

**Designing learner-centric e-learning in STEM disciplines**  
**Prof. Sahana Murthy**  
**Interdisciplinary Programme in Educational Technology**  
**Indian Institute of Technology, Bombay**

**Lecture - 18**  
**Collaboration and Peer Learning**

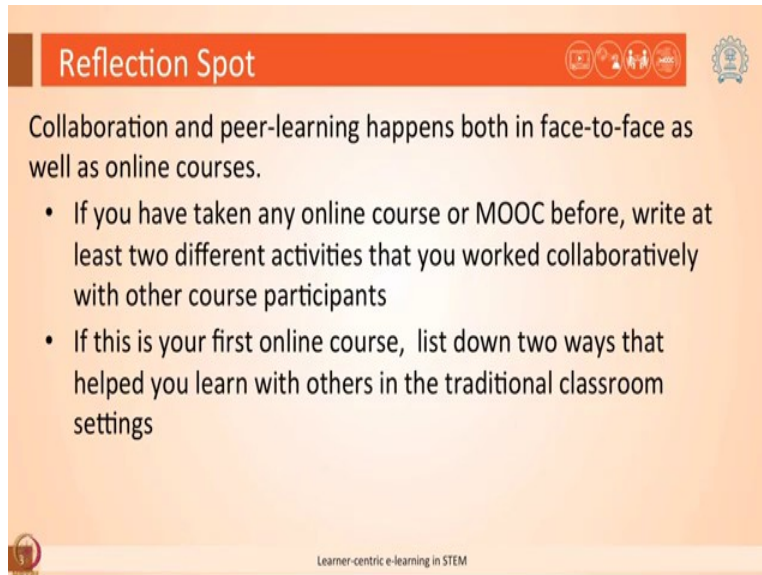
When we need to learn something complex or solve challenging problems, a very natural reaction for many of us is to discuss it with someone. And we do this whether we are students or professionals, what happens when we collaboratively learn and do problem solving is that it allows us to go into deeper levels of reasoning, it allows us to gain new perspectives, share responsibilities and also gain higher motivation to be focused on the task. This holds in an e-learning context also.

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Before we go ahead and design collaborative learning activities in an e-learning task, let us pause at a reflection spot.

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A presentation slide with an orange background. At the top, there is a dark orange header bar with the text "Reflection Spot" in white. To the right of the text are four small circular icons: a person, a group of people, a gear, and a document. Below the header, the text "Collaboration and peer-learning happens both in face-to-face as well as online courses." is displayed. This is followed by a bulleted list with two items. At the bottom left is a small circular logo, and at the bottom center is the text "Learner-centric e-learning in STEM".

### Reflection Spot

Collaboration and peer-learning happens both in face-to-face as well as online courses.

- If you have taken any online course or MOOC before, write at least two different activities that you worked collaboratively with other course participants
- If this is your first online course, list down two ways that helped you learn with others in the traditional classroom settings

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If you have taken a MOOC or an online course before list two ways to where, you did collaborative activities in the online course. You may have worked with other course participants. If you have not taken an online course before and this is your first course, you can also think of some collaborative activities that you may have done in the past couple of weeks within this course itself or think of two ways where it helped you to learn along with others in a face-to-face course or a workshop like a traditional classroom setting or maybe just an interactive face to face workshop. When you are done, please resume.

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The slide features a woman in a blue top on the left, gesturing with her hands. The background is a light orange gradient. At the top, a red banner contains the title 'Discussion of Reflection Spot' and several circular icons. The main content area lists 'In eLearning settings:' followed by a bulleted list of activities. A small logo is in the bottom left, and the text 'Learner-centric e-learning in STEM' is at the bottom right.

### Discussion of Reflection Spot

In eLearning settings:

- Using wikis
- Collaborative activities
- Discussion forum
- Peer assessment
- Peer review

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In an e-learning setting or such as a MOOC or a online course, you may have experienced collaborative activities involving wikis. You may have posted on a discussion board or a chat forum. You may have been hours to review something that your peers may have uploaded.

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The slide features a woman in a blue top on the left, gesturing with her hands. The background is a light orange gradient. At the top, a red banner contains the title 'Discussion of Reflection Spot' and several circular icons. The main content area lists 'In face-to-face settings:' followed by a bulleted list of activities. A small logo is in the bottom left, and the text 'Learner-centric e-learning in STEM' is at the bottom right.

