**Designing learner-centric e-learning in STEM disciplines**
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**Lecture-12**
**Interactive Video**

We have been looking at ways to engage learners with the e-content such as videos. In this learning dialogue, we will focus on the principles and strategies to design interactive videos.

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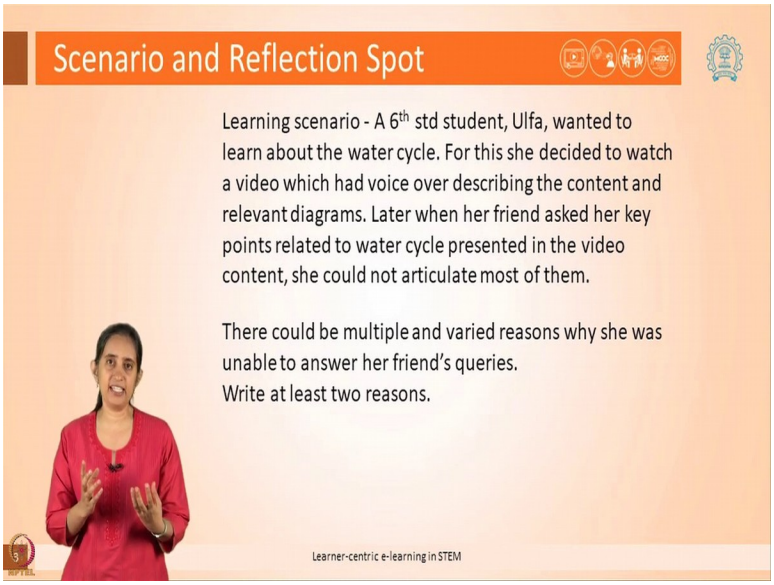


Let us begin with a reflection spot which contains the following learning scenario. 6th standard student Ulfa, wanted to learn about the water cycle. For this she decided to watch a video which had voiceover and diagrams relevant diagrams that explain the various stages of the voiceover. After she watched the video one of her friends asked her to summarize the key points of the water cycle which was presented in the video and it turned out that Ulfa could not articulate she could not summarize the key points.

There could be multiple and varied reasons for why she was unable to answer her friends questions. Imagine a video which has accurate content and relevant as well as attractive diagrams, yet there must have been some limitations because of which she was unable to

summarize. Write at least two such possible reasons you can think of in the text box provided, when you are done you can submit and resume.

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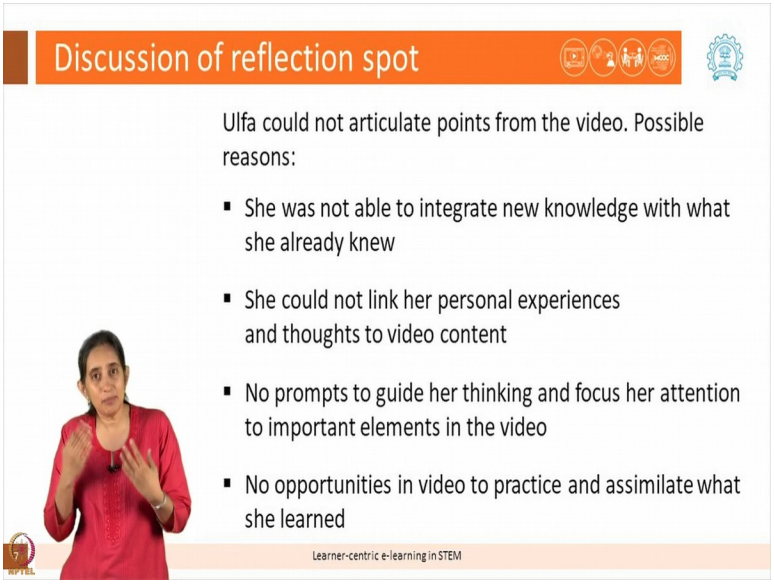


Let us look at some possible reasons, why the student was not able to summarize the key points in the video. While the video may have had new content perhaps she was not able to integrate it with her prior knowledge and experiences with things that she already knew. Some of you may have thought of the reason that perhaps she could not link her personal experiences to the formal and abstract content the water cycle process presented in the video and she was never asked to connect her experiences.

