Common Education Data Standards: How States Use This Common Vocabulary for Policy and Research

April 10, 2021
Presenters

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System Consultant

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Child Care Aware
Chief Information Officer

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Marzano Research/REL Central
Managing Senior Researcher
Introduction to CEDS

https://ceds.ed.gov/

https://ceds.ed.gov/Researchers.aspx
Common Education Data Standards
- CEDS Elements
- CEDS Align Tool
- CEDS Connect Tool
- CEDS Integrated Data Store
- CEDS Data Warehouse
- Generate Tool
• CEDS Elements
• CEDS Align Tool
• CEDS Connect Tool
• CEDS Integrated Data Store
• CEDS Data Warehouse
• Generate Tool
## Aligning to CEDS

<table>
<thead>
<tr>
<th>Example 1</th>
<th>CEDS Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSU15</td>
<td>= English Learner Status</td>
</tr>
<tr>
<td>KELPA</td>
<td>≈ English Learner Status</td>
</tr>
<tr>
<td>ELP</td>
<td>= English Learner Status</td>
</tr>
<tr>
<td>SLEP1</td>
<td>≈ English Learner Status</td>
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<tr>
<td>ESL</td>
<td>= English Learner Status</td>
</tr>
<tr>
<td>ELL</td>
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<tr>
<td>LEP</td>
<td>= English Learner Status</td>
</tr>
<tr>
<td>LEPIND</td>
<td>= English Learner Status</td>
</tr>
</tbody>
</table>
• CEDS Elements
• CEDS Align Tool
• **CEDS Connect Tool**
• CEDS Integrated Data Store
• CEDS Data Warehouse
• Generate Tool
Using / Adopting CEDS as a Vocabulary

How many students with an English Learner Status = Yes have an Eligibility Status for School Food Service Programs of Free or Reduced Price?
Using / Adopting CEDS as a Vocabulary

- CEDS Elements
- CEDS Align Tool
- CEDS Connect Tool
- CEDS Integrated Data Store
- CEDS Data Warehouse
- Generate Tool

Store longitudinal P-20W data: the Data Warehouse has the capacity to support the full P-20W data pipeline and all associated use cases.

Enhance longitudinal data use: the star schema creates improved efficiency of longitudinal data use through faster report generation and simpler queries.

Collaborate: having the same underlying data architecture allows for access to open source or proprietary-free reports, code, and applications of other organizations.
CEDS and Generate State Footprint

- States with shared CEDS Align map
- States interested in or implementing Generate
- States building an SLDS using the CEDS physical data model
State Experiences Using CEDS
LEVERAGING CEDS FOR RESEARCH
We will set all students on a path to success.

**ACADEMICS**

All Tennessee students will have access to a high-quality education, no matter where they live.

**WHOLE CHILD**

Tennessee public schools will be equipped to serve the academic and non-academic needs of all students.

**EDUCATORS**

Tennessee will set a new path for the education profession and be the top state to become and remain a teacher and leader.
Vision
We will set all students on a path to success.

IF WE ARE SUCCESSFUL, THEN TENNESSEE WILL SEE A SUBSTANTIAL INCREASE IN THE NUMBER OF STUDENTS MEETING ATTAINMENT GOALS TWO YEARS AFTER GRADUATION

- Two-year college persistence
- TCAT certificate
- Military enlistment
- Or similar paths
A Brief History of Tennessee, Research, and Data Infrastructure

• Tennessee’s STAR Experiment
• Tennessee Value Added Assessment System (TVAAS) (Sanders 1994)
• Statewide Longitudinal Data Systems Grant Program FY 2006
• Race to the Top (First to the Top)
  ▪ Created a P20 system
  ▪ Multi-measure teacher evaluation system
• Drive to 55 and Setting Students Up for Success (SLDS FY 2015)
• Modernizing Data Systems from Cradle to Career (SLDS FY 2019)
• Office of Evidence and Impact (2019)
Office of Evidence and Impact

Investing in What Works to Promote Positive Outcomes

**Inventory the Base Budget:**
Determine what programs we fund, how much funding there is for each, and their level of evidence.

