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Designing learner centric MOOCs

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- Inter-Disciplinary Program, started 2010
  - Core faculty, also from depts of Engineering, Science, Design, H&SS

- R&D, PhD program

Project TUET: Teacher use of educational technologies

Project TELoTS: Technology enhanced learning of thinking skills

- Consultancy : Learner-centric pedagogy training & content-creation for industry

- Outreach: FDPs, MOOCs

Project TUET

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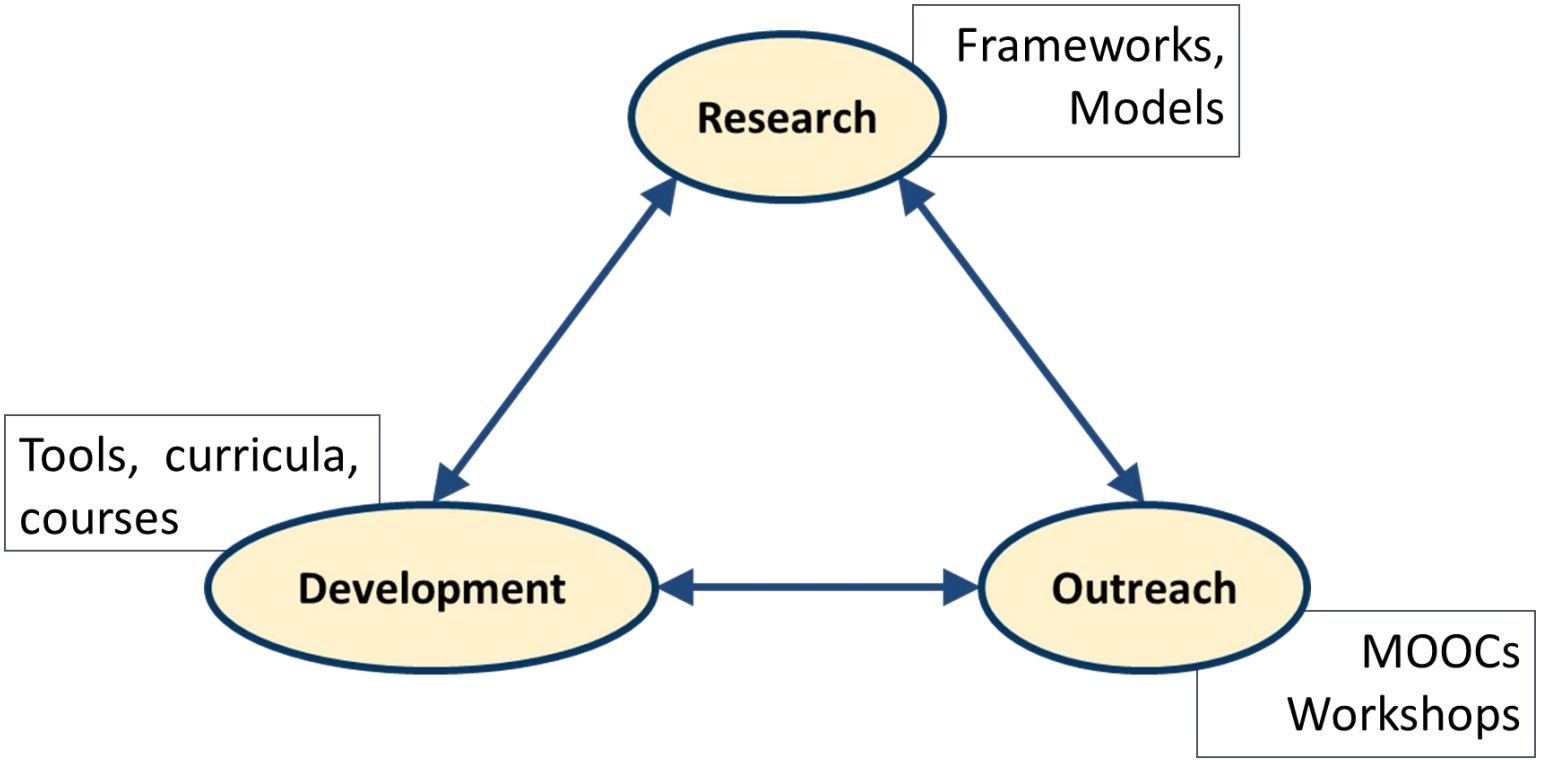

Scenario

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In order to create a MOOC, an instructor creates lecture videos, provides exercises, clarifies queries on discussion forums and does assessment.

What has this instructor missed?

What do you think – what has been missed?

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*

What's missing

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Attention to learner motivation

Getting learners to express their reasoning

Opportunities for immediate micro-application

Formative assessment and instant feedback

Explicit activities to foster peer-learning

Ensuring learner connect during the MOOC

Established theories of *How People Learn* is forgotten

Implications

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- Common MOOC problems may persist - low student engagement, low participation in discussion forums, low completion rates

- Problems of engagement worsen in a MOOC setting - distance, scale and diversity of learners are all high

Need - Learner Centric MOOCs

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Not sufficient to focus only on the technology features.

Not effective to mimic a typical classroom.

Need:

Incorporate learner-centric approaches
using technology affordances

Incorporating Learner Centricity

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Use principles of :

- Active learning
- Formative assessment
- Customized response & feedback
- Peer-learning
- Learner diversity

Learner Centric MOOC Model

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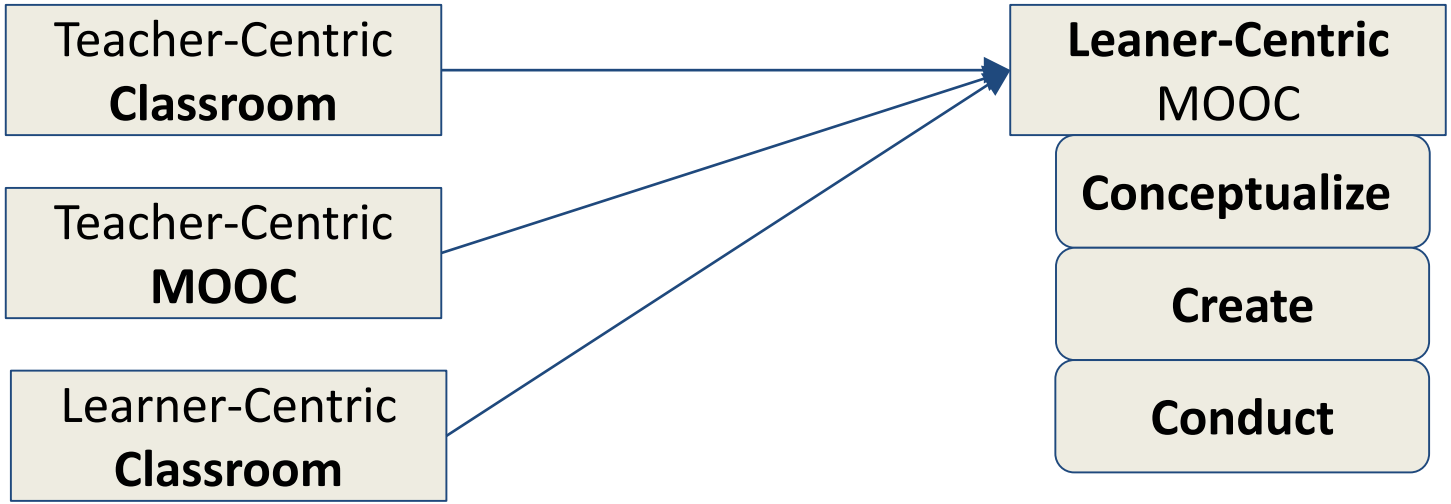
LCM MODEL HELPS AN INSTRUCTOR GO FROM



