

Annotations, a key asset for video-based e-learning

Olivier Aubert - @Olivier_Aubert
Yannick Prié - @yprie



Context - video-based e-learning



Credit: [Project 366 #59: 280212 Days Gone By...](#) by [comedynose](#) / [CC BY 2.0](#)

Outline

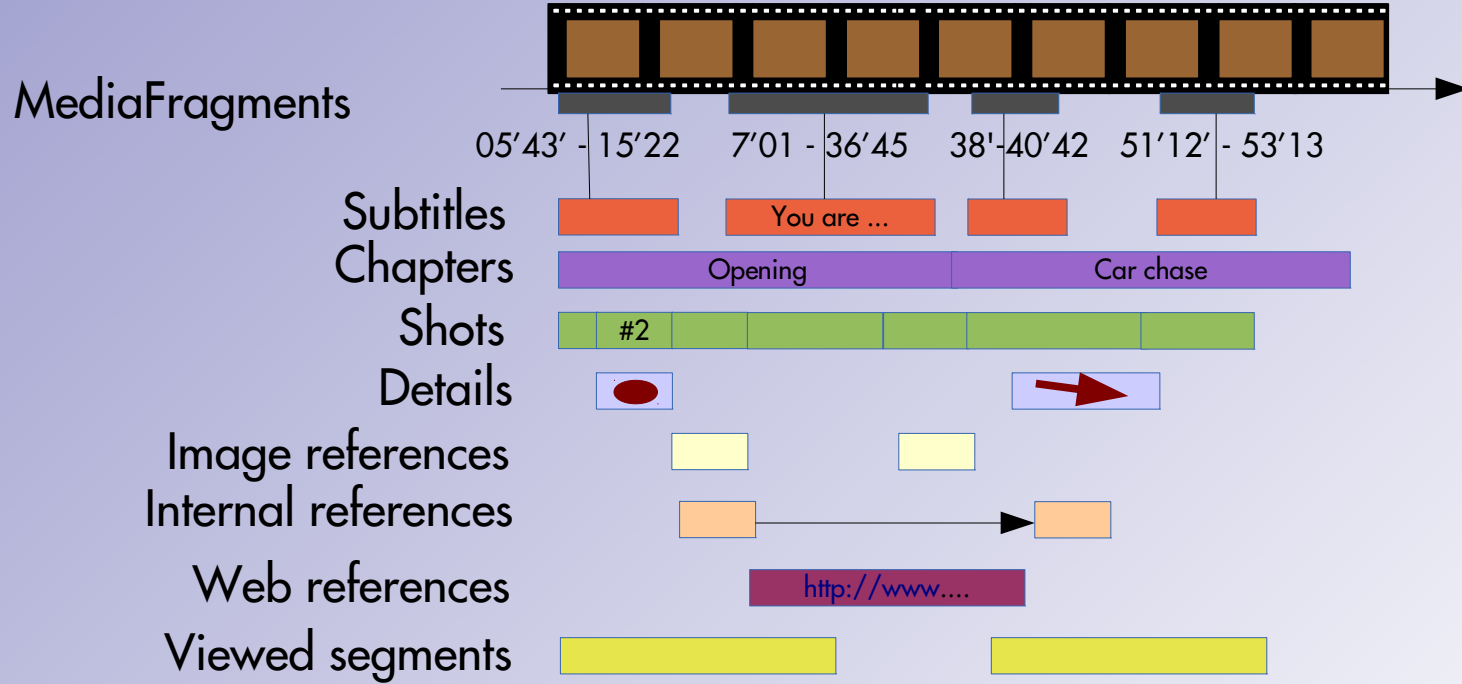
- **A primer on video annotations**
- Using annotations in video-based e-learning systems
- Annotation-related challenges
- Experiments to come in the COCo project

