



Ed-Fi Extension and Semantic Analysis: Michigan

Purpose and Brief of the Analysis

The purpose of this report is to work with the Michigan Data Hub collaborative 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 Michigan is completely aligned with Ed-Fi core semantically, which means the data elements in the Ed-Fi core are always used by the State as intended. Michigan has significantly 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 finance, transportation, interventions, assessments, discipline, library service, programs, learning resources, and staff data. In addition, the extensions also addressed interfaces to several external applications.

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 Michigan 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 extensions Michigan had in their Ed-Fi implementation comprise 21 new entities, 10 new associations, and 644 attributes as outlined below.

- Attribute extension to StateEducationAgency is StateEducationAgencyExtension.StatusDescriptor
- Attribute extension to LocalEducationAgency is LocalEducationAgencyExtension.StatusDescriptor
- Attribute extensions to School as follows:
 - SchoolExtension.ExcludeFromMSDS
 - SchoolExtension.StatusDescriptor
- New entity SchoolMsdsCountDay to indicate the count day for the data collection, with attributes:
 - SchoolMsdsCountDay.MsdsSchoolAsOf
 - SchoolMsdsCountDay.School
 - SchoolMsdsCountDay.TimePeriod
 - SchoolMsdsCountDay.CollectionKey
 - SchoolMsdsCountDay.PreviousCountDayMsdsSchoolAsOf
- Attribute extensions to Student has attributes:
 - StudentExtension.MedicalNotes
 - StudentExtension.MultipleBirthOrder
 - StudentExtension.ExcludeFromMSDS
- Attribute extensions to StudentSchoolAssociation are as follows:
 - StudentSchoolAssociationExtension.BldgOtherwiseAttend
 - StudentSchoolAssociationExtension.DistrictEntryDate
 - StudentSchoolAssociationExtension.DistrictResidencyStatus
 - StudentSchoolAssociationExtension.DistrictResidencyStatusAsOfDate



- StudentSchoolAssociationExtension.EarlyReadingIntervention common with attributes: -- *should this be a separate entity?*
 - StudentSchoolAssociationExtension.EarlyReadingIntervention.ReadingDeficiencyActivityDescriptor
 - StudentSchoolAssociationExtension.EarlyReadingIntervention.ReadingDeficiencyContinuation
 - StudentSchoolAssociationExtension.EarlyReadingIntervention.ReadingDeficiencyIdentified
- StudentSchoolAssociationExtension.s2E2EducationOrganizationReference.EducationOrganizationId
- StudentSchoolAssociationExtension.EndOfTermStatusDescriptor
- StudentSchoolAssociationExtension.ExcludeFromMSDS
- StudentSchoolAssociationExtension.ExitWithdrawDateAsOfDate
- StudentSchoolAssociationExtension.PersonalCurriculum common with attributes: -- *should this be a separate entity?*
 - StudentSchoolAssociationExtension.PersonalCurriculum.CreditModificationDescriptor
 - StudentSchoolAssociationExtension.PersonalCurriculum.CreditModificationAsOfDate
 - StudentSchoolAssociationExtension.PersonalCurriculum.CurriculumDescriptor
- StudentSchoolAssociationExtension.PromotionReason
- StudentSchoolAssociationExtension.TuitionFundedEnrollment
- studentSchoolAssociationExtension.EnrollmentPercent
- Attribute extensions to StudentEducationOrganizationAssociation are as follows:
 - StudentEducationOrganizationAssociationExtension.HomelessDescriptor -- *can be captured under StudentEducationOrganization.StudentCharacteristics*
 - StudentEducationOrganizationAssociationExtension.RaceAsOfDate
 - StudentEducationOrganizationAssociationExtension.MsdfRaceOrder common with attributes:-- *replaces the singular Race descriptor*
 - StudentEducationOrganizationAssociationExtension.MsdfRaceOrder.RaceDescriptor
 - StudentEducationOrganizationAssociationExtension.MsdsRaceOrder.RaceOrderChoiceDescriptor
 - StudentEducationOrganizationAssociationExtension.SchoolFoodServicesEligibilityAsOfDate
 - StudentEducationOrganizationAssociationExtension.StatusDescriptor



- StudentEducationOrganizationAssociationExtension.UserName
- StudentEducationOrganizationAssociationExtension.YearOfEntry
- New association StudentPreRegistrationSchoolAssociation with attributes:
 - StudentPreRegistrationSchoolAssociation.PreRegistrationSchool
 - StudentPreRegistrationSchoolAssociation.Student
 - StudentPreRegistrationSchoolAssociation.SchoolYear
 - StudentPreRegistrationSchoolAssociation.CourseRequest common with attributes:
 - StudentPreRegistrationSchoolAssociation.CourseRequest.Course
 - StudentPreRegistrationSchoolAssociation.CourseRequest.TermDescriptor
- Attribute extensions for Section are as follows:
 - SectionExtension.MSIXCourseSectionDescriptor
 - SectionExtension.StatusDescriptor
- Attribute extensions to the StudentSectionAssociation are:
 - StudentSectionAssociationExtension.MSIXClockHours
 - StudentSectionAssociationExtension.StatusDescriptor
- Attribute extensions for Session are as follows:
 - SessionExtension.SessionCategoryDescriptor
 - SessionExtension.StatusDescriptor
- Attribute extension to the common StudentEducationOrganizationAssociation.ProgramParticipation:
 - ProgramParticipationExtension.ProgramParticipationStatusDescriptor
- Attribute extensions to Assessment are as follows:
 - AssessmentExtension.PerformanceTaskForm
 - AssessmentExtension.AssessmentEssay common with attributes:
 - AssessmentExtension.AssessmentEssay.EssayCategoryDescriptor
 - AssessmentExtension.AssessmentEssay.PossibleScore
 - AssessmentExtension.AssessmentEssay.Rubrics common with attributes:
 - AssessmentExtension.AssessmentEssay.Rubrics.RubricCategoryDescriptor
 - AssessmentExtension.AssessmentEssay.Rubrics.PossibleScore
- Attribute extensions to ObjectiveAssessment are as follow:
 - ObjectiveAssessmentExtension.ReportingLevelLabel
 - ObjectiveAssessmentExtension.ReportingLevelShortDescription
 - ObjectiveAssessmentExtension.ReportingLevelDescriptor
- Attribute extension to AssessmentItem is as follows:
 - AssessmentItemExtension.AssessmentItemForm