Overview of Learner Centric MOOC Model

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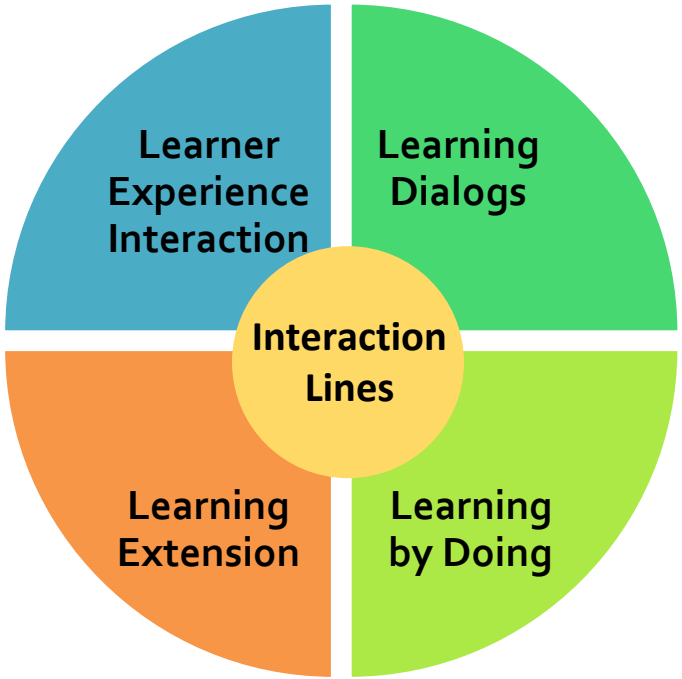

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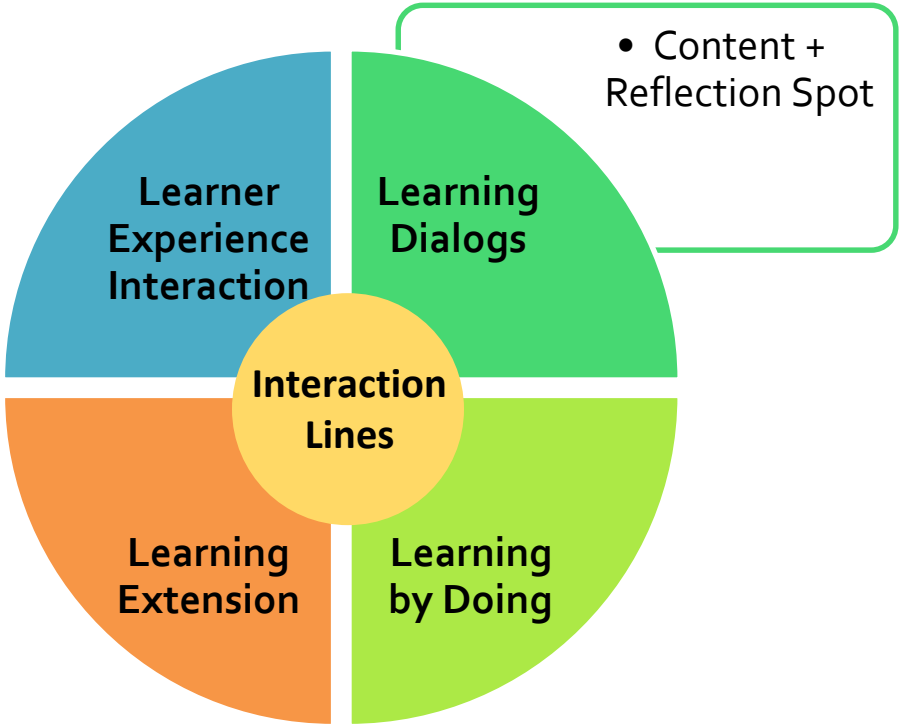

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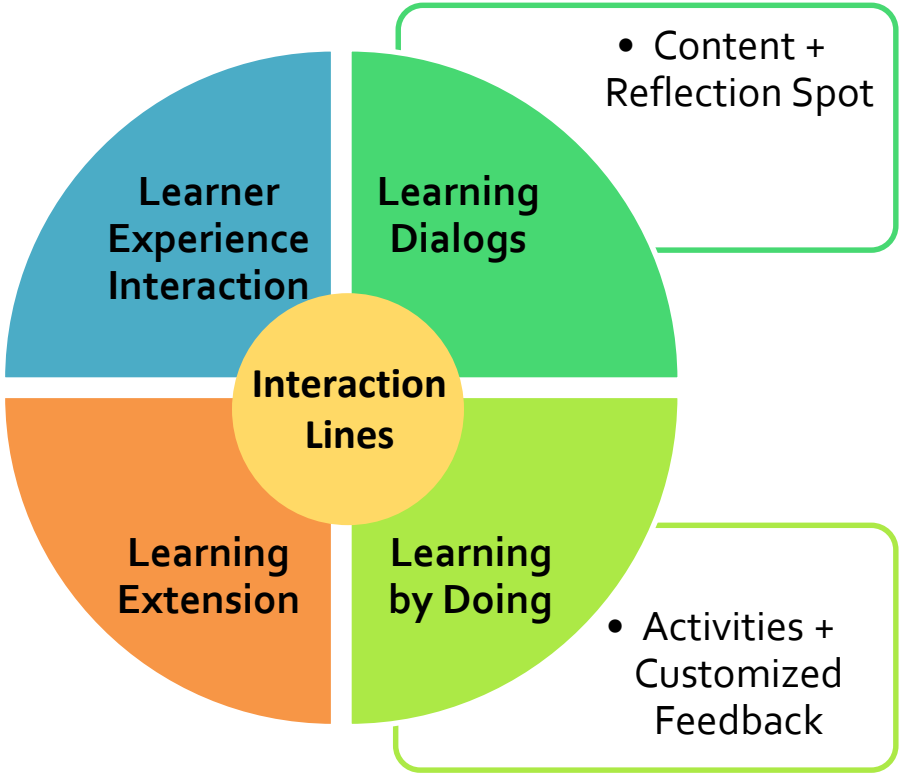

