%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	0	19	0.00%	13.22%	-13.22%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	27	7.41%	9.98%	-2.57%	1.56%
	CARPENTER	460201	Construction	1	22	4.55%	8.81%	-4.26%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	37	0.00%	2.25%	-2.25%	6.44%
	ELECTRICIAN	460302	Construction	0	10	0.00%	6.48%	-6.48%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	0	24	0.00%	12.54%	-12.54%	20.68%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	5	0.00%	10.90%	-10.90%	4.15%
	SHEET METAL WORKER	480506	Construction	0	26	0.00%	8.33%	-8.33%	2.40%
0325	**WESTFIELD PS**			**25**	**278**	**8.99%**	**10.53%**	**-1.54%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	31	9.68%	13.22%	-3.54%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	8	34	23.53%	9.98%	13.55%	1.56%
	CARPENTER	460201	Construction	3	38	7.89%	8.81%	-0.91%	1.51%
	ELECTRICIAN	460302	Construction	0	32	0.00%	6.48%	-6.48%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	29	13.79%	12.54%	1.25%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	2	34	5.88%	4.01%	1.88%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	3	29	10.34%	10.90%	-0.56%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	20	5.00%	7.27%	-2.27%	13.84%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	1	31	3.23%	21.76%	-18.53%	7.40%
0336	**WEYMOUTH PS**			**7**	**206**	**3.40%**	**6.80%**	**-3.40%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	51	5.88%	9.98%	-4.09%	1.56%
	CARPENTER	460201	Construction	1	49	2.04%	8.81%	-6.76%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	27	0.00%	2.25%	-2.25%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	53	1.89%	2.19%	-0.30%	12.41%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	2	16	12.50%	12.54%	-0.04%	20.68%
	SHEET METAL WORKER	480506	Construction	0	10	0.00%	8.33%	-8.33%	2.40%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0348	**WORCESTER PS**			**30**	**410**	**7.32%**	**8.23%**	**-0.91%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	18	11.11%	13.22%	-2.11%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	60	6.67%	9.98%	-3.31%	1.56%
	CARPENTER	460201	Construction	1	40	2.50%	8.81%	-6.31%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	25	0.00%	2.25%	-2.25%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	2	40	5.00%	2.19%	2.81%	12.41%
	ELECTRICIAN	460302	Construction	2	41	4.88%	6.48%	-1.60%	2.10%
	ENGINEERING TECHNOLOGY	151101	Science, Engineering and Technical Services	3	24	12.50%	8.85%	3.65%	20.68%
	ENVIR AND POLL CNTRL TECH	150507	Agriculture and Natural Resources	5	8	62.50%	48.39%	14.11%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	8	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	2	15	13.33%	10.90%	2.43%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	4	42	9.52%	7.27%	2.26%	13.84%
	PLUMBER & PIPEFITTER	460501	Construction	1	34	2.94%	4.75%	-1.81%	1.33%
	SHEET METAL WORKER	480506	Construction	1	28	3.57%	8.33%	-4.76%	2.40%
	WELDER/WELDING TECH	480508	Construction	3	27	11.11%	10.39%	0.72%	15.15%
0406	**NORTHAMPTON-SMITH**			**50**	**274**	**18.25%**	**11.67%**	**6.58%**	**NA**
	AGRIC PROD WORKERS/MGRS	010301	Agriculture and Natural Resources	16	61	26.23%	26.23%	0.00%	22.24%
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	6	21	28.57%	13.22%	15.35%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	15	6.67%	9.98%	-3.31%	1.56%
	CARPENTER	460201	Construction	13	36	36.11%	8.81%	27.31%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	4	29	13.79%	3.93%	9.86%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	3	25	12.00%	2.19%	9.81%	12.41%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRICIAN	460302	Construction	6	29	20.69%	6.48%	14.21%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	36	2.78%	10.90%	-8.13%	4.15%
	PLUMBER & PIPEFITTER	460501	Construction	0	22	0.00%	4.75%	-4.75%	1.33%
0650	**DIGHTON-REHOBOTH REG**			**1**	**69**	**1.45%**	**7.65%**	**-6.20%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	13	7.69%	9.98%	-2.28%	1.56%
	CARPENTER	460201	Construction	0	23	0.00%	8.81%	-8.81%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	19	0.00%	2.25%	-2.25%	6.44%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	14	0.00%	10.90%	-10.90%	4.15%
0672	**GATEWAY REGIONAL**			**3**	**54**	**5.56%**	**10.39%**	**-4.84%**	**NA**
	WELDER/WELDING TECH	480508	Construction	3	54	5.56%	10.39%	-4.84%	15.15%
0700	**MARTHAS VINEYARD REG**			**4**	**81**	**4.94%**	**6.68%**	**-1.74%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	21	9.52%	9.98%	-0.45%	1.56%
	CARPENTER	460201	Construction	2	30	6.67%	8.81%	-2.14%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	30	0.00%	2.25%	-2.25%	6.44%
0760	**SILVER LAKE REG**			**8**	**109**	**7.34%**	**11.25%**	**-3.91%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	1	15	6.67%	13.22%	-6.55%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	25	12.00%	9.98%	2.02%	1.56%
	CARPENTER	460201	Construction	1	36	2.78%	8.81%	-6.03%	1.51%
	MACHINIST/MACHINE TECH	480501	Manufacturing	3	33	9.09%	13.98%	-4.89%	4.23%
0770	**TANTASQUA REG**			**13**	**97**	**13.40%**	**8.33%**	**5.07%**	**NA**
	CARPENTER	460201	Construction	3	22	13.64%	8.81%	4.83%	1.51%
	ELECTRICIAN	460302	Construction	2	23	8.70%	6.48%	2.22%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	4	24	16.67%	10.90%	5.76%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	4	28	14.29%	7.27%	7.02%	13.84%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0801	**ASSABET VALLEY VOC TECH**			**39**	**450**	**8.67%**	**10.60%**	**-1.93%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	5	38	13.16%	13.22%	-0.06%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	28	3.57%	9.98%	-6.40%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	8	25	32.00%	28.17%	3.83%	18.50%
	CARPENTER	460201	Construction	2	52	3.85%	8.81%	-4.96%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	35	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	1	51	1.96%	6.48%	-4.52%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	6	27	22.22%	12.54%	9.68%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	2	23	8.70%	10.90%	-2.21%	4.15%
	MAJ APPLIANCE INST/REPAIR	470106	Construction	5	31	16.13%	8.60%	7.53%	2.70%
	NURSING ASSISTANT/AIDE	511614	Health Services	3	32	9.38%	7.27%	2.11%	13.84%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	3	40	7.50%	21.76%	-14.26%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	0	30	0.00%	4.75%	-4.75%	1.33%
	SHEET METAL WORKER	480506	Construction	3	38	7.89%	8.33%	-0.44%	2.40%
0805	**BLACKSTONE VALLEY VOC TEC**			**32**	**412**	**7.77%**	**11.35%**	**-3.59%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	9	46	19.57%	13.22%	6.34%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	37	2.70%	9.98%	-7.27%	1.56%
	CARPENTER	460201	Construction	0	55	0.00%	8.81%	-8.81%	1.51%
	ELECTRICIAN	460302	Construction	2	28	7.14%	6.48%	0.67%	2.10%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	52	7.69%	12.54%	-4.85%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	3	31	9.68%	4.01%	5.67%	1.31%
	MACHINIST/MACHINE TECH	480501	Manufacturing	10	46	21.74%	13.98%	7.76%	4.23%
	NURSING ASSISTANT/AIDE	511614	Health Services	0	29	0.00%	7.27%	-7.27%	13.84%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	3	58	5.17%	21.76%	-16.59%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	0	30	0.00%	4.75%	-4.75%	1.33%
0806	**BLUE HILLS VOC TECH**			**37**	**442**	**8.37%**	**9.99%**	**-1.62%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	7	28	25.00%	13.22%	11.78%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	42	7.14%	9.98%	-2.83%	1.56%
	CARPENTER	460201	Construction	1	65	1.54%	8.81%	-7.27%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	21	0.00%	2.25%	-2.25%	6.44%
	COMPUTER PROGRAMMING	110201	Information Technology Services	8	28	28.57%	40.57%	-12.00%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	48	2.08%	2.19%	-0.11%	12.41%
	ELECTRICIAN	460302	Construction	5	66	7.58%	6.48%	1.10%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	48	8.33%	12.54%	-4.21%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	2	23	8.70%	4.01%	4.69%	1.31%
	MACHINIST/MACHINE TECH	480501	Manufacturing	3	17	17.65%	13.98%	3.66%	4.23%
	NURSING ASSISTANT/AIDE	511614	Health Services	3	56	5.36%	7.27%	-1.91%	13.84%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0810	**BRISTOL-PLYMOUTH VOC TECH**			**102**	**483**	**21.12%**	**9.81%**	**11.30%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	8	37	21.62%	13.22%	8.40%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	8	50	16.00%	9.98%	6.02%	1.56%
	CARPENTER	460201	Construction	12	62	19.35%	8.81%	10.55%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	1	55	1.82%	3.93%	-2.12%	13.84%
	ELECTRICIAN	460302	Construction	5	61	8.20%	6.48%	1.72%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	15	34	44.12%	12.54%	31.57%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	6	53	11.32%	4.01%	7.31%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	11	28	39.29%	10.90%	28.38%	4.15%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	26	59	44.07%	21.76%	22.31%	7.40%
	SHEET METAL WORKER	480506	Construction	10	44	22.73%	8.33%	14.39%	2.40%
0815	**CAPE COD REG TECH HS**			**27**	**371**	**7.28%**	**7.71%**	**-0.43%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	27	11.11%	13.22%	-2.11%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	34	5.88%	9.98%	-4.09%	1.56%
	CARPENTER	460201	Construction	7	42	16.67%	8.81%	7.86%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	1	22	4.55%	2.25%	2.30%	6.44%
	COMMUNITY HEALTH LIAISON	510301	Health Services	2	30	6.67%	3.93%	2.73%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	25	0.00%	2.19%	-2.19%	12.41%
	DENTAL ASSISTANT	510601	Health Services	0	12	0.00%	6.35%	-6.35%	4.44%
	ELECTRICIAN	460302	Construction	4	34	11.76%	6.48%	5.29%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	3	29	10.34%	12.54%	-2.20%	20.68%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	HEATING, A/C, REFRIG MECH	470201	Construction	0	22	0.00%	4.01%	-4.01%	1.31%
	MARINE MAINT/SHIP REPAIR	490306	Transportation	1	26	3.85%	8.20%	-4.35%	0.00%
	MASON & TILE SETTER	460101	Construction	1	18	5.56%	15.45%	-9.90%	0.54%
	PLUMBER & PIPEFITTER	460501	Construction	0	33	0.00%	4.75%	-4.75%	1.33%
	WELDER/WELDING TECH	480508	Construction	3	17	17.65%	10.39%	7.25%	15.15%
0818	**FRANKLIN COUNTY VOC TECH**			**15**	**254**	**5.91%**	**8.78%**	**-2.87%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	5	16	31.25%	13.22%	18.03%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	0	31	0.00%	9.98%	-9.98%	1.56%