Video active reading - a scenario

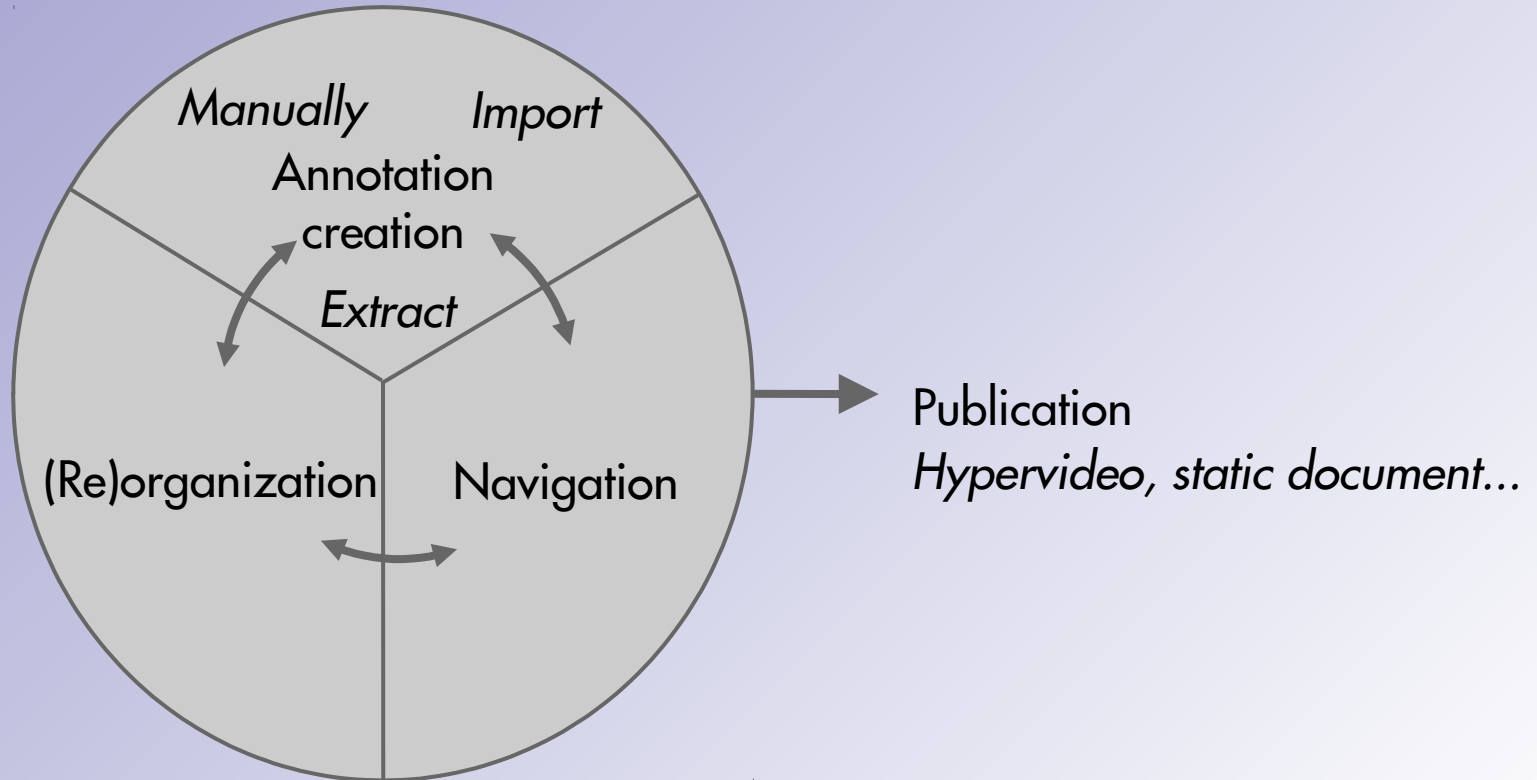


Credit: [Mulholland Drive](#) by [billgarrett-newagecrap](#) / [CC BY 2.0](#)