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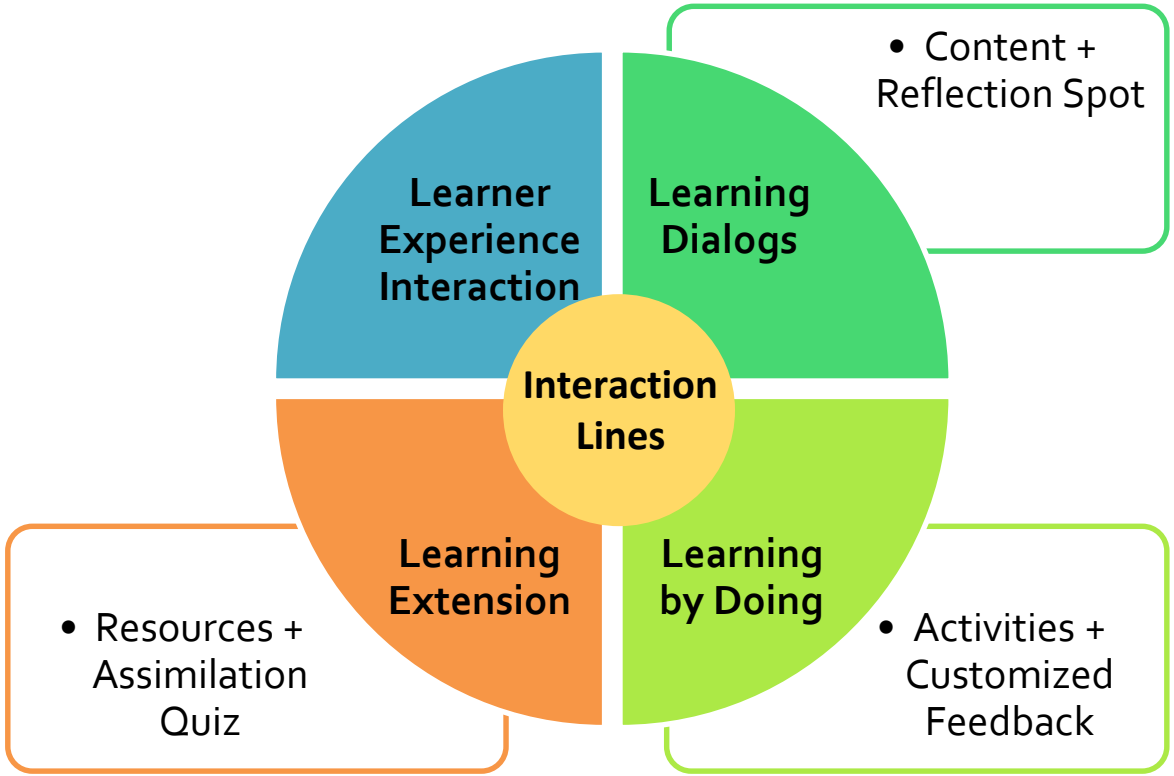

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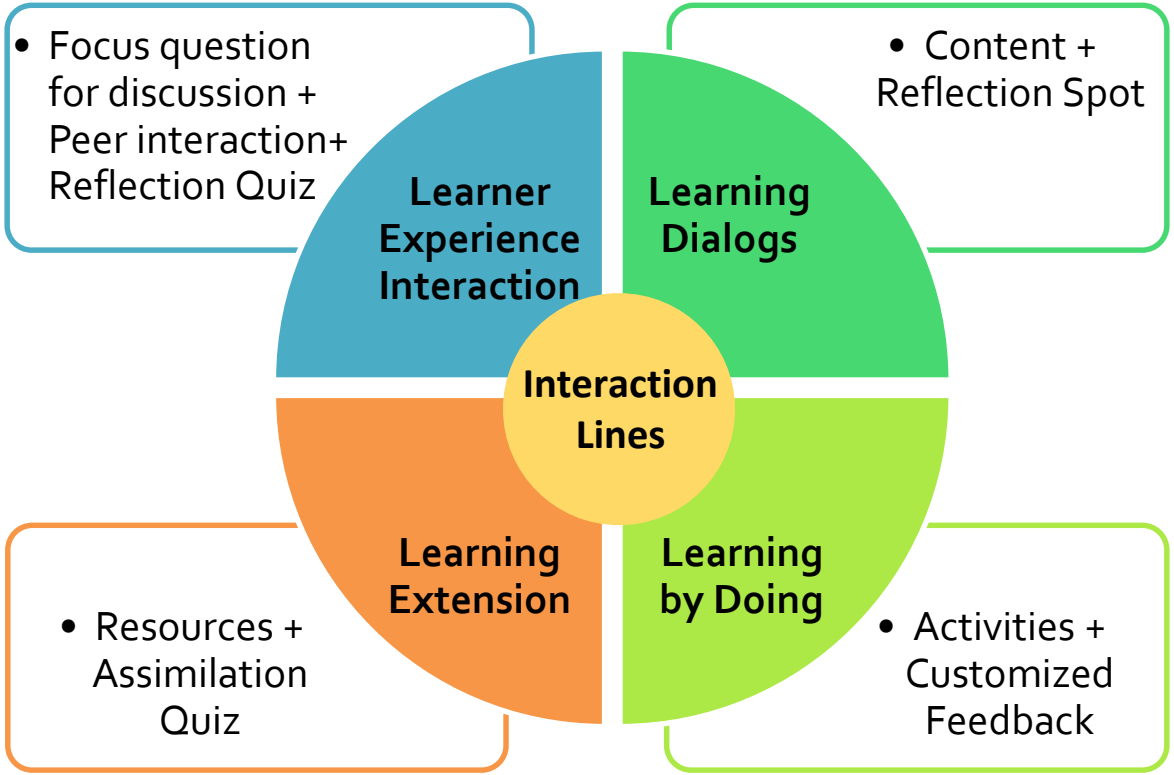

