Designing learner-centric e-learning in STEM disciplines
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Lecture - 14
Articulation and Refection

So far we have seen that e-learning content should be chunked into meaningful smaller units and learners should be provided with opportunities to apply the content that they just learned by giving within video and between video activities. We also discussed the importance of feedback.

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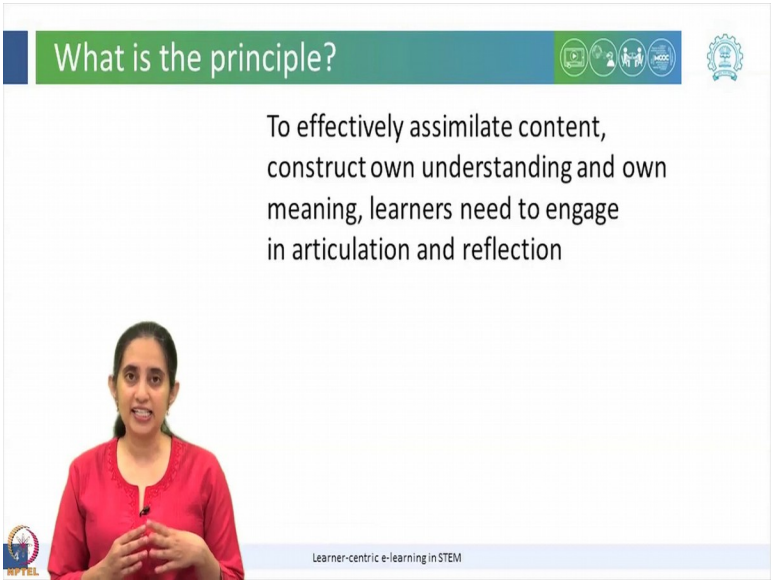

There is another principle that we need to follow when we design e-learning content. To help learners effectively assimilate content, construct their own understanding; make their own meaning, learners need to engage in articulation and reflection.

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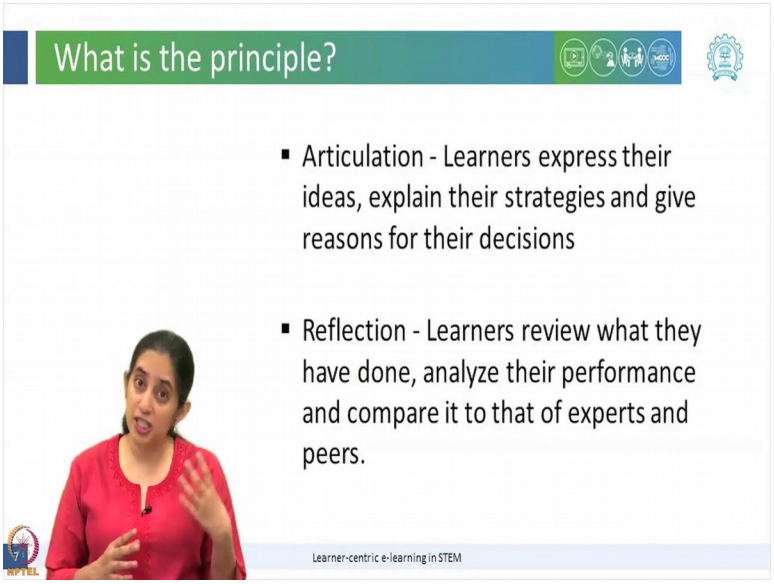

What articulation means is that learners need to express their ideas, explain their actions, their reasoning give reasons for why they arrived at certain decisions and so on. What reflection means is that learners should review what they have done, they should review their performance, their actions, there should they should analyze their performance and compare it with their peers and with experts.