	CARPENTER	460201	Construction	5	34	14.71%	8.81%	5.90%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	1	23	4.35%	3.93%	0.41%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	31	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	28	10.71%	6.48%	4.24%	2.10%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	29	0.00%	10.90%	-10.90%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	1	24	4.17%	13.98%	-9.82%	4.23%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	0	14	0.00%	21.76%	-21.76%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	0	24	0.00%	4.75%	-4.75%	1.33%
0821	**GREATER FALL RIVER RVTS**			**66**	**640**	**10.31%**	**9.60%**	**0.71%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	5	57	8.77%	13.22%	-4.45%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	62	3.23%	9.98%	-6.75%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	15	36	41.67%	28.17%	13.49%	18.50%
	CARPENTER	460201	Construction	5	61	8.20%	8.81%	-0.61%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	3	121	2.48%	3.93%	-1.46%	13.84%
	ELECTRICIAN	460302	Construction	3	57	5.26%	6.48%	-1.21%	2.10%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	35	2.86%	12.54%	-9.69%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	5	37	13.51%	4.01%	9.51%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	12	62	19.35%	10.90%	8.45%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	14	63	22.22%	13.98%	8.24%	4.23%
	PLUMBER & PIPEFITTER	460501	Construction	1	49	2.04%	4.75%	-2.71%	1.33%
0823	**GREATER LAWRENCE TECH**			**108**	**706**	**15.30%**	**11.62%**	**3.67%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	15	46	32.61%	13.22%	19.39%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	9	48	18.75%	9.98%	8.77%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	22	60	36.67%	28.17%	8.49%	18.50%
	CARPENTER	460201	Construction	9	53	16.98%	8.81%	8.18%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	2	77	2.60%	3.93%	-1.34%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	61	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	55	5.45%	6.48%	-1.02%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	16	81	19.75%	12.54%	7.21%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	9	52	17.31%	10.90%	6.40%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	7	42	16.67%	13.98%	2.68%	4.23%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	12	81	14.81%	21.76%	-6.94%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	4	50	8.00%	4.75%	3.25%	1.33%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0825	**GREATER NEW BEDFORD**			**114**	**999**	**11.41%**	**10.24%**	**1.17%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	42	7.14%	13.22%	-6.08%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	19	102	18.63%	9.98%	8.65%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	11	29	37.93%	28.17%	9.76%	18.50%
	CARPENTER	460201	Construction	10	96	10.42%	8.81%	1.61%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	4	63	6.35%	2.25%	4.10%	6.44%
	COMMUNITY HEALTH LIAISON	510301	Health Services	0	50	0.00%	3.93%	-3.93%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	29	69	42.03%	40.57%	1.46%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	52	0.00%	2.19%	-2.19%	12.41%
	DENTAL ASSISTANT	510601	Health Services	0	51	0.00%	6.35%	-6.35%	4.44%
	ELECTRICIAN	460302	Construction	5	105	4.76%	6.48%	-1.71%	2.10%
	ENGINEERING TECHNOLOGY	151101	Science, Engineering and Technical Services	3	61	4.92%	8.85%	-3.93%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	2	27	7.41%	4.01%	3.40%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	11	67	16.42%	10.90%	5.51%	4.15%
	MAJ APPLIANCE INST/REPAIR	470106	Construction	1	20	5.00%	8.60%	-3.60%	2.70%
	MEDICAL ASSISTANT	510801	Health Services	2	52	3.85%	5.86%	-2.01%	14.67%
	PLUMBER & PIPEFITTER	460501	Construction	1	41	2.44%	4.75%	-2.31%	1.33%
	STATIONARY ENERGY SOURCES	470501	Construction	2	25	8.00%	8.00%	0.00%	2.80%
	WELDER/WELDING TECH	480508	Construction	11	47	23.40%	10.39%	13.01%	15.15%
0828	**GREATER LOWELL VOC TECH**			**108**	**992**	**10.89%**	**10.20%**	**0.69%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	46	6.52%	13.22%	-6.70%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	14	82	17.07%	9.98%	7.10%	1.56%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	CARPENTER	460201	Construction	6	90	6.67%	8.81%	-2.14%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	33	0.00%	2.25%	-2.25%	6.44%
	COMPUTER PROGRAMMING	110201	Information Technology Services	51	71	71.83%	40.57%	31.26%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	3	98	3.06%	2.19%	0.87%	12.41%
	ELECTRICIAN	460302	Construction	1	59	1.69%	6.48%	-4.78%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	67	5.97%	12.54%	-6.57%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	41	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	4	51	7.84%	10.90%	-3.06%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	4	40	10.00%	13.98%	-3.98%	4.23%
	MASON & TILE SETTER	460101	Construction	3	34	8.82%	15.45%	-6.63%	0.54%
	MEDICAL ASSISTANT	510801	Health Services	6	100	6.00%	5.86%	0.14%	14.67%
	NURSING ASSISTANT/AIDE	511614	Health Services	6	90	6.67%	7.27%	-0.60%	13.84%
	PLUMBER & PIPEFITTER	460501	Construction	2	70	2.86%	4.75%	-1.89%	1.33%
	SMALL ENGINE MECH/REPAIR	470606	Transportation	1	20	5.00%	6.33%	-1.33%	0.00%
0829	**SO MIDDLESEX VOC TECH**			**29**	**276**	**10.51%**	**7.23%**	**3.27%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	6	44	13.64%	9.98%	3.66%	1.56%
	CARPENTER	460201	Construction	3	39	7.69%	8.81%	-1.11%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	39	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	4	43	9.30%	6.48%	2.83%	2.10%
	MACHINIST/MACHINE TECH	480501	Manufacturing	2	23	8.70%	13.98%	-5.29%	4.23%
	NURSING ASSISTANT/AIDE	511614	Health Services	5	44	11.36%	7.27%	4.10%	13.84%
	PLUMBER & PIPEFITTER	460501	Construction	9	44	20.45%	4.75%	15.71%	1.33%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0830	**MINUTEMAN VOC TECH**			**48**	**395**	**12.15%**	**15.96%**	**-3.81%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	12	16.67%	13.22%	3.45%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	29	3.45%	9.98%	-6.53%	1.56%
	BIOMEDICAL ENGIN-REL TECH	150401	Science, Engineering and Technical Services	20	34	58.82%	58.82%	0.00%	45.88%
	CARPENTER	460201	Construction	3	26	11.54%	8.81%	2.73%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	15	0.00%	2.25%	-2.25%	6.44%
	COMMUNIC SYSTEMS INST/REP	470103	Information Technology Services	0	1	0.00%	0.00%	0.00%	8.85%
	COMMUNITY HEALTH LIAISON	510301	Health Services	4	27	14.81%	3.93%	10.88%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	0	26	0.00%	40.57%	-40.57%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	38	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	1	18	5.56%	6.48%	-0.92%	2.10%
	ELECTROMECHANICAL TECH	150403	Science, Engineering and Technical Services	1	12	8.33%	18.18%	-9.85%	20.68%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	7	14.29%	12.54%	1.74%	20.68%
	ENGINEERING TECHNOLOGY	151101	Science, Engineering and Technical Services	4	28	14.29%	8.85%	5.44%	20.68%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ENVIR AND POLL CNTRL TECH	150507	Agriculture and Natural Resources	9	19	47.37%	48.39%	-1.02%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	33	0.00%	4.01%	-4.01%	1.31%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	1	12	8.33%	21.76%	-13.42%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	1	42	2.38%	4.75%	-2.37%	1.33%
	WELDER/WELDING TECH	480508	Construction	0	16	0.00%	10.39%	-10.39%	15.15%
0832	**MONTACHUSETT REG VOC TECH**			**77**	**640**	**12.03%**	**10.91%**	**1.12%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	6	38	15.79%	13.22%	2.57%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	8	54	14.81%	9.98%	4.84%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	15	71	21.13%	28.17%	-7.05%	18.50%
	CABINETMAKER & MILLWORKER	480703	Construction	16	44	36.36%	20.13%	16.23%	9.40%
	CARPENTER	460201	Construction	3	45	6.67%	8.81%	-2.14%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	1	36	2.78%	2.25%	0.53%	6.44%
	COMMUNITY HEALTH LIAISON	510301	Health Services	1	36	2.78%	3.93%	-1.16%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	3	44	6.82%	2.19%	4.63%	12.41%
	DENTAL ASSISTANT	510601	Health Services	0	16	0.00%	6.35%	-6.35%	4.44%
	ELECTRICIAN	460302	Construction	2	55	3.64%	6.48%	-2.84%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	5	36	13.89%	12.54%	1.34%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	4	25	16.00%	10.90%	5.10%	4.15%
	MASON & TILE SETTER	460101	Construction	7	23	30.43%	15.45%	14.98%	0.54%
	MEDICAL ASSISTANT	510801	Health Services	0	39	0.00%	5.86%	-5.86%	14.67%
	PLUMBER & PIPEFITTER	460501	Construction	2	42	4.76%	4.75%	0.01%	1.33%
	WELDER/WELDING TECH	480508	Construction	4	36	11.11%	10.39%	0.72%	15.15%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0851	**NORTHERN BERKSHIRE VOC TE**			**44**	**213**	**20.66%**	**13.81%**	**6.84%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	23	17.39%	9.98%	7.42%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	13	45	28.89%	28.17%	0.72%	18.50%
	ELECTRICIAN	460302	Construction	8	44	18.18%	6.48%	11.71%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	11	43	25.58%	12.54%	13.04%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	4	35	11.43%	10.90%	0.52%	4.15%
	WELDER/WELDING TECH	480508	Construction	4	23	17.39%	10.39%	7.00%	15.15%
0852	**NASHOBA VALLEY TECH**			**35**	**241**	**14.52%**	**9.02%**	**5.50%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	12	25.00%	13.22%	11.78%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	26	11.54%	9.98%	1.56%	1.56%
	CARPENTER	460201	Construction	3	22	13.64%	8.81%	4.83%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	0	7	0.00%	2.25%	-2.25%	6.44%
	DENTAL ASSISTANT	510601	Health Services	2	20	10.00%	6.35%	3.65%	4.44%
	ELECTRICIAN	460302	Construction	3	55	5.45%	6.48%	-1.02%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	25	16.00%	12.54%	3.46%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	0	10	0.00%	10.90%	-10.90%	4.15%
	MEDICAL ASSISTANT	510801	Health Services	1	13	7.69%	5.86%	1.83%	14.67%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	16	19	84.21%	21.76%	62.45%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	0	32	0.00%	4.75%	-4.75%	1.33%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0853	**NORTHEAST METRO VOC TECH**			**87**	**675**	**12.89%**	**10.86%**	**2.03%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	9	43	20.93%	13.22%	7.71%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	5	57	8.77%	9.98%	-1.20%	1.56%