Video annotation - definition



Video active reading process



Outline

- A primer on video annotations
- **Using annotations in video-based e-learning systems**
- Annotation-related challenges
- Experiments to come in the COCo project

Video-based e-learning activities

Different activities based on

- the nature of the video document
- the status of the annotator
- the status of the recipient

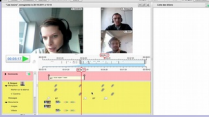
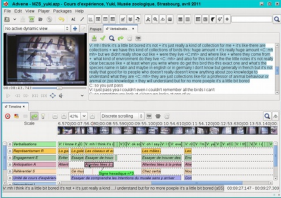
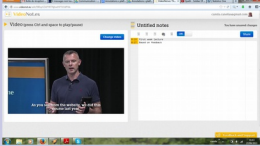

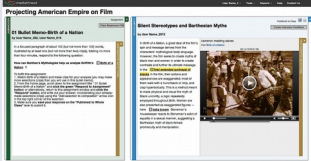
Annotations created by learners

<i>Recipient</i> <i>Video nature</i>	<i>Self</i>	<i>Peer</i>	<i>Teacher</i>
<i>Learner performance</i>	Reflexivity	Feedback	Auto-evaluation
<i>Course</i>	Assimilation	Collaborative assimilation	Feedback Flipped classroom
<i>Other</i>			Course preparation Application of an analysis grid Summary Analysis

Annotations created by teachers

<i>Recipient</i> <i>Video nature</i>	<i>Self</i>	<i>Peer</i>	<i>Learner</i>
<i>Learner performance</i>	Notes (for evaluation)	Professional training	Feedback / evaluation
<i>Own course</i>	Reflexivity	Counter-examples	Enrichments (additional material)
<i>Other courses</i>	- Concept assimilation - Professional training	- Feedback - Comments / enrichments	Comments / enrichments
<i>Other content</i>	Assimilation	Comments / enrichments	

Annotations created by learners

<i>Recipient Video nature</i>	<i>Self</i>	<i>Peer</i>	<i>Teacher</i>
<i>Learner performance</i>	 <p>Reflexivity</p>	Feedback	Auto-evaluation
<i>Course</i>			 <p>Feedback</p>
<i>Other</i>	Assimilation	Collaborative assimilation	 <p>Analysis</p>

Assimilation - example

The screenshot displays the Advene software interface. At the top, the window title is "Advene - MZS_yuki.azp - Cours d'expérience, Yuki, Musée zoologique, Strasbourg, avril 2011". Below the title bar is a menu bar (File, Edit, View, Player, Packages, Help) and a toolbar with various icons. The main area is divided into two primary sections: a video player on the left and a timeline on the right.

The video player shows a scene of a museum display case filled with bird specimens. The video title is "No active dynamic view". The video player includes a progress bar showing a timestamp of 00:08:43.743 and standard playback controls.

The timeline section is titled "Timeline x" and features a "Discrete scrolling" control. It displays a "Scale" bar with time markers from 00:07:56.080 to 00:13:53.140. Below the scale, a series of small video thumbnails represent keyframes. The timeline contains several tracks with colored headers and text labels:

- Verbalisations** (green header): V: I know it y|C: V: mh I think it's a |V:|CV: ok so |V: oh I say-V: I t |V: eve |V: n |CV: I'm |V: ye |V: |V: st|C: V: I th |V|V: I d |V: |
- Représentamen R** (orange header): La ga | La gale | Les oiseaux et es | Les mâles | Les
- Engagement E** (green header): Eviter | Essaye | Essayer de trou | Essayer de trouver des | Env
- Anticipation A** (pink header): Attent | Attentes liées à d | Attentes liées à la prése | Atte
- Référentiel S** (orange header): Ce mus | Signe hexadique n°3 | Chez certa | Nou
- Unité de cours d'expérien** (blue header): Essayer de comprendre les intentions du musée sans y arriver | Cor

At the bottom of the timeline, a text track shows the subtitle: "V: mh I think it's a little bit bored it's not + it's just really a kind ... I understand but for no more poeple it's a little bit bored (a55) 00:08:27.147 - 00:09:27.309".