LeD Dynamics

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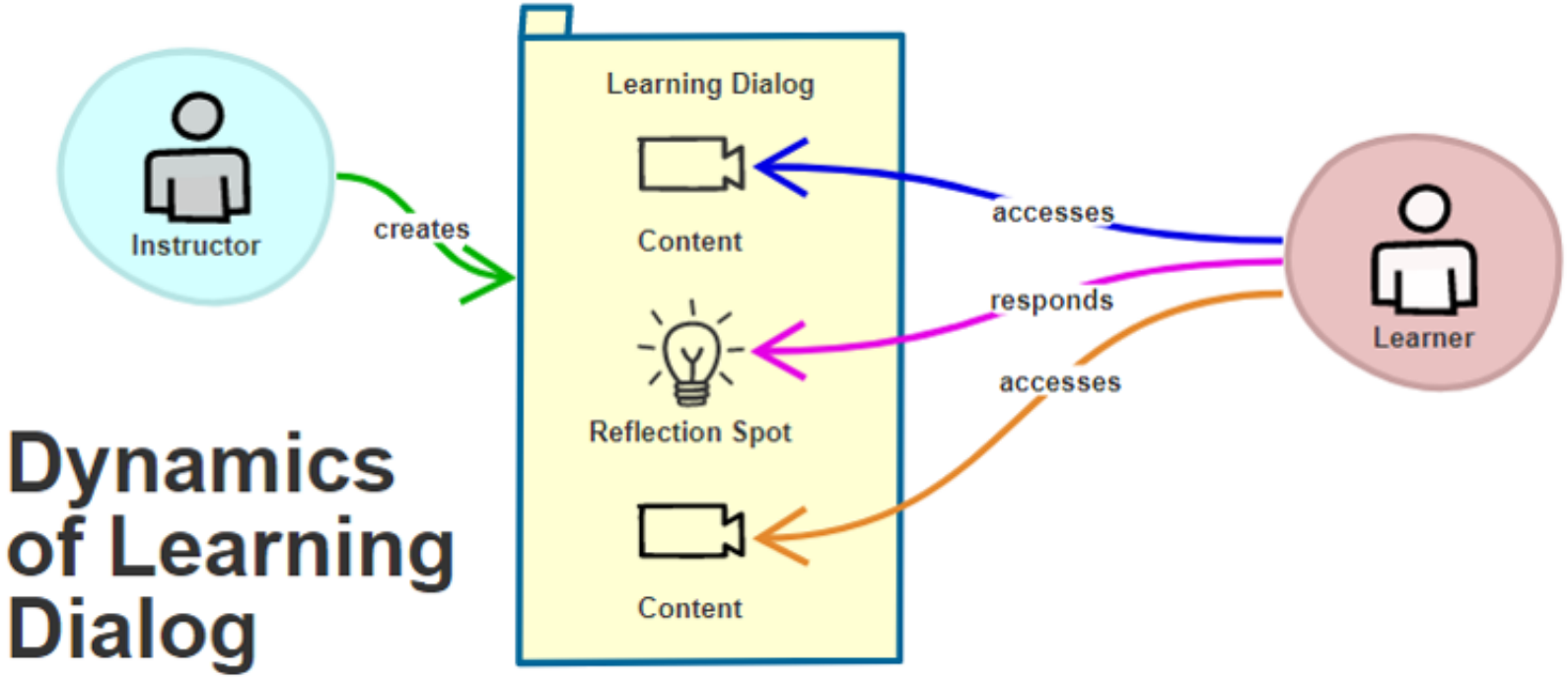

LeD Example in IITBombayX

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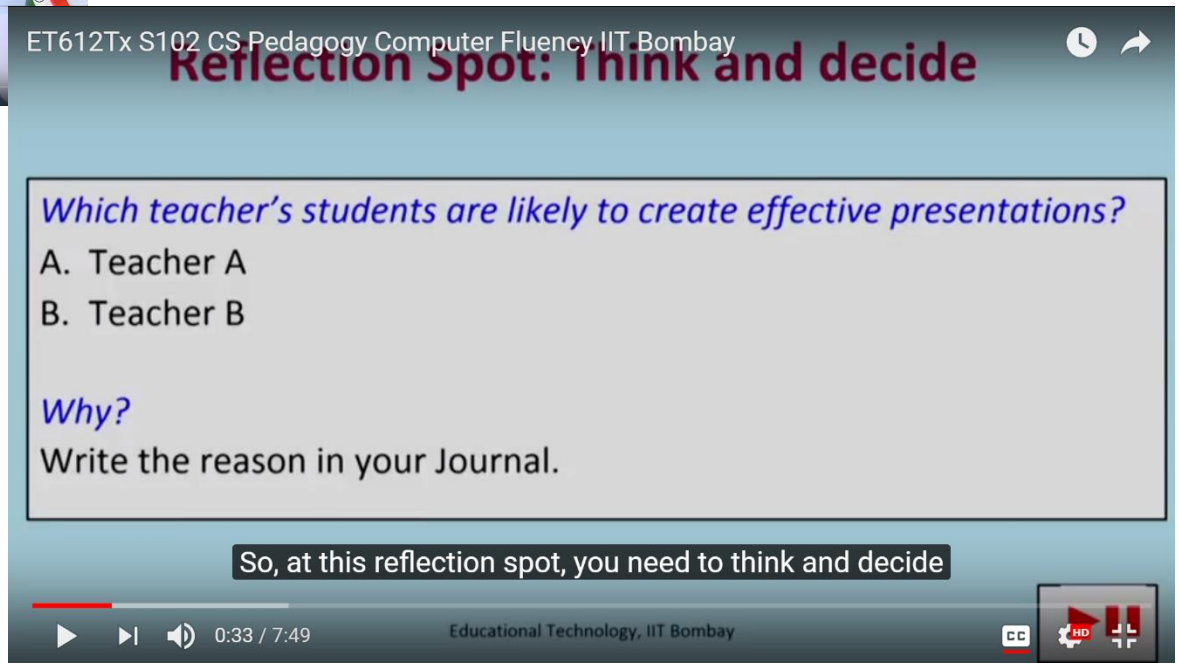

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Evidence

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- Average retention rate in FDP101x:
  - LeD videos : 69.9%
  - Regular videos : 55.73%

- Participants highlighted relevance and usefulness of LeD.
- 5000+ course journal submissions (out of 7000 participants) highlighted Reflection Spot activities.