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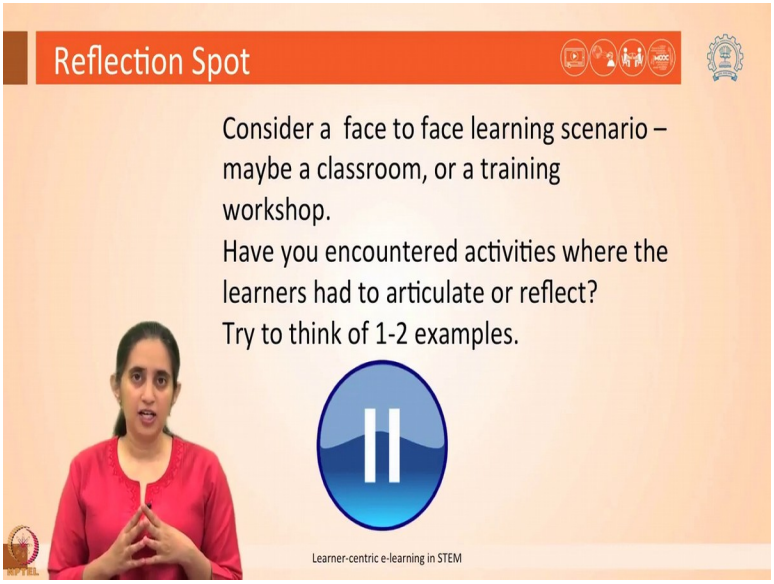

At this point, let us pause at a reflection spot. Consider a face to face learning scenario maybe it is a regular traditional classroom setting or a training workshop a face to face training workshop. Have you encountered activities where learners had to do articulation and reflection? Think of one or two such examples and write it down. When you are done, please resume. There may be a variety a diverse variety of activities involving articulation and reflection that you may have thought of, let us briefly go over to common examples.

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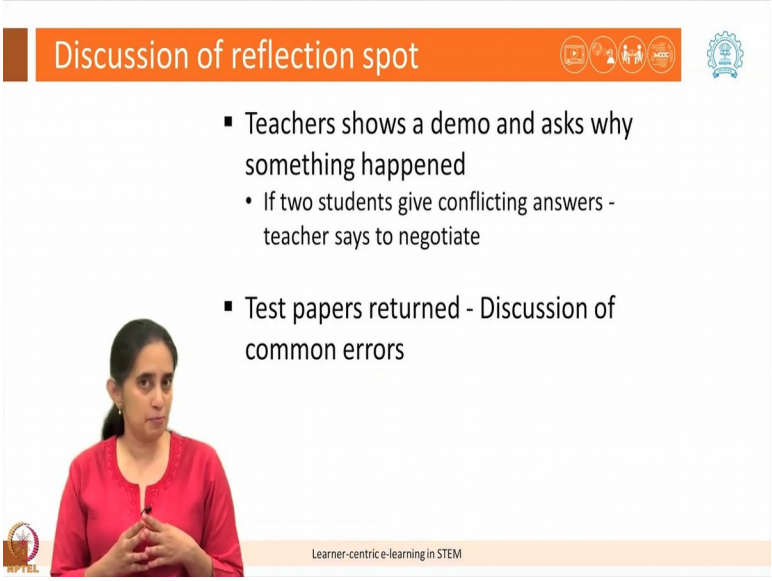

One is fairly common in classrooms in science classrooms where some science topics are being discussed and when a teacher is discussing some science topic, it is common to show a demo of an experiment or a phenomenon, it could be a video, it could be an animation and at some point, the teacher may pause and ask the students, why do you think this happened what you are seeing in the video or demo.

This is an example where learners are actually asked to articulate reasons for some phenomenon being observed. Another example is that of reflection it is a completely different example and again very common this is when let us say there has been a midterm exam or some in semester quiz you know weekly some assessment and the teacher is returning the answer papers.

At that point often a teacher does a discussion of the common errors that were seen when she or he was grading the papers and this is an opportunity for the students to reflect on what they did

their performance, whether they have also had that error in their answer paper, what they can do to improve and so on. Let us look at some strategies and activities for articulation and reflection that we can include in e-learning.

