

Chapter 14

Materials-to-Standards Alignment: How to “Chunk” a Whole Cake and Even Use the “Crumbs”: State Standards Alignment Models, Learning Objects, and Formative Assessment – Methodologies and Metadata for Education

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ABSTRACT

One way of identifying an effective materials-to-standards relationship (often defined educationally as “alignment”) is through the use of metadata for books, visual media, computer software, educational kits, and manipulative materials. Embedded in the metadata is vocabulary containing standards-based terminology and other elements of educational pedagogy—evidence of an effective materials-to-standards relationship or alignment. This article attempts to define the materials-to-standards alignment process (as it relates to state standards) and its relationship to formative assessment and the use of learning objects—successful strategies being used in today’s educational instruction and testing environment. The article also looks at two statewide examples of the use of metadata reflecting materials-to-standards alignment and identifies both current successes and future challenges associated with the broad use of each.

INTRODUCTION

As a result of the “No Child Left Behind” (NCLB) Act of 2001, state-based educational agencies have made standardized testing a priority in their respective jurisdictions. America’s public

and private schools have adapted by analyzing their teaching strategies and curriculum delivery methods to find ways to better address the issues often associated with standardized testing (i.e., inadequate understanding of individual, test-related concepts by students, difficulty teaching

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individual, test-related concepts by students, lack of educator preparation time and often misdirected use of instructional materials).

Several questions arise:

- “How can educators teach individual, test-related concepts effectively?”
- “Are there strategies and materials available to “teach” individual, test-related concepts that are available, reliable, and pedagogically sound?”
- “How can these materials (and their reliable connection to standards-based test concepts) be identified and made available to educators (and, for that matter, students)?”
- “What are the current successes and future challenges associated with describing these materials and providing access to their description for educator/student evaluation?”
- How can instructional technology be used to make these important details available to educators/students?

Several states (including Ohio and California, which will be featured here) have taken steps to develop what is known as metadata-based materials-to-standards alignment tools that address the relationship of instructional materials to individual, test-related concepts. In the case of the former (Ohio), the metadata-based alignment process is “strict and humanistic”, using rubrics and human collaboration to analyze the materials, extract evidence of successful test/standard alignment, and use descriptive terminology (known as curriculum-enhanced cataloging) to create metadata for the alignment. In the case of the latter (California), the metadata-based alignment process is broad and facilitated”, using existing curriculum-enhanced metadata and enhancing it with additional uses of terminology and automation. Both alignment processes rely heavily on information technology networks and IT design to function.

This article – presented in two parts – attempts to illustrate that materials metadata containing materials-to-standards alignment-based descriptive elements which are distributed electronically to educators/students can be an effective tool for both groups to use when making sound instructional/learning and materials purchasing decisions. Part one is a general overview of the current standards-based learning environment, including a discussion of basic formative assessment concepts and practices as well as a brief overview of the elements of theory associated with the learning object – an entity which can also be described as a “chunk” of information or the “smallest teachable concept. Part two features two metadata-based materials-to-standards alignment creation and distribution case studies – “The Ohio Alignment Concept” and California’s “Linking your Library Collection to the California State Content Standards” initiative. Additionally, part two discusses the role that the school library and library resources (both print and electronic) play in the creation and maintenance of materials-to-standards alignment-based metadata, as well as related technology-based content delivery and preservation issues.

PART ONE

Formative Assessment and Learning Objects: The “Chunk” and Their Relationship to the “Smallest Teachable Concept”

In this article’s title, a discussion of the comparison of curriculum standards alignment, formative assessment and learning objects to a cake (i.e., “whole cake”, “chunk” and “crumb”) has direct significance to understanding learning in today’s standards-based learning environment. Educators tend to identify the “whole cake” as standardized testing, a summative form of assessment which includes a variety of concepts from several cur-

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