From traditional to Learner-Centric MOOC

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Lectures and demos → **Learning Dialogs**

One or more units of
[Content + Reflection Spot]

Takeaway: Include reflection spots in content (videos/text)

LbD Dynamics

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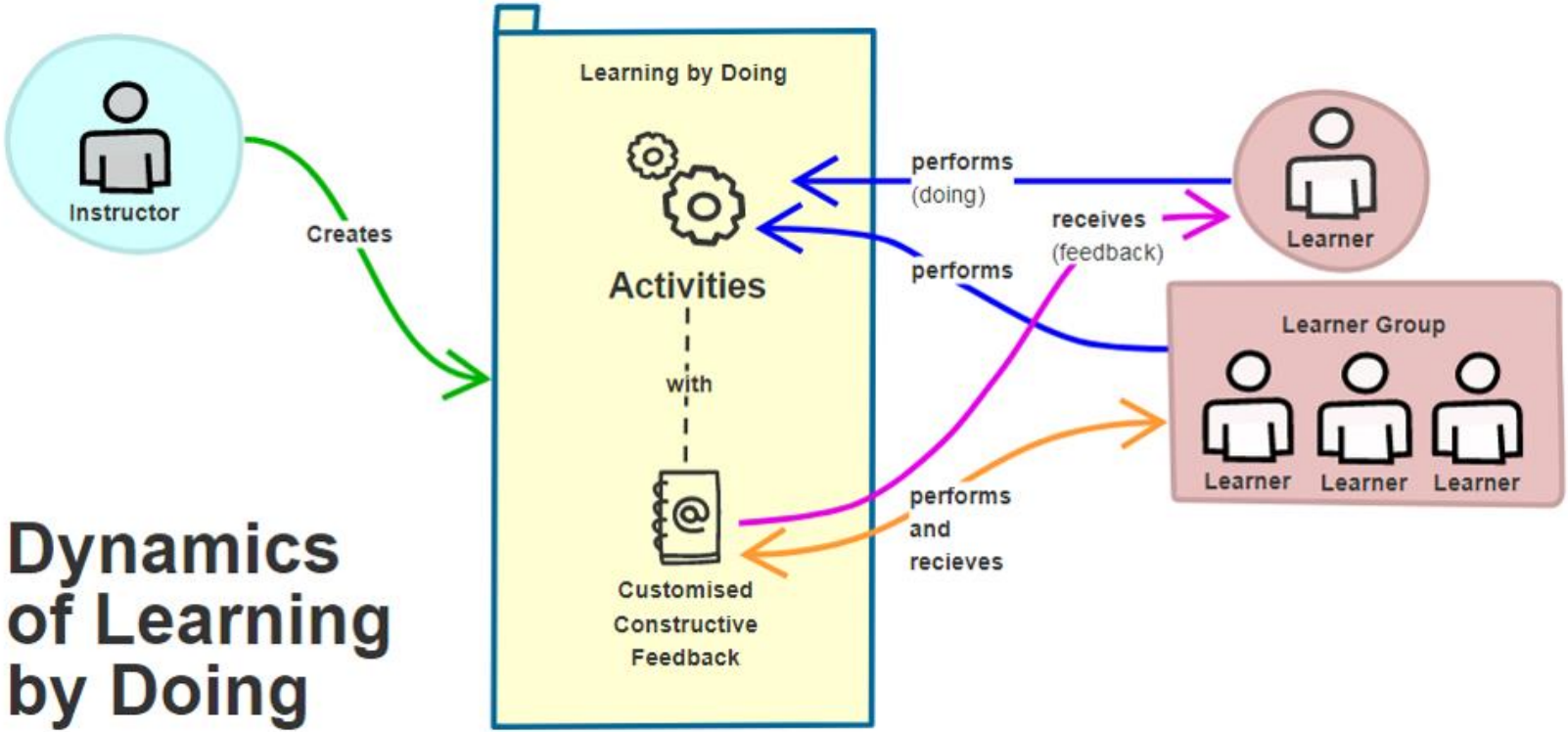

LbD Example in IITBombayX

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LbD Activity:
Design a flipped classroom for a topic in your course.

[Link to course]

Rubrics for peer-assessment

You will be evaluated on the basis of below rubric criteria:

Criteria/Scale	Missing (0)	Inadequate (1)	Adequate (2)	Exemplary (3)
Learning Objectives for Out-of-class activity	Learning Objectives are missing.	Learning Objectives have been stated, however they are not properly constructed or are addressing higher order thinking skills. For e.g. Students will be able to understand DeMorgan's theorem Or Students will be able to design circuits using NAND and NOR gates.	Learning Objectives have been stated using specific and measurable action verbs at Lower Cognitive levels. For e.g. Students will be able to explain DeMorgan's Theorem.	Learning objectives have been sated using specific and measurable action verbs with needed qualifiers to increase the clarity. For e.g. Students will be able to explain DeMorgan's Theorem using Truthtables.
Length of the Video	No video link is present.	The video is longer than 20 minutes. For e.g. providing links to an hourlong NPTEL lecture on Digital Logic Circuits.	The video length is between 3~15 minutes. If the total video is more than this time duration, then it has been split-up into multiple parts to	The video length is around 10 minutes. If the original video was having more length then it has been split into separate parts to satisfy 10 minute

Evidence

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- 91.8% people found LbD activities useful [N=695]

- *“LbD activities and resource creation activities were very useful and regular practise of the same help a teacher to improve quality in teaching and learning process”*

- *“ LeD and LbD helped me to understand the minute difference between standard practices and my own practice of lesson design.”*

From traditional to Learner-Centric MOOC

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Assignments → **Learning by Doing**

Activities consisting of

[Concept attainment, Apply knowledge + Customized feedback, peer review]

Takeaway: Follow up each LeD with a corresponding LbDs.

