

EDUCATION SERVICES AUSTRALIA

The Sharing Exchange: Model, description and benefits

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1.0 The Sharing Exchange – SHEX

The Sharing Exchange (SHEX) is a specifically designed repository that enables digital content to be shared amongst Australian and New Zealand school communities.

Managed by Education Services Australia (a merger of Curriculum Corporation and *education.au*) on behalf of jurisdictions, SHEX allows jurisdictions and other nominated users to:

- upload digital content, complete an educational metadata profile and attach a licence to allow that content to be shared with other jurisdictions
- download digital content and metadata to distribute to teachers and students
- automate and synchronise downloads to control what they wish to download and distribute.

SHEX supports the sharing lifecycle of the digital content used in classrooms and is the result of the participation of many stakeholders, the development and maintenance of sophisticated software and the deployment of commonly accepted standards for educational metadata and content packaging.

1.1 Background

Over the past ten years Curriculum Corporation, and now Education Services Australia, has worked closely with education jurisdictions to distribute digital content. Education Services Australia has arrangements in place with a number of jurisdictions to deliver content through their own portals to teachers and students.

Development of a 'sharing exchange' was a key infrastructure deliverable for the National Digital Learning Resource Network (formally The Le@rning Federation) in the Phase 3 plan for 2007–2008: 'A central registry and metadata repository to enable jurisdictions to provide discovery mechanism to schools'.

The Australian Education, Early Childhood Development and Youth Affairs Senior Officials Committee (AEEYSOC) agreed last year that the National Digital Learning Resource Network would continue to play an important role in the sharing of resources between education jurisdictions. As part of its response to that decision, Education Services Australia undertook further development of the Sharing Exchange.

1.2 The model

ESA provides two main distribution models for education jurisdictions:

- distribution of a package containing the digitised resource (in IMS format) with its metadata
- distribution of the metadata only, so that users will be directed back to the website of a partner institution to access the digitised resource.

The Sharing Exchange is the focus for this paper, but it is only one component of three systems underpinning the distribution models below.

1. The **Learning Exchange**: a content management system and an interoperability framework for creating, distributing and managing content and intellectual property rights.

2. The **Sharing Exchange**: a repository for the Australian school sector that enables digital content to be shared.
3. The **Metadata Exchange**: harvests metadata records of digital curriculum resources suitable for schools in Australia and New Zealand from a range of cultural institutions. It provides a single access point for the content, eliminating the need for users to identify and search the repositories of individual cultural institutions.

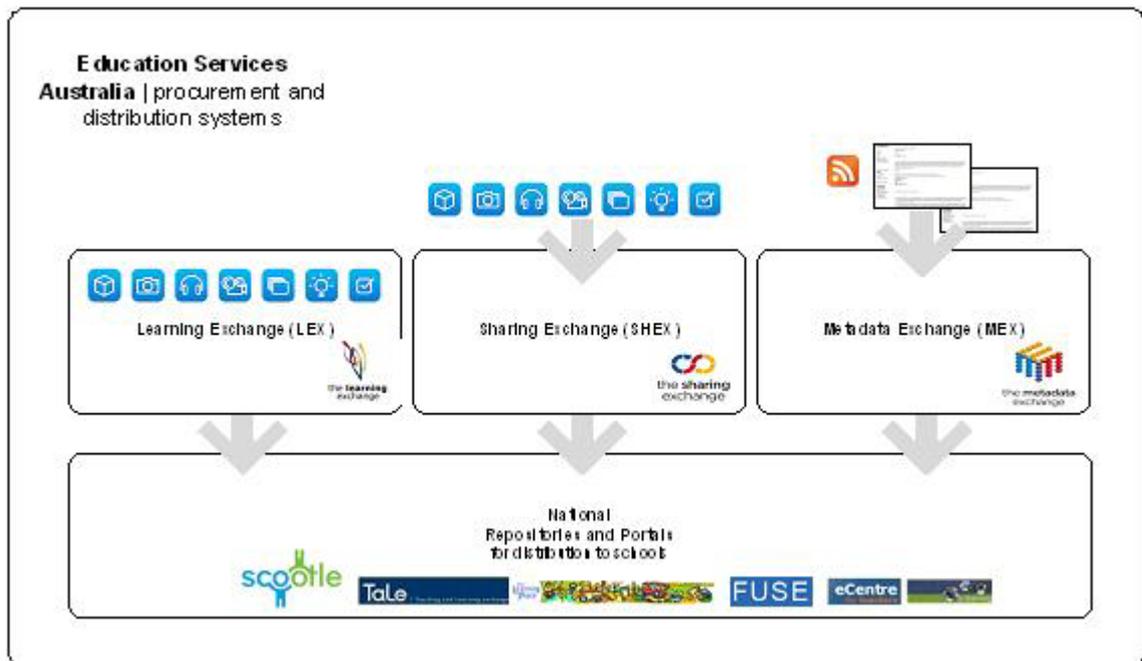


Figure 1 Education services procurement and distribution process

1.3 Technology

The Sharing Exchange uses sophisticated software and the deployment of commonly accepted standards for educational metadata and content packaging.

