



Using Video to Give More Effective and Engaging Science Talks

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Science presentations at conferences are an important way that scientists share exciting research discoveries. Some presentations are informative and engaging, but unfortunately many are not. This article describes a novel method (Video Let's Talk, VLT) for more engaging and effective science presentations, where the presenter 1. makes a video that fills half of the presentation time, 2. shows the video in lieu of a live presentation, and 3. spends the remaining time engaging with the audience. The benefits and challenges of the VLT method are described along with tips on how to do the VLT well. These insights are based on the author's experience giving numerous VLT presentations to scientists, farmers and other groups over the past seven years. The VLT method is timely considering how the COVID pandemic has forced scientists to learn new skills in do it yourself (DIY) video making in order to participate in virtual conferences.

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INTRODUCTION

When I go camping with my family, I often joke that our oatmeal smells like bacon. It's not because we're cooking bacon, but because the odor of sizzling bacon drifts over from nearby campsites as we're eating our delicious oatmeal for breakfast. I've never been a big fan of bacon, but many people are, which is why the bacon, lettuce and tomato (BLT) sandwich is one of the most popular sandwiches in the United States. And that brings me to the focus of this perspective article . . . the "VLT" that stands for Video Let's Talk or Video-Let-us-Talk (**Figure 1A**). It's a novel method of science presentation that I've developed and experimented with for several years, long before the COVID-19 pandemic forced many science meetings to go virtual, and skills like DIY video making to become more important.

I did my first VLT presentation at the Tri-Societies annual meeting (Brennan, 2014). It worked so well that I've used this method for all my presentations at subsequent scientific meetings (Brennan and Cavigelli, 2014; Brennan, 2015; Brennan, 2016; Cavigelli et al., 2016; Brennan, 2017a; Brennan, 2017b; Brennan, 2018a; Brennan, 2018b; Brennan, 2018c; Brennan, 2019b; Brennan, 2019c; Brennan, 2019d; Brennan, 2019e; Brennan, 2019f) (**Supplementary Table S1**). Furthermore I co-organized a symposium that required this format (Tri-Societies, 2016); based on feedback and my observations, it was one of the most engaging symposiums that year.

For decades, frustrated and concerned scientists have written about the poor quality of presentations at science conferences (Janzen, 1980; Pickett et al., 1991; Brigham, 2010; Wheelwright, 2014; Langin, 2017). One of my favorites begins with: "I am sitting in the 11th incredibly boring 30 min "paper" in 2 days, nodding my head in somnambulistic time, drowsily wondering how we are going to break this cycle" (Janzen, 1980). And a more recent one starts with: "Attending talks at professional meetings is like playing a slot machine: sometimes you win big, but

