



# Ed-Fi Extension and Semantic Analysis: Kansas

## Purpose and Brief of the Analysis

The purpose of this report is to work with the Kansas State Department of Education (KSED) as the partner of Ed-Fi Alliance (Ed-Fi) and share Ed-Fi's findings for the assessment of extensions and semantic alignment of the state's usage of data elements in Ed-Fi's core data standard.

Our analysis has concluded that Kansas is well-aligned with Ed-Fi core semantically, which means the data elements in the Ed-Fi core are almost always used by the State as intended.

Kansas has used the extension mechanism in Ed-Fi for areas where the core data standard did not meet specific needs of the state in areas that include student enrollment data, course offering and grades, language instruction, CTE instruction and certification, and transportation. As found in the section below, the extension analysis looked at areas where there are current options available in the core; where there might be better alternatives for extension; and where extensions should be considered by Ed-Fi for inclusion into the core data model.

## Body of the State Analysis

The Ed-Fi Alliance is committed to sustaining the Ed-Fi data standard to support the capture, usage, reporting, and exchange of educational data. As such the Ed-Fi data standard promotes data interoperability in the industry, enables data-driven decision making, and hence contributing to the advancement of educational outcomes.

In a continuing effort to better serve the community of users, this analysis is the first of a periodic evaluation of how the various Ed-Fi states are using and extending the Ed-Fi data model. In particular, the analysis is meant to investigate the following questions:

- Is the State using the core Ed-Fi data model as semantically defined and intended?
- Does the State follow good practices in extending the Ed-Fi data model, adhering to the overall conventions embodied in the data standard?
- Do extensions duplicate what could be reflected in the Ed-Fi core model, or are there subsequent updates to the core that now cover what previously required an extension?
- Are there extensions that point to common needs across states and/or potential model changes that would benefit the community at large?

The analysis findings specific to Kansas are summarized in the following sections: *extension analysis* has a focus on the extensions the state introduced, and the *semantic analysis* evaluates the usage of the core



data standard any deviations from the original purpose of the data element. The intent of this analysis is to improve the Ed-Fi data standard and its usage in the community. The analysis should be taken as an *opinion* based upon published materials by Ed-Fi and the states to stimulate further collaboration.

## Extension Analysis

The Kansas extensions comprise one new entity, two new associations, and 49 attributes as outlined below.

- Attribute extensions to StudentEducationOrganizationAssociation as follows:
  - StudentEducationOrganizationAssociation.DistrictOfResidence
  - StudentEducationOrganizationAssociation.ImmigrantStudent
  - StudentEducationOrganizationAssociation.MilitaryConnectedStudent descriptor - *V5 Ed-Fi has descriptor StudentEducationOrganizationAssociation.SupporterMilitaryConnection*
  - StudentEducationOrganizationAssociation.NeglectedStudent
  - StudentEducationOrganizationAssociation.CTE common with attributes:
    - StudentEducationOrganizationAssociation.CTE.CTECertificationDateEarned
    - StudentEducationOrganizationAssociation.CTE.CTECertificationEarned
    - StudentEducationOrganizationAssociation.CTE.CertificationTerm
    - StudentEducationOrganizationAssociation.CTE.GraduationYear
  - StudentEducationOrganizationAssociation.Transportation common with attributes:
    - StudentEducationOrganizationAssociation.Transportation.MilesTransported
    - StudentEducationOrganizationAssociation.Transportation.NonResidentTransportation
    - StudentEducationOrganizationAssociation.Transportation.TransportationFTE
- Attribute extensions to the StudentSchoolAssociation are as follows:
  - StudentSchoolAssociation.AttendanceDays – *could be computed from StudentSchoolAttendanceEvents*
  - StudentSchoolAssociation.CTEContactMinutes
  - StudentSchoolAssociation.CreditsEarned – *suggest using StudentAcademicRecord.CumulativeEarnedCredits*
  - StudentSchoolAssociation.CreditsRequiredToGraduate
  - StudentSchoolAssociation.FirstInstructionalDate
  - StudentSchoolAssociation.IndividualPlanOfStudy
  - StudentSchoolAssociation.LocalEducationAgencyEntryDate
  - StudentSchoolAssociation.MembershipDays
  - StudentSchoolAssociation.MinutesEnrolled



