Assessment Model Patterns in the Ed-Fi Data Standard v2.0

The Ed-Fi Data Standard Assessment model contains a number of entities and reference patterns. While its scope may make it a bit imposing to newcomers, understanding a few key design principles enable it to be easily understood and adopted.

Focus on Exchange of Results

The Ed-Fi Data Standard Assessment model is designed principally to model results and performance data coming from students interacting with assessments. While it contains metadata to represent assessments themselves (e.g., in the Assessment, AssessmentItem, AssessmentFamily entities), such representations are principally provided to allow assessment results (e.g., in StudentAssessments and related entities) to be interpreted.

Hierarchical Modeling

Many assessments are multi-tier in the sense that they provide multiple scores or result sets for each assessment. An example would be a single “reading” assessment that tested multiple skill areas, such as “Reading Comprehension,” “Accuracy and Fluency,” “Phonemic Awareness,” and so forth.

In the Ed-Fi model, the top-level assessment is an Assessment entity and the skill areas are ObjectiveAssessment entities. This structure is recursive, so that there can be any number of levels of ObjectiveAssessments. Once the student takes the assessment, the results are captured in the StudentAssessment and StudentObjectiveAssessment, each of which has references back to its parent or peer entities.

Support for Mapping to Local Learning Objectives and Learning Standards

Field implementation has shown that, while school systems will intake into their systems the results of student assessments in areas like “Reading Comprehension” (in other words, ObjectiveAssessments with student results held in StudentObjectiveAssessments), they also commonly need to map those “Reading Comprehension” results to local learning benchmarks. The LearningObjective entity enables the ObjectiveAssessment to be mapped to a local benchmark. Further, the LearningObjective may be mapped to a formal, external LearningStandard, such as one provided by the state or Common Core State Standards.

The structure looks like this:
The source of the data is typically as follows:

<table>
<thead>
<tr>
<th>Ed-Fi Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ObjectiveAssessment</td>
</tr>
<tr>
<td>Who provides (&quot;owns&quot;) the entity data?</td>
</tr>
<tr>
<td>Example of a provider</td>
</tr>
</tbody>
</table>

The practice of mapping to a local benchmark is not universal, and so it is also possible to associate a LearningStandard from an ObjectiveAssessment, as the chart below shows:

Who "Owns" What (or, Where Does the Data Come From)?

The assessment model combines data that originate with many entities, for example:

- An assessment provider (College Board, DIBELS, NWEA, or any number of cool new Web tools) are generally the provider of the core metadata for what the assessment looks like, and what it is assessing. This information maps to the Ed-Fi Assessment, ObjectiveAssessment, and AssessmentItems entities.
- A student generates data when interacting with an assessment. This information generally maps to the Ed-Fi StudentAssessment and StudentObjectiveAssessment entities.
- The enterprise hosting or managing the data being often provides contextual metadata, mapping the provider elements to local standards via LearningObjectives. LearningStandard is often managed by the enterprise as well.

The following chart captures this:

CompetencyObjective vs. LearningObjectives
Students, and particularly students in lower grades, are often assessed on skills that are more developmental than academic. "Plays well with others" or "Pays attention in class" are typical examples. In the Ed-Fi assessment model, these are typically modeled as CompetencyObjectives—to distinguish them from the more formal LearningObjectives.

Optional Inheritance via AssessmentFamily

AssessmentFamily provides a means to logically group assessments (generally from the same provider covering the same subject area). Its use is optional. By convention in field implementations, it is an abstraction that provides a way for Assessments to inherit common characteristics from the AssessmentFamily.