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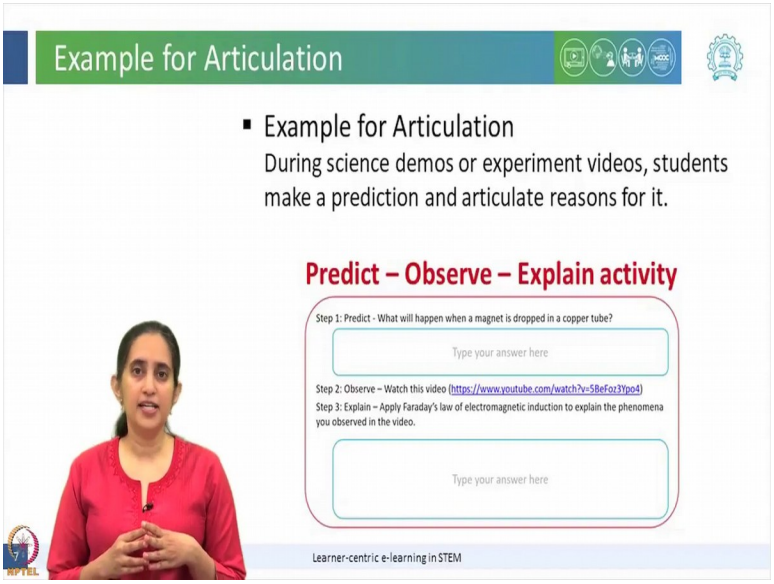

One example is again in a science topic where the where making predictions of an experiment this practice is very common, scientists do it all the time expert scientists do it and we want our students also to develop the ability and the practice to make predictions.

So, and many of us many teachers do it, but what is important is that we should require learners not only to make the prediction, but also to articulate the reasons as to how they arrived at the prediction so this is an example of articulation. In e-learning content what can be done is that if a video of an experiment is shown, we can give a textbox and ask students to articulate the reasons for making a prediction and then write down the prediction.

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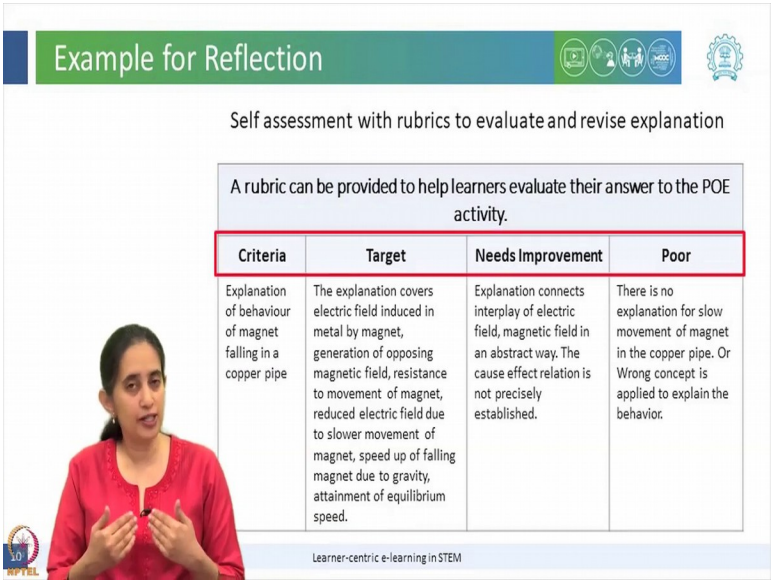

A strategy or activity for reflection within the same example of prediction that we just saw is that we can ask students to reflect on their explanation, the reasoning that they just articulated and this can be done by a self assessment using rubrics performance rubrics which have various levels of performance and learners can self evaluate whether their explanation how it compares with the rubric at various levels and they if needed they can revise the explanation.

