

Emerging Technologies for Effective Teaching & Learning

Continuing Education Program for Next Education India Pvt Ltd

Conducted by Educational Technology, IIT Bombay

January 9-11, 2020





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How to select “good quality”
technology-based resources?

Selecting good quality animation/videos



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Effective Integration

Selecting good quality
videos /
animations

Design
learner-centric activities



Think Phase

What you have to do :

Think phase (individually): Time – 2 mins.

- I am going to play 2 animations from <https://www.learnnext.com/cbse/class-7.htm>
- Pick any 1 whose content you are comfortable with
- *As you watch, Decide* if this a 'good' video/animation for your students
- Think & write down any 1 point you looked for to take this decision

Pair Phase



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What you have to do :

Pair phase (group): Time – 2 mins.

- Turn to your neighbour
- Discuss the points you have come up with &
- Together come up with 3 points

Share Phase



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What you have to do :

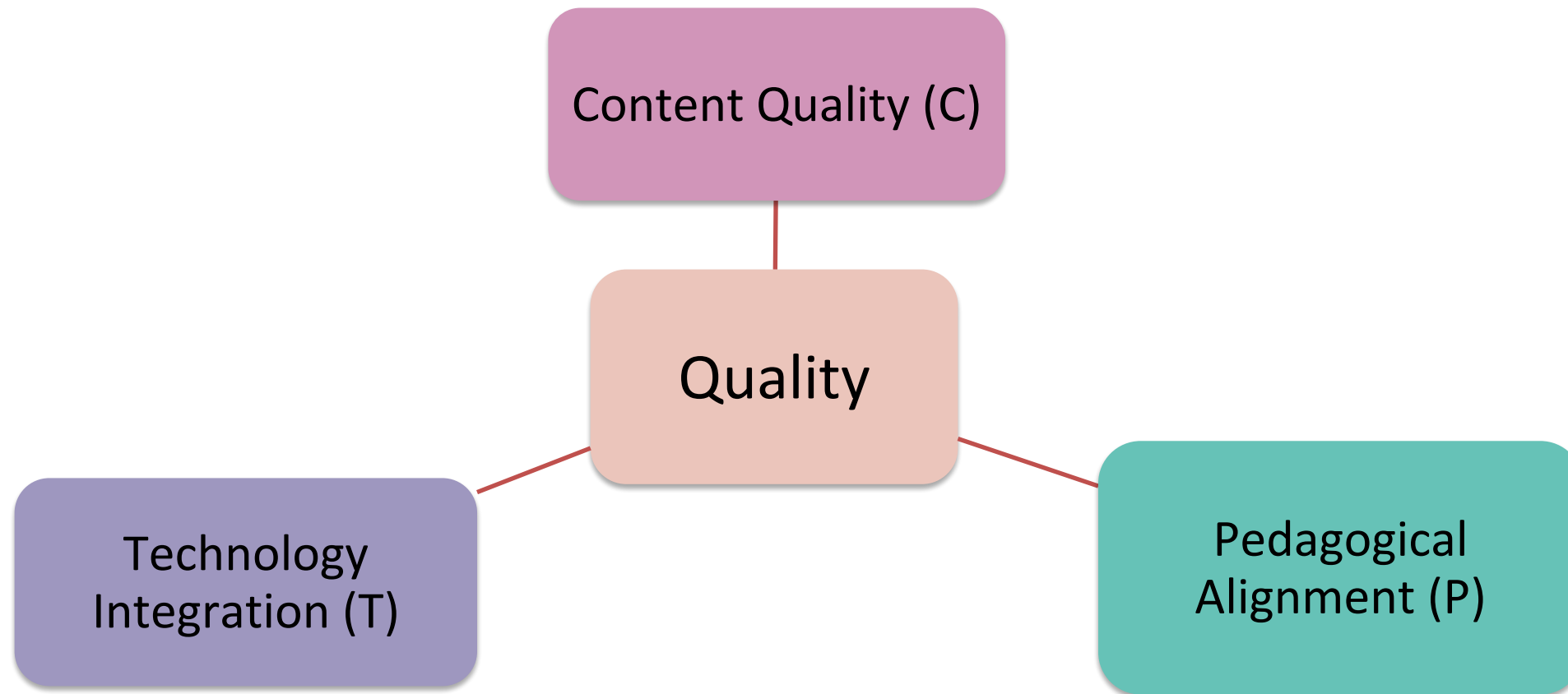
Share phase (whole group): Time – 5 mins.

