About this document

This document is a starter guide on Reusable Learning Objects (RLOs). The purpose of this document is to aid content providers develop a greater understanding of RLOs and start creating RLOs for use in the Shikshalokam platform to provide teaching and learning content relevant for school and school system leaders.

RLOs - Frequently Asked Questions

What are RLOs?

The acronym RLO stands for ""Reusable Learning objects. There is no one single agreed definition of what an RLO is and definitions vary from the description of 'learning objects' to more conceptual discussions about the purpose of RLOs, their significance in learning and types of RLOs. Broadly they are small pieces of meaningful content that are created to fulfil a particular learning objective.

Why are they relevant?

In the past, content development focused on the creation of courses and training modules as the end product of the design process. However, in the last decade, advancements in digital technology as well as changes in paradigms of how people learn and apply new knowledge and skills have shifted thinking in the learning and development space from monolithic courses to agile, flexible and micro content. The creation of such content that makes use of digital technology, is relevant for learners in a variety of contexts and can be put together in a variety of ways has brought in more effectiveness and efficiencies into learning management systems. Efficiency and quality can be improved by reusing portions of content that have already been built and have been proven effective. Further, it provides greater agency to learners to choose how to engage with the learning process and to choose that learning content which is of greatest relevance to them.

What is "Bite-sized information"

RLOs offer micro learning opportunities; i.e. information that learners can absorb quickly, effectively and as needed, in sense 'bite-sized".. It helps learners to navigate through learning programmes and courses in smaller chunks and according to their own needs. It also allows complex or involved subject matter to be broken down into more manageable pieces that can be mixed and matched with other pieces to form more holistic knowledge and information gains. It also enables course creators to focus on the creation of learning units, each with their own clear learning objective that makes the overall course creation process more flexible, effective and aligned to the purpose and goals of the learning programme.

What are learning objects?

Learning objects can mean many things. For some it refers to something small and elemental like a single piece of text, video or audio. For others the grouping together of various elements to achieve a specific learning objective or intent is the essence of a learning object. However, broadly, a learning object can be defined as the 'smallest, independent structural experience that contains an objective, a learning activity and an assessment (L'Allier, 1997). It is a paradigm shift in the creation of instructional materials focusing on the creation of small, self-

contained learning units, that can be assembled together in a number of different ways to create longer learning courses or programmes or pathways for learners.

The IEEE Learning Technology Standards Committee, Learning objective metadata workshop group defines learning objects as "any entity, digital or non-digital, which can be used, reused or referenced during technology-supported learning.

How can RLOs be defined?

A useful definition for an RLO is that it "is an independent and self-standing unit of learning content that is predisposed to reuse in multiple instructional context (Polsani, 2003).

What is "Self-contained" about an RLO?

Each RLO has one specific learning objective or intent. The RLO is created to fulfil that learning objective. Because the RLO is created to fulfil a specific learning objective or intent, it is referred to as self-contained. It does not usually need or is not dependent on any other learning object to fulfil its learning intent or objective and must be able to stand alone and make sense.

What is meant by 'Reusability' of an RLO

One of the most significant advantages and value addition of an RLO is that they can be used again and again. An RLO once created, can be reused multiple times and in a variety of different learning activities - e-learning, face to face, as modules and in combination as courses.

Any RLO that supports a particular learning intent or purpose can be used to fulfil those learning objectives in a variety of e-learning courses, assessments, activities, modules etc or incorporate them into a comprehensive learning course or programme. RLOs may have greater or lower degrees of reusability. Some RLOs (such as those explaining fundamental concepts) could be reused across a wide variety of contexts. Other RLOs (such as those explaining more specific concepts) could have a lower degree of reusability - say within a specific context. But all RLOs, by their very definition can be reused. In general, an RLO must strike the balance between being 'generic' or more 'contextual'. Reusability also means that RLOs are easy to adapt, modify and customise. By using flexible e-learning templates and RLO templates, it becomes possible to create RLOs that meet specific learning objectives, but also that they can be re-grouped in different ways to form full length courses meeting different learning objectives. Further minor changes in RLOs can be made to fulfil other learning objectives and goals.

What are some key characteristics of Reusable Learning Objects
- Reusable – RLOs can be used in multiple contexts; for multiple purposes; at multiple times. They can be used to build larger modules, courses or curricula; they can operate across different learning contexts (for e.g. digital, face-to-face, blended etc.) and instructional design approaches.
- Self-contained – each RLO focuses on a specific learning objective/intent

- Searchable – RLOs are tagged with **metadata** that allow for it to be discovered
- Flexible – RLOs are easy to update, customise and repurpose
- Cost-effective – avoid duplication of learning materials; provide intellectual capital.