The development of this system was underpinned by the following principles and goals:

- ability to download newly shared content
- ability to download newly changed content
- use of standard metadata and learning object packaging technologies.

The web service provides a simple programmatic interface allowing client systems to discover and download metadata and content items from the Exchange. Jurisdictions can configure the web service settings to determine content they would like to download, content they own or content shared to them. This can be controlled by licences, which are created and distributed with the content.

1.4 Software features

With a simple user interface, plus content management, licence management and user management features, the SHEX provides content that can be viewed by a provider or licensee. A key attribute of the Exchange is that jurisdictions sharing content can develop and attach their own licence to implement their sharing intentions and enact any restrictions about what content is to be shared with whom.

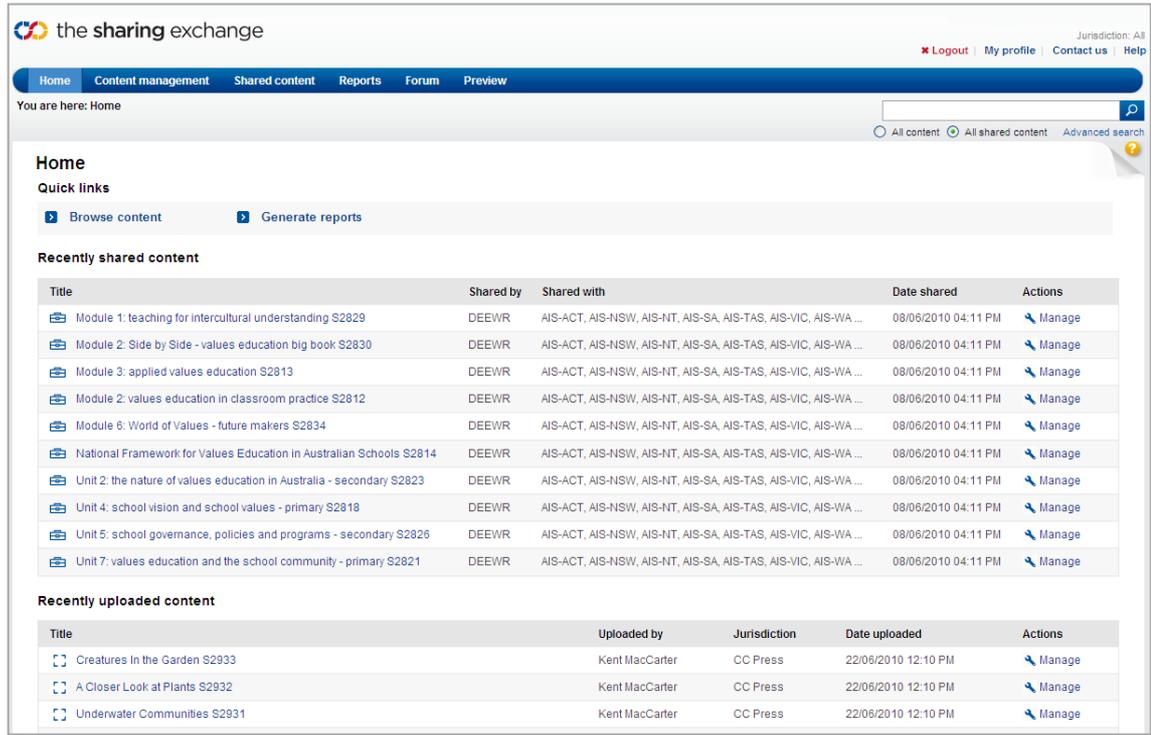


Figure 2 ShEX homepage displays tasks that you can perform as well as lists of recently uploaded and recently shared content.

Included with the metadata is a 'Conditions of use' statement that outlines what the user is permitted to do with the digitised resource. For example, a jurisdiction sharing a print / print-ready resource may wish to apply the NEALS licence. NEALS would not be appropriate for interactive, images, audio or video in which case a different licence, developed by the sharer would need to be attached enabling the receiving jurisdictions to use the content appropriately.

A jurisdiction can supply ESA with an appropriate licence which will be loaded into the system and become selectable during the creation of the work's metadata within SHEX. This content can then be viewed by licence, and shared accordingly.