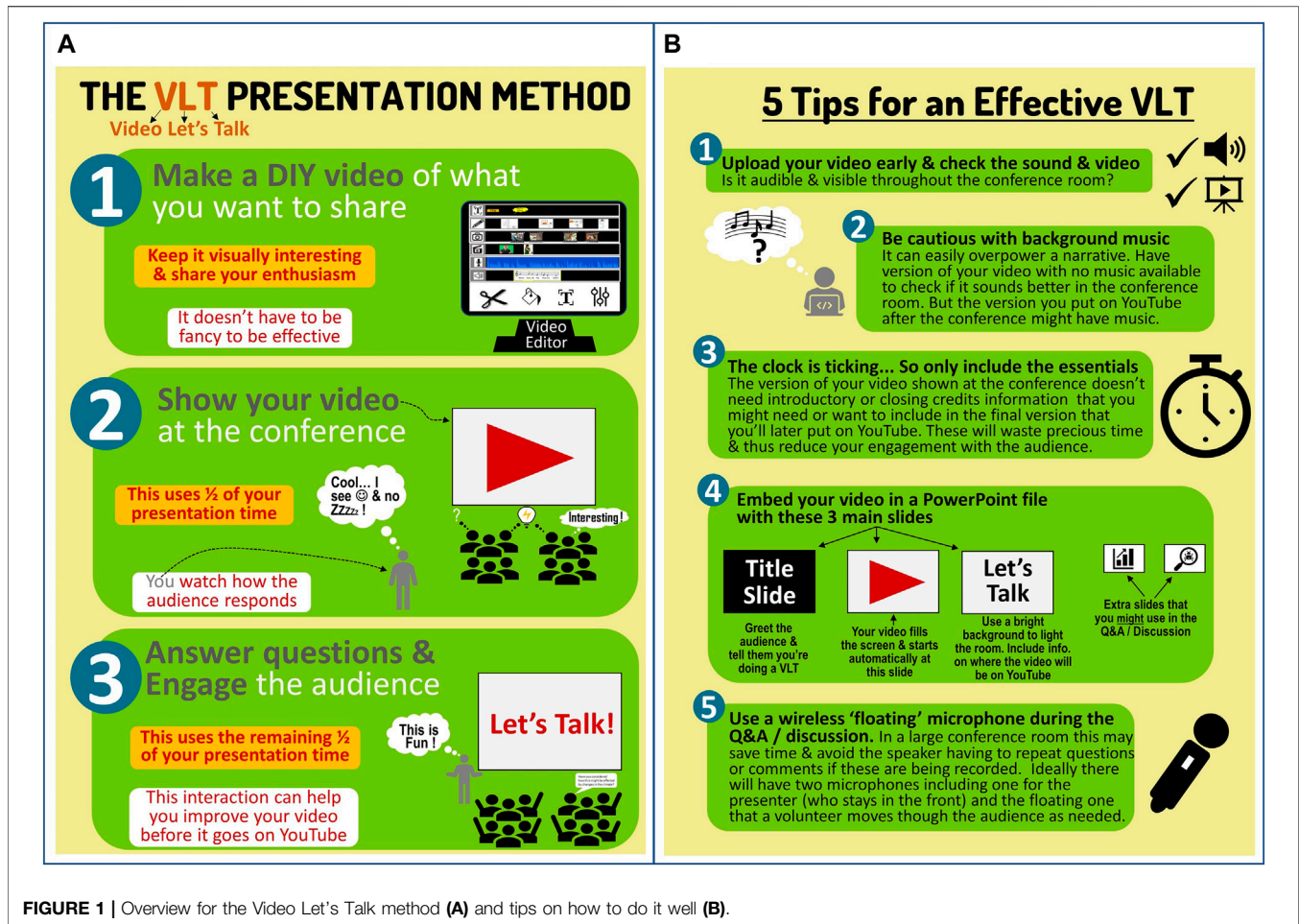


FIGURE 1 | Overview for the Video Let's Talk method (A) and tips on how to do it well (B).

too often the result is disappointment" (Langin, 2017). In the 37 years between these examples, the visual presentation tools that scientists use have changed radically—from 35 mm slides and overhead projectors to electronic slides in PowerPoint—but what I fear has not changed is the ability of too many science presentations to bore or put their audience to sleep. I've seen this frequently, and as an audience member I unfortunately often find myself more amused by the nodding heads in front of me than by the gory details of the "death by PowerPoint" format that often contributes to this. I believe that the VLT method might help to end this pandemic, and if it succeeds, perhaps VLT could also stand for Vaccine for Lamentable Talks.

BENEFITS OF THE VLT METHOD

Watching Yourself Present

This can be painful, but it can help us to see where and how to improve. It forces us to ask important questions (e.g., Am I rushing or speaking in a monotone voice? Are my visuals clear and do they augment my narrative?) Self-reflection by the

presenter is a primary benefit of DIY videos that are used in the flipped classroom method of teaching (McCammon, 2014).