- Attribute extensions to StudentAssessment are as follows:
 - StudentAssessmentExtension.CreatedDate
 - StudentAssessmentExtension.ModifiedDate
 - StudentAssessmentExtension.Barcode
 - StudentAssessmentExtension.SchoolYearName - *Ed-Fi has StudentAssessment.SchoolYear*
 - StudentAssessmentExtension.StudentDisplayID
 - StudentAssessmentExtension.TeacherDisplayID
 - StudentAssessmentExtension.ReportedTier
 - StudentAssessmentExtension.ActionAssessmentOutcome common with attributes:
 - StudentAssessmentExtension.ActionAssessmentOutcome.ActionAssessmentOutcomeLevelDescriptor
 - StudentAssessmentExtension.ActionAssessmentOutcome.NewActionAssessmentOutcome
 - StudentAssessmentExtension.AlternateELAssessment
 - StudentAssessmentExtension.AssessmentReasonDescriptor
 - StudentAssessmentExtension.Attemptedness
 - StudentAssessmentExtension.AutoExitEligibleDescriptor
 - StudentAssessmentExtension.CollegeReportableScoreIndicator
 - StudentAssessmentExtension.DesignatedSupportUsed
 - StudentAssessmentExtension.Essay common with attributes:
 - StudentAssessmentExtension.Essay.EssayCategoryDescriptor
 - StudentAssessmentExtension.Essay.CreatedDate
 - StudentAssessmentExtension.Essay.ModifiedDate
 - StudentAssessmentExtension.Essay.Rubrics common with attributes:
 - StudentAssessmentExtension.Essay.Rubrics.AssessmentReportingMethodDescriptor
 - StudentAssessmentExtension.Essay.Rubrics.RubricCategoryDescriptor
 - StudentAssessmentExtension.Essay.Rubrics.ResultDatatypeTypeDescriptor
 - StudentAssessmentExtension.Essay.Rubrics.RubricScoreConditionDescriptor
 - StudentAssessmentExtension.Essay.Rubrics.RubricScore
 - StudentAssessmentExtension.Essay.ScoreResults common with attributes:
 - StudentAssessmentExtension.Essay.ScoreResults.AssessmentReportingMethodDescriptor



- StudentAssessmentExtension.Essay.ScoreResults.ResultDatatypeType Descriptor
- StudentAssessmentExtension.Essay.ScoreResults.Result
- StudentAssessmentExtension.ExemptedSpecialEd504
- StudentAssessmentExtension.ForceSubmitPart1Flag
- StudentAssessmentExtension.ForceSubmitPart2Flag
- StudentAssessmentExtension.ForceSubmitPTFlag
- StudentAssessmentExtension.GradeCluster common with attributes:
 - StudentAssessmentExtension.GradeCluster.GradeClusterCategoryDescriptor
 - StudentAssessmentExtension.GradeCluster.GradeClusterDescriptor
- StudentAssessmentExtension.InvalidReasonCodeDescriptor
- StudentAssessmentExtension.KnowledgeSkillAssessmentOutcome common with attributes:
 - StudentAssessmentExtension.KnowledgeSkillAssessmentOutcome.KnowledgeSkillAssessmentOutcomeLevelDescriptor
 - StudentAssessmentExtension.KnowledgeSkillAssessmentOutcome.NewKnowledgeSkillAssessmentOutcome
- StudentAssessmentExtension.Misadministration
- StudentAssessmentExtension.ModeOfResponseDescriptor
- StudentAssessmentExtension.NonstandardAccommodation
- StudentAssessmentExtension.Online – *Ed-Fi has StudentAssessment.AdministrationEnvironment which could include Online*
- StudentAssessmentExtension.OutOfLevel
- StudentAssessmentExtension.OverallSGP common with attributes:
 - StudentAssessmentExtension.OverallSGP.OverallSGPLevelDescriptor
 - StudentAssessmentExtension.OverallSGP.OverallSGP
- StudentAssessmentExtension.ParentConferenceDate
- StudentAssessmentExtension.ParentConferenceMethodDescriptor
- StudentAssessmentExtension.PerformanceLevelDescriptor -- *Ed-Fi has StudentAssessment.PerformanceLevel common*
- StudentAssessmentExtension.ProhibitedBehavior
- StudentAssessmentExtension.ScribedStudentResponse
- StudentAssessmentExtension.SocialRelationshipAssessmentOutcome common with attributes:
 - StudentAssessmentExtension.SocialRelationshipAssessmentOutcome.SocialRelationshipAssessmentOutcomeLevelDescriptor



- StudentAssessmentExtension.SocialRelationshipAssessmentOutcome.NewSocialRelationshipAssessmentOutcome
- StudentAssessmentExtension.StandardAccommodation -- *Ed-Fi uses StudentAssessment.AccommodationDescriptor*
- StudentAssessmentExtension.StudentAssessmentOverallSGP
- StudentAssessmentExtension.StudentObjectiveAssessment
- StudentAssessmentExtension.TakenAtDescriptor -- *Ed-Fi has StudentAssessment.AdministrationEnvironment which has sample values School, Testing Center, and Classroom*
- StudentAssessmentExtension.TakenAtByIPAddressDescriptor
- StudentAssessmentExtension.TestMarkedInvalid
- StudentAssessmentExtension.TestMarkedInvalidReasonDescriptor
- StudentAssessmentExtension.TestMode common with attributes:
 - StudentAssessmentExtension.TestMode.TestModeAlternateCodeDescriptor
 - StudentAssessmentExtension.TestMode.TestModeDescriptor
- StudentAssessmentExtension.TimeOfTestingSnapshot common with attributes:-- *should this be better done with a separate entity*
 - StudentAssessmentExtension.TimeOfTestingSnapshot.PrimaryDisabilityDescriptor
 - StudentAssessmentExtension.TimeOfTestingSnapshot.SecondaryDisabilityDescriptor
 - StudentAssessmentExtension.TimeOfTestingSnapshot.EthnicityDescriptor
 - StudentAssessmentExtension.TimeOfTestingSnapshot.PrimaryLanguageDescriptor
 - StudentAssessmentExtension.TimeOfTestingSnapshot.LepInstructionalProgramDescriptor
 - StudentAssessmentExtension.TimeOfTestingSnapshot.BuildingCode
 - StudentAssessmentExtension.TimeOfTestingSnapshot.BuildingName
 - StudentAssessmentExtension.TimeOfTestingSnapshot.DateOfBirth
 - StudentAssessmentExtension.TimeOfTestingSnapshot.DistrictCode
 - StudentAssessmentExtension.TimeOfTestingSnapshot.DistrictName
 - StudentAssessmentExtension.TimeOfTestingSnapshot.EconomicallyDisadvantaged
 - StudentAssessmentExtension.TimeOfTestingSnapshot.EnglishAcademicYears
 - StudentAssessmentExtension.TimeOfTestingSnapshot.EnglishLearner
 - StudentAssessmentExtension.TimeOfTestingSnapshot.FeederBuildingCode