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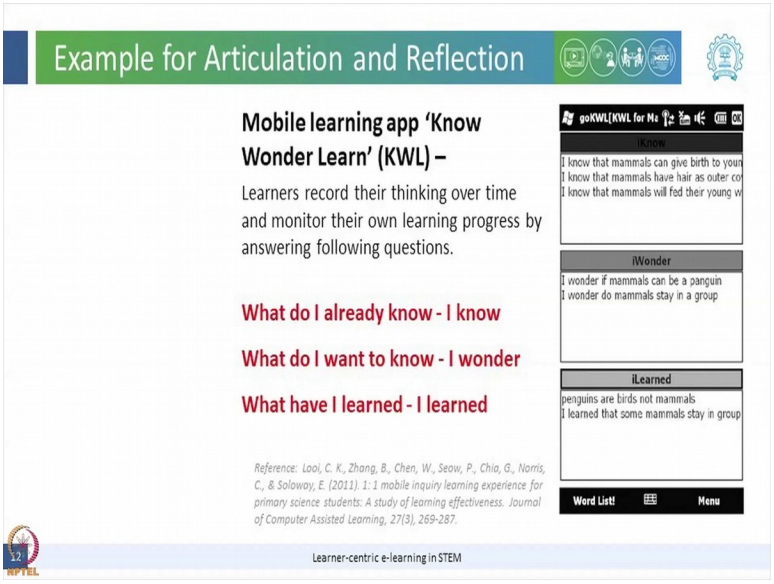

This is an example of a mobile learning app called Know Wonder Learn or KWL. So, in this app, learners record their own thinking over time and monitor their learning progress by answering a set of questions. So, these questions are provided in the learning app questions such as what do I already know and students start with the stem, I know that or I know how. Another question can be, what do I want to know and the stem here is I wonder if or I wonder do does something happen.

Another example in this KWL is the question what have I already learnt and here the stem is I learnt that something happened or I learnt how to do something, all these questions and the corresponding stems help learners reflect on what they have learnt and before this activity was given.

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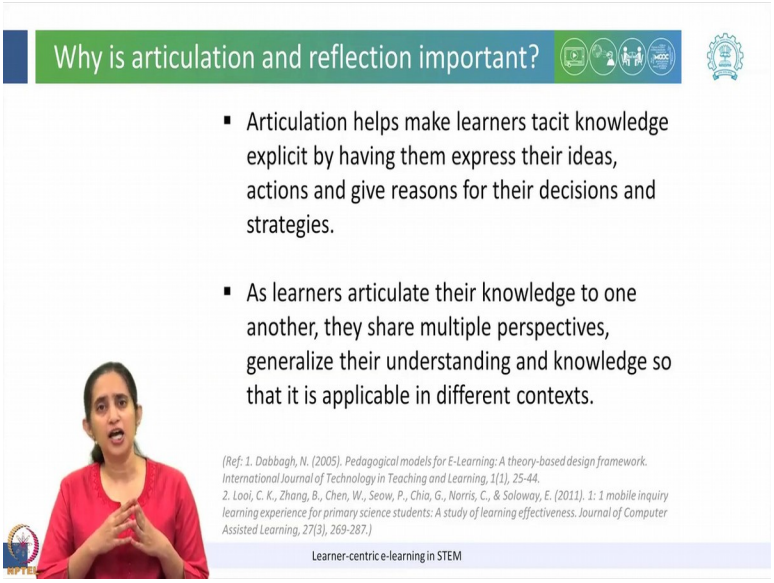

Why are reflection and articulation important, why should we include such activities. Articulation and reflection make learners tacit knowledge explicit by requiring them to express their ideas, their actions by requiring them to give reasons for the decision. As learners articulate the reasons to one another, they share multiple perspectives and this helps them generalize their understanding and knowledge so that they can apply it in different contexts.

