

Name of the Use Case:	Automatic reporting of performance data
Scope:	Performance data produced as learners complete digital activities embedded in an eTextbook are reported automatically to the teacher's preferred electronic mark book.
Description:	<p>Pedagogical context: a formal learning environment in which a student's learning is being monitored by a teacher or instructor.</p> <p>Goals of the teacher:</p> <ul style="list-style-type: none"> • track performance of learners; • inform face-to-face interventions in a blended learning environment; • motivate learners. <p>Scope: the creation of appropriate interoperability standards which allow the learning activity, embedded within an eTextbook, to communicate with an electronic mark book. The reporting mechanism should allow:</p> <ul style="list-style-type: none"> • performance data to be returned in a variety of different formats, such a raw marks, percentage scores, grades etc. • multiple scores or grades to be returned, reflecting different aspects of the student's performance; • the student to make multiple attempts at the assessment activity, with each activity being recorded separately by the electronic mark book; • the activity to retrieve performance data produced in the course of previous attempts by the same learner; • the student to exit the assessment prematurely without loss of data and with the option of resuming the activity later; • the activity to be delivered by a remote web service or out-of-browser application; • the electronic mark book to provide a hyperlink to a specialist diagnostic service provided by the supplier of the assessment, providing in-depth analysis of student performance and competency; • performance data to be associated with creative product (or "artifacts") created by the student in the course of the activity.
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"> • A transport mechanism to transfer the performance data to a management system. • A runtime data model to encode the information in a standard format. • Standard metadata to mark the particular activity within the eTextbook that has the capability to return performance data, describing the type of data that will be returned and the particular mechanisms which will be used.
Scenario Sequence	<ul style="list-style-type: none"> • The eTextbook is imported or registered with a system providing a common mark book or other tracking service. This process will allow the system to

	<p>understand the structure of the eTextbook and identify those parts which are capable of returning performance data.</p> <ul style="list-style-type: none"> • When the activity is run (how it is launched is out of scope), performance data are returned automatically to the common mark book. • The teacher launches the electronic mark book, which will display all performance data appropriately (how these are displayed will be implementation-specific).
Primary Actor(s) and Role(s):	<ul style="list-style-type: none"> • Supplier of electronic mark book: implements interoperability standards allowing software to register eTextbook activities and communicate with them at runtime. • Author (of either (a) eTextbook activity or (b) of a corresponding authoring tool): implements interoperability standards to create appropriate metadata and runtime functionality. • Technician (or administrator or technically confident teacher at the learning institution): imports or registers eTextbook with the electronic mark book. • Student: launches and completes the eTextbook activity. • Teacher (or any other authorised user): views performance data in the electronic mark book.
End goal of activity:	In the context of a formal learning institution, staff can monitor the performance of students, informing their management of progression and differentiation, and their reporting on student progress, and any interventions they need to make in a blended learning environment.
Trigger(s) / Pre-condition(s)	<ul style="list-style-type: none"> • The eTextbook activity is marked as supporting the appropriate interoperability functionality. • The eTextbook activity has been registered on a conformant electronic mark book. • The eTextbook is launched by an appropriate learner and meaningful activity is completed.
What issues or challenges have been encountered during the implementation and use of the e-Textbooks?	<ul style="list-style-type: none"> • Current SCORM functionality supporting this functionality suffers from an obsolescent API which cannot communicate between different domains or work outside the browser. • The current CMI data model is too rigid, preventing the development of new kinds of reporting functionality. • The SCORM specifications suffer from a number of ambiguities which result in weak interoperability between systems which have not been developed specifically to work with each other.
Who is using what is described in this use case?	This functionality is widely implemented through use of SCORM, subject to 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.