- StudentAssessmentExtension.TimeOfTestingSnapshot.FirstName
- StudentAssessmentExtension.TimeOfTestingSnapshot.FormerlyEnglishLearner
- StudentAssessmentExtension.TimeOfTestingSnapshot.FosterCare
- StudentAssessmentExtension.TimeOfTestingSnapshot.Gender
- StudentAssessmentExtension.TimeOfTestingSnapshot.Homeless
- StudentAssessmentExtension.TimeOfTestingSnapshot.HomeSchool
- StudentAssessmentExtension.TimeOfTestingSnapshot.IsdCode
- StudentAssessmentExtension.TimeOfTestingSnapshot.IsdName
- StudentAssessmentExtension.TimeOfTestingSnapshot.KnowledgeOfIEP
- StudentAssessmentExtension.TimeOfTestingSnapshot.LastSurname
- StudentAssessmentExtension.TimeOfTestingSnapshot.LiepOptionalData
- StudentAssessmentExtension.TimeOfTestingSnapshot.LiepParentRefusal
- StudentAssessmentExtension.TimeOfTestingSnapshot.Ltfay
- StudentAssessmentExtension.TimeOfTestingSnapshot.MiddleName
- StudentAssessmentExtension.TimeOfTestingSnapshot.Migrant
- StudentAssessmentExtension.TimeOfTestingSnapshot.MilitaryConnected
- StudentAssessmentExtension.TimeOfTestingSnapshot.privateIndicator
- StudentAssessmentExtension.TimeOfTestingSnapshot.SpecialEducation
- StudentAssessmentExtension.TimeOfTestingSnapshot.StudentIDNumber
- StudentAssessmentExtension.TimeOfTestingSnapshot.YearsSchoolingUS
- StudentAssessmentExtension.UnableToTestReasonDescriptor -- *Ed-Fi has StudentAssessment.ReasonNotTested*
- StudentAssessmentExtension.Valid
- StudentAssessmentExtension.ValidContent
- Attribute extension to Cohort is as follows:
 - CohortExtension.AssessmentCategoryDescriptor
- Attribute extensions to StudentCohortAssociation are as follows:
 - StudentCohortAssociationExtension.OtherGroupCode
 - StudentCohortAssociationExtension.OtherResearchCode1
 - StudentCohortAssociationExtension.OtherResearchCode2
- Attribute extensions for StudentParentAssociation are follows:
 - StudentParentAssociationExtension.HouseholdId
 - StudentParentAssociationExtension.LEANotification
 - StudentParentAssociationExtension.PrimaryPartBReferralContactStatus
 - StudentParentAssociationExtension.SEANotification
- Attribute extensions for Course are:



- CourseExtension.Eligible64bCourse
 - CourseExtension.StatusDescriptor
- Attribute extensions for CourseTranscript are:
 - CourseTranscriptExtension.OutOfDistrictIdentifier
 - CourseTranscriptExtension.OutOfDistrictSchoolName
- Attribute extensions to DisciplineAction are as follows:
 - DisciplineActionExtension.DisciplineIncidentAfterSchoolDetention
 - DisciplineActionExtension.DisciplineIncidentLunchDetention
 - DisciplineActionExtension.OrderOfDiscipline
- Attribute extensions for DisciplineIncident are as follows:
 - DisciplineIncidentExtension.DisciplineIncidentOutsideIntervention
 - DisciplineIncidentExtension.DisciplineIncidentProblemBehavior
 - DisciplineIncidentExtension.DisciplineIncidentReportIncident
 - DisciplineIncidentExtension.DisciplineIncidentTechnologyViolation
 - DisciplineIncidentExtension.Behavior common with attributes:
 - DisciplineIncidentExtension.Behavior.DisciplineIncidentBehaviorSubTypeDescriptor
 - DisciplineIncidentExtension.Behavior.OrderOfBehavior
 - DisciplineIncidentExtension.DisciplineIncidentOthersInvolvedDescriptor
 - DisciplineIncidentExtension.DisciplineIncidentPerceivedMotivationDescriptor
 - DisciplineIncidentExtension.DisciplineIncidentSeclusionRestraintDescriptor
 - DisciplineIncidentExtension.SeriousBodilyInjury
 - DisciplineIncidentExtension.SexualAssault
 - DisciplineIncidentExtension.DisciplineIncidentOutsideIntervention
 - DisciplineIncidentExtension.DisciplineIncidentProblemBehavior
 - DisciplineIncidentExtension.DisciplineIncidentReportIncident
 - DisciplineIncidentExtension.DisciplineIncidentTechnologyViolation
 - DisciplineIncidentExtension.Behavior
 - DisciplineIncidentExtension.Behavior.DisciplineIncidentBehaviorSubTypeDescriptor
 - DisciplineIncidentExtension.Behavior.OrderOfBehavior
 - DisciplineIncidentExtension.DisciplineIncidentOthersInvolvedDescriptor
 - DisciplineIncidentExtension.DisciplineIncidentPerceivedMotivationDescriptor
 - DisciplineIncidentExtension.DisciplineIncidentSeclusionRestraintDescriptor
 - DisciplineIncidentExtension.SeriousBodilyInjury
 - DisciplineIncidentExtension.SexualAssault