	CARPENTER	460201	Construction	6	71	8.45%	8.81%	-0.35%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	4	126	3.17%	3.93%	-0.76%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	45	72	62.50%	40.57%	21.93%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	52	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	10	74	13.51%	6.48%	7.04%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	0	31	0.00%	12.54%	-12.54%	20.68%
	MACHINIST/MACHINE TECH	480501	Manufacturing	5	39	12.82%	13.98%	-1.16%	4.23%
	PLUMBER & PIPEFITTER	460501	Construction	3	82	3.66%	4.75%	-1.09%	1.33%
	SHEET METAL WORKER	480506	Construction	0	28	0.00%	8.33%	-8.33%	2.40%
0854	**NORTH SHORE VOC TECH**			**26**	**236**	**11.02%**	**9.93%**	**1.09%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	1	29	3.45%	13.22%	-9.77%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	30	10.00%	9.98%	0.02%	1.56%
	CARPENTER	460201	Construction	1	40	2.50%	8.81%	-6.31%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	27	3.70%	2.19%	1.51%	12.41%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	29	3.45%	12.54%	-9.10%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	21	4.76%	10.90%	-6.14%	4.15%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	MASON & TILE SETTER	460101	Construction	5	27	18.52%	15.45%	3.06%	0.54%
	NURSING ASSISTANT/AIDE	511614	Health Services	13	33	39.39%	7.27%	32.13%	13.84%
0855	**OLD COLONY VOC TECH**			**16**	**310**	**5.16%**	**12.08%**	**-6.92%**	**NA**
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	1	41	2.44%	9.98%	-7.54%	1.56%
	CARPENTER	460201	Construction	0	31	0.00%	8.81%	-8.81%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	0	34	0.00%	3.93%	-3.93%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	8	36	22.22%	40.57%	-18.35%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	42	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	0	28	0.00%	6.48%	-6.48%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	3	22	13.64%	12.54%	1.09%	20.68%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	32	3.13%	10.90%	-7.78%	4.15%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	2	10	20.00%	21.76%	-1.76%	7.40%
	WELDER/WELDING TECH	480508	Construction	1	34	2.94%	10.39%	-7.45%	15.15%
0860	**PATHFINDER RVTHS**			**37**	**346**	**10.69%**	**11.75%**	**-1.06%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	6	23	26.09%	13.22%	12.87%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	45	6.67%	9.98%	-3.31%	1.56%
	CARPENTER	460201	Construction	2	44	4.55%	8.81%	-4.26%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	1	30	3.33%	3.93%	-0.60%	13.84%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	COMPUTER PROGRAMMING	110201	Information Technology Services	17	42	40.48%	40.57%	-0.10%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	45	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	30	10.00%	6.48%	3.52%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	2	34	5.88%	12.54%	-6.66%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	2	28	7.14%	4.01%	3.14%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	25	4.00%	10.90%	-6.90%	4.15%
0871	**SHAWSHEEN VALLEY TECH**			**59**	**551**	**10.71%**	**8.54%**	**2.17%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	13	15.38%	13.22%	2.16%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	9	55	16.36%	9.98%	6.39%	1.56%
	CARPENTER	460201	Construction	9	50	18.00%	8.81%	9.19%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	9	69	13.04%	3.93%	9.11%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	48	0.00%	2.19%	-2.19%	12.41%
	DIESEL ENGINE MECHANIC	470605	Transportation	4	33	12.12%	20.55%	-8.43%	1.08%
	ELECTRICIAN	460302	Construction	4	66	6.06%	6.48%	-0.42%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	3	33	9.09%	12.54%	-3.45%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	50	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	4	20	20.00%	10.90%	9.10%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	7	33	21.21%	13.98%	7.23%	4.23%
	MASON & TILE SETTER	460101	Construction	5	36	13.89%	15.45%	-1.57%	0.54%
	PLUMBER & PIPEFITTER	460501	Construction	3	45	6.67%	4.75%	1.92%	1.33%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
0872	**SOUTHEASTERN VOC TECH**			**88**	**685**	**12.85%**	**10.59%**	**2.26%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	6	32	18.75%	13.22%	5.53%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	7	60	11.67%	9.98%	1.69%	1.56%
	CABINETMAKER & MILLWORKER	480703	Construction	6	33	18.18%	20.13%	-1.95%	9.40%
	CARPENTER	460201	Construction	6	58	10.34%	8.81%	1.54%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	5	110	4.55%	3.93%	0.61%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	33	3.03%	2.19%	0.84%	12.41%
	ELECTRICIAN	460302	Construction	3	47	6.38%	6.48%	-0.09%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	1	33	3.03%	12.54%	-9.51%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	28	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	7	56	12.50%	10.90%	1.60%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	10	65	15.38%	13.98%	1.40%	4.23%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	35	93	37.63%	21.76%	15.88%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	1	37	2.70%	4.75%	-2.04%	1.33%
0873	**SOUTH SHORE VOC TECH**			**18**	**303**	**5.94%**	**8.59%**	**-2.65%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	29	6.90%	13.22%	-6.32%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	3	37	8.11%	9.98%	-1.87%	1.56%
	CARPENTER	460201	Construction	0	30	0.00%	8.81%	-8.81%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	38	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	45	6.67%	6.48%	0.19%	2.10%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	6	29	20.69%	12.54%	8.15%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	1	30	3.33%	4.01%	-0.67%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	20	5.00%	10.90%	-5.90%	4.15%
	MACHINIST/MACHINE TECH	480501	Manufacturing	2	27	7.41%	13.98%	-6.58%	4.23%
	NURSING ASSISTANT/AIDE	511614	Health Services	0	18	0.00%	7.27%	-7.27%	13.84%
0876	**S WORCESTER COUNTY VOC TE**			**40**	**509**	**7.86%**	**10.62%**	**-2.76%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	4	33	12.12%	13.22%	-1.10%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	4	45	8.89%	9.98%	-1.09%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	5	26	19.23%	28.17%	-8.94%	18.50%
	CABINETMAKER & MILLWORKER	480703	Construction	4	37	10.81%	20.13%	-9.32%	9.40%
	CARPENTER	460201	Construction	5	45	11.11%	8.81%	2.31%	1.51%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	59	1.69%	2.19%	-0.49%	12.41%
	ELECTRICIAN	460302	Construction	0	37	0.00%	6.48%	-6.48%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	6	28	21.43%	12.54%	8.88%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	26	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	19	5.26%	10.90%	-5.64%	4.15%
	MASON & TILE SETTER	460101	Construction	5	27	18.52%	15.45%	3.06%	0.54%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	34	2.94%	7.27%	-4.33%	13.84%
	OFFICE TECHNOLOGY	520407	Business and Administrative Services	0	24	0.00%	21.76%	-21.76%	7.40%
	PLUMBER & PIPEFITTER	460501	Construction	2	28	7.14%	4.75%	2.40%	1.33%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	SHEET METAL WORKER	480506	Construction	0	18	0.00%	8.33%	-8.33%	2.40%
	SMALL ENGINE MECH/REPAIR	470606	Transportation	2	23	8.70%	6.33%	2.37%	0.00%
0878	**TRI COUNTY VOC TECH**			**34**	**456**	**7.46%**	**9.19%**	**-1.73%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	35	5.71%	13.22%	-7.51%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	5	28	17.86%	9.98%	7.88%	1.56%
	BUILDING & PROPERTY MAINT	460401	Construction	7	45	15.56%	28.17%	-12.62%	18.50%
	CARPENTER	460201	Construction	3	29	10.34%	8.81%	1.54%	1.51%
	CHILD CARE & GUID WRK/MGR	200201	Human Services	3	36	8.33%	2.25%	6.09%	6.44%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	61	0.00%	2.19%	-2.19%	12.41%
	ELECTRICIAN	460302	Construction	3	55	5.45%	6.48%	-1.02%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	6	45	13.33%	12.54%	0.79%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	1	29	3.45%	4.01%	-0.56%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	1	21	4.76%	10.90%	-6.14%	4.15%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	41	2.44%	7.27%	-4.83%	13.84%
	PLUMBER & PIPEFITTER	460501	Construction	2	31	6.45%	4.75%	1.70%	1.33%
0879	**UPPER CAPE COD VOC TECH**			**48**	**345**	**13.91%**	**12.24%**	**1.67%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	3	29	10.34%	13.22%	-2.88%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	9	39	23.08%	9.98%	13.10%	1.56%
	CARPENTER	460201	Construction	2	37	5.41%	8.81%	-3.40%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	1	26	3.85%	3.93%	-0.09%	13.84%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	0	40	0.00%	2.19%	-2.19%	12.41%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	ELECTRICIAN	460302	Construction	0	29	0.00%	6.48%	-6.48%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	5	17	29.41%	12.54%	16.87%	20.68%
	ENVIR AND POLL CNTRL TECH	150507	Agriculture and Natural Resources	16	35	45.71%	48.39%	-2.67%	20.68%
	MARINE MAINT/SHIP REPAIR	490306	Transportation	4	35	11.43%	8.20%	3.23%	0.00%
	MASON & TILE SETTER	460101	Construction	6	26	23.08%	15.45%	7.62%	0.54%
	PLUMBER & PIPEFITTER	460501	Construction	2	32	6.25%	4.75%	1.50%	1.33%
0885	**WHITTIER VOC TECH**			**69**	**719**	**9.60%**	**10.29%**	**-0.69%**	**NA**
	AUTOMOTIVE BODY REPAIRER	470603	Transportation	2	24	8.33%	13.22%	-4.89%	2.11%
	AUTOMOTIVE MECHANIC/TECH	470604	Transportation	2	70	2.86%	9.98%	-7.12%	1.56%
	CARPENTER	460201	Construction	12	84	14.29%	8.81%	5.48%	1.51%
	COMMUNITY HEALTH LIAISON	510301	Health Services	3	98	3.06%	3.93%	-0.87%	13.84%
	COMPUTER PROGRAMMING	110201	Information Technology Services	29	59	49.15%	40.57%	8.58%	29.11%
	COSMETOLOGY	120403	Wholesale/Retail Sales and Services	1	74	1.35%	2.19%	-0.84%	12.41%
	DIESEL ENGINE MECHANIC	470605	Transportation	1	16	6.25%	20.55%	-14.30%	1.08%
	ELECTRICIAN	460302	Construction	5	92	5.43%	6.48%	-1.04%	2.10%
	ELECTRONIC & COMM TECH	150303	Science, Engineering and Technical Services	4	42	9.52%	12.54%	-3.02%	20.68%
	HEATING, A/C, REFRIG MECH	470201	Construction	0	49	0.00%	4.01%	-4.01%	1.31%
	MACHINE SHOP ASSISTANT	480503	Manufacturing	2	23	8.70%	10.90%	-2.21%	4.15%
	MASON & TILE SETTER	460101	Construction	2	29	6.90%	15.45%	-8.56%	0.54%

