

Data Dissemination Strategies for Career and Technical Education in Nebraska

Technical Assistance to States Project



Prepared under contract to
U.S. Department of Education

Contact:
Steven Klein
sklein@rti.org
503-428-5671

June 2016



RTI International is a trade name of Research Triangle Institute.

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Introduction

The Division of Adult and Technical Education, Office of Career, Technical, and Adult Education (OCTAE), sponsors individualized technical assistance to support states in improving the quality of their *Carl D. Perkins Career and Technical Education Act of 2006* (*Perkins IV*) accountability systems. In response to OCTAE's October 2015 request for proposals, staff from the Nebraska Department of Education (NDE) shared that the state collects career and technical education (CTE) data far in excess of what is required for *Perkins IV* accountability purposes. These federal and state data are posted on the NDE website to publicize the contribution that CTE makes to students' educational attainment and to support local program improvement efforts. State staff requested help in strengthening Nebraska's current approach to disseminating CTE data and developing new, more effective strategies for disaggregating and analyzing data to augment state tools.

RTI International researchers met with NDE staff beginning in November 2016 to discuss state needs and arrange for the transfer of program information. Project activities were temporarily suspended in late November to coincide with the scheduled leave of a key state staffer and resumed in February 2016 with a series of webinars that explored strategies for sharing information. The services of Sledge Creative, a website design and communications firm, also were engaged to create innovative, user-centric approaches for publicizing data. A memorandum of understanding between the state and RTI was executed in April 2016 to provide for the transfer of district-level *Perkins IV* accountability data, which were used to provide context for project work.

This white paper summarizes the technical assistance services rendered to Nebraska and offers strategies the state may adopt to enhance users' website experience and improve the dissemination of state and local CTE performance data. The paper opens with a description of website challenges associated with the state's current approach to publicizing CTE data, followed by recommendations for improving the site's design. Strategies for disaggregating performance data to support local providers in identifying programs for improvement also are provided.

Existing Dissemination Approaches

Nebraska is dedicated to sharing information on the type and characteristics of CTE programs offered throughout the state, as well as the demographics and performance outcomes of students enrolled. Information is disseminated using the state's [Data + Research + Analytics Website](#) (DRAW), which is listed as a resource within the [Nebraska Career Education](#) home page. DRAW offers users quick access to empirical information on CTE and an extensive menu of options organized within three thematic areas. Information ranges from background materials describing the state's approach to CTE accountability to statistics documenting state and local performance on the *Perkins IV* metrics. For example, within the Analytics section, users can click on the [Statistics](#) tab to obtain a detailed, statewide profile of students participating in CTE programming or they can click on the Perkins Indicators tab to view statewide average performance for the 2007–10 program years. District-level performance on the *Perkins IV* indicators is available for the 2009–10 through 2014–15 program years, organized by sites' Educational Service Unit (ESU) affiliation. These data include the percentage of CTE concentrators within districts that met the statewide performance goal for each metric, along with counts of the total number of CTE participants and concentrators within the ESU, disaggregated by race/ethnicity and career cluster.

As an initial activity, RTI researchers examined the content and organization of DRAW. They identified the following three issues for state consideration:

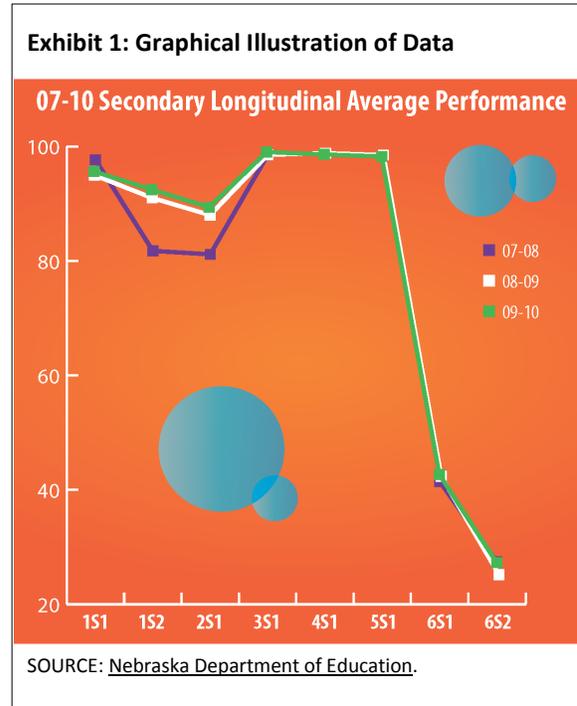
1. Complexity

 Nebraska collects a great deal of information on CTE programming and, to communicate this wealth of data, has created a complex website that may present challenges to some visitors. Upon entering the Nebraska Career Education home page, visitors are presented with a sizeable menu of resources alphabetized by content. Visitors seeking performance data may initially click on the second option—Accountability—rather than the DRAW page, where accountability data are posted. Similarly, when entering DRAW, users are presented with a large menu of options, some of which are not clearly defined or intuitive. This can mean that new users must click through various links on the site in order to find the specific information they seek.