Shorter Presentations

This gives the audience less time to nod off and an incentive to stay focused. This forces us to refine our message, get to the point, and use interesting visuals that minimize the chance of setting off the "Blah-Blahmeter" (a figurative filter that detects the amount of "blah-blah-blah", or unhelpful noise in a presentation (Roam, 2011). You might be thinking that the VLT sounds like the 5 min "rapid-fire", "lightning" or "ignite talk" formats that have been introduced at many conferences (Lortie, 2017; Berkun, 2019). While similar in some regards, I think the VLT method is far better because you can use visuals more effectively and aren't under pressure to do this live.

Increased Engagement and Interaction

The VLT method leaves far more time for meaningful dialogue with the audience than typically occurs in live presentations. Audiences appreciate this because it shows that you respect their time and are interested in their input and ideas. During a typical 15 min presentation slot, the presenter often takes 14 min for

their information and leaves only 1 min for Q&A. But, interaction is what draws many scientists to conferences, so why not augment that in your presentations. The VLT format may help scientists transition towards two-way science communication (Davies, 2008) that hopefully will spill over into how we communicate with the general public. I've found the VLT method to be effective with science conference audiences, farmers groups, university classes, and the general public.

Accessible Outreach Product

Your DIY video can be shared on YouTube to increase the impact and reach of your research (Brennan, 2019e; Brennan, 2021). For example, my first VLT presentation (Brennan, 2014) was seen by about 100 conference attendees but since then on YouTube it has gotten more than 19,500 views (an average of 250 monthly). This makes the time investment to make the video worthwhile. Granted, not all those voluntary YouTube viewers may have been paying attention, but the fact that chairs in the back and aisles of science conference rooms fill up first indicates that many people are planning their escape and may not be attentive either. Knowing that you will put the video from your VLT presentation on YouTube will also hopefully motivate you to improve your science communications skills because you know that everybody from your family (kids, grandmother), friends, neighbors, boss (current and future), university students, and colleagues can see you. I always carefully edit the closed captions of my video so that my information is accessible to people who are deaf or hard of hearing. These closed captions can also be translated into multiple languages.

Learning DIY Video Making Skills

In the past 10 years, a small but growing number of scientists have described the value of learning to make videos to share their research with the world via YouTube (McKee, 2013; Smith, 2018, 2020; Brennan, 2021; Maynard, 2021). Video making skills will have many spillover benefits for those who teach or want to use video to augment information in a paper. For example, my only award winning paper (Brennan, 2018d) was one where I made a "how to" video (Brennan, 2019a) that demonstrated aspects of my paper. DIY video making skills will also be useful if you submit a video for publication in a peer-reviewed video journal like the *Journal of Visual Experiments (JOVE)*. While some scientists might think that professionally made science videos are better, a recent study showed that they receive fewer views on YouTube than videos made by user groups (Welbourne and Grant, 2016). I believe that part of the reason for this discrepancy is because scientists are more likely to feel self-conscious and thus come across as "cold", nervous, and unnatural when they are filmed by a professional crew who they don't know well and that is under time pressure to finish the video shoot.

Better Moderation

The VLT presentation method makes it much easier for session moderators (i.e., timekeepers) to stay on time. This serious problem still persists though it was thoughtfully lamented with humor and candor decades ago (Cairns, 1989). The author interestingly suggested that to stop speakers from running

over "maybe meetings should be replaced by videotapes of speakers".

Helpful Feedback

Observing an audience watch and react to your video provides valuable feedback to help improve your science communication. For example, Is the audience attentive? Are they laughing when they should be? Do they ask questions that indicate they understood your message? This feedback can help the scientist modify their video before it is posted to YouTube.

CHALLENGES WITH THE VLT METHOD

Learning to Make DIY Videos

This takes time but is easier than you might realize. One of the easiest and most visually interesting methods for a DIY science video is the "Hey-Roll, P-Roll" method (Brennan, 2020a; Brennan, 2020b), where one easily cuts between being an on-screen talking head, and showing other visuals. I describe other more complicated methods that I've used in this video (Brennan, 2019d). In any case, the scientist making the video should try to sound enthusiastic and natural even if a script is used. And perhaps most importantly, give yourself the chance to improve over time, and as McKee (2013) explains "don't let perfectionism hold you back."