**Include Evidence in Cost Increase Plans:**
Provide a tool for departments to use that explains the level and type of evidence tied to cost increases.

**Streamline Data Management to Improve Data Usage:**
Improve the ability for agency data sets to speak to one another in order to answer meaningful questions about program impact.
P20 Connect TN
P20 Connect TN has had a significant focus on research

- **CTEx Lab**
  - Co-PI with Celeste Carruthers (UTK) to study effective practices and policies around Career and Technical Education in a multi-state consortium led by Georgia State University

- **Dual Credit and the Road to College**
  - Steve Hemelt (University of North Carolina) and Sue Dynarski (University of Michigan) evaluated the randomized roll-out of the statewide dual credit Advanced Algebra and Trigonometry

- **Setting Students Up for Success** (IES Statewide Longitudinal Data Systems FY 2015)
  - Matt Ronfeldt (University of Michigan) – Effect of mentor teachers on novice teachers
  - Chris Avery (Harvard University) – School Counseling and effective high school programs and policies

- **Analyzing and Understanding the Educational and Economic Impact of Regional Career Pathways** (Using Longitudinal Data to Support State Education Policymaking)
  - Attridge, Bonilla, Carruthers, Mosley, Dyer, et al. evaluate a key initiative to recognize a certification process for recognizing career pathways programs.
Current State of P20 Connect

• Significant focus on external research without strong knowledge maintenance systems
• No readily accessible key metrics
• Governance structures need better documentation and transparency
• A single and complex method of data access (SQL server)
• Irregular update schedule; no real-time data
• A “Frankenstein system” that has been built with little documentation for over a decade
In March 2020, Tennessee was awarded the FY2019 SLDS Grant

- Improve the governance, metadata, documentation, and training of all data in P20 Connect TN
- Develop a common API and automate ingestion of data into common API
- Integrate and analyze new sources of data
- Develop a full-scale predictive analytics model that informs the Tennessee Department of Education’s 2019 strategic plan, *Best for All*
- Develop a tool for sharing predictive analytics with local stakeholders, with ample support and training opportunities.
Why Common Education Data Standards?

• Improved data sharing, timeliness, and quality
• Interoperability
  ◦ Transition between systems!!
  ◦ Leverage CEDS to EdFi crosswalks
• Leverage national programs and technology
  ◦ Benefit of not being first!
• Focus on meeting our office’s goals
  ◦ If another state is evaluating similar programs, does our data allow us to evaluate and compare.
• Data Requests
  ◦ Handled externally in the past, but we need to be able to improve our data quality internally;
• Scalability
CEDS transition will be program-focused:

If we are successful, then Tennessee will see a substantial increase in the number of students meeting attainment goals two years after graduation.

Do our data systems allow us to capture this data? More importantly, can we access and leverage the data to improve the quality of our services?
Calculating the attainment goal

If a student falls into ANY one of these pathways, then he or she is included in the numerator.

\[
\frac{\text{Success in Any Pathway}}{\text{Ninth Grade Cohort}} = \text{Attainment Goal}
\]
Leveraging CEDS will lead to:

<table>
<thead>
<tr>
<th>TRUST</th>
<th>OWNERSHIP</th>
<th>USE</th>
</tr>
</thead>
</table>

Mission Statement

P20 Connect TN is Tennessee’s longitudinal education-to-workforce data system that connects data across sectors to tell a more complete story of Tennesseans and serves as a catalyst for improvement. Tennessee is committed to transparency and accountability as we work to reach our state goals.
THANK YOU

JONATHON.M.ATTRIDGE@TN.GOV
Kentucky Center for Statistics

Uniting our data
Informing our Commonwealth
We connect data from different state agencies to better inform our Commonwealth.
KYSTATS GOVERNING BOARD