To find statewide performance data on the *Perkins IV* indicators, users must click the Perkins Indicators link posted in the Analytics section. Information on district-level performance, in contrast, is accessed through the Report Cards link located in the site's Data section. The site also presumes that users have some level of CTE technical knowledge; for

example, measures are frequently referenced using an accountability shorthand that may not be meaningful to those unfamiliar with the *Perkins IV* legislation (e.g., 1S1 for Academic Attainment in Reading/Language Arts).

Graphical presentations also contain a substantial amount of information that, in some cases, is not presented accurately. For example, trend data on statewide student performance on the *Perkins IV* measures, charted as a line graph, appear to fluctuate before falling precipitously on the nontraditional measures (Exhibit 1). This depiction is not technically correct, since each of the measures is discrete and, in some cases, includes different populations of students. Moreover, due to the way that the nontraditional measures are constructed (i.e., 6S1 & 6S2), substantially lower levels of performance might be expected. Illustrations included in the graphic (i.e., the blue circles) also are not explained.



2. Aggregation

State and district performance data within DRAW summarize the results of all students, by measure, or are disaggregated for subpopulations. While this is an effective approach for providing high-level, generalized information on statewide performances, aggregate data can mask underlying variation across districts, student populations, and/or CTE clusters. Consequently, statewide performance data are primarily useful for profiling the overall impact of CTE on students but are less actionable at the district level, where a finer grain of interpretation is needed.

Users seeking district-level performance data may access the Report Cards section within DRAW. Here, information is arrayed at the ESU level, with data presented as the percentage of students achieving outcomes for each *Perkins IV* indicator. However, because districts are grouped regionally, it is difficult to compare performances across sites without accessing multiple files (and knowing in which ESU a comparison district is located). Moreover, because data are provided as percentages, the number of students included in the denominator of each measure is not available (Exhibit 2). This can complicate the interpretation of outcomes, since small population sizes can cause performance levels to fluctuate substantially with small changes in student performance. Educators also cannot

differentiate the performance of district subpopulations, since information is only available in the aggregate.

3. Burden

 Amassing the information included on DRAW requires a substantial investment of time by state CTE analysts. Creating the many and varied exhibits requires that data be compiled and analyzed across years and then formatted for graphical display. Staff also must

invest time to create cross-tabulations of student participation for each of the 16 cluster areas. Performing this work on an annual basis places a considerable burden on state staff members, which may be difficult to sustain given the many demands on their time. Indeed, the current statewide data posted on DRAW date to the 2009–10 program year, which limits their use for program improvement purposes.

In sum, while Nebraska has made a commitment to publicizing CTE information to the public and field, DRAW’s organizational complexity, high level of aggregation of district and student data, and staff time required to curate content undermine the website’s utility. There are, however, clear benefits to sharing information with educators, and the state has laid a solid foundation upon which to build. With some modest refinements in how DRAW content is organized, accessed, and displayed, the site can be transformed to provide users with timely, actionable data that is tailored to fit their individual needs.

Exhibit 2: District Performance Data, by ESU

ESU 1 13-14 PERKINS REPORT CARD

Nebraska Department of Education
 Career Education - District Performance Report

DISTRICT NAME	1S1	1S2	2S1	3S1	4S1	5S1	6S1	6S2
Allen Consolidated Schools	70.00	70.00	0.00†	100.00	100.00	100.00	13.89	14.29
Bloomfield Community Schools	100.00	100.00	100.00	100.00	100.00	100.00	40.00	40.00
Coleridge Community Schools	100.00	50.00	100.00	100.00	100.00	100.00	39.29	50.00
Creighton Public Schools	95.00	100.00	100.00	100.00	100.00	100.00	53.76	61.90
Crofton Community Schools	89.66	100.00	100.00	100.00	100.00	96.15	55.65	37.93
Emerson-Hubbard Public Schools	61.54	76.92	100.00	100.00	100.00	100.00	43.48	0.00
Hartington Public Schools	50.00	42.86	100.00	100.00	100.00	100.00	31.07	60.00
Homer Community Schools	83.33	66.67	100.00	100.00	100.00	100.00	7.69	0.00

SOURCE: [Nebraska Department of Education](#).

Data Dissemination Strategies

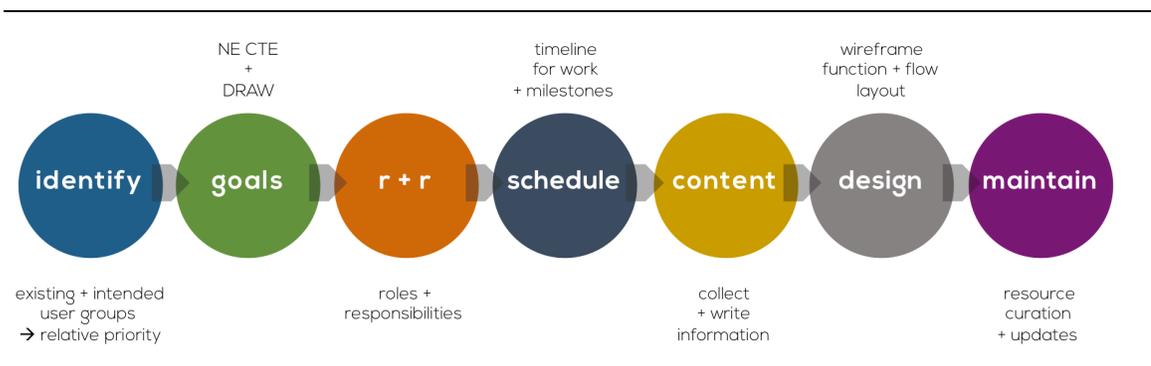
 Reorganizing Nebraska’s DRAW begins with recognizing the multitude of visitors who will access the site. Potential users may include state education administrators, district administrators and CTE coordinators, teachers and counselors, students and parents, and the public and press. Meeting the needs of this diverse group will entail configuring the website to be more intuitive for first-time users and those lacking extensive background in CTE accountability. At the same time, individuals with more advanced knowledge must be able to quickly navigate the site to find the information they need.

