# Cool YouTUBE presence by science and art institutes.

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## Why this evaluation

We envisage to publish records from the CDS Academic Training lectures' collection in a new, dedicated CERNAcademicTraining YouTube channel. To *make a short introductory video clip* for this channel, here are the recommendations by the author, inspired from relevant examples of other organisations' presence on the web, e.g. NASA, Fermilab, Argonne, ESA, EPFL, UniGe, google, etc - also some sites of famous art institutions and write down what we can learn from the best ones. See here project description.

More general advice to educational video makers is also included here.

# The Good Features to have in an educational video

- **Voice** in the video as opposed to just text (multiple sensory modalities at the same time, visual and auditory, better retention (some people have better retention in visual modalities and others in auditory modalities)).
- Using **short footage** and switching between footage, possibly different enough to avoid monotone, repetitive colors or similar images.
- Giving **a name to a video series**, somewhat like a news channel format, with a title such as "Earth From Space", it puts the video in a context of a group of similar videos the viewer can check out. Example.
- Using **different formats**, like 2d illustrations, animations, 3d animated models, drawings, etc. For example video on CERN accelerator or EPFL showing a person drawing and the video follows the development of the drawing.
- Utilising **3d models**, and turning them around to give a better perspective. Putting some elements in focus (highlighting them with a certain color for example) to direct the viewer's attention. Example from NASA.
- Using **illustrations and animations** to explain the majority of concepts explained by voice, and not just a few.
- The importance of **text** in the video:
    - Text should only be used at certain moments in the video, it should be short (only a few words) and it should be used to separate the video in different parts based on the content. The text should never be used for narration (because then the viewer has to actually read, which shifts attention from to video), which will have an effect on the retention of the video. Example from the Royal College of Art.
    - Using text in the video like titles in order to highlight certain words or expressions (some of them will be difficult to understand without being shown written down)
    - Certain words of the text included in the video should be highlighted and differentiated from the others based on importance (for example using a different size or font)
    - When the video is using text to superimpose a slide-like series of sentences, it's better to introduce every sentence or keyword one by one and explain them one by one, otherwise the viewer will have to read, and attention will be shifted from the actual content of the video.
    - The few times a text is longer than a few words, it is advisable to put a blank slide with a background image "pausing" the video. Example from Fermilab.
    - Long enough pauses in-between sentences in order to let a little time for the viewer to digest all the concepts. Ideally, the pace of the voice shouldn't be too fast or too slow. Content complexity dictates what *long enough* means.

- **Embed** a smaller video inside the main video, for example when somebody is talking, adding a small image or a smaller video on the screen. Another example from Fermilab.
- **Aerial view** of the places, buildings etc., to give a sense of space, make the video more interesting and captivating (not to use too often).
- **"Subtitles"** indicating the name of the person speaking is also useful, like a news broadcasting show.
- Having an **introduction** to the video from the person who speaks, like "welcome to the program!, I am *Name*... This gives an indication of authority to the video and makes it less anonymous and cold. Another NASA example.
- **Humorous elements** lighten the tone and catch the viewer s attention, making the presentation more unpredictable and therefore interesting.
- Reference to **everyday life examples** to explain difficult concepts, and as much examples as possible for each video, check this Fermilab example.
- On the **tone of the voice** (excited vs monotone tone of the voice):
    - Original elements that catch the viewer s attention like using sounds for the video that are made by a person s mouth Example from EPFL.
    - In videos that have people talking about their projects being interviewed, it's better to use different voices in the video in order to make the narration less repetitive.
- Using **good cinematography footage** catches the viewer's attention. Example.
- **Interaction with the audience**, for example inviting the public to post their questions on social media (like NASA video asking people on twitter to write down their questions). Another level of interaction is added when the questions are answered for example.
- Possibly responding to **simple "fun"/non-technical questions** such as how does a tornado look like from space? gives the viewer an impression that anybody can ask a question and they can participate too. NASA example.
- Use of **different technologies like 360 videos** (adds interaction for the user), or 4k videos etc. Increases viewer curiosity and engagement. Example.
- Embedded in the video, **references** to other videos (message at the end with link to two other videos the viewer has to choose from). Gives the viewer a sense of continuity and that raises the probability he/she will watch other videos from the same series.
- **Special formats** like an interviewer and an interviewed with a list of questions as they walk around the place, or different people who talk one after the other throwing a ball at each other to determine who speaks.
- **Background music** can help the viewing experience for certain contexts (such as classical music or soothing music for a space video, a pop song for a promotional Google video advertising an app). When explaining difficult concepts it's better not to have any music, or music at the beginning and end only.
- Attempts to go viral and reach a large number of people to **expand the audience**, like the NASA Johnson Style video (a NASA parody of Gangnam Style) or the "Mannequin challenge" at EPFL.

# Features of the institutes evaluated

## FERMILAB

**POSITIVES:**

- Almost all videos have voice instead of plain text
- The narrator introduces himself and often shows himself to the camera
- Good use of illustrations, animations to explain the concepts
- Comedic/humorous content, such as jokes or emoticons, inserted to catch people's attention, keep the tone of the video elated and keep them motivated
- Short footage after the other, avoids long footage that looks the same which is monotonous.
- Excellent pacing in-between sentences.
- Good constant use of concrete examples to explain the concepts and use of simple down to earth every-day examples that help comprehension and avoid too much abstraction.

