COMMON EDUCATION DATA STANDARDS

Anatomy of CEDS

While education institutions across the P-20 (early learning through postsecondary) environment use many different data standards to meet information needs, there are certain data we all need to be able to understand, compare, and exchange in an accurate, timely, and consistent manner. For these, we need a shared vocabulary for education data—that is, we need common education data standards. The ***Common Education Data Standards (CEDS)*** *project is a national collaborative effort to develop voluntary, common data standards for a key set of education data elements to streamline the exchange, comparison, and understanding of data within and across P-20 institutions and sectors. This document describes the components of CEDS (definitions, code sets, technical specifications, etc.) and touches on the tools that allow the education community to explore and effectively leverage the standards for utilization.*

What Are the Parts of the Standard?

The CEDS "standards" are comprised of several pieces of information that provide context for and describe data items within CEDS:

- Domain
- Entity
- Element (including name and definition)
- Option set (including codes with descriptions)
- Related use cases
- Alternative names and other notes

DOMAIN: Domain indicates the management level at which the data are maintained. Some domains also correspond with the sector(s) of the P-20 system in which entities exist. CEDS Version 2 (v2) contains five domains: Early Learning, K12, Postsecondary, Assessments, and Learning Standards.

ENTITY: Entities are persons, places, events, objects, or concepts about which data can be collected. Entities provide context for the data elements, which are bits of information that could be used to describe one or more entities. This context is captured by entity relationships presented both textually and graphically in CEDS. Examples include Student, School, Assessment, and Calendar.

ELEMENT: Elements are attributes of entities, and units of data that can be defined and measured. Elements are comprised of two parts:

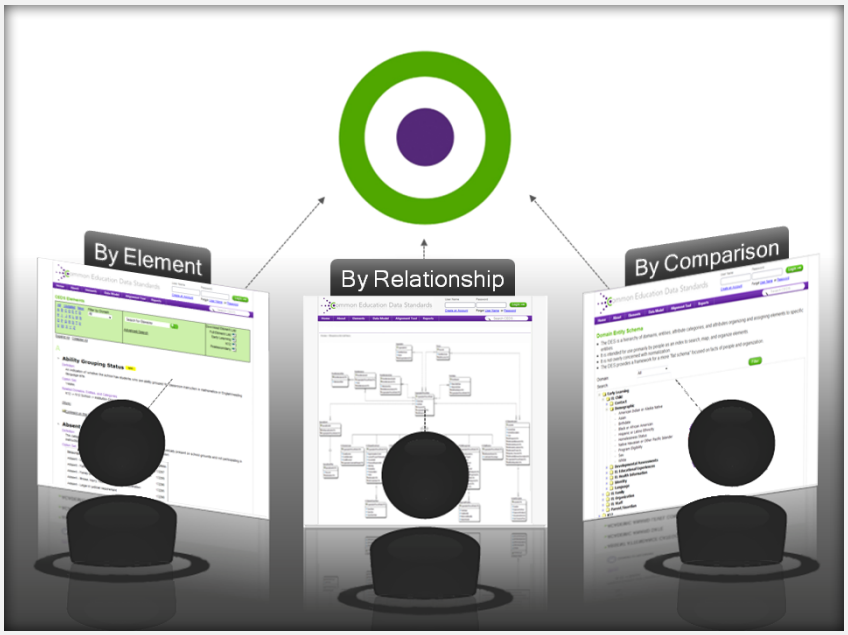
- Name: Common text name for the element
- Definition: A statement of the meaning or significance of an element

For example, the element "First Name" is defined as "The full legal first name given to an individual at birth, baptism, or through legal change."

Viewing & Interacting with CEDS

CEDS can be viewed and interacted with in three key ways:

1. *By element*: Via the CEDS Elements page (http://ceds.ed.gov/elements.aspx), users can access a searchable glossary of the CEDS "vocabulary," including names, definitions, option sets, technical specifications, and more.
2. *By relationship*: Through the CEDS Data Model (http://ceds.ed.gov/datamodel.aspx), users can explore the relationships that exist among entities and elements—viewable through a Domain Entity Schema, a Normalized Data Schema, and an Entity Relationship Diagram.
3. *By comparison*: In addition to these two ways of viewing the standards, a supplemental tool enable users to take the next step and put CEDS into practice. The CEDS Alignment Tool (http://ceds.ed.gov/alignmenttool.aspx) enables a user to load his or her organization's data dictionary and compare it, in detail, to CEDS and the data dictionaries of other users' organizations. This facilitates alignment with CEDS and across systems, paving the way for easier sharing and comparison of data. See Using CEDS for more information on the current and forthcoming CEDS tools.



Visit ***http://ceds.ed.gov*** to learn more about CEDS, view the standards, explore the data model, and use the tools.

Together, the pairing of entity and element (the entity relationship) provide a full description of the item. For example, the element "First Name" could describe a student, staff member, or parent. When paired with the entity "Student," the user knows that the element in question is the student's first name.

OPTION SET: Options provide recommended alternatives or responses for an element. For some elements, open-ended options are the appropriate responses, such as in "First Name." In these cases, no options are presented. For other elements, a set of standard options are provided. For example, the item "Hispanic or Latino Ethnicity" indicates whether or not an individual "traces his or her origin or descent to Mexico, Puerto Rico, Cuba, Central and South America, and other Spanish cultures, regardless of race." The option set for this item includes "Yes," "No," and "Not Selected" as the person either does or does not identify as Hispanic or Latino, or may not provide this information. Other option sets, such as language codes, are much more extensive.