See notes at end of table.

Table 18. Top performing schools' vocational programs and corresponding enrollment information, statewide average and labor market employment data: 2002–2003—Continued

LEA no.	LEA name	CIP code	Cluster	Non-traditional student enrollment	Total student enrollment	District non-traditional enrollment	Statewide non-traditional enrollment[1]	Difference from statewide average	Labor market
	PLUMBER & PIPEFITTER	460501	Construction	3	39	7.69%	4.75%	2.95%	1.33%
	SHEET METAL WORKER	480506	Construction	3	20	15.00%	8.33%	6.67%	2.40%
0913	**ESSEX AGR TECH**			**10**	**23**	**43.48%**	**43.48%**	**0.00%**	**NA**
	FORESTRY HARVEST/PRODUCTN	030401	Agriculture and Natural Resources	10	23	43.48%	43.48%	0.00%	13.89%
1114	**LOWER PIONEER EDUC COLLAB**			**1**	**60**	**1.67%**	**8.16%**	**-6.50%**	**NA**
	CARPENTER	460201	Construction	0	35	0.00%	8.81%	-8.81%	1.51%
	NURSING ASSISTANT/AIDE	511614	Health Services	1	25	4.00%	7.27%	-3.27%	13.84%
1177	**SO BERKSHIRE EDUC COLLAB**			**0**	**9**	**0.00%**	**3.93%**	**-3.93%**	**NA**
	COMMUNITY HEALTH LIAISON	510301	Health Services	0	9	0.00%	3.93%	-3.93%	13.84%