LXI Dynamics

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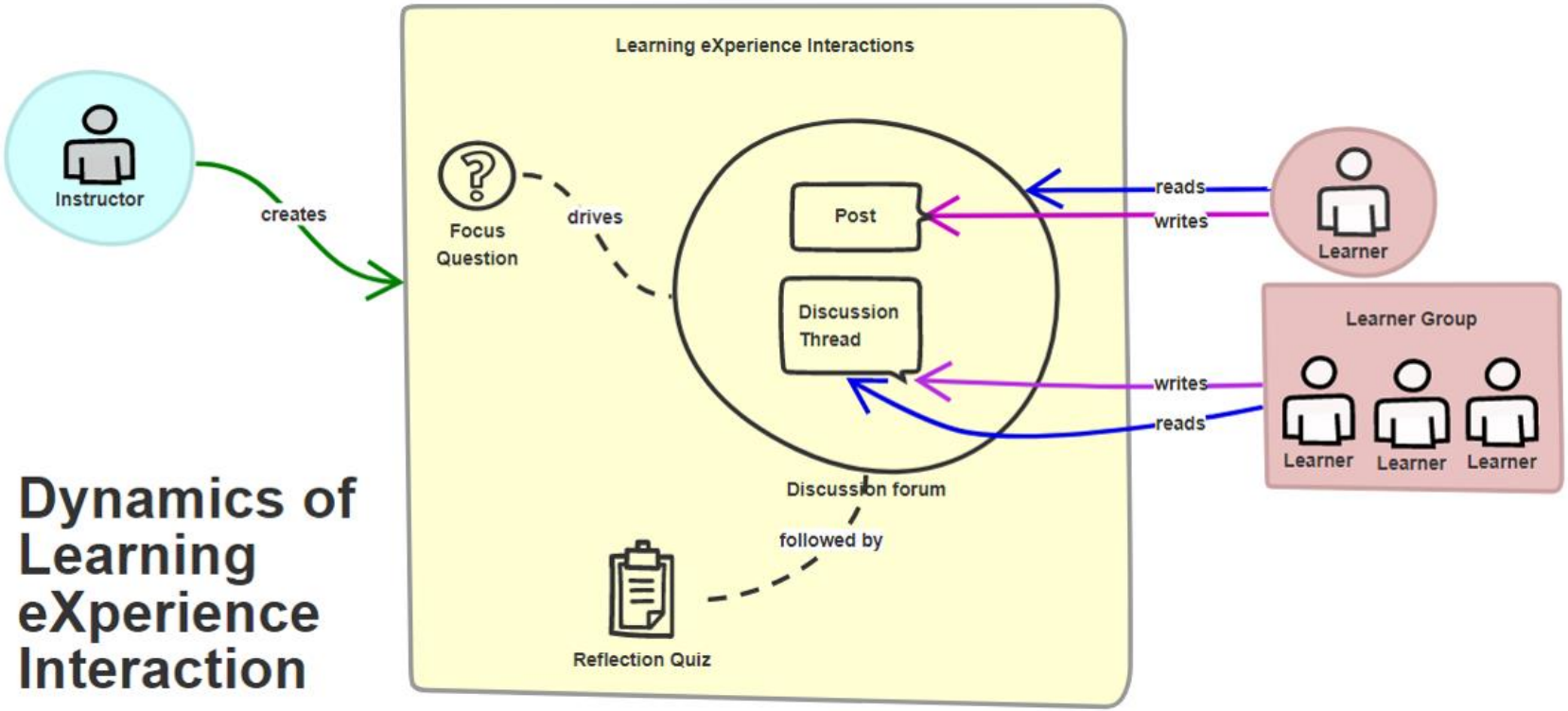

LxI Example in IITBombayX

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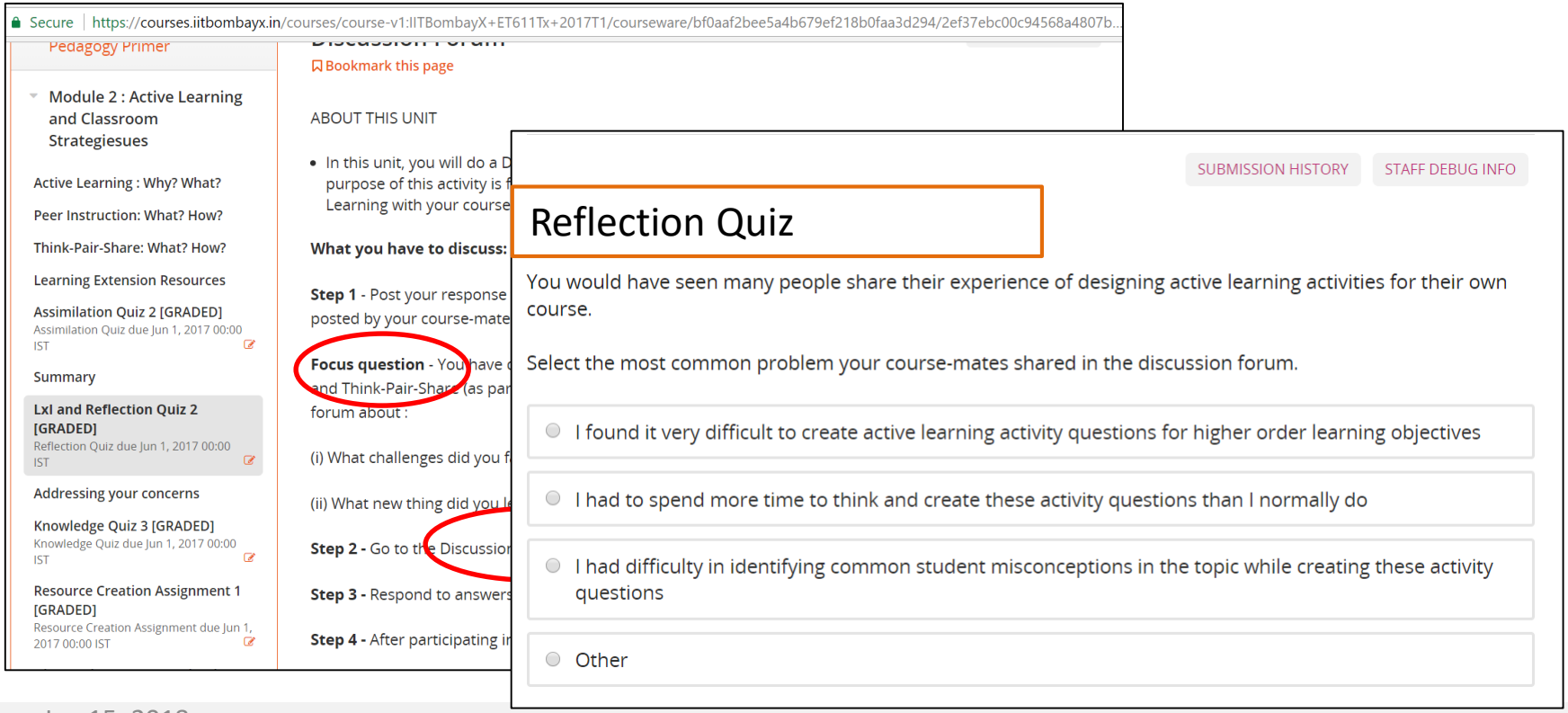

Evidence

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- “In your FDP discussion forum is the best feature where I can interact with like minded teachers from institutes all over India. ”

- “Discussion with other people about the subject, and TPS and PI activities are very interesting that motivated me a lot to complete the course.”

From traditional to Learner-Centric MOOC

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Learner-learner interaction → **Learning Experience Interaction**

Activities consisting of

[Focus question for discussion + Peer Interaction + Reflection quiz]

Takeaway: Exploit peer learning; create discussions centered around a focus question.

Ensure learner participation through reflection quiz.