Consumer-Centered Design



During technical assistance conversations, state staff members shared that their initial focus was on providing Nebraska state and local administrators and staff with access to statewide and district-level CTE performance data. While the majority of DRAW visitors may be those with some CTE background, educators lacking such knowledge also will make use of the site. For example, efforts to expand the career readiness of all high school students, and not just those in CTE programs, may attract an increasing number of academic educators. District staff new to CTE also will need some level of introduction. Finally, with the upcoming reauthorization of *Perkins IV* looming, it is likely that all educators—CTE and otherwise—will require a refresher to keep pace with anticipated changes to federal CTE accountability requirements. Given the potentially large site demands, state staff may not wish to limit their audience in undertaking a site redesign.

Exhibit 3: Website Design Plan



SOURCE: RTI International.

As a first step, the state should create a website design plan that identifies existing and intended user groups and their relative priority; lays out website goals and a strategic direction, for both Nebraska Career Education and DRAW; delineates the roles and responsibilities of staff participating in the redesign effort; and outlines a timeline for accomplishing work. This action plan should include key milestones, including the collection of information to help decide site components, initial design and layout recommendations, the creation of site wireframes, and resource needs to maintain the site once it is launched (Exhibit 3).

Ensuring that the site meets user needs (internal and external) and disseminates the appropriate information is a critical step in the redesign process. This will entail soliciting input from potential users to determine the content that should be included on the website and the manner in which it should be incorporated. The state has several options for gathering feedback—none of which are mutually exclusive. These include the following:

- *Create a project workspace within NDE*—rely on state staff members to identify local needs informally, drawing on their expertise and knowledge of field information requests.
- *Perform a competitive analysis*—state staff members could look at other state sites and compare strengths, weaknesses, and highlight areas they may wish to draw upon (as well as areas/designs they would want to avoid).
- *Review website analytics*—state staff could do a website audit of key metrics (e.g., number of visitors, most visited pages, which data are being viewed the most, etc.) to help determine the inclusion/exclusion of any elements in a redesign effort.
- *Interview potential user groups*—representatives from key stakeholder groups could be contacted to identify their data needs and desired style of communication of information.
- *Host listening sessions*—state staff could hold regional meetings or attend the annual conference of Association for Career and Technical Education of Nebraska to solicit input from CTE administrators and educators.
- *Convene a task force*—state CTE representatives, selected from throughout the state, could be convened, using an internal or external facilitator, with website design expertise, to guide discussions.

Once information has been compiled, the state should hold a synthesis session to review identified and connected insights and array action items to guide project work.

Simple, Functional Design



Care should be taken that DRAW does not overwhelm users with information. Feedback from potential users can help staff prioritize the data and resources that are presented, as well as how they should be organized. In lieu of the current organization of data, research, and analytics, Nebraska may wish to consider structuring DRAW to present information in a hierarchical format, beginning with broad, statewide insights that may be meaningful for all users. Those seeking more detailed data would then access tools that would allow them to construct their own analyses.

Creating this layered approach may entail consolidating accountability resources now appearing on the Nebraska Career Education and DRAW Web pages, as well as restructuring those contained within DRAW. For example, DRAW could begin with a high-level overview of the performance expectations attached to CTE programming, followed by the state indicators and definitions used to measure district and student performance. The “exploded view” of the state’s Secondary Perkins Data Manual, currently included in the

Indicators tab on the Nebraska Career Education Web page would be an excellent resource for this purpose. State and local performance data could then follow. Users new to CTE would thus have a context for understanding the performance data that followed, while those with advanced knowledge could skip to more detailed information.

Irrespective of the site's final organization, the state may wish to hire an experienced website design firm, ideally one with background in CTE issues, to support state staff in redesigning DRAW. This can help ensure that the site is constructed using design principles that will maximize users' experience, in part by providing them with an intuitive understanding of site navigation and organization.