Education & Workforce Development Cabinet Secretary (CHAIR)

- Kentucky Department of Education (KDE) Commissioner
- Council on Postsecondary Education (CPE) President
- Kentucky Higher Education Assistance Authority (KHEAA) Executive Director
- Cabinet for Health and Family Services Secretary
KYSTATS Request for De-identified Data

Thank you for your interest in Kentucky data. If the specific data you are requesting is not available through our standard reports or de-identified public use data sets, please fill out the form below. Additional information may be required to fulfill approved requests and a Data and Information Sharing Agreement is required for any individual-level de-identified data to ensure data security and privacy in accordance with state and federal laws. Workforce data are not available at the individual level.

### Individual Data Request Form

- Data and information sharing agreements are required for any individual-level de-identified data to ensure data security and privacy in accordance with state and federal laws.
- Data request and approval process takes up to 4 months to complete.
- Kentucky operates under a cost-recovery model and has developed a reasonable fee schedule for services provided (KRS 160.172).
- See the FAQ document below for examples of individual-level data.

### Aggregate Level Data Request Form

- No data sharing agreement needed.
- Data request and approval process takes up to 3 months to complete.
- Kentucky operates under a cost-recovery model and has developed a reasonable fee schedule for services provided (KRS 160.172).
- See the FAQ document below for examples of aggregate-level data.

Data Dictionary
- Policy Documents
  - KYStats Data Access and Use Policy
  - KDE Policy Documents
  - CPE Policy Documents
  - EPSI Policy Documents
- PRIC Documents
  - PTAC’s Data Security Checklist
  - PTAC’s Best Practices for Data Destruction
- Public Access Data Plan
- FERPA
  - Please refer to The U.S. Department of Education, Family Policy Compliance Office’s Guidance for Reasonable Methods and Written Agreements for additional information on requirements for data sharing under the Family Educational Rights and Privacy Act (FERPA).
- Contact Us
- FAQs

Kentucky Center for Statistics: Macy-Underwood Building - 100 Main Street, 1st Floor - Frankfort KY 40601 Office 502.564.4194
<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Friendly Name</th>
<th>Data Type</th>
<th>Master</th>
<th>ID</th>
<th>Table Name</th>
<th>Long Desc</th>
<th>Value Domain</th>
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<td>544</td>
<td>IC_Person</td>
<td>PK-12</td>
<td>Academic</td>
<td>PK-12</td>
<td></td>
<td>IC_AnnualPerson</td>
<td>Number of days student was absent from school over the course of the academic year.</td>
<td>2015</td>
</tr>
<tr>
<td>545</td>
<td>IC_Person</td>
<td>PK-12</td>
<td>Academic Year</td>
<td>PK-12</td>
<td></td>
<td>IC_AnnualPerson</td>
<td>Academic year of the student's attendance associated with the ending year 2 of the academic calendar (e.g. 2009-2010 school year - 2010).</td>
<td>2000</td>
</tr>
<tr>
<td>546</td>
<td>IC_Person</td>
<td>PK-12</td>
<td>Academic Year, Primed</td>
<td>PK-12</td>
<td></td>
<td>IC_AnnualPerson</td>
<td>It is determined that a primary student is not accepted for entrance into the fourth grade, an additional year may be offered to the student as a 5th grade in the program.</td>
<td>2005</td>
</tr>
<tr>
<td>547</td>
<td>IC_Person</td>
<td>PK-12</td>
<td>Diploma</td>
<td>PK-12</td>
<td></td>
<td>IC_AnnualPerson</td>
<td>The most recent year in which the diplomate was awarded a diploma in recognition of the completion of the program requirements.</td>
<td>2015</td>
</tr>
</tbody>
</table>

- **IC_AnnualPerson**
- **PK-12**
- **Academic**
- **Academic Year**
- **Academic Year, Primed**
- **Diploma**