### Discussion of Reflection Spot

In face-to-face settings:

- Using wikis
- Group discussion
- Debate
- Collaborative problem solving
- Structured group activities such as jigsaw, Think-Pair-Share

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Similarly, in a face-to-face setting you would have experienced group discussions or debates perhaps some structured learning activities, structured peer learning activities, such as



collaborative problem solving, jigsaw, think pair share and so on. So, these are a variety of activities which involve learning along with somebody else that can be done in different contexts.

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## What is the Principle?

- Collaboration and peer learning improves peer-learning, but also improves learner connect with peers and instructors
- Collaboration
  - learners work together to achieve a common purpose
- Peer Learning
  - 'acquisition of knowledge and skill' achieved through interaction with fellow learners (Topping, 2005)

Topping, K. J. (2005). Trends in peer learning. *Educational psychology*, 25(6), 631-645.



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The idea of collaboration is that learners work together to achieve a common purpose. Peer learning involves the acquisition of skills and knowledge achieved through interaction with others. What is important to recognize here is that collaboration is a viable method for creating individual meaning for constructing one's own interaction while learning along with peers. It is not collaboration, collaborative learning or peer learning is not merely a means of acquiring information from each other.

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Why Collaboration and peer learning?

- Social interactions of a learning environment provides support for individual learners
- Group interactions facilitate active learning, shared knowledge, and promote social interaction

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Several research studies and a lot of learning theories have shown the importance of collaboration and peer learning, and again this is across a variety of contexts. It starts with the idea that the social interactions that are built into a learning environment provides support for individual learning, such group interactions facilitate active learning, sharing of knowledge, promotes skills such as articulation, collaboration, and communication.

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Why Collaboration and peer learning?

- It promotes articulation and argumentation skills in learners , establish communication with other learners
- Promote student-faculty interaction
- Broaden understanding of diverse perspectives

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It also establishes a healthy interaction between the students and the instructors within a particular course and finally, collaboration at peer learning leads to a broader understanding of diverse perspectives. And again we know how the diversity of ideas the various perspectives can enrich one's own learning.

I think they are all convinced and we know from our own experience the importance of collaborative and peer learning. But how do we implement it? How do we operationalize it in an e-learning context?

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Discussion Forum and LxI

Design LxI – focus question, discussion posts, reflection quiz.

Discussion on Designing Think-Pair-Share Questions

discussion posted 10 months ago by sharmasrisha

It was a good idea but when we use think pair share, My management and I feel it will consume lot of time which may not allow us to complete our portion on time

Related to: [Module 2: e-Learning and Classroom Strategies](#) / [Module 2: Designing Think-Pair-Share Questions](#)

This post is visible to everyone

[Add a Response](#) 0 responses

sharmasrisha  
10 months ago

Not sure, if the idea was tested for some time or not in this case. I believe that there is a Learning Curve for all new things and processes. Things may seem difficult/impossible at first however, when we start implementing, analyse where we are going wrong, identify the improvement areas, things may start falling in place.

[Add a comment](#)

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So, what will do now is to look at a few strategies and collaborative tools that are that will help us design collaborative learning activities for our own e-learning contexts. One of the most common strategies that facilitates and promotes peer learning and is a discussion forum. Now, you would have seen discussion forums in a variety of websites on learning management systems or in online courses and many such different places.

Now, it is not sufficient to simply make available a discussion forum and tell our learners to go and discuss or even to go and discuss about a topic. Because again what is well known is that very few people actually go ahead and in fact, participate in the forum unless there is something a little extra. So, one way to encourage, to improve the participation in discussion forums is to include a focus question or to incentivize people to go and participate.

What we have done in this course, which you would be familiar with by now is are the learning experience interaction activities LxI activities which begin with a focus question related to your own personal experience. And, you had to come and first share your experience, share your opinions with others and then the focus question asked you to go and look at other people's experiences and comment upon them. Closing this activity was a reflection quiz which again ties the whole thing together. So, a discussion forum is actually the technology tool or the platform combined with the learning experience interaction the LxI activity, these two together will help promote peer learning.

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Chats and Instant Messaging

Doug Roberts 3/30/17 11:22 AM INSTRUCTOR  
Good morning class! 🌞  
I will be here until 12:30 to answer any questions you might have for tomorrow's test.

Jane Smith 3/30/17 11:23 AM  
Will the Declaration of Independence be included on this test?