- Share your points with all of us

Quality Evaluation Constructs



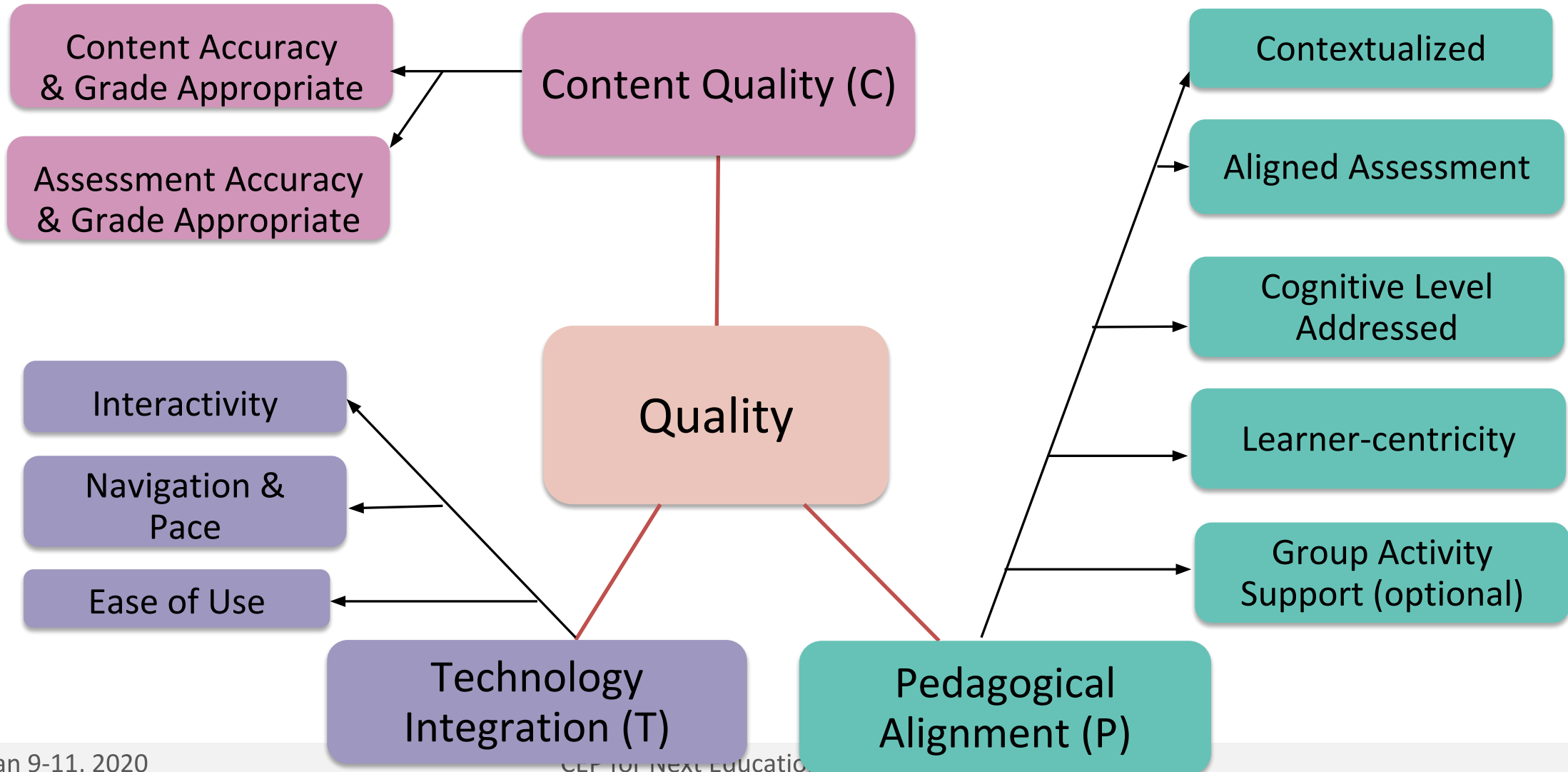
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Quality Evaluation : Constructs & Criteria



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LOBE_LITE : Learning Object Evaluation Instrument



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LOBE_LITE: Learning Object Evaluation Instrument (Abridged Version)