What goes into an RLO?

An RLO usually contains content, practice elements and assessment along with a *metadata* about the RLO. Content, practice elements and assessments can be in the form of text, videos, audios, interactive elements, activities etc.

What is Metadata of an RLO

In order for a RLO to be reused, it must make itself known to creators and learners. The RLO must be discoverable and searchable. Metadata about an RLO is its identifier. It is a part of the RLO itself and is referred to as the presentation layer of the RLO. Usually metadata includes the following fields

1. The type of RLO
2. Date Published:
3. Learning objective or learning intent of the RLO
4. Language - The language in which the RLO is created
5. Primary Audience - who is the primary intended audience/learner for this RLO
6. Keywords- Any other identifier tag related to the RLO
7. Version - Current version of the RLO - RLO can have multiple versions
8. Number of elements combined- Types of resources used to make the RLO, for eg. one video, one case study, one audio etc..
9. Reusability description- the degree or the extent to which this RLO can be used in other learning contexts including in other courses , other domains etc..
10. Dependencies for this RLO- For a learner is there a need to complete any other RLO before starting this one, or if this is a precursor for any other RLO. Ideally, an RLO should not have dependencies as it is a self-contained learning unit. However, sometimes an RLO (such as a procedure RLO) may need another RLO (such as a concept RLO) to be completely meaningful to a user, particularly when it comes together in courses.

What do we mean by Types of RLOs?

In the ShikshaLokam platform, we define five types of RLOs. These can be thought of as frameworks for creating different kinds of RLOs. These have been adapted from CISCO's five kinds of information objects. Each type of RLO serves one kind of learning objective or intent. This is referred to as the CFP3 model.

What is the CFP3 model and types of RLOs?

Given below are the different types of RLOs in the CFP3 model and their descriptions. CFP3 stands for - **C**oncept, **F**act, **P**rinciple, **P**rocess and **P**rocedure - RLOs

**Different types of RLOs (reusable learning objects)**

Type of RLO	What is it used to teach?	How to identify this RLO
Concept	Group of ideas and objects , symbols and event - these are designated by a single word and if it is a group it shares a common feature	This RLO can be identified if it deals with questions such as "What is this"?, "What is its meaning", "What is the fundamental definition of this" It is at the highest level. Without knowing this, the learner will find it difficult to act or understand facts, principles, procedures and processes It is knowledge needed to do something
Fact	Specific one of a kind pieces of information Specific data Use it usually to link a concept to a principle/process/procedure	Look at it as a specific fact that a learner needs to remember; empirically derived or based; laws and policies At a practice level you will want the learner to recall the basic facts. Anything that is certain/unambiguous is a factual RLO
Principle	Doing something that requires judgement Particular guidelines have to be applied to performing a certain task/decision Principles comes between a concept and processes and procedure	Keep in mind when doing something. Some fundamental principles that help in guiding action or decision They are usually stable principles and can be applied across a number of decision making situations/events
Process	How a system works Supports underlying work, provides motivation A flow of events that describes how something works Not a task that is performed by one person, but something that involves many persons in organisations or across organisations and institutions	How something works ... Stages of something...

Procedure	A procedure performed on the job; involves doing	How to ......
	Comes after concept and process in a course sequence	Configuring....
		Verifying.....
		Operating.....
	A sequential set of steps to be followed by one individual to accomplish a task or make decisions.	Creating...
		Designing....
		Putting in place....
	It lists directions for procedural tasks; actions within a procedure must be done the same way each time (within a given situation)	

What does the structure of an RLO look like?

The RLO itself consists of a) Content items b) Practice items/ Additional learning tools and c) Assessment items. They together form the core of the RLO with a clear learning intent

Learning Object Structure
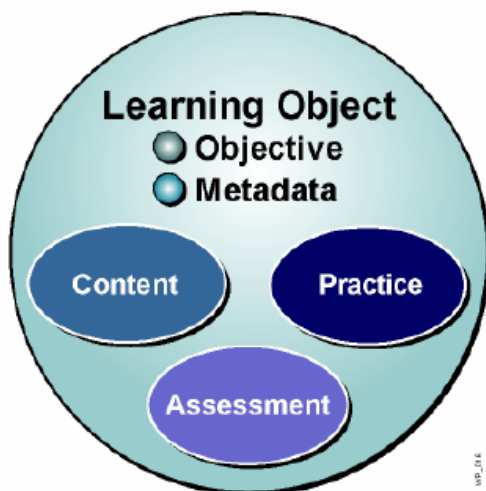
Content is the core material that the RLO deals with. It can consist of the following:

- Introduction
- Importance of the content
- The objective of the content
- The core knowledge pieces
- Summary
- Resources/ References

Practice items are those that help make the content more than simple 'information'. These are reinforcement activities that give the learner an opportunity to apply skills and knowledge.