Value Domain:
- **Number of Days Absent**: 2015
- **School Year**: 2000
- **Diploma or Credential Award Date**: 2015

Options for Diploma Type:
- Standard Diploma
- Initial Youth Program Diploma
- Accelerated Diploma
- Knowledge Based Diploma
- Comprehensive Vocational
- Career Prep Diploma
- Career Ed Diploma
- Boarded UCD
- Alternative Diploma
- Scholar Diploma
- Register Diploma
- Basic Diploma
- International Baccalaureate
- Certificate of Attainment
- Communiqué
- General Voucher Programmed Diploma
- Career Technical Diploma
- Alternative High School Diploma
- General Diploma
- Elderly Approved Diploma
- Flexvoice
- Comprehensive Diploma
- Diploma Not Diploma
- Academic
- Honors Diploma
- Advanced Diploma
- High School Diploma Type

Count: 0
Sum: 0
Multi-State Postsecondary Partnership Report

This report is a dynamic tool that connects Kentucky postsecondary graduates with in-state and out-of-state employment outcomes. Users can explore the connection between employment outcomes associated with credential level, major earned, and state origin. This report was funded with state longitudinal data system grant funds.

Select a Grouping Variable:
- Kentucky
- Out-of-State

5-year postgraduation includes graduates from academic year 2013. 5-years postgraduation includes graduates from academic years 2013-2017.

Kentucky Postsecondary Graduate Outcomes by Credential Level

<table>
<thead>
<tr>
<th>Credential Level</th>
<th>Total Kentucky Postsecondary Graduates</th>
<th>Percentage of Kentucky Graduates Employed</th>
<th>Location of Employment by Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>3,686</td>
<td>74%</td>
<td>11%</td>
</tr>
<tr>
<td>Diploma</td>
<td>460</td>
<td>79%</td>
<td>7%</td>
</tr>
<tr>
<td>Associate</td>
<td>6,796</td>
<td>78%</td>
<td>11%</td>
</tr>
<tr>
<td>Bachelor</td>
<td>17,453</td>
<td>83%</td>
<td>14%</td>
</tr>
<tr>
<td>Master</td>
<td>8,812</td>
<td>70%</td>
<td>15%</td>
</tr>
<tr>
<td>Doctoral</td>
<td>1,731</td>
<td>50%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Employment Location by Credential Level of those Employed

Of those that were employed after graduation, how many were employed in-state and out-of-state?

Wages by Credential Level of those Employed

Of those that were employed after graduation, who were they wages in-state and out-of-state?
kystats.ky.gov
@kystats

Franki Jenkins
System Consultant IT

Franki.jenkins@ky.gov
Researcher Experiences Using CEDS
Research Benefits

- Replicability
- Transparency
- Scalability
- Validity

Reduction of data request iterations
CEDS To Advance the Child Care Field & Enrich Family Access to Services
What CCAoA is Working To Solve

How might we close the gap between parents, child care providers, the community, and policymakers so that every family in the United States has access to a high-quality, affordable child-care system allowing each and every child an equitable opportunity to thrive?
Research Led by CCAoA

Picking Up the Pieces: Building a Better Child Care System Post COVID-19

CCAoA’s most recent comprehensive report highlighting child care supply and affordability in every state, with additional data and stories about the impact of COVID-19.
Research Led by CCAoA

Annual reporting of child care landscape in each state

Topics/stats include:

- Total/Licensed capacity by child care setting and age group
- QRIS status, QRIS participation, participation at highest (QRIS) level and number and capacity of accredited programs
- CCR&R training and TA, referrals received by setting and referral mode
Affordability of Care by Family Type

In Oregon, married-couple families pay, on average, 13% of their income for child care.
Single-parent families pay, on average, 28% of their income for child care.
Affordability varies by setting, child age, race and ethnicity, and minority.

Filter by:
- Family Type
- Setting Type
- Child Age

In Oregon, the average monthly price of full-time child care is $829 per child in child care. That's 9% of the median household income for a family with children under 6.