- Attribute extensions to StudentDisciplineIncidentAssociation is as follows: --
StudentDisciplineIncidentAssociation has been deprecated.
 - StudentDisciplineIncidentAssociationExtension.Behavior common with attributes:
 - StudentDisciplineIncidentAssociationExtension.Behavior.DisciplineIncidentBehaviorSubTypeDescriptor
 - StudentDisciplineIncidentAssociationExtension.Behavior.OrderOfBehavior
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentOthersInvolvedDescriptor
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentOutsideIntervention
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentPerceivedMotivationDescriptor
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentProblemBehavior
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentReportIncident
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentSeclusionRestraintDescriptor
 - StudentDisciplineIncidentAssociationExtension.DisciplineIncidentTechnologyViolation
 - StudentDisciplineIncidentAssociationExtension.FollowUp common with attribute:
 - StudentDisciplineIncidentAssociationExtension.FollowUp.FollowUpDescriptor
- New common extension to RestraintEvent for RestraintCategory with attributes:
 - restraintEvent.RestraintCategory.EventCount
 - restraintEvent.RestraintCategory.RestraintCategoryDescriptor
- Attribute extensions to GradebookEntry are as follows:
 - GradebookEntryExtension.DueDate – *Ed-Fi V4 GradebookEntry.DueDate*
 - GradebookEntryExtension.StatusDescriptor
 - GradebookEntryExtension.ResultValueMax – *Ed-Fi V4 GradebookEntry.MaxPoints*
 - GradebookEntryExtension.ResultValueMin
- Attribute extensions to StudentGradebookEntry are as follows:
 - StudentGradebookEntryExtension.ScoreStatusDescriptor
 - StudentGradebookEntryExtension.StatusDescriptor
- Attribute extensions to GraduationPlan are as follows:
 - GraduationPlanExtension.CreditModificationDescriptor
 - GraduationPlanExtension.CreditModificationAsOfDate
 - GraduationPlanExtension.CurriculumDescriptor
- Attribute extensions to InterventionPrescription are as follows:
 - InterventionPrescriptionEffectiveness.FiveStar
 - InterventionPrescriptionEffectiveness.FiveStarComment



- InterventionPrescriptionEffectiveness.EffectivenessDate
- InterventionPrescriptionEffectiveness.InterventionPrescription
- InterventionPrescriptionEffectiveness.LocalEducationAgency
- InterventionPrescriptionEffectiveness.Staff
- InterventionPrescriptionExtension.VettedByPET
- InterventionPrescriptionExtension.CostStatement
- InterventionPrescriptionExtension.DurationLength
- InterventionPrescriptionExtension.DurationPeriod
- InterventionPrescriptionExtension.ElectronicMailAddress named InterventionPrescriptionContactElectronicMailAddress
- InterventionPrescriptionExtension.EligibilityStatement
- InterventionPrescriptionExtension.InterventionPrescriptionContactName
- InterventionPrescriptionExtension.InterventionPrescriptionContactTelephoneNumber
- InterventionPrescriptionExtension.InterventionPrescriptionDescription
- InterventionPrescriptionExtension.InterventionPrescriptionName
- InterventionPrescriptionExtension.AcademicSubsetDescriptor
- InterventionPrescriptionExtension.Deleted
- InterventionPrescriptionExtension.AvailabilityEducationOrganization
- InterventionPrescriptionExtension.HasCost
- InterventionPrescriptionExtension.HasDuration
- InterventionPrescriptionExtension.HasEligibility
- InterventionPrescriptionExtension.InterventionAlias
- InterventionPrescriptionExtension.InterventionKeyword
- InterventionPrescriptionExtension.LevelOfEvidenceDescriptor
- InterventionPrescriptionExtension.LocationReferral
- InterventionPrescriptionExtension.OrganizationalSupportDescriptor
- InterventionPrescriptionExtension.OriginatingSourceDescriptor
- InterventionPrescriptionExtension.ParentPermissionRequired
- InterventionPrescriptionExtension.PeriodTypeDescriptor
- InterventionPrescriptionExtension.School
- InterventionPrescriptionExtension.TierDescriptor
- InterventionPrescriptionTraining.EducatorConfidenceLevelDescriptor
- InterventionPrescriptionTraining.InterventionPrescription
- InterventionPrescriptionTraining.InterventionTrainingDate
- InterventionPrescriptionTraining.InterventionTrainingLevelDescriptor
- InterventionPrescriptionTraining.LocalEducationAgency



- InterventionPrescriptionTraining.ResourcesAvailable
- InterventionPrescriptionTraining.Staff
- Attribute extensions to Intervention are as follows:
 - InterventionExtension.CostStatement
 - InterventionExtension.DurationLength
 - InterventionExtension.DurationPeriod
 - InterventionExtension.ElectronicMailAddress
 - InterventionExtension.EligibilityStatement
 - InterventionExtension.InterventionContactName
 - InterventionExtension.InterventionContactTelephoneNumber
 - InterventionExtension.InterventionDescription
 - InterventionExtension.InterventionName
 - InterventionExtension.AcademicSubsetDescriptor
 - InterventionExtension.Deleted
 - InterventionExtension.EducationOrganization
 - InterventionExtension.EffectivenessMeasurementMethodDescriptor
 - InterventionExtension.HasCost
 - InterventionExtension.HasDuration
 - InterventionExtension.HasEligibility
 - InterventionExtension.LocationReferral
 - InterventionExtension.MeetingTime
 - InterventionExtension.OriginatingSourceDescriptor
 - InterventionExtension.ParentPermissionRequired
 - InterventionExtension.PeriodTypeDescriptor
- Attribute extensions to StudentInterventionAssociation are as follows:
 - StudentInterventionAssociationExtension.CreationDate
 - StudentInterventionAssociationExtension.Deleted
 - StudentInterventionAssociationExtension.ExpirationEmailSent
 - StudentInterventionAssociationExtension.Goal
 - StudentInterventionAssociationExtension.Pro prospectiveEndDate
 - StudentInterventionAssociationExtension.RestrictedSecurity
 - StudentInterventionAssociationExtension.Staff
 - StudentInterventionAssociationExtension.StarRating
 - StudentInterventionAssociationExtension.StudentInterventionNote common with attributes:
 - StudentInterventionAssociationExtension.StudentInterventionNote.CreationDate