Collaborative assimilation example

The screenshot displays the VideoNot.es web application in a Firefox browser window. The browser's address bar shows the URL `www.videonot.es/edit/0B0qrVZAFiy8TNjhreHVVVUdfYkk`. The page header includes the VideoNot.es logo, the user's email `camila.canellas@gmail.com`, and a notification that says "You have unsaved changes".

The main content area is split into two sections:

- Video section:** Titled "Video (press Ctrl and space to play/pause)", it features a video player with a "Change video" button. The video shows a man in a dark polo shirt speaking, with subtitles that read: "As you see from the website, we did this course last year."
- Notes section:** Titled "Untitled notes", it includes a toolbar with icons for undo, redo, bold, italic, link, and a toggle for "ON". A "Share" button is also present. The notes area contains two lines of text: "0:19 First week lecture" and "0:27 Based on feedback".

At the bottom of the browser window, there is a "Feedback and Support" button. The Windows taskbar at the very bottom shows the system tray with the time `11:13` and date `27/09/2013`.

VideoNot.es

Feedback - example


The screenshot displays the PolemicTweet web application interface. At the top left, the logo "POLEMIC TWEET" is visible. The navigation menu includes "Accueil", "Programme", and "A propos", along with language options: "日本語", "Français", and "English".

The main content area is divided into several sections:

- Annotations polémiques:** A message box stating "Vous n'êtes pas connecté. Pour participer, veuillez vous identifier en cliquant ici." with a "Envoyer" button and four icons: "??", "=", "--", and "++".
- Rechercher:** A search bar with a search icon and a "1 min." filter. Below it, a list of search results is shown, including tweets from @cybunk, @vincentpuig, @nicolasauert, and @NicolasLoubet. A vertical timeline on the right side of the search results shows a sequence of colored bars (red, yellow, green, blue) representing different tweet categories or interactions.
- VIDÉO SEMANTIC BOARD GRAPHE DES CONTRIBUTEURS:** A tabbed interface with three tabs. The "GRAPHE DES CONTRIBUTEURS" tab is active, displaying a network graph with nodes representing users. The central node is "@nicolasloubet", surrounded by other users like @ylaking, @audrey_bardon, and @gayaneadourian.
- Entretiens du nouveau monde industriel 2011:** A section with the date "19 décembre 2011" and the title "SESSION 1 - HISTOIRE ET ANTHROPOLOGIE DE LA CONFIANCE". The text describes the session's focus on the study of perspectives on trust in the context of digital and economic crises.

App. of an analysis grid - example

Annotating Academic video - 1.0.0 RC Print Logout



0:38

Annotate on My new Track Layout Collapse

Write a free text annotation. Use »shift + return« keys to create a new line.

Pause video during writing **Insert**

Mine Edit mode

Landsc	Weath	Part of
Mt Mountain	Sny Sunny	Mrg Morning
Cty City	Cdy Cloudy	Mdy Midday
Vlg Village	Rai Rain	Aft After-no
Hls Hill	Snw Snow	Evn Evening

Create a label Create a label Create a label

Timeline Filter

	0	10	20	30	40	50
Default						
My New Track		Sr		Ml		
			Hl:		Fr	

Reset zoom + Add track

List Items visibility Filter Collapse

>	00:00:10	00:00:16	Hls	
>	00:00:10		Sny	
>	00:00:26		Mt	
>	00:00:38		Fresh Salad!	

Matterhorn Engage player

Analysis - example

mediathread

User Name_3 ▾ Tools ▾ Reports ▾ Help Contact Us

Projecting American Empire on Film

Assignment ✕ Class Responses (38)

01 Bullet Memo-Birth of a Nation

by User Name_392, User Name_619

In a focused paragraph of about 100 (but not more than 125) words, illustrated by at least one (but not more than two) clip(s), totaling no more than four minutes, respond to the following question:

How can Barthes's *Mythologies* help us analyze Griffith's [Birth of a Nation](#) ?