SOURCE: Massachusetts Department of Education.

Appendix B—Research Survey

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REPLACE WITH A BLANK PIECE OF PAPER FOR TW0-SIDED DUPLICATION.

Assessing Barriers to Nontraditional Student Participation in Secondary Career and Technical (CTE) Programs

The Massachusetts Department of Education has contracted with MPR Associates, Inc. in Berkeley, California to analyze nontraditional enrollment patterns in our state and make recommendations to the Department on national and in-state best practices to increase the number of students entering high-wage nontraditional careers.

The purpose of this survey is to obtain feedback from local educators on obstacles to student participation and completion of CTE programs that are nontraditional for their gender and to identify promising programs that may be worthy of replication.

Nontraditional CTE programs are those that prepare students for careers in occupations or fields of work including careers in computer science, technology and other emerging skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work.

A list of these programs is attached at the end of the survey.

Please return completed surveys before you leave the conference. If you have any questions about the contract, please contact:

Steven Klein
MPR Associates Inc.
503-675-6619
sklein@mprinc.com

Thank you for your participation in this important project.

SECTION 1: BACKGROUND AND BELIEFS

Circle the appropriate response to each question.

1. What is your current position?

   a. CTE Instructor
   b. Guidance Counselor
   c. School Principal
   d. District Superintendent
   e. Other _____ (write in)

2. How many years have you worked in the Massachusetts public school system?

   a. 1 year
   b. 2 to 4 years
   c. 5 to 7 years
   d. 8 to 10 years
   e. 11 or more years

3. In which of the following Occupational Cluster areas do you teach? If you are NOT an instructor, circle all of the program areas that are offered in your school.

   a. Agriculture & Natural Resources
   b. Arts & Communication Services
   c. Business & Administrative Services
   d. Construction
   e. Exploratory
   f. Health Services
   g. Hospitality & Tourism
   h. Human Services
   i. Information Technology Services
   j. Manufacturing
   k. Science, Engineering, & Technical Services
   l. Transportation
   m. Wholesale/Retail Sales & Services
   n. Other _____(write in)

4. Relative to other issues that you face as an educator, how pressing a need is there to increase student participation in and completion of nontraditional CTE programs?

   a. Critical need
   b. Significant need
   c. Some need
   d. No need

5. In what region is your school or district located?

   a. North
   b. South
   c. East
   d. West
   e. Metro

SECTION II: OBSTACLES TO STUDENT PARTICIPATION IN, AND COMPLETION OF, NONTRADITIONAL PROGRAMS

Please rate each potential obstacle in the list below to indicate the extent to which you consider it a significant barrier to student participation in nontraditional programs.

Potential Obstacle:	**Not A Significant Obstacle**				**Significant Obstacle**
Peer pressure among students	1	2	3	4	5
Sexual harassment within CTE courses	1	2	3	4	5
School or classroom climates not supportive of student participation in nontraditional programs	1	2	3	4	5
Lack of teacher sensitivity to the instructional needs of nontraditional students	1	2	3	4	5
Gender bias within curricular materials	1	2	3	4	5
Lack of career guidance materials and counselors	1	2	3	4	5
Absence of nontraditional role models	1	2	3	4	5
Family and personal background that affect student decisions	1	2	3	4	5
Societal expectations of gender roles in the workplace	1	2	3	4	5
Wage potential for males considering nontraditional careers	1	2	3	4	5
Other: (write in)	1	2	3	4	5

SECTION III: SCHOOL SERVICES TO SUPPORT STUDENT PARTICIPATION IN, AND COMPLETION OF, NONTRADITIONAL PROGRAMS

The following section asks you to evaluate the quality of services or resources provided within your school or district to support students in nontraditional programs.

Service:	**Poor**				**Excellent**
Professional development services to help the following groups support nontraditional students					
• Teachers	1	2	3	4	5
• Counselors	1	2	3	4	5
• Administrators	1	2	3	4	5
Recruitment effort to encourage students to enroll in nontraditional programs	1	2	3	4	5
Support services to retain nontraditional students once they enroll in CTE programs	1	2	3	4	5
Availability of non-gender biased materials	1	2	3	4	5
Business and industry involvement	1	2	3	4	5
Level of state technical support provided for nontraditional activities	1	2	3	4	5
Level of state funding provided for nontra-ditional activities	1	2	3	4	5
Other: (write in)	1	2	3	4	5

SECTION IV: OPEN RESPONSE

In the space below, please provide the any comments or suggestions you would like to share with MPR researchers.