- StudentSchoolAssociation.PostGraduationPlans
- StudentSchoolAssociation.QualifiedFor504
- StudentSchoolAssociation.StateEntryDate
- StudentSchoolAssociation.UnweightedGradePointAverage – *suggest using StudentAcademicRecord.GradePointAverage*
- Attribute extension to the StudentSectionAssociation is:
  - StudentSectionAssociation.CourseStatus
- New entity SectionEducator with attributes:
  - SectionEducator.EducatorElectronicMailAddress
  - SectionEducator.Section
  - SectionEducator.EducatorFirstName
  - SectionEducator.EducatorLastSurname
  - SectionEducator.EducatorMiddleName
  - – *suggest using the StaffSectionAssociation to link educators to sections*
- Attribute extensions to CourseOffering are as follows:
  - CourseOffering.CollegeCareerType
  - CourseOffering.CourseCredits
  - CourseOffering.CourseDeliveryType
  - CourseOffering.CourseProgramType
  - CourseOffering.CourseSequence
  - CourseOffering.CourseTotalSequence
- Attribute extensions to Grade are as follows:
  - Grade.WorkBasedLearning – *based on definition, this seems better as an extension to Course*
  - Grade.CollegeCreditsEarned – *suggest using CourseTranscript.EarnedAdditionalCredits common*
  - Grade.GraduationYear – *suggest using StudentAcademicRecord.ProjectedGraduationDate*
  - Grade.FirstInstructionalDate
  - Grade.InstructionalMinutesCompleted
  - Grade.LastInstructionalDate
  - – *Suggest using the StudentAcademicRecord and CourseTranscript entities*
- Attribute extensions to StudentAssessment are as follows:
  - StudentAssessment.ProctorStaff
  - StudentAssessment.AssessmentRequest
- Attribute extensions to StudentLanguageInstructionProgramAssociation are as follows:



- StudentLanguageInstructionProgramAssociation.FundingSource
  - StudentLanguageInstructionProgramAssociation.USInitialSchoolEntry
  - StudentLanguageInstructionProgramAssociation.EndDate
  - StudentLanguageInstructionProgramAssociation.LanguageInstructionProgramType
  - StudentLanguageInstructionProgramAssociation.LanguageInstructionProgramService.FundingSource
- New associations StudentKPATProgramAssociation and StudentKPPPProgramAssociation, extending the GeneralStudentProgramAssociation.

## Semantic Analysis

Kansas is well-aligned with the Ed-Fi data standard with 48 of 50 data elements precisely aligned semantically with the Ed-Fi core. The exception data elements are listed below:

- StudentAssessmentAccommodation.AccommodationDescriptor is used to define the test options a student will take in a subject area. This is in partial alignment with the Ed-Fi definition of “This descriptor defines variations used in how an assessment is presented or taken.” However, the original intent (and how the attribute is typically used) is to denote accommodations for disabilities.
- StudentEducationOrganizationAssociationDisability.DisabilityDescriptor is used to indicate whether or not the student has an active Individual Education Plan (IEP). This is not aligned with the Ed-Fi definition “his descriptor defines a student’s impairment.” The attribute is essentially being used Boolean to determine whether or not the student has a disability instead of indicating the type of disability.

## Summary of Finds and Next Steps

The analysis found that Kansas created a limited number of extensions to the Ed-Fi core in the areas that include student enrollment data, course offering and grades, language instruction, CTE instruction and certification, and transportation. Specific suggestions for the State are as follows.

- StudentEducationOrganizationAssociation.MilitaryConnectedStudent descriptor extension should be replaced with the v5.0 Ed-Fi attribute StudentEducationOrganizationAssociation.SupporterMilitaryConnection
- Instead of using the extension entity SectionEducator, use the StaffSectionAssociation to link educators to sections.



- The definition for the extension attribute `Grade.WorkBasedLearning` seems to indicate that this is a characteristic of the course; this seems better placed as an extension to `Course` or `CourseOffering`
- There are several attributes that could be handled differently if other areas of the Ed-Fi data model were used, including:
  - If the granular `StudentSchoolAttendanceEvents` were captured, the `StudentSchoolAssociation.AttendanceDays` could be computed,
  - If the `StudentAcademicRecord` and `CourseTranscript` entities were used to capture student transcript information, there are several extensions that could use core elements in these entities:
    - `StudentSchoolAssociation.CreditsEarned` could be replaced with *`StudentAcademicRecord.CumulativeEarnedCredits`*
    - `StudentSchoolAssociation.UnweightedGradePointAverage` could be replaced with `StudentAcademicRecord.GradePointAverage`
    - `Grade.CollegeCreditsEarned` could be replaced with `CourseTranscript.EarnedAdditionalCredits` common
    - `Grade.GraduationYear` could be replaced with `StudentAcademicRecord.ProjectedGraduationDate`

In terms of the usage of the data elements in the Ed-Fi core model (aka semantic alignment), Kansas is found to be well-aligned. Communication of these deviances for stronger alignment is recommended.

This analysis also provided Ed-Fi information on a need for the review of current design of some data elements listed below:

- Revisit the definition for `StudentAssessmentAccommodation.AccommodationDescriptor` to clarify its use for accommodations for disabilities.

Based on these findings of the analyses, Ed-Fi would like to work closely with the Kansas State Department of Education (KSED) as a part of its commitment to sustaining data standards. The following are opportunities for next steps for this collaboration between the State and Ed-Fi.

- Ed-Fi is ready to advise as Kansas expands their use of the data model, such as with `StudentAcademicRecord` and `CourseTranscript`.
- As common a need across states becomes evident, leverage the extensions defined for language instruction, CTE certifications, and transportation.

Analysis across states may identify specific common extension attributes for consideration into core where cross-state collaboration is recommended.