To fulfill this assignment:

1. Watch *Birth of a Nation* and make clips for your analysis (you may make more selections (clips) than you will use in this bullet memo).
2. From the Home page, scroll down to the assignment title "01 Bullet Memo-Birth of a Nation" and **click the green "Respond to Assignment" button**; or alternatively, return to this assignment window and **click the "Respond" button**, and write out your answer, incorporating your already-made selections (clips) using the "Add selection to composition" arrow icon in the top right corner of the selection.
3. Make sure you **save your response on the "Published to Whole Class"** level to submit it.

VIEW INSERTED SELECTIONS

Silent Stereotypes and Barthesian Myths


by User Name_2972

Published to Class 27 ✕ Create Instructor Feedback

cameron meeting slaves
from [Birth of a Nation](#)
00:14:12/03:31:09

VIEW INSERTED SELECTIONS

In *Birth of a Nation*, a great deal of the film's spin and message derives from the characters' mythological body language. However, the film seeks to create myths of black men and women in order to create contrasts and further its ultimate message. In the **first extended portrayal of blacks** in the film, their actions and appearances are exaggerated; most of them walk with a hunchback or limp, and clap hyperbolically. This is a method meant to make physical and visual the myth of Black uncivility, a logic repeatedly employed throughout *Birth*. Women are also presented as exaggerated figures — here [Lydia Brown](#) Stoneman's housekeeper reacts to Stoneman's edict of equality in a sexual manner, suggesting a Barthesian myth of black female promiscuity and manipulation.



Reflexivity/Feedback - example

The screenshot displays the VISU software interface for a video recording session. At the top, navigation tabs include "Accueil", "Utilisateurs", "Séances", "Salon synchrone", and "Bilans". The current session is titled "Les loisirs", recorded on 20-10-2011 at 15:14. The interface shows three video feeds: V. Caroline (left), S. Serguei (top right), and A. Belin (bottom right). A timeline at the bottom indicates the recording duration from 00:00:00 to 00:08:51. A red box highlights the timestamp 00:05:17 on the timeline. Below the timeline, a comment box contains the text "vous voyer / voier". The sidebar on the left includes sections for "Comments", "S. Serguei" (with a sub-section for "Marqueurs"), "Messages", and "Documents" (with sub-sections for "Images" and "Videos").

Visu

Course enrichment - example

The screenshot displays the LeCto web application interface. The main content area is a video player titled "Važne teorije i tvrdnje - sažetak" (Important theories and statements - summary). The video player has a progress bar at the bottom showing 22:39 / 31:55. The video content is annotated with a red circle containing the number 1. To the right of the video player is a "Predavač" (Lecturer) section showing a video of a lecturer at a whiteboard, with a red circle containing the number 2. Below the video player is a "Predavačeva biblioteka" (Lecturer's library) section with a text description of lectures and a red circle containing the number 3. Below the video player is a "Web sadržaj" (Web content) section with a text description of meaningful learning and a red circle containing the number 4. Below the video player is a "Neposredna po znanstvenosti" (Directly by scientificity) section with a list of items and a red circle containing the number 6. Below the video player is a "Lisenci" (Licenses) section with a list of items and a red circle containing the number 7. Below the video player is a "Kako" (How) section with a list of items and a red circle containing the number 5. The interface includes a top navigation bar with "LeCto" and "Player setup" tabs, and a bottom navigation bar with "Restart Lecture", "Create PSL file", "Create index", "Write notes", "Write links", "Write web", "Write quiz", and "Write FAQ" buttons.