If you believe your district or school (or a neighboring school agency) has a promising program, please provide us with the name of a person who can offer additional information. If possible, please provide a brief description of the program.

Name: _____

Position: _____

Telephone: _____

E-mail: _____

Program Description:

Thank you for your participation.

LIST OF NONTRADITIONAL OCCUPATIONS BY CIP CODES

Nontraditional for Females	
Chapter 74 Programs	470101 - Electric/Electronic Eq Inst
	470103 - Communic Syst Install & Repair
010301 - Agric Prod Workers/Mgrs	470104 - Computer Installer/Repair
110201 - Computer Programming	470106 - Maj Appliance Inst/Repair
150101 - Architectural Engin Tech	470201 - Heating, A/C, Refrig Mech
150201 - Civil Engineering /Tech	470302 - Heavy Equip Maint & Repair
150301 - Computer Engineering Tech	470501 - Stationary Energy Sources
150303 - Electric/Onic & Comm Tech	470603 - Automotive Body Repair
150304 - Laser & Optical Tech	470604 - Automotive Mechanic/Tech
150399 - Electric/Onic Tech, Other	470605 - Diesel Engine Mechanic
150401 - Biomedical Engin-Rel Tech	470606 - Small Engine Mech/Repair
150402 - Computer Maintenance Tech	480102 - Architectural Drafting
150403 - Electromechanical Tech	480105 - Mechanical Drafting
150405 - Robotics Technology	480501 - Machinist/Machine Tech
150501 - Air, Cond, Heating, Ref Tech	480503 - Machine Shop Assistant
150506 - Waste & Wastewater Tech	480506 - Sheet Metal Worker
150507 - Environmental Control Tech	480507 - Tool & Die Maker/Tech
150603 - Industrial/Manufact Tech	480508 - Welder/Welding Tech
150607 - Plastics Technology	480703 - Cabinetmaker & Mill Worker
150702 - Quality Control Tech	490102 - Aircraft Pillory/Navigator
150803 - Automotive Engineering	490306 - Marine Maint/Ship Repair
150805 - Mechanical Engineering	
150899 - Mech Engineering Tech, Other	**Non-Chapter 74 Programs**
410301 - Chemical Technology	
430107 - Law Enforcement, Police SC	1500 - Engineering & Related Technology **
430201 - Fire Protection & Safety	4600 - Construction Occupations
460101 - Mason & Tile Setter	4700 - Repair and Maintenance Occupations
460201 - Carpenter	
460302 - Electrician	** *NEW Nontraditional Program this year*
460401 - Building & Prop Maintenance	
460501 - Plumber & Pipefitter	

OVER FOR NONTRADITIONAL OCCUPATIONS FOR MALES →

Nontraditional for Males	
Chapter 74 Programs	510803 - Occupational Therapy Asst
	510807 - Physician Assistant
080102 - Fashion Merchandising	510910 - Diagnostic Med Sonography
080705 - Gen Retailing Operations	511601 - Nursing (R.N. Training)
081104 - Tourism Promotion Oper	511603 - Nursing, LPN
081105 - Travel Services Marketing	511614 - Nursing Assistant/Aide
081199 - Tourism & Travel Mktg, Other	512306 - Occupational Therapy
120403 - Cosmetology	512601 - Health Aide
131501 - Teacher Assistant/Aide	520401 - Admin Asst/Secretary, Gen
200201 - Child Care & Guidance Worker	520402 - Exec Adm Asst/Secretary
200202 - Child Care Provider/Asst	520403 - Legal Adm Asst/Secretary
200203 - Child Care Services Mgr	520404 - Medical Adm Asst/Secretary
220103 - Paralegal/Legal Assistant	520405 - Court Reporter
500499 - Design & Applied Arts	520407 - Info Proc/Data Entry
510205 - Sign Language Interpreter	520408 - Gen Off/Clerical & Typing
510301 - Community Health Liaison	
510601 - Dental Assistant	**Non-Chapter 74 Programs**
510602 - Dental Hygienist	
510706 - Medical Records Admin	1900 - Early Childhood **
510707 - Medical Records Tech	
510708 - Medical Transcription	** *NEW Nontraditional Program this year*
510801 - Medical Assistant	

Tech Prep Compendium:
A Resource Guide for Identifying and Reporting on the Progress of Students

Printer Friendly

Introduction
Defining a Tech Prep Student
Strategies for Identifying and Following Tech Prep Students
Examples of State and Local Identification and Reporting
Managing Student Records Across Educational Levels
Using Student Data for Evaluation and Assessment
Resources

Managing Student Recordes Across Educational Levels 1 | 2

This section outlines problems that states and consortia face with the sharing of individual student data by secondary and postsecondary institutions.

Sharing Student Data

The process of identifying and reporting on Tech Prep students is often complicated by problems related to sharing Tech Prep student data between secondary and postsecondary institutions. In Illinois, there are three ways in which community colleges can gain access to student records according to ISBE's interpretation of the Illinois State Student Records Act (ISSRA) and federal Family Educational Rights and Privacy Act (FERPA) regulations related to the sharing of outcomes data for Tech Prep students. The Illinois State Board of Education memo (see pages V-5 to V-8) outlines the state's interpretation. According to the memo, data may be shared between educational institutions under these conditions:

1. If the official requesting information has similar responsibilities to the one providing it at another school in Illinois or outside of Illinois, in which the student has enrolled or intends to enroll (e.g., a college advisor requesting information from a high school counselor about a student enrolled in a dual credit course);
2. If the parent of the student signs a specific dated written consent that designates the person to whom the records may be released. The consent also must list the specific information that can be released; or,
3. If high schools give information to authorized individuals but also code the student records in a way that students' names are not identified.

The ISBE memo, dated December 17, 1999, endorsed the second option as the most appropriate stating, "because as we understand, Tech Prep students have not yet enrolled nor expressed intent to matriculate at a specific postsecondary institution… it appears that the most viable way for Tech Prep high schools to transfer student-specific data is by obtaining a release from the parent, or student, as applicable." However, the ISBE indicates that coding the student's name (such as with a social security number or other numeric identifier) may be done when collecting and following Tech Prep students.

Continued... >>

If you have any comments, suggestions or questions concerning this Web site, please send e-mail to occrl@uiuc.edu.

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Managing Student Recordes Across Educational Levels 1 | 2

Collecting Student Social Security Numbers

Social security numbers are a standard method of collecting student data used frequently by schools, consortia, and states. The process of collecting student social security numbers can include collecting signed parental consent forms, requiring students to complete Tech Prep enrollment procedures, or following other institutional procedures (e.g., allowing Tech Prep courses to be counted as dual credit, providing placement testing to Tech Prep students). Several examples of state and local procedures for each of these areas are included.

Parental Consent Forms

State Level: When working with student populations under the age of 18, parental consent forms are encouraged in order to inform parents and receive their consent for the collecting and sharing of student data. In Oregon, for example, parent consent forms are encouraged by the state but operationalized locally. State board officials house student Tech Prep data at the state level but ask school districts to collect and provide the data. State officials send a memo to school superintendents, titled Memorandum No. 02-206-2001-02 (see pages V9-V11) requesting that the schools send a note home to parents asking for their consent in releasing student information. According to the state official, the state has been doing this for about five years and receives about a 70% response rate.