LXT Dynamics

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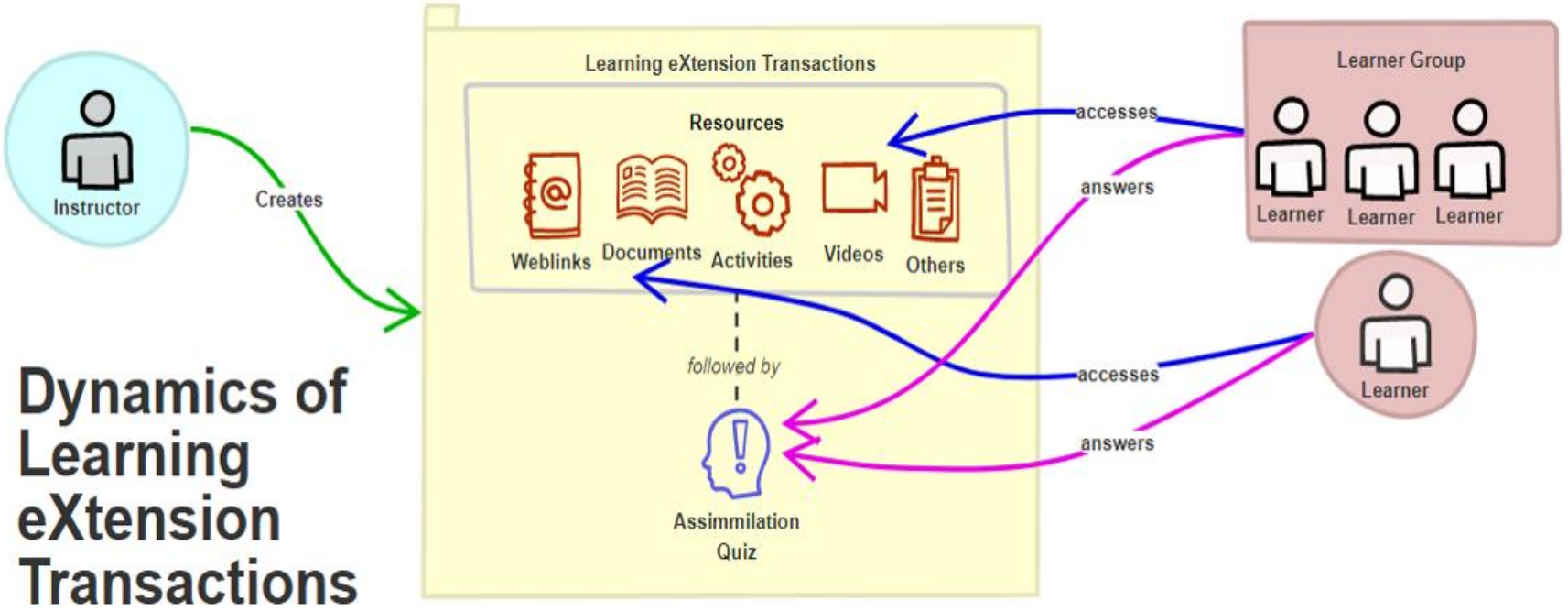

LXT Example in IITBombayX

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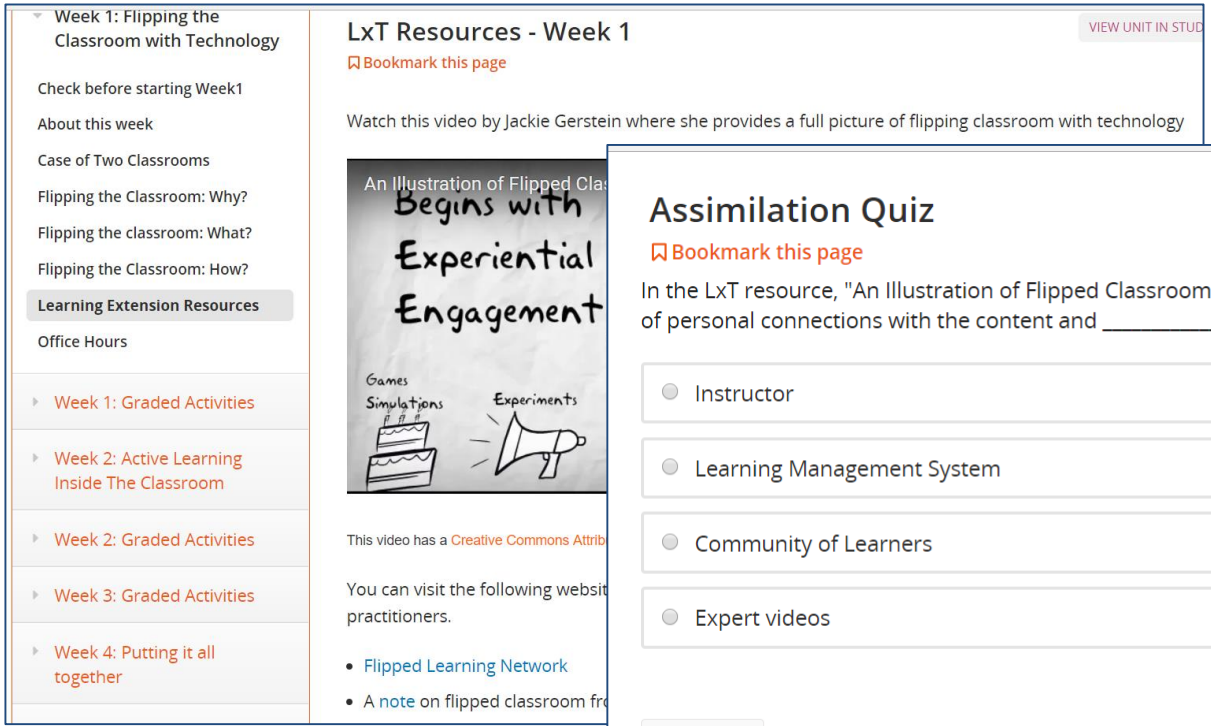

