

Evaluating the Experience API (xAPI) for Annotation Support

Submitted by Jason Haag and Tyde Richards

IEEE Learning Technology Standards Committee

The IEEE is a global organization of engineers that conducts many activities. One is the IEEE Learning Technology Standards Committee (IEEE LTSC), a group that develops interoperability standards for technology-supported learning (<https://ieee-ltsc.org>).

The IEEE LTSC is exploring a technology known as the “Experience API” (xAPI). It is a RESTful API that allows “statements of experience” to be exchanged with a cloud-based repository known as a Learning Record Store (LRS). The xAPI was originally developed by the U.S. Advanced Distributed Learning Initiative (ADL), has commercial adoption, and is the subject of two current IEEE LTSC projects. First, the xAPI Study Group is planning its IEEE standardization. Second, the IEEE Actionable Data Book project is exploring the implications of xAPI integration with the EPUB 3 eBook format.

Although originally intended to support learning, the xAPI is proving to be a broader solution able to accommodate many kinds of data. Our purpose in attending this workshop is to assess if it might be an appropriate vehicle to exchange annotation data expressed in a format such as the Open Annotation specification. We believe that xAPI may provide the infrastructure needed to support a robust annotations capability and would like a reality check.

The xAPI takes an “activity stream” approach to data using a construct known as a “statement”. It contains a set of properties including:

`<context> <actor> <verb> <object> <result> <attachments> <timestamp>`.

These properties are very general and may be profiled to represent particular kinds of data. We would like to determine if this is an appropriate construct to convey annotation data.

The xAPI uses a RESTful approach and defines an interface and the storage and retrieval rules to exchange statements with a cloud-based repository. It may be used to make data available in reader applications as well as browsers. Through a JavaScript binding it has successfully been used from within EPUB 3 publications.

We anticipate that emerging learning applications will have a requirement to exchange many kinds of data. Annotations are one kind, accessibility preferences another, and there are many types of learner assessment. It is not realistic to expect implementers to understand, adopt and support a different API for each particular

kind of data. Rather, there is great appeal in having a common API that can be used across the board. We believe that the xAPI may offer that.

The current xAPI specification is available at:

<https://github.com/adlnet/xAPI-Spec/blob/master/xAPI.md#statement>