Others may have thought that the video lack prompts that could have guided her thinking and or focused our attention on the important elements and perhaps many of you may have realized that the video lacked immediate opportunities for the student to practice and assimilate what she learned.

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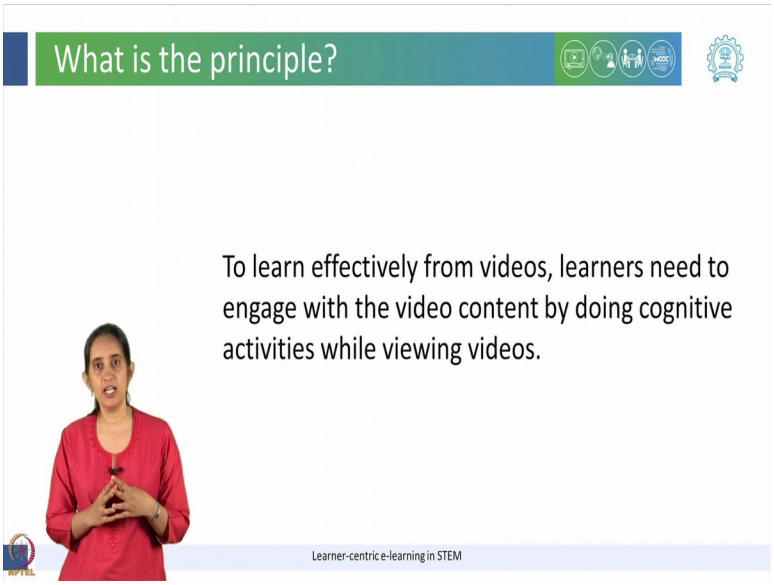


Let us look at a principle to help learners learn effectively from videos. To learn it effectively from videos, learners need to engage with the content of the video by doing cognitive activities while viewing the video.

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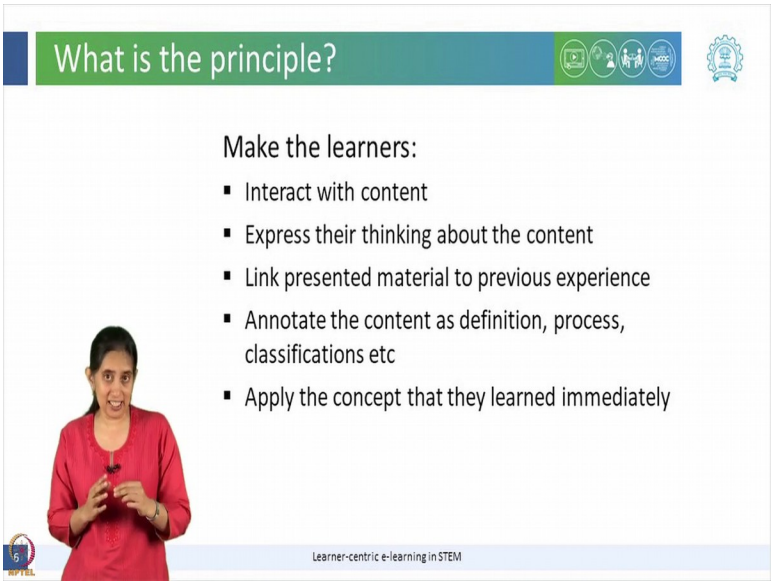


For this, we as designers of the e-content need to make the learner interact with the content during the viewing of the video, we need to make them express their thinking about the content,

we need to help them link the presented material with their previous experience, they can annotate the content as definition or process or classification, learners need to apply the content that they learned immediately.