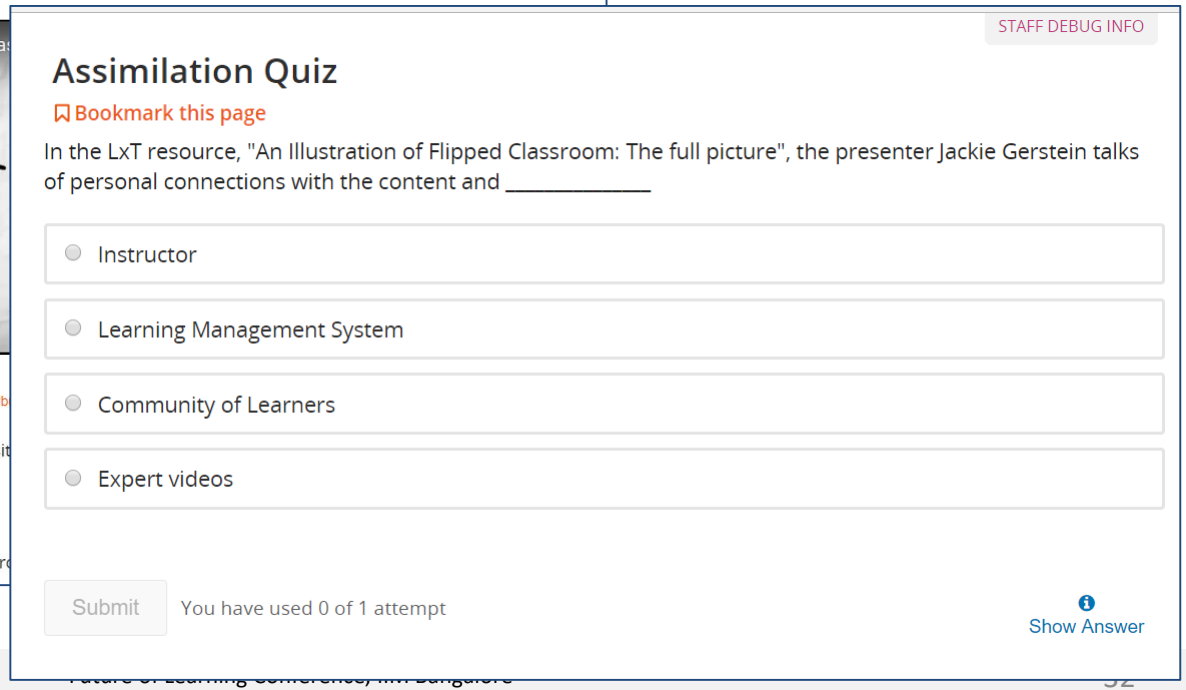

Evidence

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End of course survey:

- *"Having the assimilation quiz following the LxT resources made us look into those resources […] we realized that the LxT resources gives you details about strategies and their uses at different places"* [ET611Tx participant]
- *"Watching videos of Prof. Mazur made me realize that students in my class may also be nodding their heads without really understanding the concept"* [ET601Tx participant]

From traditional to Learner-Centric MOOC

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Additional material → **Learning eXtension Transaction**

[Links to resources for diverse cohorts
+ Assimilation Quiz]

Takeaway: Provide a rich set of LxT resources, and close the loop with Assimilation Quiz.

Orchestration Dynamics

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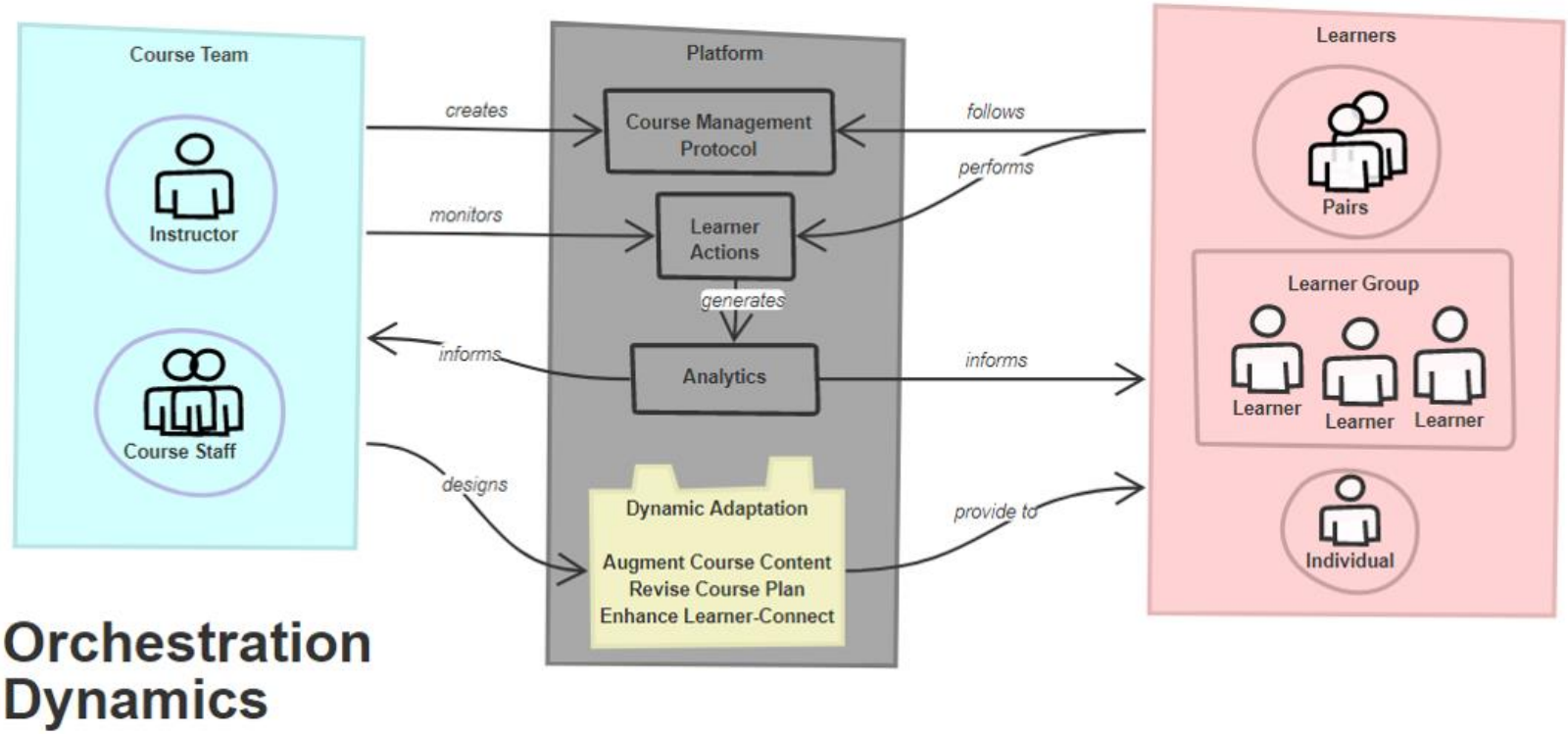

Did it work?

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ET601Tx : Jan- Mar 2016, 5500 participants, engg instructors

- Active participants: 67%

(participated in at least one activity – LeD, submit LbD, LXI post, quiz …)

- Persistence rate: 37%

(completed all activities active participants)

- Completion rate: 23%

(completed all activities / registered participants)

Final summary

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TRADITIONAL MODEL		**LCM MODEL**
Lectures and demos	→	Learning Dialogs (LeD)
Assignments and activities	→	Learning by Doing (LbD)
Learner-learner interaction	→	Learning eXperience Interaction (LXI)
Additional material	→	Learning eXtension Transaction (LXT)

Incorporate learner-centric approaches in your MOOC.

Apply LCM model to design a MOOC for your platform.

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Thank you!

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In IITB, July 9-13: ICALT 2018
IEEE International Conference on Advanced Learning Technologies
http://www.et.iitb.ac.in/icalt2018/