Doug Roberts 3/30/17 11:26 AM INSTRUCTOR  
Yes! Expect a few questions on this topic.

Max Johr  
Are all th...

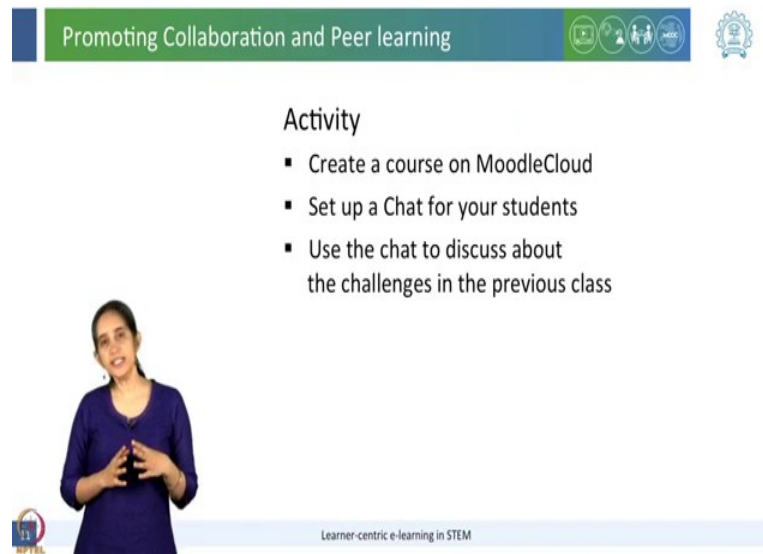
ACTIVITIES  
The chat activity module enables participants to have text-based, real-time synchronous discussions.  
The chat may be a one-time activity or it may be repeated at the same time each day or each week. Chat sessions are saved and can be made available for everyone to view or restricted to users with the capability to...

<https://moodlecloud.com/>

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Related strategies include charts instant messaging, live chats, message boards, there are many such many such examples. You will see some of these in these screenshots and images now.

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Promoting Collaboration and Peer learning

Activity

- Create a course on MoodleCloud
- Set up a Chat for your students
- Use the chat to discuss about the challenges in the previous class

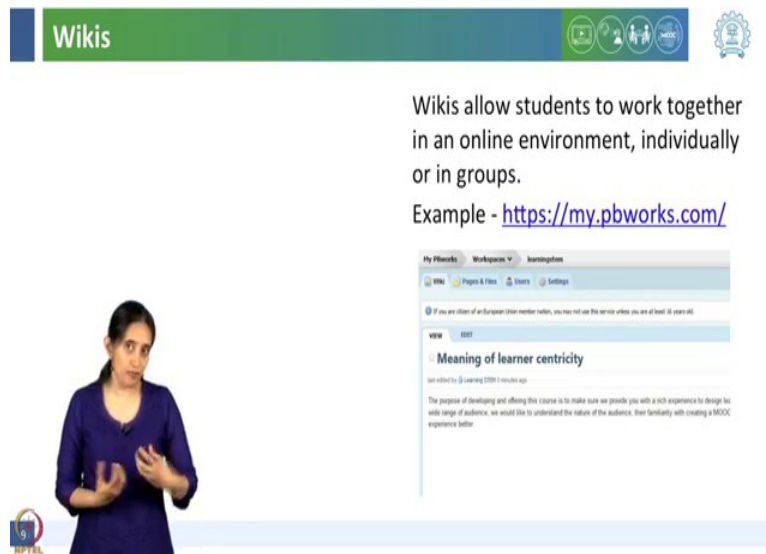
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The slide features a green header bar with the title 'Promoting Collaboration and Peer learning' and several circular icons. Below the header, the word 'Activity' is followed by a bulleted list of three items. A woman in a purple top is shown in the bottom left corner, gesturing while speaking. The bottom of the slide has a light blue bar with the text 'Learner-centric e-learning in STEM' and a small logo on the left.

Similar to the previous point we made, when you include chats or instant messaging what we need to do is design a learning activity around it. For example, you can provide a focus question to students to discuss the challenges from the previous class. This is a very simple focus question and again it is related, it is very relevant to every learner, and that that would get the discussion going and as an instructor we get just in time feedback. This is another pedagogical strategy that will help us realize what were the challenges that, the class faced and go on with it. A different strategy for peer learning that one can use in an e-learning context is wikis.



