

Name of the Use Case:	<b>Modular eTextbook which can be customised</b>
Scope:	A non-technical teacher wants to create a customised eTextbook to fit her particular instructional requirements. She selects and re-arranges granular chunks of learning content, including content from different commercial suppliers, open educational resources (OER), and content created or adapted by the teacher herself.
Description:	<p><b>Pedagogical context:</b> few teachers are prepared to deliver a pre-prepared commercial course; most want to mix-and-match content to suit their own priorities and requirements and those of their students. Digital learning content needs to reflect this need for customisation, without necessarily requiring either the degree of level of technical confidence or the time which is normally associated with many authoring environments.</p> <p><b>Goals of the teacher:</b></p> <ul style="list-style-type: none"> <li>• to mix what she perceives to be the best content from different commercial suppliers;</li> <li>• to prevent students accessing what, in her professional opinion, may be learning content of questionable value, relevance or accuracy;</li> <li>• to supplement commercial content of high presentational or interactive value with self-authored content which focuses on the particular requirements of her course.</li> </ul> <p><b>Scope:</b> The eTextbook must describe its own structure in a way which allows separate sections of content to be disaggregated. Those disaggregated sections of content:</p> <ul style="list-style-type: none"> <li>• must be encapsulated, meaning that they can be separated cleanly from other parts of the eTextbook, which the teacher may have chosen not to use;</li> <li>• must be marked with appropriate permissions and conditions for their further use in a standard, machine readable form, allowing software designed to manipulate eTextbooks to support their licensed use automatically;</li> <li>• continue to support the same level of functionality as provided in the context of the original, complete eTextbook (for example to report performance data and creative product back to common mark books);</li> <li>• in the case of commercial content, must retain the branding and copyright of the original supplier, along with its association with the eTextbook aggregation in which it was originally distributed;</li> <li>• in the case of commercial content, must in the first instance be reusable within the institution to which they were originally licensed (the redistribution of customised eTextbooks outside the original institution is out of scope for this use case).</li> </ul>
Level of participant(s) addressed:	All levels but principally secondary and upper primary.

Description or list of the technologies used:	<ul style="list-style-type: none"> <li>• Metadata which describes the permissions and conditions which apply to the disaggregation, editing and redistribution of granular sections of an eTextbook;</li> <li>• a standard means of aggregation which both (a) supports the requirement for pedagogical coherence in the complete eTextbook, and (b) allows individual granular chunks to be separated from other parts of the eTextbook cleanly and completely so that they can be rearranged using standard means of aggregation.</li> </ul>
Scenario Sequence	<ul style="list-style-type: none"> <li>• Several eTextbooks are bought from a commercial supplier.</li> <li>• A teacher creates her own eTextbook, combining sections from each of the commercial eTextbooks and supplemented by learning content she has authored in an eTextbook-compatible authoring tool.</li> <li>• The new eTextbook is made available for students to use.</li> </ul>
Primary Actor(s) and Role(s):	<ul style="list-style-type: none"> <li>• <b>Author</b> (of either (a) an original eTextbook or (b) of an eTextbook authoring tool): implements standard means of eTextbook aggregation, marking nested granular chunks of learning content with appropriate metadata permissions, conditions, associations and structures.</li> <li>• <b>Supplier of software capable of manipulating eTextbooks</b> : displays granular structure to eTextbook to teacher, allowing the teacher to cut, paste, move and delete granular chunks of content, edit associations between chunks; and where permissions exist, edit individual chunks;</li> <li>• <b>Teacher</b>: customise eTextbook using functionality providing by an appropriate tool, as described above;</li> <li>• <b>Supplier of software capable of playing eTextbooks</b>: read granular structure of the eTextbook and the associations between different granular chunks, support appropriate user navigation through the eTextbook (e.g. using browsing and search interfaces, hyperlinks, flow sequencing, or teacher-managed assignment), and display required branding and copyright notices showing original suppliers of each granular chunk;</li> <li>• <b>Learner</b>: view and interact with the customised eTextbook using interface provided by the player described above.</li> </ul>
End goal of activity:	<p>Allow:</p> <ul style="list-style-type: none"> <li>• traditional textbook publishers to create commercially viable products addressing complete curricular without binding teachers into the inflexible use of the complete course;</li> <li>• niche software houses developing innovative tools and digital activities to integrate such activities within larger, structured courses;</li> <li>• give teachers control over the deployment of digital learning content in their own classrooms;</li> <li>• allow teachers to share custom aggregations of learning content with their colleagues working in other schools, and to take such aggregations with them when they move to a new job;</li> </ul>

	<ul style="list-style-type: none"> <li>• support the integration between commercial and OER learning content.</li> </ul>
Trigger(s) / Pre-condition(s)	<ul style="list-style-type: none"> <li>• Acquisition by a teacher of one or more eTextbooks;</li> <li>• Decision to use only a selection of content from those eTextbooks, or to combine or supplement the eTextbooks.</li> </ul>
What issues or challenges have been encountered during the implementation and use of the e-Textbooks?	<ul style="list-style-type: none"> <li>• Current SCORM specifications were intended to provide reusable content objects. Certain aspects of the SCORM specifications have tended to couple content to its original deployment context, effectively preventing reuse.</li> <li>• Standards tend to be unclear regarding the level of disaggregation which is compatible with licensing conditions.</li> <li>• Publishers have generally not understood the requirement for the encapsulation of content which is intended for disaggregation.</li> <li>• Without effective standards for sequencing or orchestration, it is difficult to create pedagogically coherent aggregations of content objects, which are at the same time available for disaggregation.</li> </ul>
Who is using what is described in this use case?	<p>Many have tried to implement this functionality by using SCORM 2004, but been frustrated by the limitations noted above. The requirement for more advanced capabilities has been established by (a) over 100 white papers submitted to the LETSI workshop at Pensacola in autumn 2008, and (b) SALTIS' consultation with its industry members as part of the the Becta-managed project to improve the interoperability of VLEs, run in September 2009.</p>