Local Level: The Lincoln Land Tech Prep Partnership, headquartered in Springfield, Illinois, follows Tech Prep students through the use of several types of enrollment/participation forms:

1. Parental Consent Form: The consortium has created a parental consent letter that they encourage the school districts to have signed by all parents at freshman orientation (see page V-12). The form differs from school to school, but the Tech Prep paragraph remains the same.
2. Enrollment Form: The Lincoln Land Community College Tech Prep Enrollment and Proficiency Credit Form Application for Admissions Worksheet (see page V-13) is completed by Tech Prep students who are in articulated courses at their respective high schools.
3. Tech Prep Student Reporting Form: This form (see page V-14) is used for the reporting of Tech Prep students who may not be in an articulated course, but are considered Tech Prep students, by state definition.

Another example of a parental consent form is included from Sauk Valley Community College (see page V-15). Sauk Valley's Permission for High School Student Enrollment form requires a signature from a high school official, a college official, the student, and a parent.

Enrollment Forms

Some states have enrollment forms that students fill out to document their participation in Tech Prep. On the form, students include their social security number allowing the state to follow their progress through the program and beyond. The enrollment forms allow not only the collection of students' social security numbers, but also information on student demographics. An example of a state enrollment form is the one included from West Virginia's EDGE program, that allows students to take college level high school courses for community and technical college credit. At the end of 10th grade, the student completes the Student Enrollment Form for Seamless College Credit to participate in the EDGE program (see page V-16), which allows the state to identify and report all enrolled students.

At the consortium level, examples of Tech Prep enrollment forms are included for Fulton County Schools (Fulton County Schools Student Enrollment Form), Peninsula College (Peninsula College Tech Prep Enrollment Form), and Linn-Benton Community College (Linn-Benton College Now Participation Form). Fulton County Schools' Student Enrollment Form (see page V-17) is a 9th grade enrollment form that allows students to indicate a Tech Prep course of study. Peninsula College and Linn-Benton Community College have enrollment forms designed specifically for their Tech Prep programs (see pages V-18 to V-19 and V-20). Richland Community College has a Statement of Interest in Tech Prep form that identifies students who are interested in enrolling in Tech Prep courses

during high school (see page V-21).

It is important to design processes for identifying postsecondary Tech Prep students. The following are examples of two types of forms that may be used to identify postsecondary Tech Prep students. The Intent to Continue a Tech Prep Program form used by Weatherford College (see page V-22) documents a secondary Tech Prep graduate's intent to continue a Tech Prep program in postsecondary education.

Another method for identifying postsecondary students is through forms that students must complete to receive articulated credit. The Statewide Articulation Program Petition for Award of Articulated Credit (see page V-23) is an example of a form from the Capital Area Tech Prep Consortium at Austin Community College that a student must fill out to receive articulated credit. One of the advantages of using this form is that it requests the student's social security number allowing both the postsecondary and secondary institution to matching data to determine how many secondary Tech Prep students are matriculating to postsecondary Tech Prep programs.

Dual Credit Courses

Granting dual credit allows the sponsoring postsecondary institution access to the student's information without parental consent because the student is dually enrolled at both the secondary school and the college. This section provides examples of ways that Tech Prep courses are used by community colleges to collect and maintain individual Tech Prep student data in three states.

Minnesota, Washington, and West Virginia allow Tech Prep courses to count as dual credit courses; however, the approach and the outcome of each state model is different. In West Virginia, Tech Prep students earn dual credit through the state-based Earn a Degree o Graduate Early (EDGE) program (http://www.wvtechprep.wvnet.edu/). EDGE, created to better coordinate statewide articulation for secondary schools and community colleges according to selected career clusters, allows students to take high school courses for community and technical college credit. The intent behind the EDGE program is to provide quicker time to degree, eliminate duplicative courses at the secondary and postsecondary level, and increase college access for the often "neglected majority" of students. Tech Prep students may enroll in the EDGE program through the completion of a state designed enrollment form. EDGE courses are taught by high school teachers who follow curriculum guidelines for the course discipline developed by state committees of secondary and postsecondary representatives. Students must pass a state-designed test to receive college credit. If not, the student receives only high school credit for the course. The intent behind this policy is to provide competency testing at the end of the course rather than before students enroll, allowing greater access among students to college-level courses.

Similarly, in Washington, Tech Prep courses can count for college credit if the student receives a B or better in the course. If not, the student receives only high school credit. The courses are offered by the college in the high school and the student registers for the course through the college. Like in West Virginia, there are no up-front eligibility requirements. However, unlike West Virginia's program, students enrolled in Tech Prep courses do not have to take a college placement test before enrolling.

Minnesota has eligibility requirements for technical courses that count for concurrent enrollment or dual credit thus limiting student participation. All concurrent enrollment courses must follow the guidelines set by the state Postsecondary Early Options (PSEO) program. Student eligibility is based on class rank (as set by state policy), which reduces the number of Tech Prep students qualified to participate in these courses.

Placement Testing

By offering placement tests to Tech Prep students, postsecondary institutions may collect student social security numbers. In addition, the tests allow secondary and postsecondary officials the opportunity to identify and assist students likely to need remediation. In West Virginia, students in the 10th grade who are on the Tech Prep career plan are given the ACT Plan test. If the student does not pass, the school uses the next two years to remediate the student's skills. In doing this, the state also is able to get the social security number of all students participating in the EDGE program.

At the consortium level, Linn-Benton Community College in Oregon will be piloting a process where they will train high school officials to administer Accuplacer, an Internet-delivered placement test, in the high schools. This will allow high school officials to identify and test a greater number of students. Several Illinois community colleges, such as Lake Land Community College in Mattoon, also use Accuplacer. Lake Land requires students interested in transfer dual credit courses to take the college's placement test, but does not have this requirement for students in career and technical dual credit courses.

If you have any comments, suggestions or questions concerning this Web site,
please send e-mail to occrl@uiuc.edu.

APPENDIX I: STATE PERKINS ADULT EDUCATION MEASURE CONSTRUCTION

State	1A1	1A2	2A1	3A1
California				
	Numerator: Number of adult career technical education program completers (CTEPCs) **Denominator**: Number of adult career technical education program concentrators	**Numerator**: Number of adult career technical education program completers (CTEPCs) **Denominator**: Number of adult career technical education program concentrators	**Numerator**: Number of adult career technical education program completers (CTEPCs) **Denominator**: Number of adult career technical education program concentrators	**Numerator**: Number of adult CTEPCs placed in military, advanced education/training, or employment **Denominator**: Number of adult CTEPCs
Florida				
	Numerator: Number of students **Denominator:** All students enrolled in Vocational Certificate (PSAV) programs that are not exempt from the Basic Skill exams.	**Numerator**: Number of students **Denominator**: All students enrolled in a Vocational Certificate (PSAV) program.	**Numerator**: Number of students **Denominator**: All students who achieved at lease on OCP in a PSAV program.	**Numerator**: Number of OCP **Denominator**: All completers exiting with a valid social security number.
Louisianna				
	Numerator: Number of students completing program. **Denominator**: Total number of vocational concentrators enrolled during the reporting year.	**Numerator**: Number of students completing program. **Denominator**: Total number of vocational concentrators enrolled during the reporting year.	**Numerator**: Total number of vocational concentrators receiving a degree or credential. **Denominator**: Total number of vocational concentrators enrolled during the reporting year.	**Numerator**: Total number of completers enrolled for further education, military service, or employment. **Denominator**: Total number of vocational students enrolled.
Ohio				
	Numerator: Concentrators who left the program and who met/exceeded the appropriate levels for the WorkKeys tests.	**Numerator**: Concentrators who left the program and who met/ exceeded the OVCA (total score) benchmark or who received an industry credential.	**Numerator:** Concentrators who left the program and completed an adult workforce career development program or completed sufficient occupational competencies to obtain employment (completers).	**Numerator:** Status known completers who were employed, pursuing further education, in the military, and/or in the voluntary labor force (12 month after program completion).