1 Važne teorije i tvrdnje - sažetak

- **snožnaja** se dešava u kratkotrajnoj memoriji
 - ukolji **može** bitn navide +2 pojma
 - **asli** **lozima** **osavija** ili **pojaviti** osim novog
- **znanje** **ne** je premještanjem u dugotrajnu memoriju
- **tamo** se novo znanje **može** čvrsto povezati s postojećim ("**schemama**")
 - inače je to "bubanje" na pamet
 - koje će nestati i ne može se primijeniti
- **za** taj proces kvalitetnog (stvarnog) učenja nužno je:
 - da učenik ima potrebna predznanja (isinski, kvalitetno, primjenjivo)
 - odgovornost **prati** to da to provjeri i osigura, jer učenik ne zna što mu treba i zna li ovisiti znanje
 - da se novo gradivo izlaže tako da se povezuje s prethodnim znanjem
 - odgovorna i lična odgovornost učitelja
 - da učenik aktivno, namjerno, svjesno nastoji povezati novo i staro

2 Predavač

3 Predavačeva biblioteka

Lectures represent the dominant method of teaching in formal education and in the major part of nonformal educational activities. Their aim is not merely to deliver information but predominantly to teach the audience. For the purpose of this research a lecture is defined as an oral, continuous, in most part one-way presentation intended to teach audience of multiple students who possess lesser knowledge of the subject than the instructor. Lectures as teaching methods were used in the middle ages and were performed as reading by instructor from an original document to students who took their own notes. With the invention of printing press and technical ability to produce large number of identical documents first ideas that lectures can be replaced by some other methods of learning appeared. The other methods were related with other

4 Web sadržaj

...the meaning is not conveyed by the teacher and is not in (educational) information. Rather meaning is derived by the student from his existing knowledge (schemata) and its interaction with presented information. **Schema Theory**.

Meaningful learning

1. Learning is not a passive, but a conscious, active process. **Constructivism, Cognitivism**
2. Learning is the process of knowledge construction/acquisition. **Constructivism/Cognitivism**
3. Learning occurs through interaction of learner's prior knowledge (knowledge schemes), ideas and experience. **Constructivism**
4. Learning is a socially enhanced process. **Constructivism, Social Cognitive Theory, Social Development Theory**

5 Kako

1. Učenik mora imati potrebna predznanja za učenje novog.
 - Učebnjica je odgovornost da učenik ima potrebna predznanje
 - Isključiva odgovornost da ima potrebna predznanja učenika.
 - To je idealni slučaj, ali u praksi se može naučiti i bez predznanja.
2. Novo znanje se mora izložiti tako da bude povezano s postojećim znanjem učenika.
 - To je isključivi zadatak učitelja.

6 Neposredna po znanstvenosti

- Individualni stilovi učenja (0:33:09)
- Važne teorije i tvrdnje - sažetak (0:36:21)

7 Lisenci

- Zaključci teorija učenja

Outline

- A primer on video annotations
- Using annotations in video-based e-learning systems
- **Annotation-related challenges**
- Experiments to come in the COCo project

Annotation model challenge

- Goals
 - Ensure interoperability
 - Ensure durability
- Support
 - Anchoring now normalized (MediaFragment)
 - From unstructured free-text annotations to semantic annotations

Semi-automatic annotation challenge

- Many efforts to do automatic generation (Translectures, linkedTV) but not perfect yet
- Provide tools that combine automatic algorithms and correction interfaces

Interfaces for manual annotation challenge

- Complex activity upon dynamic documents
 - exacerbated by collaboration features
- Device issues (mobile)
- Balance between genericity and specificity

Hypervideo production challenge

- Authoring environments
- Guided hypervideo production
- Ergonomic (design and interactivity) guidelines

Annotation-based analytics challenge

- Fine-grained analytics
 - Using explicit data from annotations
- For course re-engineering, reflexivity

Outline

- A primer on video annotations
- Using annotations in video-based e-learning systems
- Annotation-related challenges
- **Experiments to come in the COCo project**