In Oregon, a family with at least one child under 6 and earning 95% of median household income pays 44% of their income on child care for every child enrolled.

64%
Can families at Federal Poverty Level (FPL) afford care?
Research Led by CCAoA

Mapping the Gap™
• Supply and demand of quality child care in targeted mapping projects with intensive work with a state's CCR&R/CCR&R network
Child Care Benchmarking Licensing Project

• Documenting and analyzing state child care licensing regulations
WELCOME
to the
Child Care Data Center
CCDC Data Portal

This section is not complete. Click continue to work on this section of your submission or go to your tasks to see what steps are required to complete this section.

This section is complete. No further action is required for this specific section.
CCDC Data Portal: Data Review and Cleansing
Data Types & Sources Used by CCAoA

- **Supply**
  - Provider Dataset (78 elements)

- **Demand**
  - Family Referral

- **State Systems**
  - Subsidies
  - Licensing
ECE Systems are Extremely Complex

For Parents

For Providers
CCAoA’s Impact Achieved with Data, Analysis and Research

• Provide decision makers with data and trusted research they need to inform their choices.
• Shape public discussions and advocacy efforts around the cost, quality and access to child care.
• Inform improvements in health and safety regulations that will protect young children’s lives.
• Influence policy at federal-, state-, and community-level.
ECE System Gaps

Early Learning (EL)

Early Learning (EL) is the CEDS domain on the stage in human development from birth through the early school years (often defined as birth to age 6), during which significant social, emotional, cognitive, language, psychological, and physical development occurs.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Organization</td>
<td>An institution that provides early learning services. This can be a grantee with delegates at various locations, possibly in one or more buildings; it has an assigned administrator(s).</td>
</tr>
<tr>
<td>EL Child</td>
<td>A person for whom instruction, services, and/or care are provided in an early childhood program under the jurisdiction of a school, education agency, or other institution or program.</td>
</tr>
<tr>
<td>Parent/Guardian</td>
<td>A person having parental or legal guardianship responsibility for a learner.</td>
</tr>
<tr>
<td>EL Family</td>
<td>All persons (i) living in the same household who are (a) supported by the income of the parent(s) or guardian(s) of the child enrolling or participating in the program, or (b) related to the child by blood, marriage, or adoption, or (ii) related to the child enrolling or participating in the program as parents or siblings by blood, marriage, or adoption.</td>
</tr>
<tr>
<td>EL Staff</td>
<td>A person who performs specified activities for a public or private education institution, agency, or household that provides instructional and/or support services to students or staff at the early childhood level.</td>
</tr>
<tr>
<td>EL Class/Group</td>
<td>A cohort of children receiving services together, or in some cases individually, usually for a predetermined amount of time, with at least one assigned primary teacher.</td>
</tr>
<tr>
<td>Early Learning Program</td>
<td>An entity with information about a system of services, opportunities, or projects, designed to meet academic or non-academic needs. (A Program entity may be related to an organization as the service provider and to people as program staff, participants, and recipients of program services. CEDS broadly defines Program for information about program types such as work-study programs or athletic programs that are not specifically defined. CEDS also has more specific program entities such as PS Institution Program and CTE Program.)</td>
</tr>
</tbody>
</table>
Use of Common Standards to Expand & Enrich Child Care System Efforts

• Linked Vocabulary
• Other common standards joining across health and human services
Aspirations for ECE Interoperability
The Regional Educational Laboratory (REL) Central at Marzano Research serves the applied education research needs of Colorado, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming.
An alliance united by goals ensuring that all students graduate from high school prepared to enter the workforce or enroll in postsecondary degree or certification programs.