Moving from Data to Insight

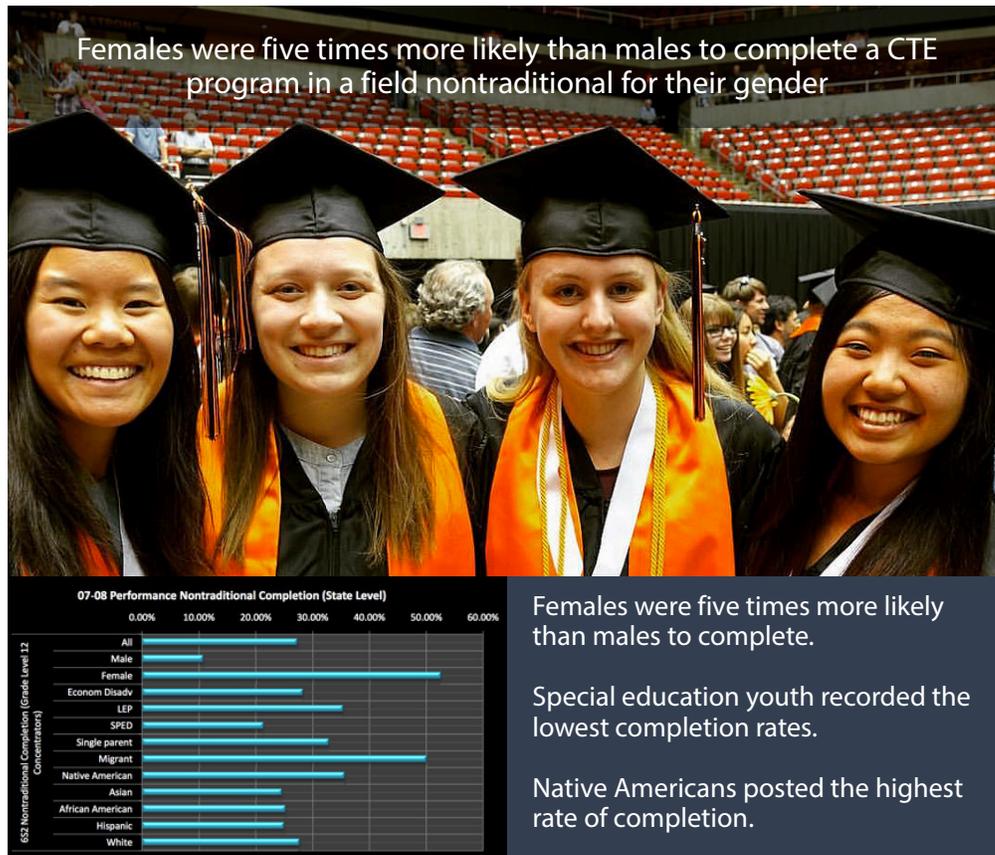


A key benefit of DRAW is its capacity to highlight CTE performance data that warrant special attention. For example, NDE staff have used the Perkins Indicators within the Analytics section

of the website to illustrate the performance of subpopulations of students participating in CTE instruction. These data can be used to craft a compelling storyline that helps users understand the importance of CTE and the contribution it makes to student outcomes. These pre-populated graphics can serve as an executive summary on CTE accountability. Key statewide takeaways can be presented to the user to illustrate the contribution that CTE makes to students' success in a way that aligns with the state's overall goals for program delivery. Ideally, users will take the information and structure their own analysis of their local data.

Packing a significant amount of information into a single figure can overwhelm users, particularly those who lack an advanced understanding of the *Perkins IV* metrics and/or a statistical background. One solution is to shift the website focus from simply posting statistical data to sharing insights. This can be accomplished by adopting strategies to engage users through short descriptions and images that relate and contextualize the data. One means of doing so is to add a human face to the outcomes, for example juxtaposing statistics with photos of students (Exhibit 4).

Exhibit 4: From Data to Insights



SOURCE: RTI International.

Data headlines also can be added to draw readers' attention to the content and provide a context for understanding information. Such graphical storytelling can help users interpret statistics, as well as find their own story in the data.

Customization: Empower Users to Design Their Report

Users will visit DRAW with different needs. Some will be seeking to learn more about the statewide contribution that CTE makes to students' success, while others will want more targeted information, such as how students in a particular district, school, or program are performing. Accordingly, data should be provided in a way that is accessible by a wide audience. Variables for analysis should be prioritized and clearly delineated, analytic choices uncomplicated and free of statistical jargon, and findings offered in varying formats to accommodate individuals with different preferences for viewing data. Moreover, since users will have differing content background, ranging from those with little knowledge of CTE (e.g., the press, parents) to those with advanced understanding (e.g., CTE

teachers and school administrators), links to terminology should be provided so that users correctly interpret what the data represent.

Ultimately, the design of DRAW should reflect the input received from its potential users. While it is premature to provide specific recommendations on how the analytic component of the site should be constructed, Nebraska may wish to create a top-level “pick menu” that allows users to select the data they wish to explore, at their desired level of specificity.¹ This approach offers several benefits. One is that it reduces site complexity because all users funnel through a single point of entry that can be prominently featured. Site maintenance is also reduced, since data requests will hub-and-spoke off a single page. Another benefit is that users may discover new questions or think of better ways of accessing the data when viewing the analysis options available to them.