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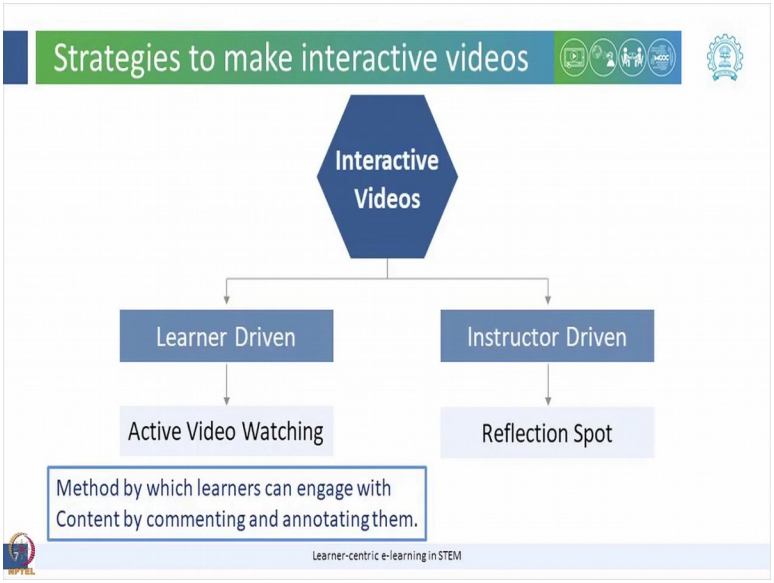


When we give learners the opportunity to do many of these activities, we are designing interactive videos. In this learning dialogue, we will focus on two key strategies to design interactive videos one of them is called active video watching, active video watching is a method by which learners can engage with the content of a video by commenting and annotating at various parts of the video.

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As designers of e-content, we need to provide supports for active video watching and we need to provide features so that learners can comment at different parts of the video, we need to provide focus questions to elicit learner comments explicit focus questions, we need to provide opportunities or and features so that learners can tag or annotate different parts of the video with the elements of the content such as here it is a definition, there it is a process and so on.

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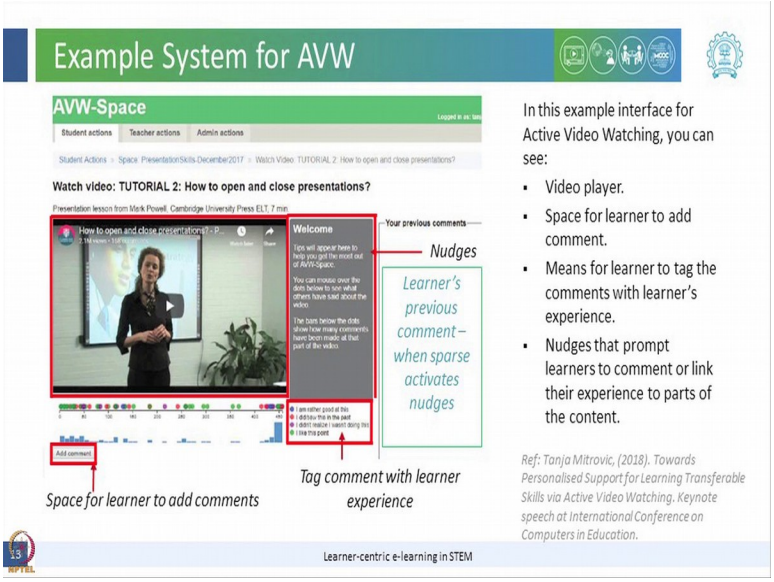

In this example of a system which has active video watching, you can see the interface which contains the video player, the space for learners to add comments, means for learners to tag the comments with learner's experience and nudges that prompt learners to comment or link their experience to various parts of the content.

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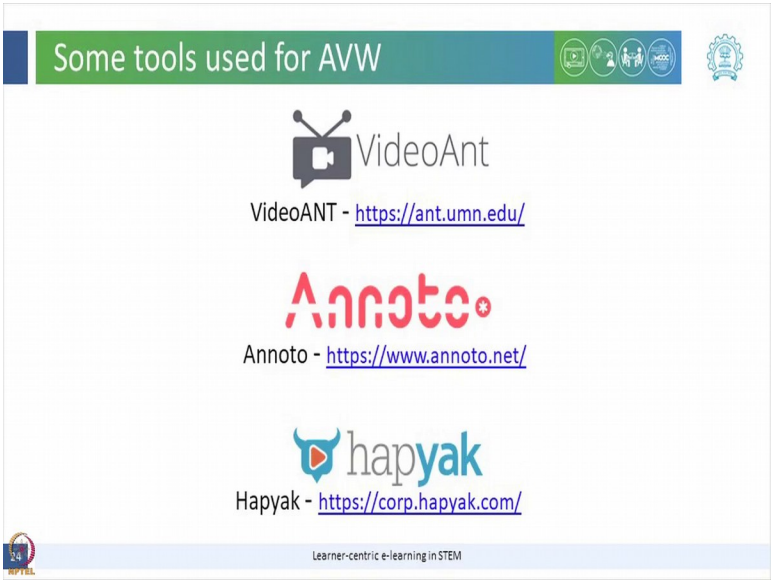


