Schools Interoperability Framework Association

SIF Change Proposal: Grading Assignment

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Draft Specification Document Version Control			
Version	Date:	Author/Organization:	Comments
V0.1	02/04/2015	Nick Nicholas/NSIP	Initial Document
V0.2	05/04/2015	Nick Nicholas/NSIP	Mention Activity object
V0.3	01/07/2015	Nick Nicholas/NSIP	Privacy Impact

Change Proposal

Rationale for Change

Several stakeholders are interested in using SIF to exchange marks for online classroom assessment. The current SIF-AU model includes only the Assessment* and SIF3Assessment* suite of objects, which are designed for summative assessment. These are large objects in a many-levelled hierarchy, and they are prohibitively cumbersome to use for formative assessment tasks such as online classroom assessment.

In order to address this need, this proposal adapts the GradingAssignment and GradingAssignmentScore objects from SIF-US. This is done in line with a general design principle of reusing objects that already exist in the SIF-US specification wherever possible, in order to keep the information models of the two locales aligned, and to benefit from the experience distilled in the SIF-US. Reusing these objects has the added benefit of providing encoding for more traditional assignments, should that prove useful in the Australian education market.

That said, the SIF-US objects have not been designed for online assessment, and their design has been somewhat simplified in this proposal, in order to keep the objects lightweight. In Classroom Assessment in particular, SIF is now competing with lightweight ad hoc reporting protocols using JSON; the SIF objects should not be substantially more complex than those JSON objects, and should in fact be straightforward to represent in JSON.

SIF-AU also contains the Activity object, which can specify an online activity. That object can be considered a rather heavier counterpart to the GradingAssignment object, containing such information as technical requirements, software requirements, activity time, and relevant learning resources. Moreover the Activity object does not address scoring: object design assumed that would be covered by the Assessment* suite of objects. The proposed pair of objects are more lightweight, and do not presuppose either a technical infrastructure (itself a rather 2000s view of the world), or a fixed timeframe: it is better suited to the more opportunistic use of online assessment resources.

Business Case

Interest in using SIF to exchange classroom assessment scores has been expressed to date by NSW DEC and ESA. NSW DEC has in fact piloted exchange of classroom assessment scores using the Assessment* objects in 2013 (with LearningPlanet), in the leadup to its current data hub activities. NSW DEC is intending to add exchange of classroom assessment scores to its data hub capabilities in the next few months, and requires SIF/XML for all data exchange; this makes adoption of the object time-critical.

ESA is proceeding with a project to exchange results from its Improve formative assessment tool with the LearningPlace environment in DET QLD. Improve already uses SIF for its provisioning of staff, students, and teaching groups, and is looking to use SIF to communicate results back to partners.

Time Line

This change will be in the SIF Implementation Specification (Australia) 1.4 timeline.

Potential Object Changes

Proposed Data Object Changes			
Object	**Element**	**Attribute**	**Reason for including**

GradingAssignment	New object		Represent assignment (including classroom assessment task) in a lightweight generic form
GradingAssignment Score	New object		Represent result for assignment (including classroom assessment task) in a lightweight generic form

Change Plan

Object Dependencies and Relation Map

GradingAssignment optionally depends on TeachingGroup and SchoolInfo
GradingAssignmentScore depends on GradingAssignment and StudentPersonal

Changes to Other Objects

There are no anticipated changes to other objects.