Ideally, the variables and statistical tools included in the pick menu will enable the majority of users to answer any questions they may have about CTE program performance and student outcomes—be they at the state or district level. While it is possible to integrate sophisticated analytic tools into the pick menu, for example to allow users to perform multiple regressions or generate matched comparison groups, providing such options can be expensive and may lead individuals to misinterpret results.² For this reason, RTI recommends that the state keep its web analytic tools simple, intuitive, and comprehensible. Users seeking to perform more complicated analyses should be directed to contact state staff for access to data, which typically will be run at the individual student level.

In RTI’s experience, the needs of most users will be satisfied with descriptive statistics, such as the percentage of CTE concentrators achieving state academic standards or proportion of students enrolling in different program areas. Cross-tabulations will allow users to disaggregate data to address targeted issues, for example, to identify the percentage of male and female CTE students who graduated from high school within four years of their entry.

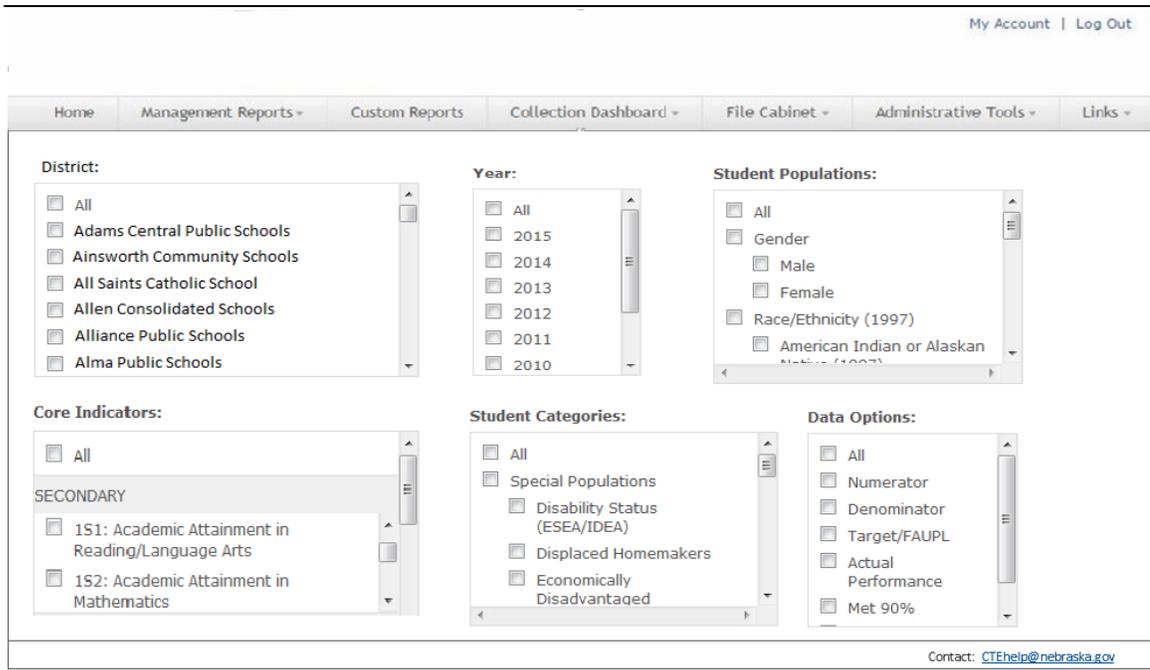
Identification of variables for pick menu inclusion should reflect the information gathered as part of the state strategy employed to identify user needs. Some menu options are likely predetermined given federal reporting requirements, including such variables as student demographics, the characteristics of education districts, and federal *Perkins IV* reporting requirements. Others will be at state discretion. Ideally, pick menus will be designed to allow

¹ For an example of how such a pick menu might operate, see the [Perkins Data Explorer](#) housed on the Perkins Collaborative Resource Network. This innovative tool enables users to create customized *Perkins IV* enrollment and performance reports using statewide data.

² For example, RTI designed DATALAB for the National Center for Education Statistics to enable data users to generate complex analyses, such as correlation matrices and logistic regression of variables housed in federal datasets. See <http://nces.ed.gov/datalab/#2>. While intended for public use, users must have considerable statistical knowledge to correctly specify and run analyses. Development costs also may make such an approach infeasible at a state level.

individuals to “see themselves” in the state data, meaning that they can find variables that mirror their own status and programs, as well as identify sites to which they may compare themselves. While the variables contained in Exhibit 5 primarily are intended for illustrative purposes, the listing of districts is critical if individuals are to assess their performance relative to other sites or to disaggregate information for comparative purposes.

Exhibit 5: Pick Menu



SOURCE: RTI International.

Other variables for pick menu inclusion could include the following:

- **District Characteristics**—information on the geographic location or features of the students or community in which it is housed. This could include information on site urbanicity (i.e., urban, suburban, rural), size of student enrollment, or the socioeconomic status of the population served.
- **Program Offerings**—types of CTE programs provided within the district, with options ranging from high-level categories, such as career field, to more targeted fields, including career cluster or a specific CTE program.

In populating pick menus, state staff should choose criteria based on identified state policy goals, as well as the validity and reliability of the data used to make assignments. Care also should be taken to not overwhelm individuals with information. For example, while it may be possible to include all of the student subpopulations referenced in *Perkins IV*, identifications such as single parents (including single pregnant women), may not offer accurate data. The state also may wish to exclude variables for which there are small

populations of students, since results may be subject to large percentage swings due to small performance changes.