There are some tools available to be able to design active video watching for example, VideoAnt or Annoto or Hapyak. So, you can visit these websites and try to use some of them.

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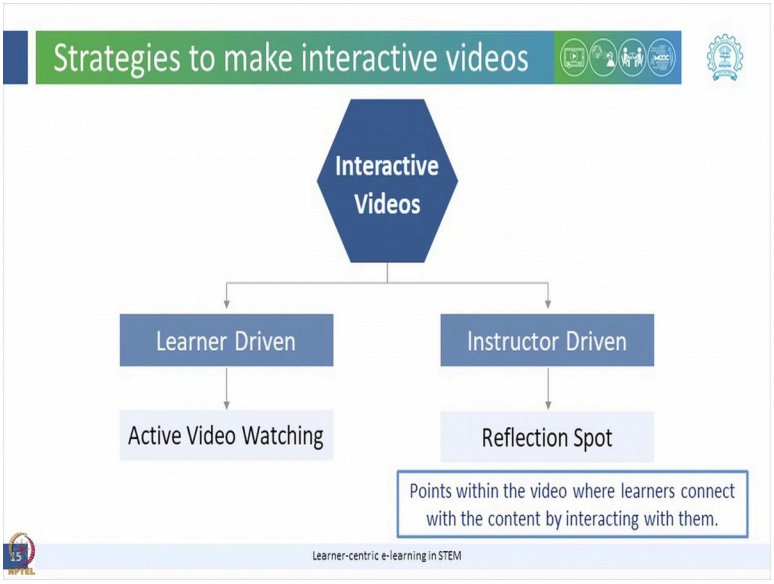


Another strategy to design interactive videos are reflection spots, reflection spots are points within a video where learners connect to the content by interacting with it and you will all be familiar with reflection spots because we have extensively used it in all the learning dialogues in this course.

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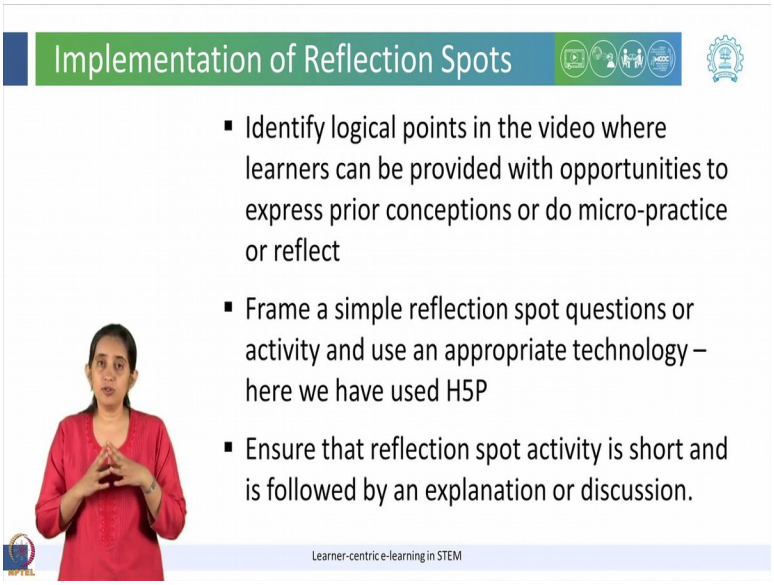

In order to design and implement reflection spots, we need to first identify the logical points where learners can be provided an opportunity to express their thinking or do micro practice, at these points we need to frame questions or activities and provide them using appropriate technology, in this case we are using H5P. We need to ensure that the reflection activity is short and after learners interact and do the reflection activity and submit their answer or write something, we need to provide a discussion, we need to discuss various possible responses to the reflection spot activity.