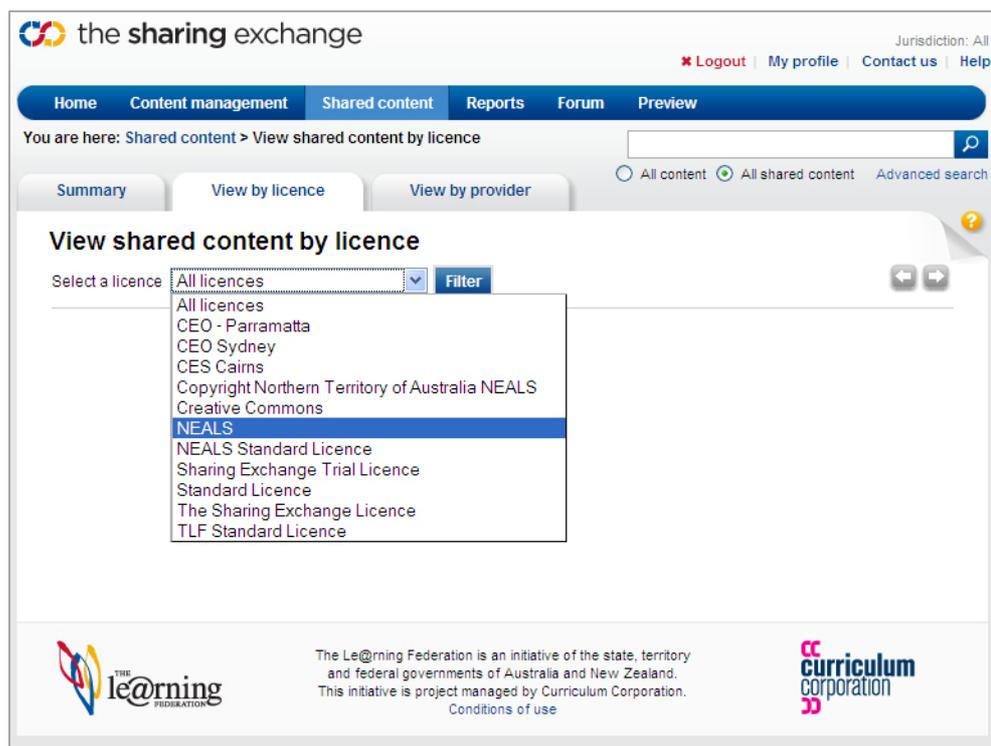


Figure 3 Viewing content by licence

1.4.1 User categories in SHEX

The Sharing Exchange has two main categories of users.

Jurisdictional users

These users can contribute content, verify quality standards, create and manage licences under which the content can be distributed, apply additional metadata, generate reports and share content. They can also discover and download content shared by other jurisdictions.

Administrative users

These users can perform all of the functions of jurisdictional users. In addition, they can access *all* jurisdictional areas and perform a number of system and administration tasks.

1.5 Current status

Release 2.0 of the Exchange is now live, and the Northern Territory, South Australia and Catholic Network Australia have completed its implementation. SHEX content is available to all jurisdictions via a web service. Jurisdictions that have adopted Scootle will receive the shared content automatically.

Currently there are approximately 1600 items of digital curriculum content contained within the SHEX, of which approximately 150 items are being shared.

Jurisdictions wishing to participate in the Sharing Exchange can implement the LORAX/REST web service for sharing.

1.6 Benefits

The SHEX leverages from existing system infrastructure and distribution networks and the use of this model provides a range of benefits.

1.6.1 Strategic benefits

The system provides a streamlined process for sharing online content across Australian and New Zealand jurisdictions, which results in:

- peer collaboration possibilities across Australia and New Zealand
- a uniform quality and rights management framework
- an increase in the number and diversity of participating repositories with representation from all jurisdictions
- an increase in the number of learning resources available through the network across a range of disciplines and media
- efficient use of Australian and New Zealand jurisdictional resources, while enabling jurisdictions to retain the ability to provide local curriculum focus and local infrastructure management.

1.7 Financial benefits

The system provides a uniform and robust infrastructure for sharing, which is cost effective and results in a reduction in:

- the overall cost to Australia and New Zealand of content development, procurement and distribution
- the overall cost of supporting system development
- statutory educational licence fees and third party licensing fees.

1.8 Technical benefits

The system is a centralised uniform system for sharing online content and, as such, it:

- contributes to the national interoperability agenda through the promotion and uniform adoption of mandated standards and protocols
- minimises load and bandwidth issues as a result of making a central gateway available and providing access to the content at local levels
- provides easy access to a larger supply of quality-assured online content.

1.9 Benefits for users

The system provides an improved, uniform mechanism for discovery of shared online content, which in turn results in:

- increased access to publicly owned assets

- increased access to high-quality brokered content
- sharing of experiences with peers across Australia and New Zealand
- ongoing access to nationally developed resources and the provision of common services for resource repositories.

2.0 List of definitions

Term	Description
AEEYSOC	Australian Education, Early Childhood Development and Youth Affairs Senior Officials Committee (AEEYSOC)
AICTEC	Australian Information and Communications Technology in Education Committee (AICTEC)
ESA	Education Services Australia (a merger of Curriculum Corporation and <i>education.au</i>)
IEEE – LOM	Learning Object Metadata standard
IMS	A widely used content packaging format containing content and metadata that is used to define some learning content that can be delivered, for example by a Learning Management System
Jurisdiction	School education systems and sectors within Australia and New Zealand
LORAX	Learning Object Repository Access and Exchange
MCEECDYA	Ministerial Council for Education, Early Childhood Development and Youth Affairs
NEALS	National Educational Access Licence for Schools
REST	Representational State Transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web
SOAP	Simple Object Access Protocol (SOAP) is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks
TLF	The Learning Federation
XML	Extensible Mark-up Language (XML) is a set of rules for encoding documents in machine-readable form