Practice can take many forms including case studies, short activities, practice questions/quizzes, simple tests, recall and use scenarios. In a RLO there can be many practice items.

Assessments items are similar to practice but different. Assessments in a RLO are primarily concerned with determining if the learner has mastered the learning objective for a given RLO and primarily helps the creator know if the learning intent has been met. Practice items are primarily for the benefit of the learner. Usually one RLO has one assessment item.

What about assessment RLOs?

Assessments in the RLO paradigm can be thought about in two ways. The first assessment component is in-built in each RLO and assesses and evaluates if the learner has understood and is meeting the learning objective. This is inherent to the specific RLO itself. A second type of assessment is available in the form of Assessment RLOs themselves. These come into place when RLOs are being constructed or put together in the form of a course which has its own learning objectives. The assessment RLOs created for a specific course will seek to evaluate or assess all the learning objectives of the course. These assessment RLOs will be specific to a particular course and its learning objectives. They are therefore less reusable as their value is inherent in the way that the course is put together and its specific learning objectives. They may not be applicable in a context when the same RLOs may be put together in a different way with different learning objectives.

What should be the size of an RLO?

There is no specific size of an RLO. In general the RLO needs to be complete in itself and address a learning objective in totality. Instructional design principles suggest that an RLO could be anywhere between 5-15 minutes long and consist of more than one element put together.
Often the word Micro Learning Unit (MLU) is used in the digital or e-learning world to suggest small, bite sized learning content. While there are similarities between MLUs and RLOs, there are also differences. A single RLO is necessarily focused only one clear learning intent or purpose, an MLU can have more than one learning objective. MLUs also have restrictions on size, while an RLO can be as small or as large as needed to meet the learning objective

What is an Element?

An element is any individual piece of content - usually digital and can be combined with other pieces to create an RLO. Typical examples of elements include text, pdf, video, graphics, audio, interactive ppt, and other digital forms of content.

What is granularity of an RLO? How does one understand breadth and depth of an RLO?

The granularity of an RLO answers two questions - has the RLO achieved its learning intent and the extent of its reusability. This can be thought of in terms of the breadth and depth of the RLO. The breadth of an RLO refers to the extent of reusability of the RLO. The wider the breadth of

the RLO, the greater its reuse. Breadth refers to the extent to which the content and focus of the RLO is generalisable across content. If a RLO has very little breadth, then its content is applicable to a much narrower domain of focus, and therefore lesser reusability. The depth of an RLO refers to the amount of data and information contained in the RLO. The more the depth of information an RLO has, the more granular it becomes. It answers the question of addressing the learning intent and the amount of information required to address the learning objective.

Will the learning intent or objective of the RLO be different from the overall learning objective of a course?

A course can be designed by combining different RLOs to meet the course's learning objective /learning intent. Having said this, it isn't necessary that the learning intent of each RLO matches that of the course. For example, a course designed for Leadership Development may combine RLOs that have been created on Leadership, Understanding Self, Reflection, Forms of Leadership etc. The learning intent of the 'Understanding Self' RLO could be to help learner understand the concept of Self and its role in personal development. However, learning objective of the course could be to introduce the learner to the concept of leadership, understand different forms of leadership and introduce path of progress for development.

Can RLOs be created independent of its use in a course?

RLOs are self-contained and therefore can be used as a stand-alone learning object. If an RLO requires understanding of content provided by another RLO(s), such dependencies will be called out within its metadata.

How are courses constructed from RLOs?

RLOs once created can be linked together in a number of different ways to create courses and programmes of varying lengths, sizes and to address different learning objectives. RLOs can be brought together by connecting the learning intent of each of the RLOs. The linkages bring together the broader learning objective of the course/programme/module etc. RLOs can be constructed in any order based on the ID principles that course creators believe in and thing are effective to achieve the intended learning outcomes. Once an RLO is created and available on the platform, it can be redeployed in a number of different ways.

How can RLOs be reconstructed or repurposed for use?

Once an RLO is constructed, it obtains a unique id and a version number. This RLO is available on the platform for course creators and learners to use. If the creator of an RLO, makes changes to or modifies the RLO, then a new version of the RLO with an unique number is available on the platform. Users have the choice to use either the older or the newer versions of

the RLO. It is also possible to take an RLO and reconstruct parts of its elements such that it emerges as a different RLO. This is then available on the platform as a new RLO with its own unique ID number and versions. RLOs can also be an approach for designing content for face-to-face and offline delivery of content, and not necessarily only for digital platforms.