- StudentInterventionAssociationExtension.StudentInterventionNote.Staff
 - StudentInterventionAssociationExtension.StudentInterventionSecurity common with attributes:
 - StudentInterventionAssociationExtension.StudentInterventionSecurity.CreationDate
 - StudentInterventionAssociationExtension.StudentInterventionSecurity.Staff
 - StudentInterventionAssociationExtension.TextReview
 - StudentInterventionAssociationExtension.TwoWeekEmailSent
- New entity LearningContentResource to capture OneRoster Resources which is a description of learning content that is related to a course and/or a class; with attributes:
 - LearningContentResource.ApplicationId
 - LearningContentResource.Title
 - LearningContentResource.VendorId
 - LearningContentResource.VendorResourceId
 - LearningContentResource.ImportanceDescriptor
 - LearningContentResource.LocalEducationAgency
 - LearningContentResource.StatusDescriptor
- New association LearningContentResourceCourseAssociation with attributes as follows:
 - LearningContentResourceCourseAssociation.Course
 - LearningContentResourceCourseAssociation.LearningContentResource
 - LearningContentResourceCourseAssociation.StatusDescriptor
 - LearningContentResourceSectionAssociation
 - LearningContentResourceSectionAssociation.LearningContentResource
 - LearningContentResourceSectionAssociation.LocalEducationAgency
 - LearningContentResourceSectionAssociation.SchoolYear
 - LearningContentResourceSectionAssociation.Section
 - LearningContentResourceSectionAssociation.StatusDescriptor
- Attribute extensions to Program are as follows:
 - ProgramExtension.BeginDate
 - ProgramExtension.FiscalEntity2EducationOrganization
 - ProgramExtension.EndDate
- Attribute extension to StudentProgramAssociation is StudentProgramAssociationExtension.EnrollmentStatus
- New association StudentAdultEducationProgramAssociation as a specialization of the GeneralStudentProgramAssociation with additional attributes:
 - StudentAdultEducationProgramAssociation.AdultEdCountPeriodDescriptor



- StudentAdultEducationProgramAssociation.AdultEdFundingDescriptor
- StudentAdultEducationProgramAssociation.EligibilityExceptionDescriptor
- StudentAdultEducationProgramAssociation.Service
- New association StudentEarlyLearningProgramAssociation, a specialization of the GeneralStudentProgramAssociation, with new attributes:
 - StudentEarlyLearningProgramAssociation.ProviderLicenseNumber
 - StudentEarlyLearningProgramAssociation.AdditionalEligibilityFactor
 - StudentEarlyLearningProgramAssociation.DeliveryMethodDescriptor
 - StudentEarlyLearningProgramAssociation.DeliveryScheduleDescriptor
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService common with attributes:
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.FrequencyOfService
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.LengthInMinutes
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.PrimaryIndicator
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.ServiceDescriptor
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.ServiceBeginDate
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.ServiceCoordAgencyDescriptor
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.ServiceEndDate
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.SettingDescriptor
 - StudentEarlyLearningProgramAssociation.EarlyLearningProgramService.TimelyStartOfServiceDescriptor
 - StudentEarlyLearningProgramAssociation.ECComment
 - StudentEarlyLearningProgramAssociation.ECProgramDescriptor
 - StudentEarlyLearningProgramAssociation.EligibilityReasonDescriptor
 - StudentEarlyLearningProgramAssociation.FederalPovertyLevelDescriptor
 - StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan common with attributes:



- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.CurrentIFSPDate
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.IFSPTimelinessDescriptor
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.InitialIEPCompletionDate
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.InitialIFSPDate
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.ReferalAgencyDescriptor
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.ReferalDate
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.ResultOfInitialIFSPDescriptor
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.TransitionConferenceDescriptor
- StudentEarlyLearningProgramAssociation.IndividualizedFamilyServicePlan.TransitionIFSPDescriptor
- StudentEarlyLearningProgramAssociation.QualifyingFactor
- StudentEarlyLearningProgramAssociation.Service common with attributes:
 - StudentEarlyLearningProgramAssociation.Service.ServiceDescriptor
 - StudentEarlyLearningProgramAssociation.Service.ServiceBeginDate
 - StudentEarlyLearningProgramAssociation.Service.PrimaryIndicator
 - StudentEarlyLearningProgramAssociation.Service.ServiceEndDate
- StudentEarlyLearningProgramAssociation.WorkingParents
- New association StudentDropoutRecoveryProgramAssociation, a specialization of the GeneralStudentProgramAssociation, with new attributes:
 - StudentDropoutRecoveryProgramAssociation.MonthClaimed
 - StudentDropoutRecoveryProgramAssociation.Service common with attributes:
 - StudentDropoutRecoveryProgramAssociation.Service.ServiceDescriptor
 - StudentDropoutRecoveryProgramAssociation.Service.ServiceBeginDate
 - StudentDropoutRecoveryProgramAssociation.Service.PrimaryIndicator
 - StudentDropoutRecoveryProgramAssociation.Service.ServiceEndDate
- Attributes extensions to StudentLanguageInstructionProgramAssociation are as follows:
 - StudentLanguageInstructionProgramAssociationExtension.EnrollmentStatus
 - StudentLanguageInstructionProgramAssociationExtension.ProgramReEntryDate



- StudentLanguageInstructionProgramAssociationExtension.ProgramReEntryTypeDescriptor
or
- Attribute extensions to StudentSpecialEducationProgramAssociation are as follows:
 - StudentSpecialEducationProgramAssociationExtension.AdditionalPlanDate
 - StudentSpecialEducationProgramAssociationExtension.DateOfParentalConsent
 - StudentSpecialEducationProgramAssociationExtension.DaysBeyondTimeline
 - StudentSpecialEducationProgramAssociationExtension.InitialIEPCompletionDate
 - StudentSpecialEducationProgramAssociationExtension.PartCTransitionTimelinessDescriptor
 - StudentSpecialEducationProgramAssociationExtension.PlacedByAnotherDistIEP
 - StudentSpecialEducationProgramAssociationExtension.PlanDate
 - StudentSpecialEducationProgramAssociationExtension.ProgramSupportDescriptor
 - StudentSpecialEducationProgramAssociationExtension.ResultOfInitialIEPDescriptor
 - StudentSpecialEducationProgramAssociationExtension.TimelinessOfInitialIEPDescriptor
 - StudentSpecialEducationProgramAssociationExtension.TypeOfPlanDescriptor
 - StudentSpecialEducationProgramAssociationExtension.section52FTE
 - StudentSpecialEducationProgramAssociationExtension.section53FTE
- New association StudentTitleITASProgramAssociation, a specialization of the GeneralStudentProgramAssociation, with new attributes:
 - StudentTitleITASProgramAssociation.ProgramSupportDescriptor
 - StudentTitleITASProgramAssociation.Service common with attributes:
 - StudentTitleITASProgramAssociation.Service.ServiceDescriptor
 - StudentTitleITASProgramAssociation.Service.ServiceBeginDate
 - StudentTitleITASProgramAssociation.Service.PrimaryIndicator
 - StudentTitleITASProgramAssociation.Service.ServiceEndDate
- New association StudentTransportation with attributes:
 - StudentTransportation.Student
 - StudentTransportation.School
 - StudentTransportation.BusRoute
 - StudentTransportation.SchoolYear
 - StudentTransportation.BusRouteTime
- New entity BusRoute common with attributes:
 - BusRoute.BusNumber
 - BusRoute.BusRouteName
 - BusRoute.BusRouteNumberOrId
 - BusRoute.BusDriverName common with attributes:



- BusRoute.BusDriverName.FirstName
 - BusRoute.BusDriverName.GenerationCodeSuffix
 - BusRoute.BusDriverName.LastSurname
 - BusRoute.BusDriverName.MiddleName
 - BusRoute.BusDriverName.PersonalTitlePrefix
- BusRoute.BusRouteDayOfWeekDescriptor
- BusRoute.BusRouteDirectionDescriptor
- BusRoute.EndTime
- BusRoute.StartTime
- New association StudentLibraryService with attributes:
 - StudentLibraryService.School
 - StudentLibraryService.Student
 - StudentLibraryService.Barcode
 - StudentLibraryService.OtherField1
 - StudentLibraryService.OtherField2
 - StudentLibraryService.OtherField3
 - StudentLibraryService.Password
 - StudentLibraryService.UserDefined1
 - StudentLibraryService.UserDefined2
 - StudentLibraryService.UserDefined3
 - StudentLibraryService.UserDefined4
 - StudentLibraryService.UserDefined5
 - StudentLibraryService.UserName
 - StudentLibraryService.AccessLevelDescriptor
 - StudentLibraryService.CardExpirationDate
 - StudentLibraryService.IsAcceptableUsePolicyOnFile
- New entity StaffLibraryService with attributes, as follows:
 - StaffLibraryService.School
 - StaffLibraryService.Staff
 - StaffLibraryService.AccessLevelDescriptor
 - StaffLibraryService.Barcode
 - StaffLibraryService.Other1
 - StaffLibraryService.Other2
 - StaffLibraryService.Other3
 - StaffLibraryService.Password
 - StaffLibraryService.UserDefined1



- StaffLibraryService.UserDefined2
- StaffLibraryService.UserDefined3
- StaffLibraryService.UserDefined4
- StaffLibraryService.UserDefined5
- StaffLibraryService.UserName
- StaffLibraryService.CardExpirationDate
- StaffLibraryService.IsAcceptableUsePolicyOnFile
- Attribute extensions to Staff are as follows:
 - StaffExtension.UserName
 - StaffExtension.EducatorEffectivenessDescriptor
 - StaffExtension.REPRaceOrder common with attributes: -- *replaces the singular Race descriptor*
 - StaffExtension.MsdfRaceOrder.RaceDescriptor
 - StaffExtension.MsdfRaceOrder.RaceOrderChoiceDescriptor
 - StaffExtension.StatusDescriptor
 - StaffExtension.NewTeacherInstructionalDeliveryProfessionalDevelopment
 - StaffExtension.NewTeacherClassroomManagementProfessionalDevelopment
- Attribute extensions for the StaffEducationOrganizationAssignmentAssociation are as follows:
 - StaffEducationOrganizationAssignmentAssociationExtension.AdministratorContinuingEducationDescriptor
 - StaffEducationOrganizationAssignmentAssociationExtension.AssignedSubjectArea common with attributes:
 - StaffEducationOrganizationAssignmentAssociationExtension.AssignedSubjectArea.AcademicMajorInAssignedSubjectAreaDescriptor
 - StaffEducationOrganizationAssignmentAssociationExtension.AssignedSubjectArea.AcademicMinorInAssignedSubjectAreaDescriptor
 - StaffEducationOrganizationAssignmentAssociationExtension.AssignedSubjectArea.AcademicSubjectDescriptor
 - StaffEducationOrganizationAssignmentAssociationExtension.AssignedSubjectArea.NumberOfClassesTaught
 - StaffEducationOrganizationAssignmentAssociationExtension.FundedPositionStatusDescriptor
 - StaffEducationOrganizationAssignmentAssociationExtension.REPTeacherFundedTypeDescriptor
- Attribute extensions to the StaffEducationOrganizationEmploymentAssociation are as follows:



- StaffEducationOrganizationEmploymentAssociationExtension.AccountingFunctionCodeDescriptor
 - StaffEducationOrganizationEmploymentAssociationExtension.REPFullTimeBaseAnnualSalary
- Attribute extension to StaffSectionAssociationExtension.StatusDescriptor is StaffSectionAssociationExtension.StatusDescriptor.
- New entity StaffREPCredential for data from the Michigan Registry of Educational Personnel, with attributes: -- *Ed-Fi has a comparable Credential entity referenced by Staff.Credential*
 - StaffREPCredential.Staff
 - StaffREPCredential.ProfessionalCertificateOrLicenseNumber
 - StaffREPCredential.CredentialExpirationDate
 - StaffREPCredential.CredentialFieldDescriptor
 - StaffREPCredential.CredentialIssuanceDate
 - StaffREPCredential.CredentialTypeDescriptor
 - StaffREPCredential.GradeLevelDescriptor
 - StaffREPCredential.REPTypeOfCredentialDescriptor
 - StaffREPCredential.StateOfIssueStateAbbreviationDescriptor
 - StaffREPCredential.TeachingCredentialDescriptor
 - StaffREPCredential.TeachingCredentialBasisDescriptor
- New association StaffREPCredentialForAssignment with attributes:
 - StaffREPCredentialForAssignment.StaffEducationOrganizationAssignmentAssociation
 - StaffREPCredentialForAssignment.StaffREPCredential
- New entity BalanceSheet with attributes:--*Ed-Fi has an updated Finance domain*
 - BalanceSheet.BalanceSheetOptional
 - BalanceSheet.SuffixCode
 - BalanceSheet.BalanceSheetMajorClassDescriptor
 - BalanceSheet.EducationOrganization
 - BalanceSheet.EndingBalance
 - BalanceSheet.FiscalYear
 - BalanceSheet.FundCodeDescriptor
 - BalanceSheet.LocalEducationAgency
- New entity EducationServiceProviderExpenditure with attributes:
 - EducationServiceProviderExpenditure.Amount
 - EducationServiceProviderExpenditure.EducationOrganization
 - EducationServiceProviderExpenditure.ESPFunctionCodeDescriptor
 - EducationServiceProviderExpenditure.ESPObjectCodeDescriptor



- EducationServiceProviderExpenditure.FiscalYear
- New entity Revenue with attributes:
 - Revenue.RevenueOptional
 - Revenue.EducationOrganization
 - Revenue.FiscalYear
 - Revenue.FundCodeDescriptor
 - Revenue.LocalEducationAgency
 - Revenue.RevenueMajorClassDescriptor
 - Revenue.RevenueSuffixDescriptor
- New entity Expenditure with attributes:
 - Expenditure.ExpenditureOtherOptional
 - Expenditure.EducationOrganization
 - Expenditure.FiscalYear
 - Expenditure.FunctionCodeDescriptor
 - Expenditure.FundCodeDescriptor
 - Expenditure.GrantCodeDescriptor
 - Expenditure.LocalEducationAgency
 - Expenditure.ObjectCodeDescriptor
 - Expenditure.ProgramCodeDescriptor
 - Expenditure.School

Educational Entity Master (EEM) extensions define entities related to educational entities from Michigan's EEM system.