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The slide is titled "Wikis" in a green header bar. To the right of the title are three circular icons representing different collaborative features. A presenter, a woman in a blue top, stands on the left side of the slide. On the right, there is a screenshot of a wiki page from "my.pbworks.com". The page title is "Meaning of learner centricity". The text on the page discusses the purpose of developing and offering this course, aiming to provide a rich experience for a wide range of audiences by understanding their needs and creating a 10000 experience better.

Wikis allow students to work together in an online environment, individually or in groups.

Example - <https://my.pbworks.com/>

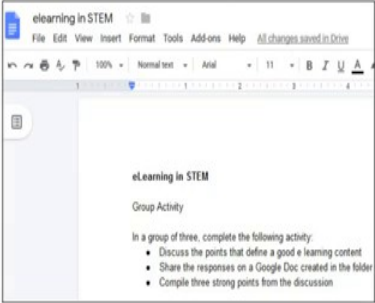
Now, a wiki is a platform where learners can collaboratively write text upload images both individually as well as together. They can comment on each other's work. So, the most common example of wikis that we know of is Wikipedia. But this can be brought into a teaching and learning context, and several e-learning platforms right from open source, LMS is like Moodle have wikis as a built into tool.


Like earlier, it is very important to set up a clear learning activities that learners can do on the wiki. A wiki is a good way to get students to work on a collaborative project which may need several days or several weeks of work on it.

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## Google Docs

Create, edit and comment on documents individually and collaboratively  
<https://docs.google.com/document/u/0/>





There are other tools where students can collaboratively work on a certain document or a text. So, Google docs is again something we are very familiar with. Maybe in the professional setting, this can be brought into a classroom. This tool allows learners to comment on each other, to review each other's work, to edit and also to create something together.

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## Collaborative Discussion Boards

Share information, images, audio or video files on virtual walls  
Use in face-to-face classrooms or asynchronously in e-learning contexts  
Padlet [www.padlet.com](http://www.padlet.com)  
Trello <http://www.trello.com>

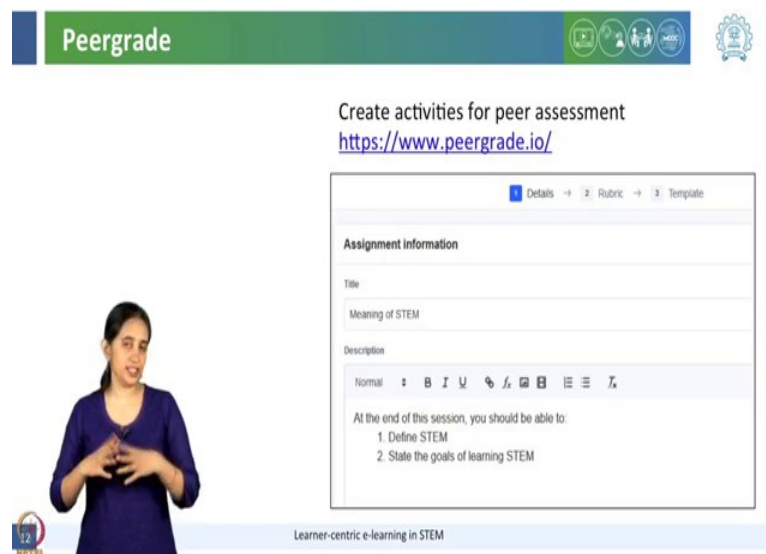




In the same family of learning activities we can also design activities using online collaborative discussion boards such as padlet or trello. Now, these tools allow learners to share text, video, audio, opinions, as these are virtual walls they contain a whole list of posted notes. It is a good way to get learners to see what others are thinking about the same issue, maybe there is a give and take of ideas by both posting and reading.

These tools can be used effectively to integrate technology in a face-to-face classroom, so that would be a real time activity or it can be done asynchronously if you are creating some synchronous e-learning and you want students to collaborate at their own time within a given duration and after the particular activity is over say a few days later some discussion can happen about the activity. So, this works in a variety of different formats.

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The image shows a presentation slide. On the left, a woman in a blue top is speaking. The main part of the slide is a screenshot of the Peergrade website. The website has a green header with the 'Peergrade' logo and icons for various features. Below the header, it says 'Create activities for peer assessment' and provides the URL 'https://www.peergrade.io/'. The main content area shows a form titled 'Assignment information' with fields for 'Title' (containing 'Meaning of STEM'), 'Description' (containing a list of learning objectives), and a 'Details' tab. The footer of the website says 'Learner-centric e-learning in STEM'.

