Alignment and Cataloging Methods

The following methods of aligning educational resources to academic standards and benchmarks and the methods for referencing those alignments in catalog records containing meta-data describing the resource and the alignment are proposed.

Alignment Methods

Direct Alignment

A resource is aligned to a specific state or nationally recognized standard or benchmark by a subject matter expert or other process (such as NLP or other AI or automatic process) designed to provide specific authoritative alignments.

Indirect/Forward Alignment

A resource is directly aligned to an intermediary or reference statement, such as the Align to Achieve Compendix, which is then linked or correlated to state or nationally recognized standards that are functional, symbolic, or semantic equivalents. The inferred standard or benchmark alignment is the Indirect/Forward alignment.

Indirect/Reverse Alignment

A resource is directly aligned to a state or nationally recognized standard. A look-up is performed to an intermediary or reference statement, such as the Align to Achieve Compendix, which is then used to infer alignments to state or nationally recognized standards and benchmarks.

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Alignment Methods – Table View

Type	Input	Output
Direct	State or Nationally Recognized Standard or Benchmark	The Same State or Nationally Recognized Standard or Benchmark
Indirect/Forward	Intermediary or Reference Statement	One or More State or Nationally Recognized Standards or Benchmarks
Indirect/Reverse	State or Nationally Recognized Benchmark	One or More Different State or Nationally Recognized Standards or Benchmarks

Note: An indirect alignment – one that has been inferred – can become direct when validated by a subject matter expert or a process designed to provide authoritative results. This may imply that direct alignments, at least, require an authority element within the metadata. The authority may be a person, or it may be a process or system.

Cataloging Models

These models have implications that impact security, open information access, and the protection of the intellectual property of developers of alignment methods, correlations and processes.

Comprehensiveness

1. **Explicit** – the catalog record schema permits inclusion of all information about each standard or benchmark and the document from which it derives.
2. **Implicit** – the catalog record schema permits inclusion of some information about the standard or benchmark and a reference to one or more on-line registries or other sources where additional information can be retrieved.
    a. **Implicit/ figurative** – The catalog record contains a GUID or some other identifier that acts as a key to information

retrieval. The metadata is useful only with access to the external data sources.

b. **Implicit / literal** – The catalog record contains a literal textual copy of the standard or benchmark, which may or may not act as a key to information retrieval. The metadata is at least somewhat inherently useful depending on the needs of the end-user or client.
c. **Implicit / mixed** – The catalog record contains both figurative and literal components

Persistence

Note: Persistence relates to the use of an intermediary or similar method for inferring alignments

1. **Dynamic** – the metadata retains a key to the entry in the intermediary explicitly. As the intermediary is updated, calls to the registry will return current or updated information
2. **Static** – the intermediary is used to create a set of related standards which become direct alignments in the catalog metadata. Changes and updates to the intermediary will not be available to the calling application without the intermediary key.

Application Metadata Schema

The set of metadata, extracted from a catalog record, a registry of standards, or embedded as tags within a resource, or some combination of these, that contains the information and formatting required by a consuming application.