Actionable: Analysis Must Produce Meaningful Data



Website visitors will use CTE performance data for differing purposes. Analysis of statewide data will produce results that are highly aggregated—cutting across all CTE students in all districts and programs. This type of data can be used to message the overall contribution that CTE makes to students’ educational progress and the state economy. For example, data on CTE high school graduates’ enrollment in postsecondary education or placement into employment can be used to highlight the role that technical education makes in preparing students for life transitions. When packaged as insights, these outcomes can help to communicate the benefits that CTE confers and, in so doing, better inform the public’s perception of CTE programming.

Users must have a context for interpreting CTE performance outcomes if statewide data are to prove useful at the local level. Simply put, educators must be able to view their own program and student performance results and compare them against those of others in the state if they are to objectively gauge their instructional effectiveness. The state has several options for helping districts to benchmark their data, all of which could be easily incorporated into the pick menu described above.

Finding Districts Like Me

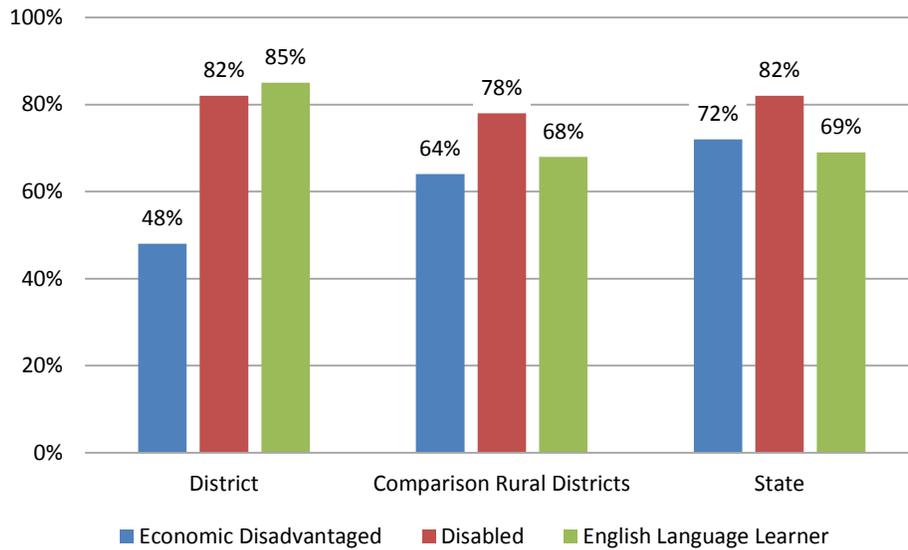


While Nebraska’s ESU organization offers both an administrative and geographical context for interpreting CTE data, the districts that comprise an ESU vary along a number of dimensions. For example, the number and demographics of students participating in CTE may vary across sites, as may the type and scale of programming offered. Consequently, districts with similar characteristics may be scattered across the state. To assist educators in finding comparison sites, the state could provide districts with options for finding “districts like me.”

To illustrate, staff from a rural school district might choose to compare their performance on technical skill assessments against that of other rural districts, identified using a classification system designed by the state. Sites could then have the option of seeing their

own performance data arrayed against similar sites, as well as in relation to the state as a whole (Exhibit 6).

Exhibit 6: Districts Like Me: Percentage of Students Passing Technical Skill Assessments (2S1), by District Type: 2014–15



SOURCE: RTI International.

Users could employ the pick menu options to further unpack their district performances to surface additional information that might otherwise be masked. For example, while the featured district in Exhibit 6 appears to be relatively more successful in supporting English Language Learners (85 percent vs. 68 percent in other districts), this rate may be less meaningful if the district were serving a relatively small number of students. For this reason, the state may wish to consider providing users with options for selecting one or more districts against which they may compare their performance. To aid in interpretation, the number of students included in the denominator of each measure could also be provided.

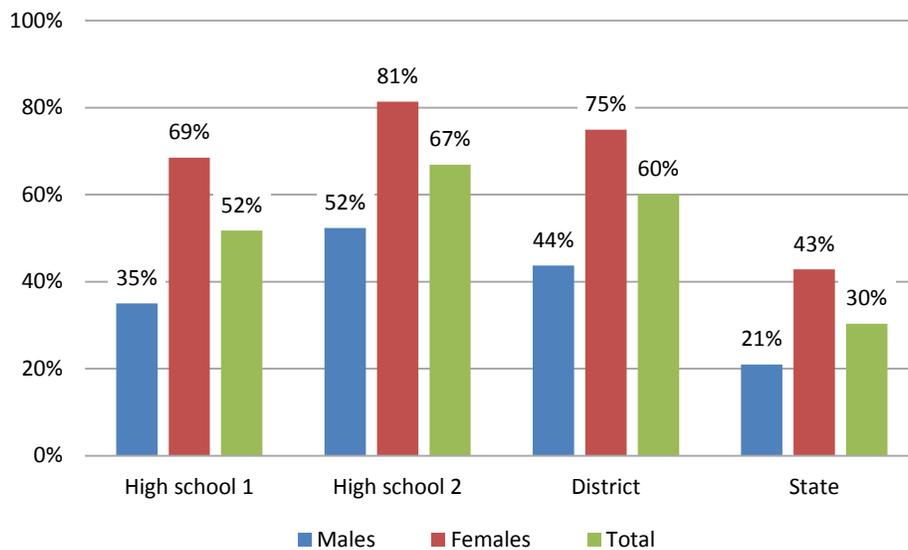
There are, however, limits to the amount of disaggregation that is feasible. Given small district sizes throughout the state, it may be counterproductive to control for more than one population characteristic at a time. For example, while it might be hypothetically possible to cross-tabulate gender with special population status, in most districts this would produce only a handful of students for most cells (e.g., females who are economically disadvantaged). These data would be unreportable due to cell suppression designed to prevent personally identifiable information from being released.