Infrastructure Changes

There are no anticipated infrastructure changes

Object Definitions

GradingAssignment

This is equivalent to the GradingAssignment object in SIF-US. The following simplifications have been made, in light of the use of the object for online assessment:

- Reference to SchoolInfo has been made optional. An online assessment task may have a description provided by the vendor independently of the school assigning it, and it may be desirable to compare student performance against the same task across multiple schools (as part of school authority analytics).
- Mandatory reference to GradingCategory as an object has been replaced by an optional GradingCategory label. The provider of the item may not have assigned an online assessment task a particular grading category. Maintaining a distinct object with three mandatory RefId references (SectionInfo, TermInfo, SchoolInfo) around a single free-form label is excessively cumbersome for the purposes this object will be put to.
- Mandatory reference to SectionInfo and TermInfo has been replaced by an optional reference to TeachingGroup. SectionInfo is absent from the SIF-AU specification. As with SchoolInfo, an online assessment task may have a description provided by the vendor independently of the teaching group assigning it, or the term during which it is assigned.
- Attributes except for the RefId have been made elements. SIF-AU does not have optional attributes, and avoiding attributes makes it easier to round-trip the object into JSON.
- In line with this, the DetailedDescription element is broken up into a DetailedDescriptionURL and a DetailedDescriptionBinary; the latter is dispreferred, particularly for online assessment.
- Because the RefID is in place, there is no need to treat a combination of external references as a foreign key for the object, as is done in the SIF-US spec with the object root attributes.
- MaxAttemptsAllowed has been added to the object from Activity; this is a constraint set by the school, that could conceivably be acted on by an assessment delivery platform, or vice versa.

Object	Elements	Char	Description	Type
	GradingAssignment		This object provides information about a particular assignment, allows applications to synchronize each other's assignment tables, gathers the definition for a GradingAssignmentScore object, etc.	
@	RefId	M	A GUID that identifies an instance of this object.	RefIdType
	TeachingGroupRefId	O	The GUID for the TeachingGroup object in which this assignment has been set.	IdRefType
	SchoolInfoRefId	O	The Id (GUID) that uniquely identifies the School in which this assignment has been set.	IdRefType
	GradingCategory	O	A particular grading category for the assignment, used to provide grouping and type information.	xs:normalizedString
	Description	M	The text-based description of the assignment.	xs:normalizedString
	PointsPossible	M	The points possible on the assignment.	xs:unsignedInt
	CreateDate	O	Creation date of the assignment.	xs:date
	DueDate	O	Date the assignment is due.	xs:date
	Weight	O	The weight of the assignment.	xs:decimal
	MaxAttemptsAllowed	O	How many attempts the student is allowed on the assignment (applicable particularly to online activities).	xs:integer
	DetailedDescriptionURL	O	The location of the document that describes the assignment. If `Type` is `PDF`, this element will contain the Base64 encoding of the entire document. Preferred against DetailedDescriptionBinary for online assessment.	xs:anyURI
	DetailedDescriptionBinary	O	The Base64 encoding of a document (e.g. PDF) describing the assignment.	xs:base64Binary

Privacy Impact

- The object is treated as having equivalent sensitivity to AssessmentItem, and is flagged as LOW

Issues

- All assessment described by GradingAssignment is assumed to have a numerical score, coded in PointsPossible, with the student's particular performance reported in GradingAssignmentScore. If a numerical score is not applicable, PointsPossible should be set to 0.
- GradingCategory is populated at the discretion of the school, and no codeset is prescribed for it.
- Would need confirmation that MaxAttemptsAllowed makes sense to include in this object—i.e. that online assessment vendors are likely to make use of it.

XML Example

```
<GradingAssignment RefId="359D75101AD0A9D7A8C3DAD0A85103A2">
   <TeachingGroupRefId>D0A0A27AD0A8510AD9D75101A8C3DA39</TeachingGroupRefId>
   <SchoolInfoRefId>11737EA4301CADCA75C87214A7C46BDB</SchoolInfoRefId>
   <GradingCategory>Classroom Test</GradingCategory>
   <Description>Pop Quiz</Description>
   <PointsPossible>100</PointsPossible>
   <CreateDate>2000-11-21</CreateDate>
   <DueDate>2000-11-25</DueDate>
   <Weight>1.0</Weight>
   <DetailedDescriptionURL>
     http://www.assignmentinfo.com/assignment1.pdf
   </DetailedDescriptionURL>
</GradingAssignment>
```