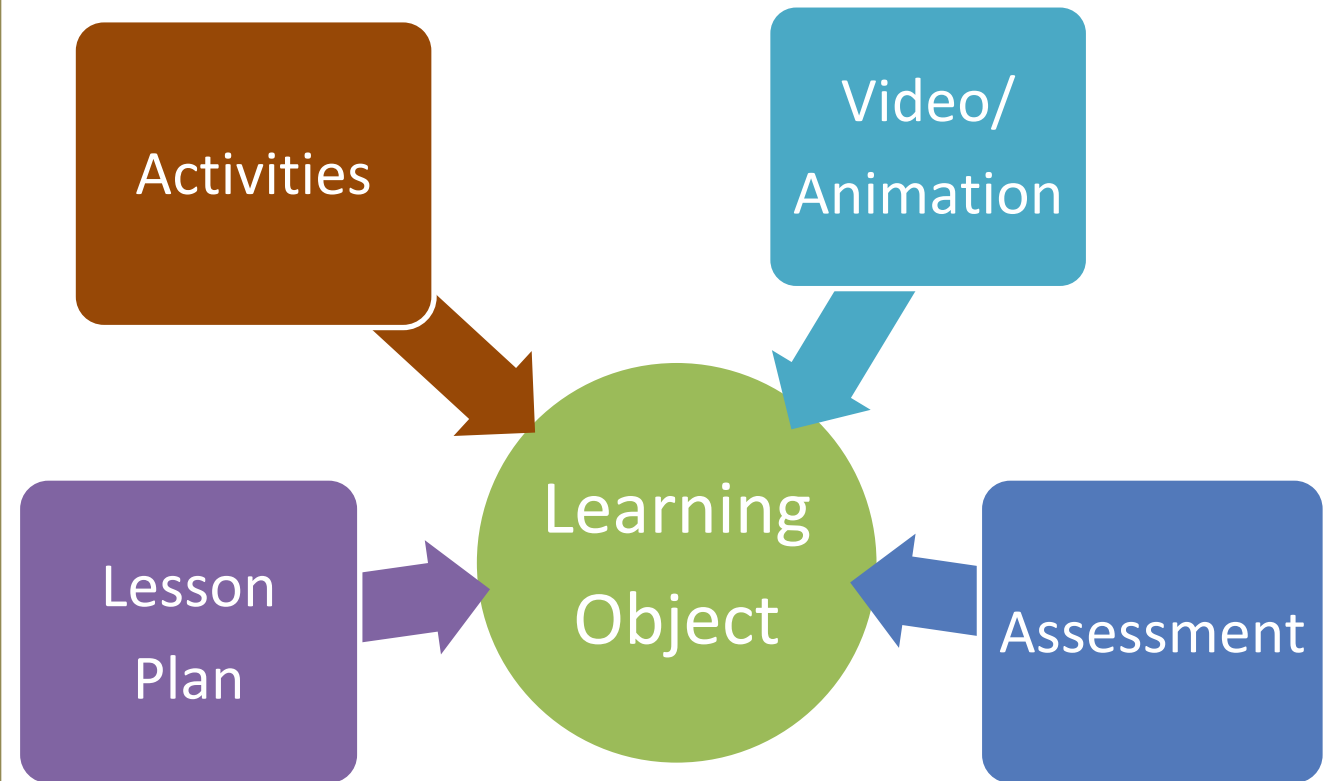
LOBE_LITE is a 4-scale (Missing, Inadequate, Almost, Target) theory-informed checklist for quality evaluation of learning objects. A learning object is a multimedia learning resource that contains dynamic visualizations (i.e. animations/simulations/videos) as its core component and either all or a subset of the following associated components – i) set of assessment questions, ii) learning activities, iii) solved examples.

Note: Please read the user manual from the webpage for a thorough understanding of how to use LOBE_LITE.

<http://www.et.iitb.ac.in/labs/lobe.php>

Content Quality (C)						
Questions	Score	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)	Remarks
C1. Is the content <i>accurate and grade appropriate</i> ?						
C2. Are the assessment questions in the learning object and their solutions correct, clear, unambiguous and <i>grade appropriate</i> ?						