- New entity EEMEducationalEntityMaster with attributes:
 - EEMEducationalEntityMaster.EEMEducationalEntityMasterId
 - EEMEducationalEntityMaster.EEMEntityOfficialName
 - EEMEducationalEntityMaster.CloseDate
 - EEMEducationalEntityMaster.EarlyMiddleCollegeFlag
 - EEMEducationalEntityMaster.EEMAlternativeEducationServiceDescriptor
 - EEMEducationalEntityMaster.EEMCloseReasonDescriptor
 - EEMEducationalEntityMaster.EEMContact
 - EEMEducationalEntityMaster.EEMCounty
 - EEMEducationalEntityMaster.EEMEntityContract
 - EEMEducationalEntityMaster.EEMEntityEducationalSetting
 - EEMEducationalEntityMaster.EEMEntityGrade
 - EEMEducationalEntityMaster.EEMEntitySchedule



- EEMEducationalEntityMaster.EEMEntityTypeClassification
- EEMEducationalEntityMaster.EEMFiscalEntityTypeDescriptor
- EEMEducationalEntityMaster.EEMIdentificationCode
- EEMEducationalEntityMaster.EEMInstitutionAddress
- EEMEducationalEntityMaster.EEMInstitutionElectronicMail
- EEMEducationalEntityMaster.EEMInstitutionTelephone
- EEMEducationalEntityMaster.GeographicEEMCounty
- EEMEducationalEntityMaster.OpenDate
- EEMEducationalEntityMaster.PreviousDistrictEEMEducationalEntityMaster
- New association EEMEducationalEntityMasterEducationOrganizationAssociation that links the EEM data with the Ed-FI EducationOrganizations, with attributes:
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EducationOrganization
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMEducationalEntityMaster
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMACTTestCenter
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAgreementNumber
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAncillaryFunctionDescriptor
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP.AYPDate
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP.EEMAYPPhaseDescriptor
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP.EEMAYPStatusDescriptor
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP.EEMSchoolYear
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMAYP.IsAYPAccountable
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharacteristicGroup
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharacteristicGroup.EEMCharacteristic
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharacteristicGroup.EEMCharacteristicEnumId
 - EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharacteristicGroup.EEMEntityCharacteristicValue



- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharteringAgencyCode
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMCharteringAgencyEntityId
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMEEarlyMiddleCollegeTypeDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMEntityCharacteristicId
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMLocaleDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMMagnetDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMOwnershipDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMReceivesTransportationServicesFrom
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMReligiousOrientationDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMREMCId
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMSATTestCenter
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMSEESubTypeDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMSEETypeDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleI
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleI.EEMTitleIDate
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleI.EEMTitleFiscalYear
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleI.EEMTitleIScopeDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleI.IsTitleI
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.Closedate
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.CreatedDate
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMEntityTitleIStatusId



- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMLowIncomeDistrict
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMLowIncomeGradeSpan
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMLowIncomePercent
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMSchoolYear
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMTitleIStatusDescriptor
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.EEMTitleIStatusEligibility
- EEMEducationalEntityMasterEducationOrganizationAssociation.EEMTitleIStatus.OpenDate
- EEMEducationalEntityMasterEducationOrganizationAssociation.EffectiveDate
- EEMEducationalEntityMasterEducationOrganizationAssociation.ExpirationDate
- EEMEducationalEntityMasterEducationOrganizationAssociation.IsHeadCount
- EEMEducationalEntityMasterEducationOrganizationAssociation.IsSchoolOfChoiceOffered
- EEMEducationalEntityMasterEducationOrganizationAssociation.IsSharedEntity
- New entity EEMEntityTypeClassification with attributes:
 - EEMEntityTypeClassification.EEMEntityTypeClassificationId
 - EEMEntityTypeClassification.EEMEntityTypeCode
 - EEMEntityTypeClassification.EEMEntityTypeDescription
 - EEMEntityTypeClassification.EEMEntityTypeName
 - EEMEntityTypeClassification.EEMFormName
 - EEMEntityTypeClassification.EEMEntityTypeCategoryDescriptor
 - EEMEntityTypeClassification.EEMEntityTypeGroupDescriptor
 - EEMEntityTypeClassification.EEMEntityTypeStatusDescriptor
- New entity EEMCharacteristic with attributes:
 - EEMCharacteristic.EEMCharacteristicDescription
 - EEMCharacteristic.EEMCharacteristicId
 - EEMCharacteristic.EEMCharacteristicLabel
 - EEMCharacteristic.EEMCharacteristicName
 - EEMCharacteristic.EEMCharacteristicSourceField
 - EEMCharacteristic.EEMCharacteristicSourceTable



- EEMCharacteristic.EEMCharacteristicSteps
- EEMCharacteristic.EEMCharacteristicSystemName
- EEMCharacteristic.EEMCharacteristicValueField
- EEMCharacteristic.EEMCharacteristicValueName
- EEMCharacteristic.EEMCharacteristicValueTable
- EEMCharacteristic.CharacteristicValueEEMDataTypeDescriptor
- EEMCharacteristic.EEMDataTypeDescriptor
- New entity EEMCharacteristicEnum with attributes:
 - EEMCharacteristicEnum.EEMCharacteristicEnumDescription
 - EEMCharacteristicEnum.EEMCharacteristicEnumId
 - EEMCharacteristicEnum.EEMCharacteristicEnumValue
 - EEMCharacteristicEnum.EEMCharacteristic
- New entity EEMEntityTypeRelationship with attributes:
 - EEMEntityTypeRelationship.EEMEntityTypeRelationshipId
 - EEMEntityTypeRelationship.CanBeMultiple
 - EEMEntityTypeRelationship.EEMEntityTypeDescriptor
 - EEMEntityTypeRelationship.EEMEntityTypeClassification
 - EEMEntityTypeRelationship.EEMRelationshipTypeDescriptor
 - EEMEntityTypeRelationship.IsMandatory
- New entity EEMSchoolYear with attributes:
 - EEMSchoolYear.EEMSchoolYearId
 - EEMSchoolYear.EEMSchoolYearName
 - EEMSchoolYear.CurrentSchoolYear
 - EEMSchoolYear.SchoolYearEndDate
 - EEMSchoolYear.SchoolYearOpenDate
 - EEMSchoolYear.SchoolYearPoPEndDate
 - EEMSchoolYear.SchoolYearPoPOpenDate
- New entity EEMGrade with attributes:
 - EEMGrade.EEMGradeCode
 - EEMGrade.EEMGradeDescription
 - EEMGrade.EEMGradeId
 - EEMGrade.EEMGradeName
 - EEMGrade.EEMGradeShortName
 - EEMGrade.EEMGradeSort
- New entity EEMProgram with attributes:
 - EEMProgram.EEMProgramCode