Codesets

N/A

GradingAssignmentScore

This is equivalent to the GradingAssignmentScore object in SIF-US. The following simplifications have been made, in light of the use of the object for online assessment:

- Reference to SchoolInfo has been made optional. An online assessment task may have a description provided by the vendor independently of the school assigning it, and it may be desirable to compare student performance against the same task across multiple schools (as part of school authority analytics).
- Mandatory reference to SectionInfo has been replaced by an optional reference to TeachingGroup. SectionInfo is absent from the SIF-AU specification. As with SchoolInfo, an online assessment task may have a description provided by the vendor independently of the teaching group assigning it.
- It is desirable that the assessment system has ingested SIF RefIds for StudentPersonal, and can assign scores to students based on those StudentPersonal RefIds. However as is the case elsewhere in the SIF-AU specification, we recognise that the assessment system may not always have access to RefIds; so the local Id, rather than the RefId, is the mandatory student identifier.
- Attributes except for the RefId have been made elements. SIF-AU does not have optional attributes, and avoiding attributes makes it easier to round-trip the object into JSON.
- Because the RefID is in place, there is no need to treat a combination of external references as a foreign key for the object, as is done in the SIF-US spec with the object root attributes.

Object	Elements	Char	Description	Type
	GradingAssignmentScore		This object provides score information about a particular assignment.	
@	RefId	M	A GUID that identifies an instance of this object.	RefIdType
	StudentPersonalRefId	O	The GUID for the student whose score this is.	IdRefType
	StudentPersonalLocalId	M	The Local Id for the student whose score this is.	LocalId
	TeachingGroupRefId	O	The GUID for the TeachingGroup object in which this assignment has been set.	IdRefType
	SchoolInfoRefId	O	The Id (GUID) that uniquely identifies the School in which this assignment has	IdRefType

			been set.	
	GradingAssignmentRefId	M	The grading assignment for which this is a score.	IdRefType
	ScorePoints	C	The score represented as points. Conditionally required that one or more of ScorePoints, ScorePercent or ScoreLetter must be filled in. For online assignments, ScorePoints should be used to the exclusion of other scores.	xs:unsignedInt
	ScorePercent	C	The score represented as a percent. Conditionally required that one or more of ScorePoints, ScorePercent or ScoreLetter must be filled in.	xs:decimal
	ScoreLetter	C	The score represented as a letter grade. Conditionally required that one or more of ScorePoints, ScorePercent or ScoreLetter must be filled in.	xs:token
	ScoreDescription	O	Text description of the score.	xs:normalizedString

Privacy Impact

- The object is treated as having equivalent sensitivity to StudentScoreSet, and is flagged as MEDIUM

Issues

- The alternation of ScorePoints, ScorePercent and ScoreLetter is inherited from the SIF-US object; it makes sense for traditional assignments, but it complicates any translation to JSON, and it contradicts the presupposition of GradingAssignment that all such assignments have a numeric score. So for online assessment, and transport of the object in JSON, only ScorePoints should be used.

XML Example

```
<GradingAssignmentScore RefId="359D75101AD0A9D7A8C3DAD0A85103A2">
   <StudentPersonalRefId>A75A00101A8C301D02E3A05B359D0A00</StudentPersonalRefId>
   <StudentPersonalLocalId>fred12</StudentPersonalLocalId>
   <TeachingGroupRefId>D0A0A27AD0A8510AD9D75101A8C3DA39</TeachingGroupRefId>
   <SchoolInfoRefId>11737EA4301CADCA75C87214A7C46BDB</SchoolInfoRefId>
   <GradingAssignmentRefId>359D75101AD0A9D7A8C3DAD0A85105D2</GradingAssignmentRefId>
   <ScorePoints>45</ScorePoints>
</GradingAssignmentScore>
```

Codesets

N/A