Pedagogical alignment (P)						
Questions	Score	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)	Remarks
P1. Does the content and the assessment questions contain appropriate context?						
P2. Are the assessment questions in the learning object aligned to the stated learning objectives?						
P3. Has both higher order thinking skills (HOTS) and lower order thinking skills (LOTS) been sufficiently addressed in the learning object?						
P4. Does the learning object promote						



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Content Quality (C)					
Score	0	1	2	3	Remarks
Questions	(Missing)	(Inadequate)	(Almost)	(Target)	
C1. Is the content <i>accurate and grade appropriate</i> ?					
C2. Are the assessment questions in the learning object and their solutions correct, clear, unambiguous and <i>grade appropriate</i> ?					

Pedagogical alignment (P)					
Score	0	1	2	3	Remarks
Questions	(Missing)	(Inadequate)	(Almost)	(Target)	
P1. Does the content and the assessment questions contain appropriate context?					
P2. Are the assessment questions in the learning object aligned to the stated learning objectives?					
P3. Has both higher order thinking skills (HOTS) and lower order thinking skills (LOTS) been sufficiently addressed in the learning object?					
P4. Does the learning object present					

Target Audience:
Principals, HODs, Teachers

<http://www.et.iitb.ac.in/labs/lobe.php>

LOBE_LITE : User Manual



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Content Quality Questions	What does 'this term' mean?	Which components to consider?	What is 'Target' for this question?
C1. Is the content accurate and grade appropriate?			

LOBE_LITE : User Manual



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Content Quality Questions	What does 'this term' mean?	Which components to consider?	What is 'Target' for this question?
C1. Is the content accurate and grade appropriate ?	'Grade appropriate content' means - the content is appropriate for that grade. For example, introducing the 5 states of matter is grade appropriate for Grade 9 but not for Grade 5.	Consider the content across all components of the learning object like dynamic visualization, learning activities, examples, graphs if any etc. and score on the overall content accuracy.	The content contains correct facts, explanations, examples or graphical representations. The content presentation is unlikely to cause any misconception for the learner.

LOBE_LITE : Demo of How to Apply



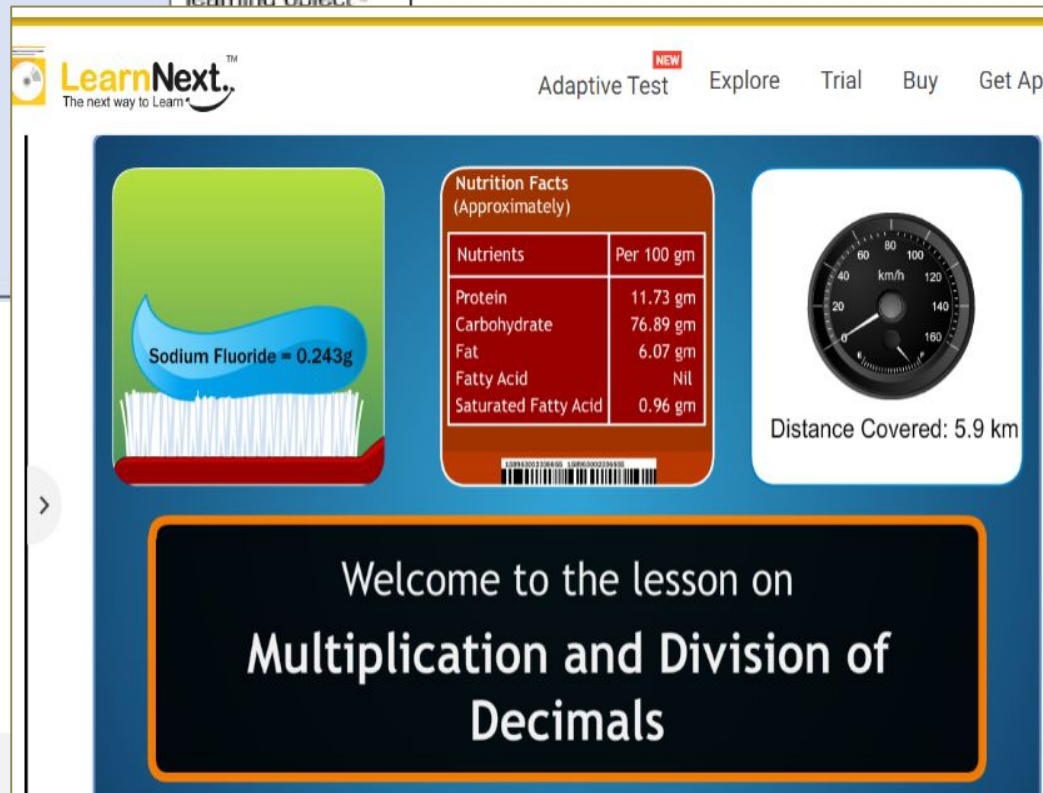
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- Watch the previous animation on 'Phrasal Verbs'
- 2 criteria (P1 & P4) from LOBE_LITE &
- Observe demo of the explanation of their Target levels