- Good use of text that is very short and is used to separate the video in its different parts, or to highlight certain words or expressions
- Rare use of slide-like text, and the times it is used it either pauses the video and puts a background image behind it (avoids distractions) or it progressively shows each line of text one by one on the screen to avoid situations in which the viewer has to **read** long lines of text (this needs to be avoided).
- Certain videos are part of a series of videos such as "Ground To Space" which gives the impression that there are more related videos to check out
- Good reference to social media at the end of the videos
- The quality of the video has an effect, since the videos have a very high number of views, likes and comments on YouTube.

**NEGATIVES:**

None found.

## EPFL

**POSITIVES:**

- Almost all videos have voice instead of plain text
- Original format such as showing all the frames during a drawing (stop-motion)
- The narrator introduces himself and often shows himself to the camera
- Good use of illustrations, animations, or 3d models to explain the concepts
- Certain videos are part of a series of videos such as "EPFL News" which gives the impression that there are more related videos to check out
- Use of "fun" elements in some proportional videos such as a "Mannequin challenge", trying to go viral and reach the large public to increase the audience.

**NEGATIVES:**

- There is a series of videos that is terrible; it's only text as narration (no voice), bad choice of colors, superimposed images, distracting music, etc.

## NASA

**POSITIVES:**

- Good use of 3d Models (for certain space stations for example), and the perspective rotates to give the viewers a better look at it and it even highlights certain elements to redirect the viewer s attention to certain objects.
- Good use of different formats, such as an interviewer asking questions from a list to a worker at the station who answers while walking around the place.
- Certain promotional videos have a very good cinematic quality, very good cinematography, and some have epic music, which gives a sense of awe to the viewer.
- Good use of certain technologies or video formats such as a 360 view (interactive video), or certain videos showcasing a 4k-definition technology
- Use of "fun" elements in some promotional music videos such as a "NASA Johnson Style" video (a parody of Gangnam Style), trying to go viral and reach the large public to increase the audience. The mission was successful since the video got 6 million views and attracted a large audience to the YouTube channel "NASA Johnson" which is now at a quarter of a million subscribers.
- Good interaction with the public: in a video the anchorman invites the audience to write questions on Twitter and answers some of them, such as "what is your favorite project? The tone of the questions is relatively down to earth and non-technical to invite a large audience to ask the questions.

- Certain original "narrative devices" such as a group of workers at the NASA speaking one after the other deciding the turn to speak throwing a football at each other.

**NEGATIVES:**

- Certain videos have only text as narration with still images on the background, using text only as narration is not a good idea.

## ESA

**POSITIVES:**

- Specific name to the series of videos
- Solid format for the majority of videos (like a news show), which are part of a series of videos such as "Earth From Space" which gives the impression that there are more related videos to check out
- Beautiful images of the earth from space used, they capture people's attention

**NEGATIVES:**

- Repetitive nature of the images used (probably because of the content)
- Lack of illustrations, animations, 3D models (probably because of the content)

## UNIGE

**POSITIVES:**

- Almost all videos have voice instead of plain text
- The narrator introduces himself and often shows himself to the camera
- Comedic/humorous content inserted to catch people attention, keep the tone of the video elated and keep them motivated
- Short snippets of footage of people talking with several people interviewed and not just several minutes of the same person talking
- People in the video are excited and happy compared to videos from other institutions; emotions play a role in learning, in grabbing the viewer's attention to avoid repetitive tone of the videos.

**NEGATIVES:**

- Lack of illustrations, animations, 3D models.
- Rare use of titles and subtitles to separate the various parts of the video or to highlight certain words or expressions

## ARGONNE

**POSITIVES:**

- Footage of aerial view of the place and various buildings makes for a nice cinematographic effect.
- Almost all videos have voice instead of plain text
- The narrator introduces himself and often shows himself to the camera
- In around half of the videos there are several people talking, it's not just one person
- Reference to social media at the end of the videos

**NEGATIVES:**

- Almost no use of illustrations, animations, 3D models.

- No use of text as titles to separate the various parts of the video or to highlight certain words or expressions
- Unfortunately, around half of the videos have only one person talking without illustrations, animations, and 3D models and with similar backgrounds (makes for a repetitive tone)
- No use of concrete everyday examples to illustrate certain concepts.

## GOOGLE

**POSITIVES:**

- The style of the videos is different than other institutions, since the promotional content is different. Google promotes apps and other services, so its style of promotion is similar to advertisement, with very good quality/high budget short films, which show people using the apps and services.
- Good use of illustrations, animations and 3D models, technically very impressive (catches the viewer's attention and maintains it for the duration of the whole video)
- "Happy" tone of the videos (emotions and learning), good for attention and retention.

**NEGATIVES:**

None found.