Performance by School



While many districts within Nebraska comprise a single high school, larger cities may have several high schools operating within a district. For example, Exhibit 7 details a fictitious district that offers CTE programming in each of two high schools. While district performance on the 6S2 measure suggests that roughly 60 percent of nontraditional students are completing their CTE programs—a relatively high proportion compared to the statewide average of 30 percent—examination of performance rates by gender indicates that only 44 percent of males are completing nontraditional programs, as compared to 75 percent of females (Exhibit 7).

Exhibit 7: Nontraditional Completion Rates by Gender for Unnamed District



SOURCE: RTI International.

While district-level data can assist district administrators in assessing outcomes across student groups, additional information may be afforded by further disaggregating district data by the high schools that comprise it. Exhibit 7 offers an example of how school-level data could provide additional information to support program improvement efforts. Specifically, data indicate that district performances are being negatively affected by performance outcomes in High School 1. Differential rates of performance may be due to a range of issues, from the quality of instruction to the mix of CTE programs offered within schools. It may be, for example, that one school offers a predominance of programs that are strongly gender specific, which may make it more difficult to raise student performance.

Performance by Program



Nebraska districts offer a range of CTE programming that crosses the six career fields and 16 clusters recognized by the state. However, since federal CTE reporting requirements are focused at the statewide and individual district level, performance variations across fields and clusters (and programs within clusters) may be masked. This may sacrifice potentially useful information, since performance results for large, high-achieving programs may eclipse those of smaller, lower-quality programs.

Exhibit 8 documents how district data might be unpacked to assess the relative performance of students enrolling in differing CTE programs. On average, roughly half of students (52 percent) met the state standards for attainment of academic skills in reading/language arts (1S1). However, student performance on the measure varied by cluster, with students in the science, technology, engineering, and mathematics (STEM) program nearly three times as likely to achieve state standards relating to reading and language arts as those in the manufacturing cluster (80 percent vs. 28 percent, respectively). Overall, seven programs recorded performance rates below the district average (Exhibit 8).

Exhibit 8: District Performance Across CTE Programs for Measure 1S1—Academic Attainment