Hence we call them learning dialogues. So, we do not call them simple videos, but these are learning dialogues because a question is posed by the instructor, the learner in this case the participants you are all answering them, you are responding, you may be submitting an activity and then there is a discussion by the instructor. So, there is a two way communication happening even within a video. Using the appropriate technology, various formats of activities can be provided as a reflection spot.

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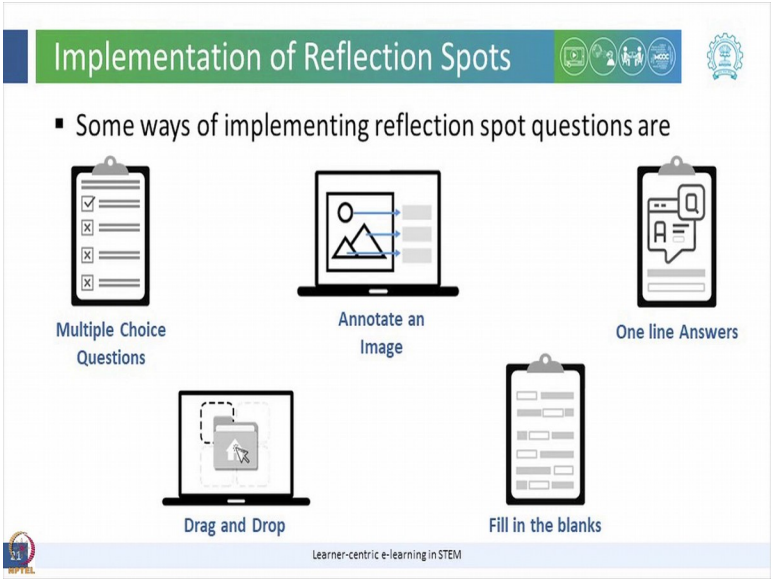


We can give multiple choice questions, drag and drop activities, we can ask learners to annotate an image, fill in the blank or sometimes even give a short text box where some response can be filled in by the learner and I think many of these have already you may already have experience about these from this course.

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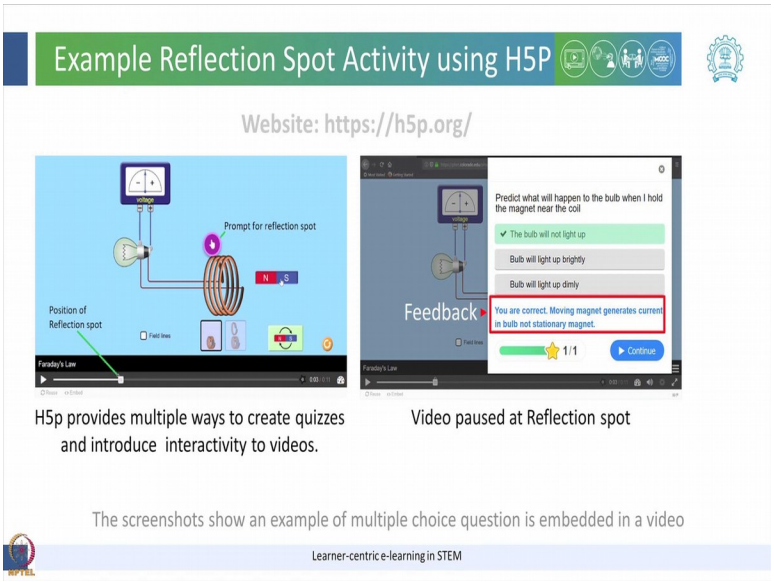


In order to implement reflection spot activity using H5P here are a few examples, H5P provides multiple ways to create quizzes and introduce interactivity within the videos, the video will get paused at the reflection spot there will be a dot appearing on their timeline of the video and these screenshots and images can show a few such examples.