<http://www.et.iitb.ac.in/labs/lobe.php>

How to apply LOBE_LITE : Activity

Pedagogical Alignment Questions	What does 'this' term mean?	Which components to consider?	What is 'Target' for this question?	Note before scoring
P1. Does the content and the assessment questions contain appropriate context?		Consider the content in the following components of the learning object -	Context in content: The context should motivate the learner to care about the topic. For example, a motivational introductory scenario or a real life example or application of the topic.	<ul style="list-style-type: none"> • Score on the overall quality of context provided. If you find contextualization completely missing in either one of content or assessment question, please mark as Inadequate. • Context is not required in all assessment questions. However, there should be sufficient questions containing a relevant and meaningful context.



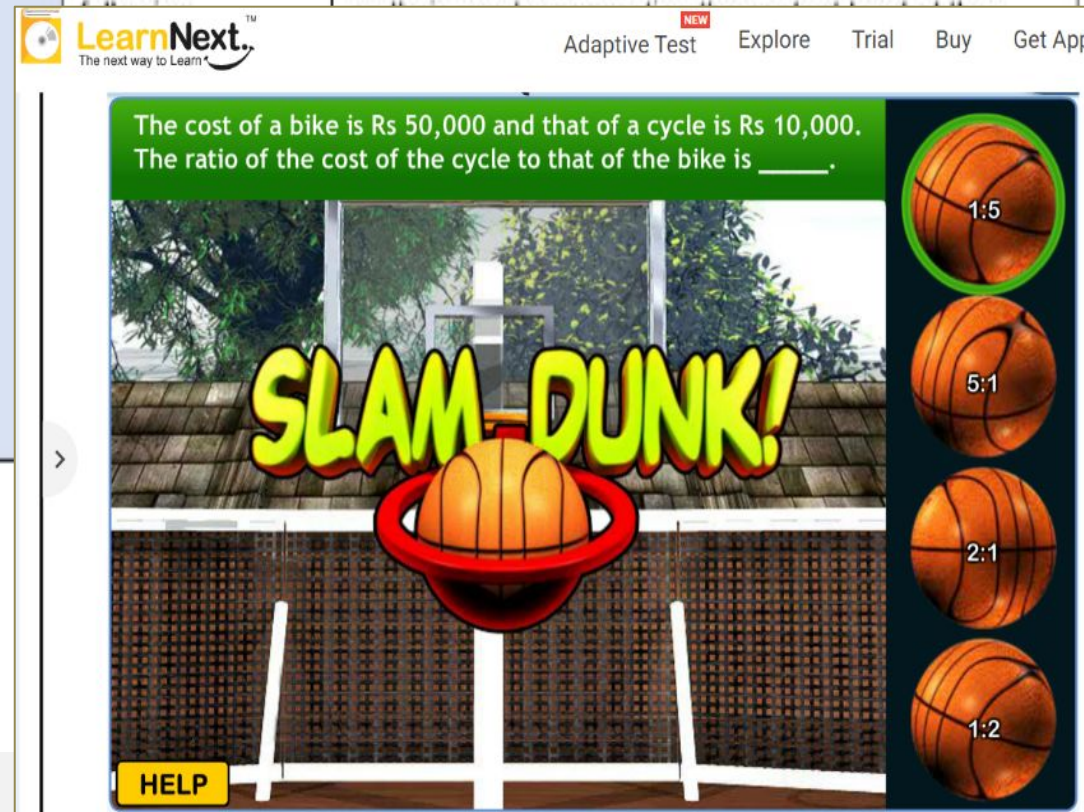
The screenshot shows the LearnNext app interface with the following elements:

- Header:** LearnNext logo with the tagline "The next way to Learn". Navigation options include "Adaptive Test", "Explore", "Trial", "Buy", and "Get App".
- Contexts:**
 - A toothbrush with a callout: "Sodium Fluoride = 0.243g".
 - A nutrition facts table (Approximately):

Nutrients	Per 100 gm
Protein	11.73 gm
Carbohydrate	76.89 gm
Fat	6.07 gm
Fatty Acid	Nil
Saturated Fatty Acid	0.96 gm
 - A speedometer showing "Distance Covered: 5.9 km".
- Footer:** A dark blue box with white text: "Welcome to the lesson on Multiplication and Division of Decimals".