**Areas of Focus**

- Postsecondary Success Assessment
- Algebra I Readiness Support
- Review of Career and Technical Education in Two States
CTE Study Background and Data Needs
Examining CTE Pathway Outcomes: Project Goals

• State workforce development priorities.
• Inventory CTE data in two states’ current data systems.
  • Nebraska
  • South Dakota
• Develop research plan to examine the relationships between CTE course-taking and both secondary and postsecondary outcomes.
Project Phases

- **Phase 1**: Reviewing current CTE literature.
- **Phase 2**: Cataloging existing data.
- **Phase 3**: Identifying data alignments and gaps.
- **Phase 4**: Developing a research plan.
Phase II: Cataloging Existing Data

Cross-Department Collaboration

- Labor
- Commerce
- Education
- Economic Development
Phase II: Cataloging Existing Data

1. Developed inventory of data relevant to CTE.
2. Gathered existing data dictionaries.
3. Crosswalked dictionaries to identify current data availability.
Data Identification and Linking Process and Tools
## Common Education Data Standards: Align

**Map Name:** Nebraska Generate EDFacts IDEA

<table>
<thead>
<tr>
<th>Map Element</th>
<th>CEDS Element</th>
<th>Definition Alignment</th>
<th>Option Set Alignment</th>
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</thead>
<tbody>
<tr>
<td>Generate -&gt; Generate -&gt; OrganizationPersonRole -&gt; Enrollment Entry Date</td>
<td>K12 -&gt; K12 Student -&gt; Enrollment -&gt; Enrollment Entry Date</td>
<td>Identical in wording</td>
<td>Not Applicable (Element does not contain an option set)</td>
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<tr>
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<td>K12 -&gt; K12 Student -&gt; Enrollment -&gt; Enrollment Exit Date</td>
<td>Identical in wording</td>
<td>Not Applicable (Element does not contain an option set)</td>
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<td>CEDS Elements:</td>
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<tr>
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<tr>
<td><strong>Data Elements for FS157</strong></td>
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<tr>
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<td>K12 -&gt; K12 Student -&gt; CTE -&gt; Career and Technical Education Participant</td>
<td>ProgramParticipationCte -&gt; Career and Technical Education Participant</td>
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<td>K12 -&gt; K12 Student -&gt; CTE -&gt; Career Technical Education Nontraditional Gender Status</td>
<td>No Corresponding Element Available in this Map.</td>
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</tr>
</tbody>
</table>
Project Phases

Phase 1
- Reviewing current CTE literature.

Phase 2
- Cataloging existing data.

Phase 3
- Identifying data alignments and gaps.

Phase 4
- Developing a research plan.
## South Dakota CTE Variable Crosswalk

<table>
<thead>
<tr>
<th>Data Element</th>
<th>K-12</th>
<th>Postsecondary</th>
<th>Labor/Workforce</th>
<th>Can the Data Be Linked</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE (Enrollment, Concentration, Completer, Pathway)</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Demographics/Student Identifiers</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Behavior (Absences, Suspension, Mobility)</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Credits (AP, STEM, Dual Enrollment)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Student Achievement</td>
<td>x</td>
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<td></td>
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<tr>
<td>Graduation Status (HSD, GED, HSE)</td>
<td>x</td>
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<tr>
<td>Industry Certification (Teacher, Student)</td>
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<td>School characteristics</td>
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<tr>
<td>School Type (CTE School, Traditional Public school, Hybrid)</td>
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<tr>
<td>Post-Secondary Major or Concentration</td>
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<tr>
<td>Post-Secondary Enrollment</td>
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<tr>
<td>Post-Secondary Completion</td>
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<tr>
<td>Required Remedial Coursework</td>
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</tbody>
</table>
Cross-Department Data Sharing: Common Challenges

• Data sharing and confidentiality agreements
• Building of common meaning.
• Limited human capacity
Identifying Data Alignments and Gaps

1. Facilitated discussion about cross-agency data links.
2. Used information to develop research questions.
3. Collaborated on data requests
Resources

Explore CEDS at https://ceds.ed.gov

Contact the CEDS team to speak one-on-one about your grant and using CEDS

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