State	1A1	1A2	2A1	3A1
	Denominator: Concentrators who left the program and who took the appropriate WorkKeys tests.	**Denominator:** Concentrators who left the program and who were in a subject area that required an OVCA test or an industry credential	**Denominator:** Completers & leavers enrolled in an adult workforce career development program.	**Denominator:** Status known completers.
Oklahoma				
	Numerator: Number of adult program enrollees who completed an occupational program and left adult education in the reporting year.	**Numerator:** Number of adult program enrollees who completed an occupational program and left adult education in the reporting year.	**Numerator:** Number of adult program enrollees who completed an occupational program and left adult education in the reporting year.	**Numerator:** Number of adult program completers who are placed in continuing education or advanced training, employment, and/or military within the six-month time period.
	Denominator: Number of adult program enrollees who left adult education in the reporting year.	**Denominator:** Number of adult program enrollees who left adult education in the reporting year.	**Denominator:** Number of adult program enrollees who left adult education in the reporting year.	**Denominator:** Number of adult program completers.
Pennsylvania				
	Numerator: Number of adult students who perform at or above the 2.5 grade point average in career and technical programs during the reporting year.	**Numerator**: Number of career and technical students who meet the state defined threshold for completion of programs and receive diplomas, certificates or other formal awards in the reporting year.	**Numerator**: Number of adult career and technical students who meet the state defined threshold for completion of programs and received diplomas, certificates or other formal awards in the reporting year.	**Numerator**: Number of career and technical education students who completed a career and technical education program in the reporting year and who were placed in further adult education or advanced training, employment, and/or military service within eight months after completion the adult program.

State	1A1	1A2	2A1	3A1
	Denominator: Number of adult students who complete their career and technical program during the program year.	**Denominator**: Number of adult career and technical students who enroll in programs with intent to complete in the reporting year.	**Denominator**: Number of adult career and technical students who enrolled in programs with the intent to complete in the reporting year.	**Denominator**: Number of adult career and technical students who complete the PDE placement survey
Rhode Island				
	Numerator: Number of adult vocational training students who completed a VTA program in the reporting year.	**Numerator**: Number of adult vocational training students who completed a VTA program in the reporting year.	**Numerator:** Number of adult vocational training concentrators who were enrolled in and completed program requirements and who received a certificate* in the reporting year.	**Numerator:** Number of previous reporting year vocational training for adult completers with certificates* who were placed in further post-secondary education or advanced training, employment, and /or military service or were included in state administered placement survey between December 1st and March 1st in the reporting year.
	Denominator: Number of adult vocational training students who were enrolled in a VTA program in the reporting year.	**Denominator:** Number of adult vocational training students who were enrolled in a VTA program in the reporting year.	**Denominator:** Number of adult vocational training students who were enrolled in a VTA program in the reporting year.	**Denominator:** Number of previous reporting year vocational training for adult completers with certificates* who were included in placement measurement (i.e., students surveyed or students with valid identifiers) between December 1st and March 1st in the reporting year.

State	1A1	1A2	2A1	3A1
Utah				
	Numerator: Number of Concentrators receiving USOE Approved Certifications. **Denominator:** Number of Concentrators enrolled in USOE Approved Certifications programs.	**Numerator:** Number of Concentrators receiving USOE Approved Certifications. **Denominator:** Number of Concentrators enrolled in USOE Approved Certifications programs.	**Numerator:** Number of Concentrators receiving USOE Approved Certifications. **Denominator:** Number of Concentrators enrolled in USOE Approved Certifications programs.	**Numerator:** Number of Completers placed in Employment within next quarter or enrolled in Higher Ed Fall Semester (within the state) **Denominator:** Number of Completers.

State	3A2	4A1	4A2
California			
	NP	**Numerator**: Sum of adult males and females enrolled in nontraditional industry section CTE programs	**Numerator**: Sum of adult males and females that complete nontraditional industry sector CTE programs
	NP	**Denominator**: Sum of adult males and females enrolled in all industry sector CTE programs	**Denominator**: Sum of adult males and females enrolled in nontraditional industry sector CTE programs
Florida			
	Numerator: Prior-year **Denominator**: Students found placed in the previous year (prior 3A1 numerator).	**Numerator**: Number of students **Denominator**: All students enrolled in non-traditional programs.	**Numerator**: Number of students **Denominator**: All students who completed at least one OCP in a non-traditional programs.
Louisianna			
	Numerator: Total number of students retained in placement status for at least 6 months. **Denominator**: Total number of students placed.	**Numerator**: Total number of vocational participants enrolled in non-traditional programs. **Denominator**: Total number of vocational participants.	**Numerator**: Total number of vocational participants completing a non-traditional program. **Denominator**: Total number of vocational completers.
Ohio			
	Numerator: Status known completers who were employed, pursuing further education, in the military and/or in the voluntary labor force (12 months after program completion).	**Numerator:** Non-traditional participants in non-traditional programs.	**Numerator:** Non-traditional program completers in non-traditional programs.

State	3A2	4A1	4A2
	Denominator: Status known completers.	**Denominator:** Participants in non-traditional programs.	**Denominator:** Completers in non-traditional programs.
Oklahoma			
	Numerator: Number of adult program completers who were placed and are retained in placement for the six-month time period after placement. **Denominator:** Number of adult program completers who were placed in continuing education, advanced training, and/or employment within the six month time period.	**Numerator:** Number of NT adult male students and NT adult female students who are enrolled in nontraditional programs. **Denominator:** Number of all adult students who are enrolled in nontraditional programs.	**Numerator:** Number of NT adult male students and NT adult female students who are completers of nontraditional programs. **Denominator:** Number of all adult student completers of nontraditional programs.
Pennsylvania			
	Numerator: Number of students who completed an adult career and technical education program and were employed in a related field in the First Quarter following completion (July 1 – September 30) and were also employed in the Third Quarter following graduation (January 1 – March 31).	**Numerator**: Number of non-traditional adult career and technical education student enrollees in career and technical education programs leading to employment in occupations in the which underrepresented gender groups represent less than 25 percent of employment.	**Numerator**: Number of non-traditional adult career and technical education completers participating in career and technical education who meet the state defined threshold for completion of programs in the reporting year.

State	3A2	4A1	4A2
	Denominator: Number of students who completed an adult career and technical education program and were employed in a related field in the First Quarter following completion (July 1 – September 30).	**Denominator**: Number of non-traditional adult student enrollees who enter non-traditional career and technical education programs in the reporting year.	**Denominator**: Number of adult career and technical education enrollees in non-traditional occupationally specific programs in the reporting year.
Rhode Island			
	Numerator: Number of vocational training for adult completers who, three months after receipt of completed placement survey, were retained in further post-secondary education of advanced training, employment, and/or military service or were included in state administered placement survey between March 1st and June 1st in the reporting year.	**Numerator:** Number of students in underrepresented gender groups who participated in a non-traditional adult vocational training program in the reporting year.	**Numerator:** Number of students in underrepresented gender groups who completed a non-traditional adult vocational training program in the reporting year.
	Denominator: Number of vocational training for adult completers who were included in placement survey and/or were retained in further post-secondary education or advanced training, employment, and/or military service between March 1st and June 1st in the previous reporting year.	**Denominator:** Number of students who participated in a non-traditional adult vocational program in the reporting year.	**Denominator:** Number of students who completed a non-traditional adult vocational training program in the reporting year.

State	3A2	4A1	4A2
Utah			
	Numerator: Number of completers who are placed in employment, and are still employed three months later **Denominator**: Number of completers who are placed in employment.	**Numerator:** Number of non-traditional adult students enrolled in non-traditional programs. **Denominator:** Number of adult students enrolled in non-traditional programs.	**Numerator:** Number of adult non-traditional completers of non-traditional programs. **Denominator:** Number of adult completers of non-traditional programs.