- EEMProgram.EEMProgramDescription
- EEMProgram.EEMProgramId
- EEMProgram.EEMProgramName
- New entity EEMProgramParticipation with attributes:
 - EEMProgramParticipation.EEMEntityProgramParticipationId
 - EEMProgramParticipation.EEMEducationalEntityMaster
 - EEMProgramParticipation.EEMProgram
- New entity EEMEntityTitleIII with attributes:
 - EEMEntityTitleIII.EEMEntityTitleIIId
 - EEMEntityTitleIII.ConsortiumMemberEEMEducationalEntityMaster
 - EEMEntityTitleIII.EEMSchoolYear
 - EEMEntityTitleIII.FiscalAgentEEMEducationalEntityMaster
 - EEMEntityTitleIII.ImmigrantTitleIII
 - EEMEntityTitleIII.LEPTitleIII
- New entity EEMCounty with attributes:
 - EEMCounty.EEMCountyCode
 - EEMCounty.EEMCountyId
 - EEMCounty.EEMCountyName
 - EEMCounty.EEMFIPSCode
 - EEMCounty.EEMPSADistrictNumber
 - EEMCounty.EEMProsperityRegionDescriptor
 - EEMCounty.IsUPCounty
- New entity EEMEntitySharedEntity with attributes:
 - EEMEntitySharedEntity.EEMEntitySharedEntityId
 - EEMEntitySharedEntity.EEMEducationalEntityMaster
 - EEMEntitySharedEntity.EEMEducationalEntityMaster
 - EEMEntitySharedEntity.EEMSharedEntityActionDescriptor
- New entity EEMEntityRelationshipHistory with attributes:
 - EEMEntityRelationshipHistory.EEMEntityRelationshipHistoryId
 - EEMEntityRelationshipHistory.EEMEducationalEntityMaster
 - EEMEntityRelationshipHistory.EEMRelationshipTypeDescriptor
 - EEMEntityRelationshipHistory.EffectiveDate
 - EEMEntityRelationshipHistory.ExpirationDate
 - EEMEntityRelationshipHistory.ParentEEMEducationalEntityMaster



Semantic Analysis

Michigan is completely aligned with the Ed-Fi data standard for data elements they implemented in their state implementation from the Ed-Fi core. All 80 data elements they use are aligned semantically with the Ed-Fi core.

Summary of Finds and Next Steps

The analysis found that Michigan created a large number of extensions to the Ed-Fi core in the areas that include areas that include finance, transportation, interventions, assessments, discipline, library service, programs, learning resources, and staff data. New student program associations were created for Adult Education, Early Learning, Dropout Recovery, and the Title I Targeted Assistance School (TAS) Program.

A substantial number of extensions addressed interfaces to several external applications: Michigan Registry of Educational Personnel (REP); Educational Entity Master (EEM); Michigan Student Data System (MSDS) used for state and federal reporting; Learning Resources obtained using OneRoster; and Library Services.

Specific suggestions for the State are as follows.

- Investigate alignment of the finance extension entities (BalanceSheet, EducationServiceProviderExpenditure, Revenue, and Expenditure) to the Ed-FI finance domain.
- Investigate alignment of the new extension entity StaffREPCredential with the Ed-Fi Credential entity which is referenced by Staff.Credential.
- Attribute extensions were made to StudentDisciplineIncidentAssociation; this association has been deprecated. The extensions should be migrated to the StudentDisciplineIncidentBehaviorAssociation.
- There were two common extensions to the StudentSchoolAssociation that may be better served as being separate entities in that they represent new concepts:
 - StudentSchoolAssociationExtension.EarlyReadingIntervention
 - StudentSchoolAssociationExtension.PersonalCurriculum
- There were some extension attributes which have equivalent representations in the Ed-Fi core as follows:



- StudentEducationOrganizationAssociationExtension.HomelessDescriptor - Ed-Fi
StudentEducationOrganization.StudentCharacteristics
- StudentAssessmentExtension.SchoolYearName - Ed-Fi StudentAssessment.SchoolYear
- StudentAssessmentExtension.Online – Ed-Fi
StudentAssessment.AdministrationEnvironment
- StudentAssessmentExtension.PerformanceLevelDescriptor - Ed-Fi
StudentAssessment.PerformanceLevel
- StudentAssessmentExtension.StandardAccommodation - Ed-Fi
StudentAssessment.AccommodationDescriptor
- StudentAssessmentExtension.TakenAtDescriptor - Ed-Fi
StudentAssessment.AdministrationEnvironment
- StudentAssessmentExtension.UnableToTestReasonDescriptor - Ed-Fi
StudentAssessment.ReasonNotTested
- GradebookEntryExtension.DueDate – Ed-Fi GradebookEntry.DueDate
- GradebookEntryExtension.ResultValueMax – Ed-Fi GradebookEntry.MaxPoints

In terms of the usage of the data elements in the Ed-Fi core model (aka semantic alignment), Michigan is found to be completely aligned, with no data elements misaligned.

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

- Ed-Fi has multivalued descriptor for Race in the StudentEducationOrganization and Staff. Michigan created an extension for a multivalued common that included the order of the race in the collection. Ed-Fi should investigate whether this is a common need across states.

Based on these findings of the analyses, Ed-Fi would like to work closely with the Michigan Data Hub 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.

- As a common need across states becomes evident, leverage the extension entities defined for new domains for learning resources, and transportation.
- In addition, consider bringing relevant extension attributes into the Ed-Fi core for assessment, discipline, and intervention domains.

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