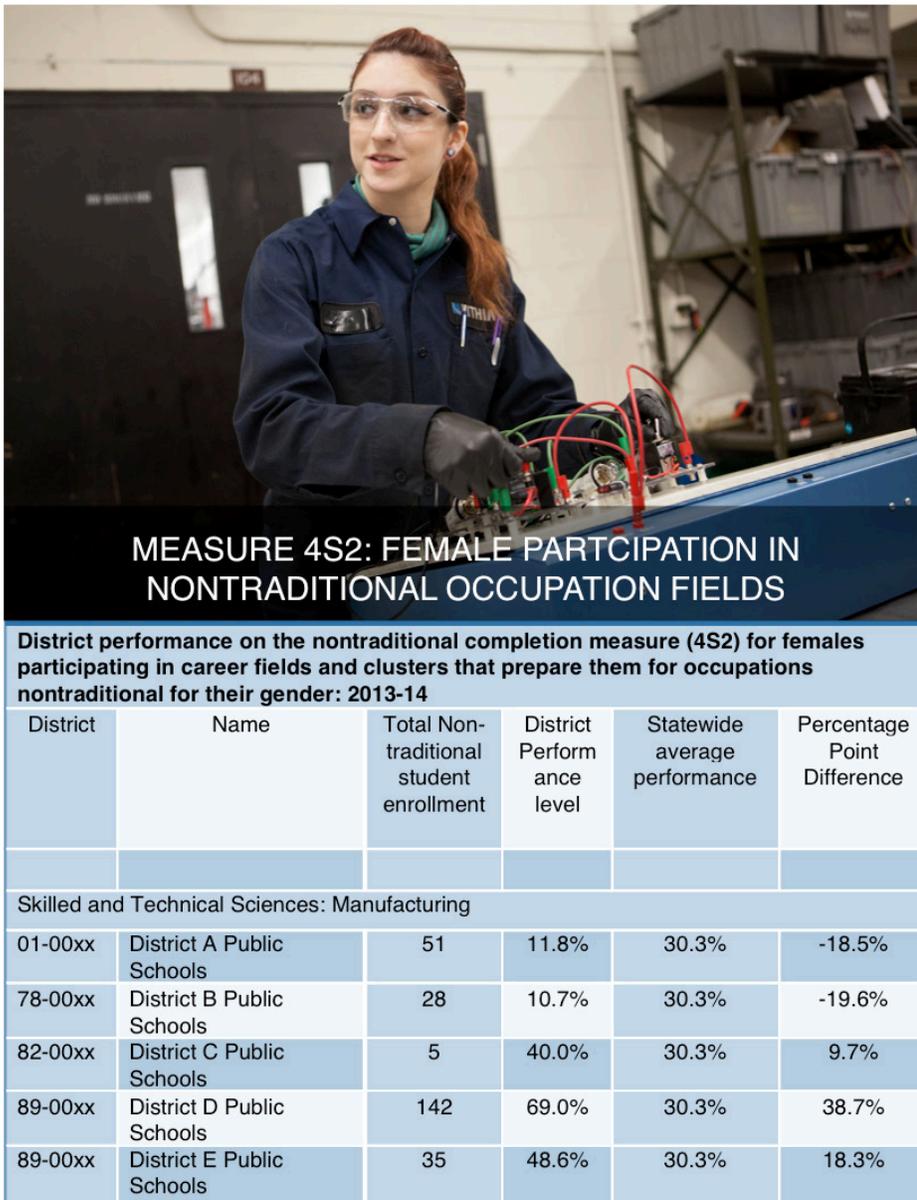
MEASURE 1S1: ACADEMIC ATTAINMENT		Numerator	Denominator	Performance
	Agriculture, Food, and Natural Resources Systems	14	45	31%
	Architecture and Construction	86	126	68%
	Arts, Audio/Visual, and Communication	11	21	52%
	Business Management and Administration	121	244	50%
	Education and Training	34	51	67%
	Finance	30	41	73%
	Health Sciences	217	431	50%
	Hospitality and Tourism	149	335	44%
	Human Services	124	266	47%
	Information Technology	180	345	52%
	Law, Public Safety, Security, and Corrections	51	92	55%
	Manufacturing	37	130	28%
	Marketing	101	145	70%
	Science, Technology, Engineering and Mathematics (STEM)	97	122	80%
	Transportation, Distribution, Warehousing, and Logistics	14	48	29%

SOURCE: RTI International.

A range of factors may explain these differing programmatic results. For example, the relatively higher performance of students in the STEM cluster could be due to the type of students who choose to concentrate in the field, rather than the quality of the instruction offered. Irrespective of the cause, educators focused on district-level results may overlook issues within clusters (or programs within clusters) that may warrant attention. Again, further disaggregation of cluster-level data, such as controlling by student race/ethnicity, gender, or special populations status may surface additional information.

In addition to comparing intra-district performances across clusters, educators may benefit from comparing their CTE field, cluster, or program-level data to that of other districts offering similar programming. For example, Exhibit 9 offers fictionalized performance data for the nontraditional completion measure, controlling for students participating in the manufacturing cluster within the Skilled and Technical Sciences field. In practice, such a table could be created for all career clusters and include information for all districts offering the program.

Exhibit 9: Performance of Students Preparing for Nontraditional Occupations



SOURCE: RTI International.

While a variety of information could be included as columns in the table, analysis is intended to support district staff in pinpointing other sites offering similar programming, the relative number of students participating in the program, and the district performance level. This information can assist educators in disentangling the effect of other programs on CTE performances and, in so doing, offer a more refined understanding of the relative impact of their programming. In the case of this measure, a comparable set of tables could be produced for males participating in clusters that prepare them for career entry into occupations nontraditional for their gender.

Conclusion



The state of Nebraska collects a substantial amount of information on CTE students' performance on the federal *Perkins IV* indicators, as well as additional state metrics. The state currently disseminates this information using DRAW, which is housed as a resource on the Nebraska Career Education website. Unfortunately, the utility of state CTE data are compromised by the manner in which data are organized, analyzed, and maintained. The state has an opportunity to redesign its website to simplify the way that information is shared with the field and how data can be accessed to have greater meaning at the local level.

Website development efforts should be geared towards creating a simple, functional, user-defined experience. Site materials should be organized in a straightforward, intuitive manner so that visitors can easily navigate the site to find the information that they seek. Design efforts should begin with the creation of a detailed action plan, laying out the goals of the site, roles and responsibilities of key staff, and a timeline and milestones for site completion. Representatives of the field also should be engaged throughout the process to ensure that the site is designed to meet their needs. The state may wish to consider hiring a web design firm to ensure that the site includes best practices in displaying data.

Rather than seeking to pre-populate all the content that users might seek, state staff may wish to create a pick menu or other tools to allow users to conduct their own exploration of the data. Moreover, while aggregate data are useful for communicating the benefits that CTE can confer, data must be actionable at the local level if they are to inform program improvement efforts. For this reason, the state should provide users with access to district-level data and tools for comparing outcomes across sites, so that the relative success of programs can be determined. Users also should have the option of disaggregating data by key student populations, in particular those defined in the *Perkins IV* legislation, so that educators can assess the relative performance of different student populations.