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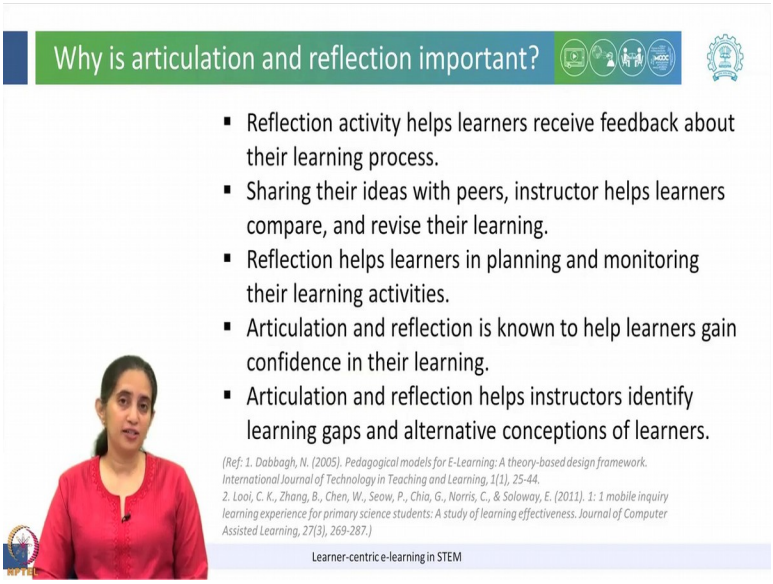

Reflection activities help learners receive feedback about their learning process and as they share their ideas with their peers and the instructor, they can compare and evaluate and revise their own learning. Reflection also helps learners continually monitor their learning their progress and plan their next actions as it comes up.

Articulation and reflection are known to help learners gain confidence in their own learning. Getting learners to do articulation and reflection is also extremely useful for instructors because it helps them identify learning gaps and the alternate conceptions that students may come with. So, this helps instructors plan their next action or their next lesson.

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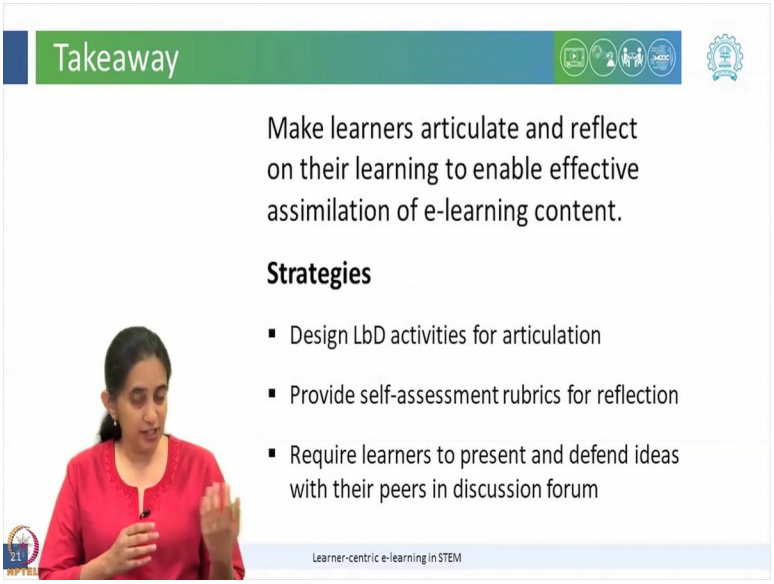

The takeaway for us as we design e-learning content using a learner-centric approach is that we need to provide activities which make learners articulate and reflect on their own learning and this enables effective assimilation of the concepts. We can use strategies such as designing learning by doing or LbD activities for articulation such as in the prediction example, we can provide them self assessment rubrics for evaluation self assessment, this helps reflection.

And finally, we can also use the discussion forum and give focus questions and activities within the discussion forum where learners have to put forth or articulate their ideas, negotiate with their peers, revise their own ideas again to target articulation and reflection.

Thank you.