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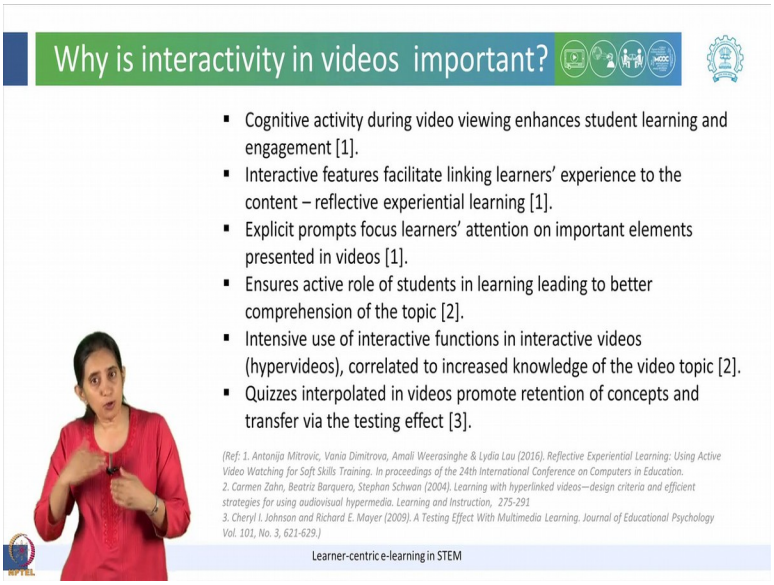

Why is interactivity in videos important. Cognitive activity during the video watching enhances learner's engagement and learning, there are several empirical studies where measurements have been done that show these claims. Interactive features within the video facilitate learners experience to the content this is called reflective experiential learning. Explicit prompts such as focus questions or nudges focus learners attention to the key parts the important aspects of the content.

The empirical results say that active video watching leads to better comprehension of the topic, it has been shown that intensive use of these interactive functions in interactive videos these are called hyper videos, they are correlated to increase knowledge of the topic retention and knowledge and quizzes interpolated within a video promote retention of concepts and have also been shown to affect transfer of learning in further tests.

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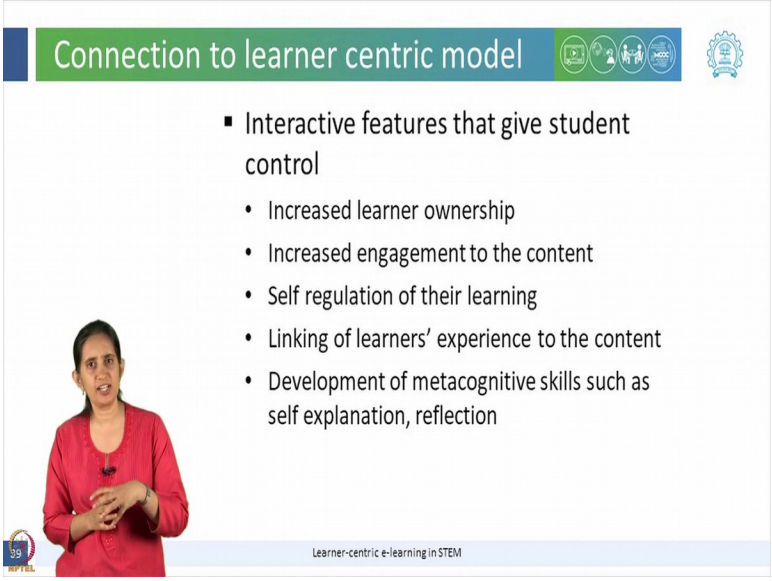


Let us actually take a step back at this point and think about the learner-centric approach that we have discussed in the previous week and that we are using throughout this course. The interactive features within a video where learners actually do activities while the video while they are watching the video, they give student a control and this facilitates increased learner ownership, increased engagement with the content, it addresses self regulation; that means, learners can reflect and modify and evaluate their own thinking, they can maybe go back to some part of the

video watch it again and come back, it helps link their experience to the content and it has also been known to develop metacognitive skills such as self explanation reflection and so on.

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Our goal is to make learners cognitively engage with the video content. The recommendations for us as designers of learner-centric e-content are that we need to use appropriate technology in order to design in video activities so that learners can one, comment and annotate different parts of the video both with their own thoughts as well as view their peers thoughts and respond to them and two, do reflection spot activities wherein they answer short in video questions and these can be in various formats such as multiple choice, drag and drop, text box and so on.

Thank you.