A different type of collaborative and peer learning activity is a peer review or peer assessment. Now, this is a very powerful strategy, because in terms of learning one of the best ways most efficient and effective ways of learning is to critically examine and review one's own work and the work of one's peers. This again is backed up by a lot of studies and it can be done in a classroom context, which perhaps some of you have experienced, but an e-learning context is also a great medium to incorporate peer review in the in your course or in your module.

There are several tools to incorporate peer review. For example, peer grade is an open tool that you can use and incorporate, Moodle has a peer review mechanism. You may see examples of peer review in this course also. The reason peer review works so well is that every student is committed every learner submit something first and then they give feedback to other learners on the same activity. What the instructor can do, what we can do to design and facilitate peer review is to provide review criteria, feedback criteria or sometimes rubrics. And we will see this in another learning dialogue on how to give feedback for open ended problems or open questions within an e-learning context.

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**Live sessions in blended courses**

- Live sessions
  - Increase peer learning
  - Promotes peer connect among learners

[www.facebook.com](http://www.facebook.com)

**Activity:**

- Login to your Facebook Account
- Create a group for your class
- Initiate a live session using "Live video"

**Facebook Live Session Interface:**

ETETITx over live  
about 2 years ago

1,682 People Reached 862 Engagements

Like Comment Share

Comments Up Next

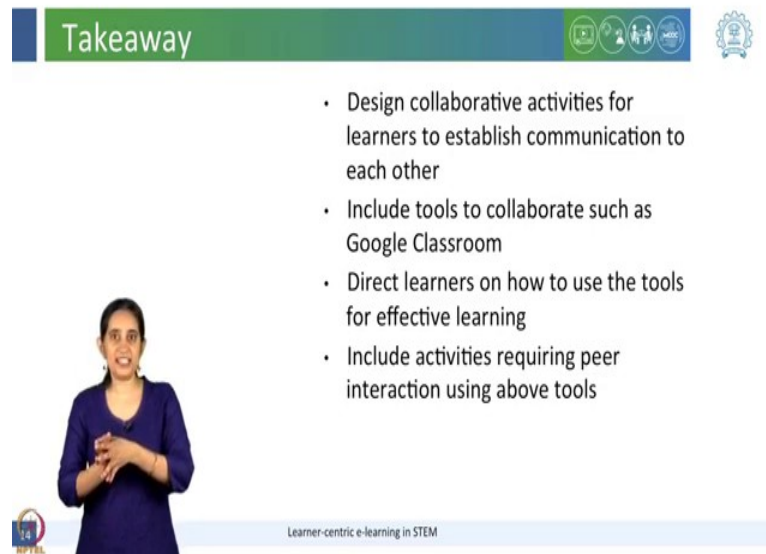
**Facebook Comments:**

- Renuka Devi · 15:54 in module 3 reflection quiz which are the correct answers  
Like · Reply · 1y
- Devidra Singh · 15:55 Even though I think the answers I selected were right  
Like · Reply · 1y
- Anura Parikh · 15:55 RCA means 20% GRADES BUT WHEN WE WILL GET RCA so that I can submit my assignments  
Like · Reply · 1y
- Anura Parikh · 15:55 Soften I want to know about RCA WHEN I WILL GET RCA

**Footer:** NPTEL Learner-centric e-learning in STEM

Another way to include the social interaction, the collaboration in an e-context is to move away from only the online component and broaden it to a blended setting. So, this is again something you would have experience with in this course itself. The online lessons and modules the online work is supplemented by real time synchronous sessions, and these can be done by technology tools such as Facebook live, Google Hangouts or any of your favourite video communication tools, yeah.

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### Takeaway

- Design collaborative activities for learners to establish communication to each other
- Include tools to collaborate such as Google Classroom
- Direct learners on how to use the tools for effective learning
- Include activities requiring peer interaction using above tools

IITM

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So, the takeaways here as we design e-learning content using a learner centric approach is that we need to design collaborative group activities for learners to establish communication, to improve learning, to develop skills of articulation and argumentation. We need to include tools which facilitate such activities where learners can collaborate together.

We also need to give students and our learners some instruction, some assistance on how to navigate these tools, how to work with these tools. But, it is not enough to stay with the tools, we need to also design explicit learning activities along with these tools or around these tools which actually require learners to work with their peers and effectively learn from each other.

Thank you.