COCo project

CominOpenCourseware



COCo project - goals

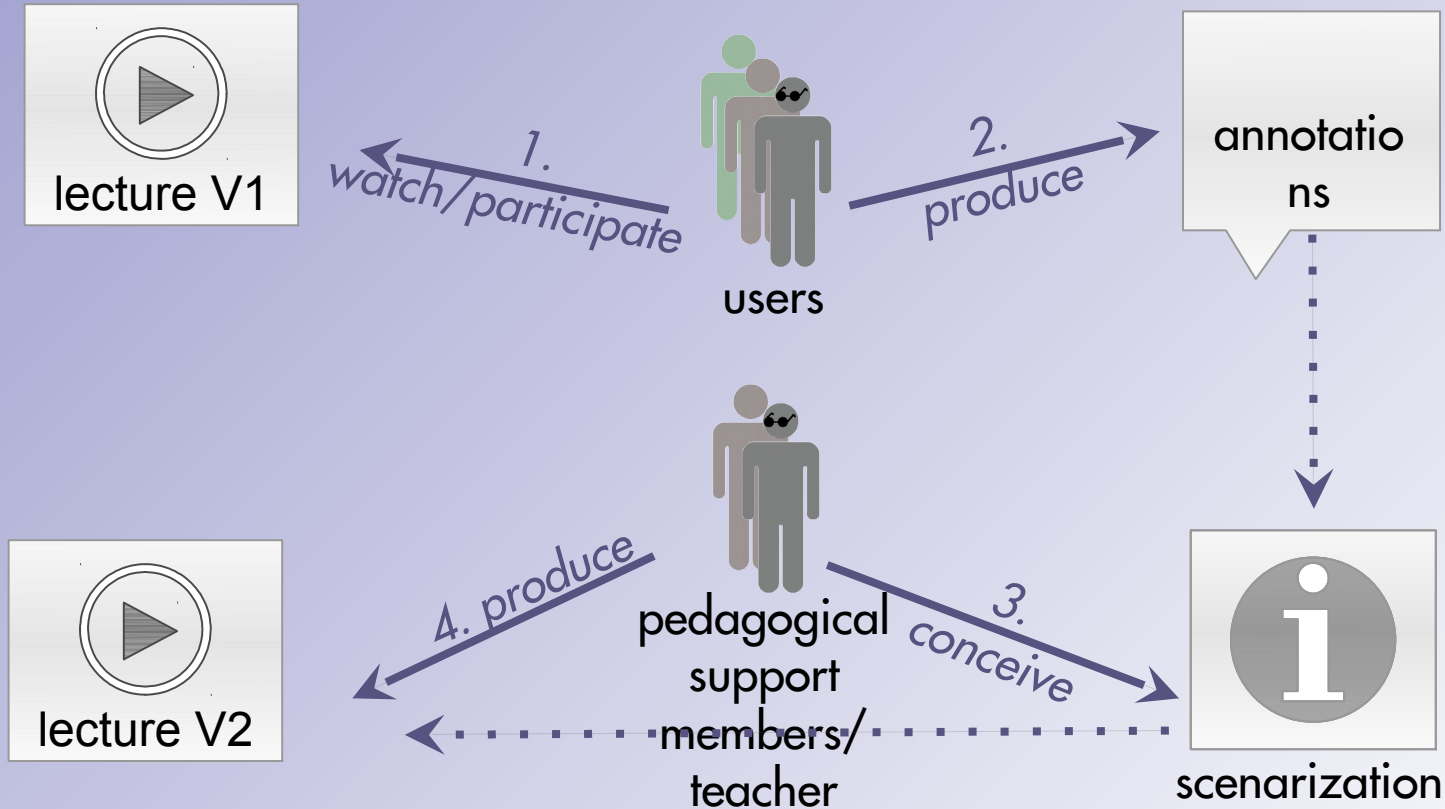
Creating open multimodal, video-centered contents for knowledge diffusion