Less Time to Present Information

Many scientists may be concerned that the VLT method will not provide them with adequate time to present their research. This concern makes sense particularly if the scientist is new to video making and has not seen the method used effectively. However, although it may seem counterintuitive, I've found that more visual information can be presented in more engaging ways in a short video than can occur during a longer live presentation. This is because the scientist video maker can remove unnecessary pauses, carefully time the appearance of visuals, and redo sections of the presentation that were unclear. And moreover, this can happen in a relaxed setting long before the video is shown.

Audio/Video Setup

The conference room where the VLT presentation occurs needs adequate speakers so that the video's narrative is clearly audible throughout the room. I always check this beforehand (**Figure 1B**). If the computer that plays the video is not connected to the room's speakers, one can place the microphone for the presenter near the computer's built in speaker to amplify the audio throughout the room.

Engagement Anxiety

Allocating half of the presentation time for discussion or questions and answers (Q&A) may concern some presenters for several reasons (e.g., What if the audience doesn't ask any questions or want to interact? What if one audience member monopolizes the Q&A? What if they ask questions that I can't answer?). I've always found that audiences are eager to interact and ask questions after the

video. But, I'm always prepared to expand on material in the video if needed. Another effective engagement strategy is to have audience members discuss something in the video with the person next to them. For example, they might ask their neighbor, in 1 min, what surprised them, and then ask a few people to share that with the whole audience.

Unfair Moderators

If the moderator of the session fails to keep earlier speakers in the session on time, the moderator might be tempted to not allow the VLT speaker to use their originally allotted time. For example, in a 15 min presentation slot where a 7.5 min video is shown, the presenter should not be allowed only 1–2 min for Q&A. To prevent this problem the presenter should notify the moderator in advance that the VLT method will be used and that the presenter expects their fair share of time for the Q&A.

Skeptical Scientists

Some scientists in the audience or who present in the same session as the VLT presentation may not like it because it may threaten to make the standard method of science presentation look boring and less interactive. If you encounter this, keep in mind the words of the great physicist Max Planck, "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it." Recent research in the life sciences (Azoulay et al., 2019) has unfortunately found evidence that Planck was correct.

CAVEATS AND RESEARCH NEEDS

It is important to highlight that my perspective on the VLT method is based on my personal experience with it over the past 7 years and my observations of how well I believe this method worked at a symposium (Tri-Societies, 2016) I co-organized. I am not arguing that this method should be used for all science presentations, or would be most appropriate for all audiences, however, my hope is that this article will encourage other scientists and conference organizers to consider using it. If this occurs, it would be useful for science communication researchers to collect data on the

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effectiveness of the VLT method compared with relatively new methods (i.e., "rapid-fire", "lightning" or "ignite talk") and the more standard science presentation methods.

CONCLUSION

Communicating science effectively is difficult yet more critical for the survival of our species than ever before. There are many excellent resources to help scientist improve their communication skills (Bragg, 1966; Janzen, 1980; Godin, 2007; Reynolds, 2008; Baron, 2010; Brigham, 2010; Roam, 2011; Ruetz, 2012; McKee, 2013; Wheelwright, 2014; Baron, 2016; Langin, 2017; Olson, 2018; Finkler and Leon, 2019), but we still have a long way to go to incorporate these effectively into our talks. The VLT method has radically improved how I communicate my science and engage my audiences regardless of whether they are scientists, students, farmers, other agricultural professionals, or the public. I hope you'll try this fun and effective method. It won't make your presentations as popular as the BLT sandwich, but it can help move your science communication in that direction.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fcomm.2021.725811/full#supplementary-material>

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