

# SCORM 2004 4th Edition Thoughts

## FIRST BIG ISSUE:

A fundamental problem with SCORM 2004 is that it has confused the notion of whether someone has satisfactorily completed an activity with learning objectives.

## SECOND BIG ISSUE (RELATED TO THE FIRST)

Roll up rules do not work on objectives. They only work on the status of an activity.

Here are suggestions:

1. Re-document the specification to make it clear that the primary objective is *only* relevant to the notion of satisfactorily completing an activity. It has nothing to do with learning objectives and outcomes in practice or in reality. It should not really be called an objective.
2. Implement a version of Claude's competency maps as roll-up rules for *learning objectives*. The way to do this is with conditional statements that:
  - Evaluate logical combinations of statements about the status of Objectives and of activities (completion and satisfaction status).
  - Evaluate numerical expressions of Objective scores using max, min, +, -, \*, (,), >, >=, <, <=, c and constants and compares them, resulting in a T/F/Unknown value
  - Evaluate the following operators: Any, All, at least % of, at least number of, at most % of, at most # to these
  - Allow Boolean combinations of the above.

And then, as operators

- Set the status of an Objective [NOT THE COMPETITION STATUS OF AN ACTIVITY – THOSE ARE THE CURRENT ROLLUP RULES AND SHOULD NOT BE BROKEN]
- Set the score of an Objective to a numerical combination of the scores of other objectives using normal arithmetic functions.

Example: If Any (Status of Objective 1 is “satisfied”, Score (Objective 2) + Score (Objective 3) > 1.5, Module 7 was satisfactorily completed) set Status of Objective 4 to satisfied.

It would be a big step in the right direction if we could do this *just for satisfaction* which is a binary state and deal with the more complicated issue of scores later.

Note that there are many use cases where the *status of an objective should be related to the completion of some content*. For example, a lot of online learning is nothing more than delivering an SOP to a learner and having them acknowledge that they have read it, for which they get a certification check mark. The status of a certification depends only on viewing the content.

Claude has ways of representing rules like this in XML. We should use that representation.

3. Objective rollup rules would be computed at the completion of each activity. Note that they have nothing to do with *which* activities are sub-activities. From a pedagogical perspective, Objectives operate in an outcomes-driven world, not in the seat-time driven world.
4. **Using this approach totally obviates the need for Objective Maps.** To equate two objectives, just do it; that said, it is still useful to identify two objectives as being “the same” when they have different ID’s.

### **THIRD BIG ISSUE (IN PRACTICE)**

Speaking of reading and writing objectives: Another fundamental issue is that SCORM has a very limited view of “local” and “global.” Global really means “persisted by *one LMS for one course for one learner*.” I have found this to be problematic in many settings, ranging from DARWARS to regulatory compliance training. Better notions would be:

- **Activity objectives** are objectives that pertain only to an activity. They will evaporate when the activity is completed and be persisted only when an attempt on an activity is interrupted without being completed so that their status is available to the activity when it is resumed.
  - **Aggregation objectives** pertain to one student taking this aggregation (typically a course) in one LMS. These are what are now called “global.” *Aggregation objectives should be available to any SCO in an aggregation and should persist from attempt to attempt on the aggregation.*
  - **Global objectives** are objectives that potentially exist independently of an LMS. For example, the fact that someone has CPR certification may be tracked across multiple systems in an enterprise. These are the ones that tie into competency definitions, HR-XML, etc. The designer should expect that these exist prior to the launch of a course and that they have meaning beyond the scope of a course.
5. I suggest that all three declarations be allowed and that the default be Activity, which means the objectives are scoped only to the Activity (and sub activities) since that is the current default. Most objectives (current “Global”) would be at the Aggregation level. A few would be Global.

One reason for having a global declaration is that *changing a global objective can have serious consequences to an employee*. Consider the following scenario: A bus driver is required to be CPR certified. Leyla is a bus driver and has this certification. She wants to take training leading to a CNA certificate, and that is offered at work. As part of the training there is a knowledge check on CPR. Learners who pass the knowledge check skip ahead, while learners who do not pass will be shown some basic CPR related material. Leyla reaches the knowledge check and thoughtlessly clicks through it, failing it. Unbeknownst to her, she has now *failed* CPR and has been *de-certified*. She can no longer legally perform her job.

This is extreme, perhaps, and arguably not totally the responsibility of the content, but my point is that there has to be a way to use the LMS to persist objectives from aggregation attempt to aggregation attempt without making them “real” objectives that are used by the HR system or another LM, and there also has to be a way to produce training that addresses the real objectives.

(Note: I am not tied to the terminology in any way ... the concept here is what is important.)

**Probably out of scope for SCORM 2004-4 but worth mentioning:**

*SSP (an issue that has been raised many times ... persisting status past the boundary of a SCO)*

Not an objective issue, but one that is often solved in practice by writing data to objectives. A simple (and totally backward compatible on the content side) suggestion is to add an optional data bucket to an objective. This would help solve two problems: SSP and the problem of retaining *evidence*, which is being addressed in standards groups now. In the competency community, a competency is something achieved on the basis of evidence and it is sometimes important to retain a record of that evidence. In some cases, the system evaluating the evidence may be different than the system that generates it, and there are times when evidence needs to be *re-evaluated*. Associating a bucket with objectives would create a simple substitute for SSP since the infrastructure is already in place to associate objectives with learners, activities, and learning systems.

*MULTI-USER SCOS (definitely out of scope)*

I wanted to make a simple suggestion: allow objectives to be gotten and set for multiple learner ID's. This is mostly on the LMS side, but content could request a list of learners and attempt to set and evaluate the status of an objective separately for each learner.