Experimenting with new techniques for e-learning

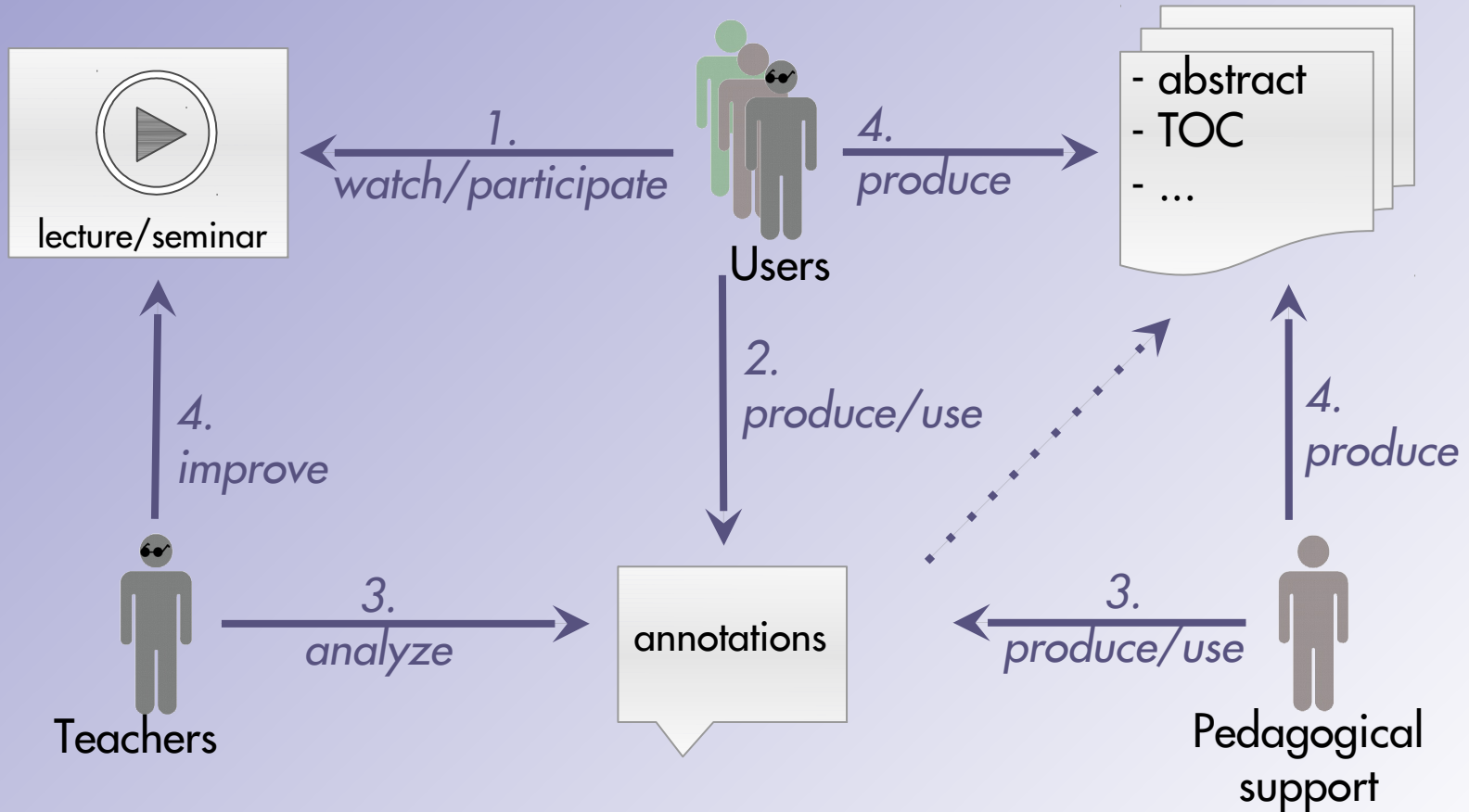
COCo project - ongoing work

- Live annotation
- Iterative course conception
- Collaborative annotation of pedagogical capsules

Iterative course conception



Collaborative course enrichment



Conclusion

- Many tools and experience on video annotation
- Great potential for promoting **learner engagement** in e-learning systems through a variety of **innovative pedagogical setups**