These items, the entity, element (including the name and definition), and option(s), are present for each of 628 unduplicated elements[1] included in CEDS.

RELATED USE CASES: Use cases indicate real-world applications for which each element can be used to support. Examples include ED*Facts* and IPEDS reporting, LEA-to-LEA Student Record Exchange, High School Generated Transcript, etc.

CEDS by the Numbers

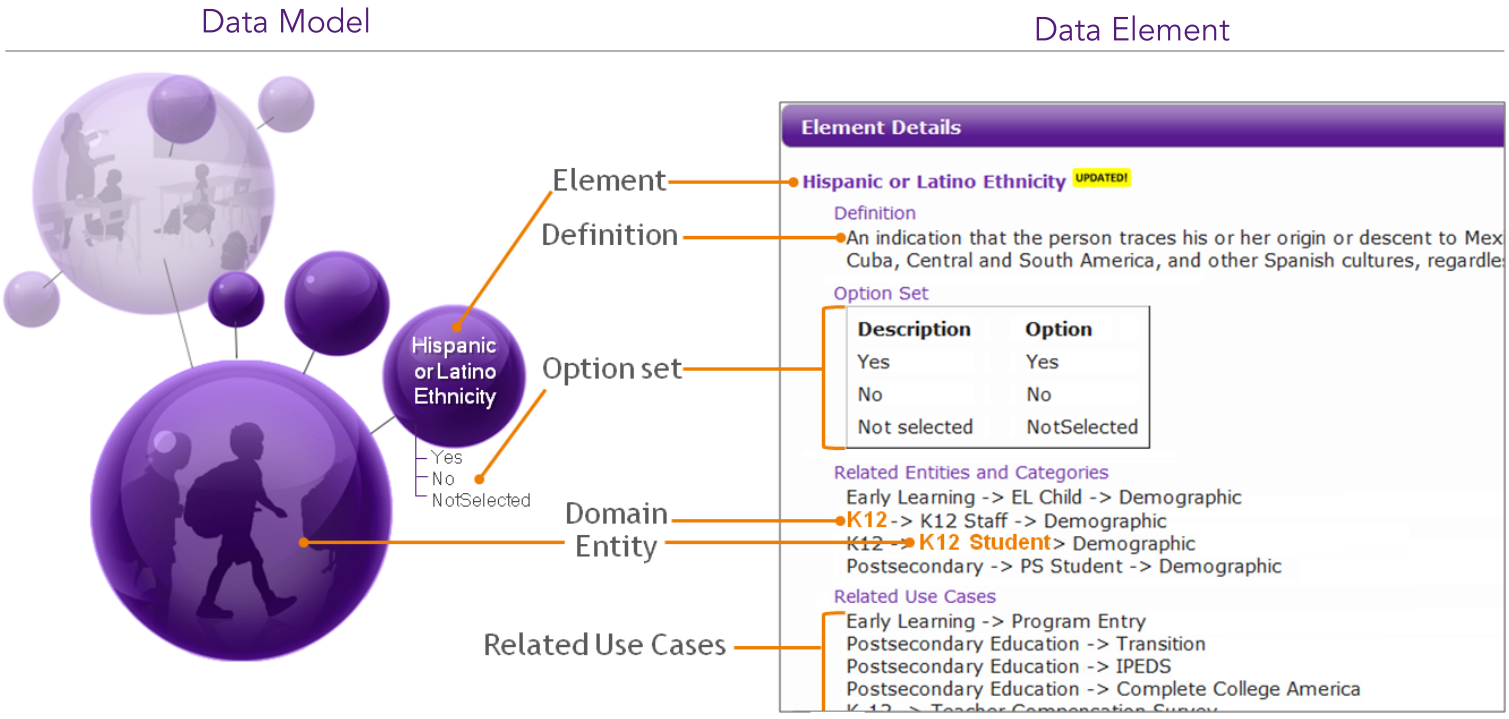
CEDS includes:

- **5** Domains
- **31** Entities
- **628** unduplicated Elements (e.g., FIRST NAME)
- **1,005** Element-Entity pairings (e.g., Student FIRST NAME)
- **22** distinct types of Use Cases

ALTERNATIVE NAMES AND OTHER NOTES: Other information is often also associated with CEDS elements, including common names, abbreviations, and usage notes.

Anatomy of CEDS

The figure below lists these main components of a standard (in the center), including the data element with descriptive information, along with higher-level information (domain and entity), which provide context for the element. On the left side of the figure is a representation of the Data Model view, which depicts the practical relationships between entities and elements, while the Data Elements view on the right allows users to explore and search the elements in a format that resembles a glossary. In this case, the details of the element "Hispanic or Latino Ethnicity" is displayed on the right, with the Data Model representation on the left showing the element's relationship to a student (entity) and its associated option set.



[1]CEDS includes many data elements commonly used across the P-20 environment; the exact number depends on how you count. CEDS includes 628 individual, unduplicated elements (e.g., FIRST NAME) that make up 1,005 instances in which elements are associated with one or more entities (intersections of entities and the elements that describe them—e.g., *Student* FIRST NAME, *Staff* FIRST NAME, *Parent* FIRST NAME).