How to apply LOBE_LITE : Activity

Pedagogical Alignment Questions	What does 'this' term mean?	Which components to consider?	What is 'Target' for this question?	Note before scoring
P4. Does the learning object promote learner-centric learning?		Consider the content in the	The dynamic visualization and learning activities should allow learners to construct understanding of the topic	Give overall score on learner-centricity of the learning object.



The cost of a bike is Rs 50,000 and that of a cycle is Rs 10,000. The ratio of the cost of the cycle to that of the bike is _____.

1:5

5:1

2:1

1:2

HELP



LOBE_LITE : Demo of How to Apply

Pedagogical Alignment Question

What is 'Target' for this question?

P1. Does the content and the assessment questions **contain appropriate context**?

Context in content: The context should **motivate** the learner to care about the topic. For example, a **motivational introductory scenario** or a **real life example** or application of the topic.

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LOBE_LITE : Demo of How to Apply




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Pedagogical Alignment Question	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)
P1. Does the content and the assessment questions contain appropriate context?	No context is provided for the content.	Some context is occasionally provided. However, it is irrelevant to the content.	A relevant context is provided for the content. However, the context may not be sufficient for the specific topic.	A relevant and sufficient context is provided wherever required.

LOBE_LITE : Demo of How to Apply



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Pedagogical Alignment Question	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)
P1. Does the content and the assessment questions contain appropriate context?				



LOBE_LITE : Demo of How to Apply

Pedagogical Alignment Qs.	What is 'Target' for this question?
P4. Does the learning object promote learner-centric learning?	Animation/Video allow learners to construct understanding of the topic on their own by connecting the content to what they already know, organizing and making sense of the content, testing and revising their understanding, applying the content and so on. This can be promoted by providing sufficient relevant activities where learners are required to do the above. Such activities are essential in getting learners engaged with the content and for effective learning.

LOBE_LITE : Demo of How to Apply



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Pedagogical Alignment Question	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)
P4. Does the learning object promote learner-centric learning?	There is only show and tell.	There are some activities in the learning object but these are very structured and guided.	There are activities intended to promote learner-centric learning. However some of the important features are missing	There are sufficient activities relevant to the content that allow learners to construct their own understanding.

LOBE_LITE : Demo of How to Apply



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P4. Does the learning object promote learner-centric learning?				

LOBE_LITE : How to Apply



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What you have to do : *Individual activity*

- Take 2 criteria (P1 & P4) from LOBE_LITE &
- Observed demo for the explanation of their Target levels
- Watch the previous animation on 'Operations on Integers'
- As you watch, score it on P1 & P4
- *Share your scores*

LOBE_LITE : Operations on Integers




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Pedagogical Alignment Question	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)
P1. Does the content and the assessment questions contain appropriate context?				

LOBE_LITE : Operations on Integers



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Pedagogical Alignment Question	0 (Missing)	1 (Inadequate)	2 (Almost)	3 (Target)
P4. Does the learning object promote learner-centric learning?				

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Introducing LOBE

Target User

Download LOBE

User Manual

Development Process

Robustness Testing

Download LOBE

Click on the list below to download the version of LOBE you want to use.

Name	Image	About Version	Download	Download Count
LOBE_LITE		<ul style="list-style-type: none"> LOBE_LITE is an abridged version of LOBE_PREMIUM consisting of 09-10 questions. It is a 4-scale (Missing, Inadequate, Almost, Target) theory-informed checklist for quality evaluation of learning objects. Use LOBE_LITE when you want to do a quick evaluation of the quality of the selected learning object. The robustness of the instrument cannot be vouched for. For thorough evaluation, use LOBE_PREMIUM (38 questions) that has been tested for validity & reliability. 	User Manual	35
			Rubric	22



Some Animation Repositories :

- LearnNext : <https://www.learnnext.com/>
- PhET : <https://phet.colorado.edu/>
- Wisconsin online : <https://www.wisc-online.com/learn>
- Visualgo : <https://visualgo.net/en>