## CERN

With good educational and promotional quality, the CERN's youtube videos provide clear explanations, appropriate for the general public and effective in increasing interest in CERN's past scientific achievements, currents projects and future goals. Attempts are made to "go viral" and attract a larger audience with "fun" elements such as collaborations with music festivals (such as Montreux Jazz Festival) or bands, and humorous content such as the Proton Football Match. Certain videos are part of a series of related content such as "Big Science", using a format that reminds the viewer of a documentary or news show, with a host introducing himself/herself and interviewing scientists. The explanations are down to earth and are coupled with various everyday examples to guide the viewers' comprehension. Furthermore, some promotional videos use 3D models to give a clearer picture of the machinery used in some of the most notorious projects such as the LHC.

However, some areas of improvement can be mentioned for an even more efficient future direction of CERN's youtube presence, especially regarding its educational material. The videos could definitely use more illustrations and animations to be coupled to the explanations given by the scientists and hosts. In particular, the graphic style and visual appeal of these illustrations or animations shouldn't be overlooked, and they should be incorporated as much as possible to accompany the videos narration, to maintain the viewer's attention and constantly spark their interest.

In conclusion, CERN's presence in youtube is already very good and the general public has manifested interest in this effort, as seen by the comments on the videos showing enthusiasm and asking for more information. Efforts should be made to ensure that as many videos as possible follow these guidelines and that CERN learns from other institutions' promotional and educational material, most notably from Fermilab's educational video series (see evaluation of other scientific institutions' youtube presence for more details).

This was a brief summary on the main points, for a more detailed list of good points and areas of improvement, see below:

**POSITIVES**

- Almost all videos use voice in the video as opposed to just text (multiple sensory modalities at the same time, visual and auditory, better retention, because some people have better retention in visual

modalities and others in auditory modalities).
- Using short footage and switching between footage, possibly different enough to avoid monotone, repetitive colors or similar images (see guidelines concerning illustrations, animations, 3D models, etc.)
- Giving a name to a video series, somewhat like a news channel format, with a title such as "Big Science", it puts the video in a context of a group of similar videos the viewer can check out.
- Long enough pauses in between sentences in order to let a little time for the viewer to digest all the concepts.
- In videos that have people talking about their projects being interviewed, different voices in the video are used to make the narration less repetitive.
- Using good cinematography footage catches the viewer's attention.
- Aerial view of the places, buildings etc., to give a sense of space, make the video more interesting and captivating
- Use of different technologies like 360 view videos (adds interaction for the user).
- Utilizing 3d models, and turning them around to give a better perspective. Putting some elements in focus (highlighting them with a certain color for example) to direct the viewer's attention.
- Attempts are made to "go viral" and attract a larger audience with "fun" elements such as collaborations with music festivals (such as Montreux Jazz Festival) or bands,

and comedic/humorous videos such as the "Proton Football Championship", or robots walking around CERN.

**NEGATIVES**

- Using different formats, such as illustrations, animations, and using them as often as possible to cover as much educational/informative content as possible.
- Reference to elements of everyday life to explain difficult concepts, and as much examples as possible for each video. This should be done for as many videos as possible.
- Comedic/humorous elements lighten the tone and captivate the viewer s attention, making the presentation more unpredictable and therefore interesting. Some CERN videos try to do this, but it should be incorporated in more videos.
- The importance of text, it should only be used at certain moments in the video, they should be short (only a few words) and they should be used to separate the video in different parts based on the content. The text should never be used for narration (because then the viewer has to actually read, which shifts attention from to video), which will have an effect on the retention of the content.
- Using text in the video like titles in order to highlight certain words or expressions (some of them will be difficult to understand without being shown written down)
- Inviting users to use social media like Facebook, Twitter and so on to interact with CERN, asking questions for example. Doing videos in which these questions are answered. Periodically, it would be useful to respond to more fun , non-technical and speculative questions such as happens if you put your hand in the LHC beam? (a video not from CERN that has almost 2 million views). This can attract the curiosity of a larger public.
- Avoiding footage with too much technical information without explanations or without trying to direct the viewer s attention to specific elements.
- Having an introduction to the video from the person who speaks, like "welcome to the program!, I am **Name**! Gives an indication of authority to the video and makes it less anonymous and cold.

## Royal College of Art (UK)

**POSITIVES:**

- Use of titles to separate the video in different parts based on the content.
- Short snippets of video instead of having similar footage for too long like half a minute (such as a person speaking about their project without showing other illustrations or animation in the meantime)

- Often, after each little monologue from each presenter, we see the project of the speaker shown, short break from the speaking format and into a more practical demonstration (ideally, it would be better to have a demonstration after each speaker)
- Certain videos highlight comedic/humorous moments, breath of fresh air during the video.
- In certain videos, they show both the designers and the visitors, the video offers different perspectives

**NEGATIVES:**

- Lack of illustrations, animations, 3d models.
- Lack of down to earth examples, if the speech is too abstract the risk is to lose the viewer's attention and interest.

# Other docs from other sources

- How-to searches in YouTube grow 70% year over year according to Google article.
- Points for speakers CERN tools and general advice.
- swiss youtubers' festival

-- MariaDimou - 2017-04-12

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