

Video killed the writing assignment

Nicolle E. B. Zellner, Physics Department, Albion College, Albion, MI

We move pretty fast in the introductory astronomy class at Albion College (Albion, MI)—13.7 billion years of astronomy in about 15 weeks (one semester). Thus, it is virtually impossible to talk about all of the really interesting things that are happening in our solar system, our galaxy, and the universe, or about the really cool people and instruments that make our observations possible. This may or may not be a problem because students take this course for different reasons—to satisfy a graduation requirement, because it fits in their schedule, and/or because they are interested in astronomy in general.

To appeal as broadly to my students as possible, I have asked them to investigate a topic on their own. The project started out as a writing assignment, but after reading multiple—and sometimes very bad—biographies of Galileo and Copernicus, I decided to make a change. Many of my students were already posting personal videos to YouTube and other social media outlets, so I decided to assign a video project to replace the writing assignment. This was a good way, I thought, for students to use a familiar technology to exercise their creativity and learn some astronomy along the way. Perfect.

The assignment is to create a video of a famous (or not) astronomer, astronomical object, astronomical discovery, or telescope observatory and present to the class new information, i.e., information that is not (or will not be) covered in class. Students register their topic with me on a first-come, first-served basis, so as to not have duplicate videos. To “divide and conquer” any technical difficulties with the video production and time required for researching the topic, I prefer that students work together in pairs. Over the 18 semesters during which this project has been assigned, pairs of females and male/female pairs have worked well together, consistent with findings of Adams et al.,¹ who found that “females were ... disengaged significantly more frequently when working in groups that contained uneven numbers of males and females.” Therefore, working in pairs is ideal and optimizes both video quality and student participation in the project.

The length of the video is determined by the enrollment of students in the course (usually 36 per semester), and after many trials I have found that the optimal length (considering both production time for the students and viewing time in class) is 5 ± 0.5 minutes. The students’ task is to be creative yet still include accurate scientific content—edutainment, if you will. The videos need to include a title page and a reference page, and I additionally require that students turn in the reference page to me, as some use so many references that the

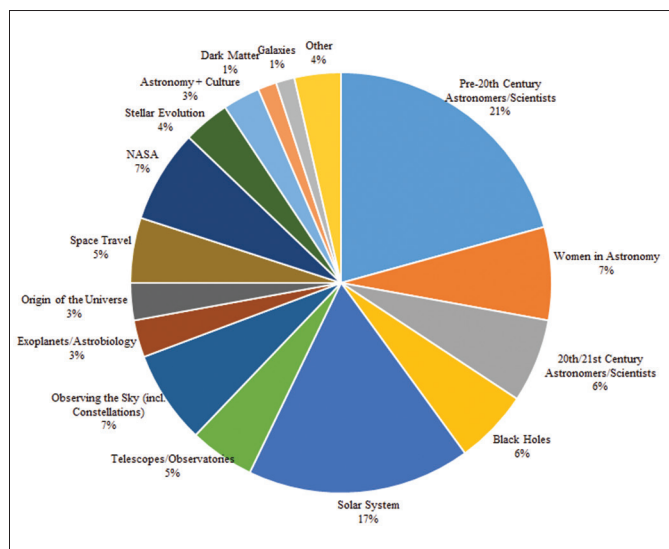


Fig. 1. Topics of videos.

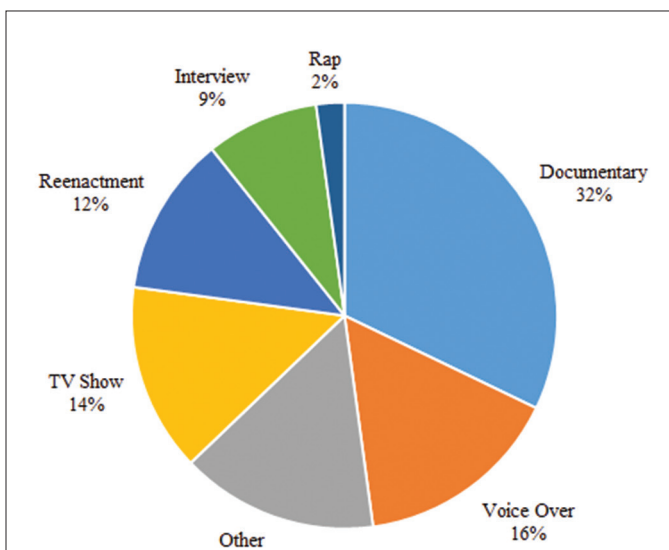


Fig. 2. Style of videos.

font on the video is too small to read. The night before the in-class viewing, students are required to post their videos on YouTube, Google Drive, or the college’s shared drive. We then watch all of the videos together as a class. Of course, I provide the treats—it’s astronomy @ the movies after all!

The results have been better than I expected! Students have created talk shows such as “The Astronomy Shoppin’ Show” (https://www.youtube.com/watch?v=mEg83_gh-Rk), parodies of television shows such as “The Office” (<https://www.youtube.com/watch?v=24rmeXIOUwk&t=2s>) and “Law and Order: Space Victims Unit” (<https://www.youtube.com/watch?v=bXhGJT2ZYzQ>), and documentaries on nebulae, (<https://www.youtube.com/watch?v=CVNc17DbUkk>), Mars, (https://www.youtube.com/watch?v=6_I-4LJzGCc&feature=youtube_gdata_player), and black holes (<https://www>.

Table I. Results of pre- and post-video assessment questions, from 90 students in six semesters.

	Pre-Video	Post-Video	% Change
Web Searches			
Yes	40	63	57.5
No	26	13	-50.0
No preference	24	14	-41.7

youtube.com/watch?v=0nnQIhaityM). There have even been a few game shows, including “Survivor – Astronomy Edition” (<https://www.youtube.com/watch?v=k6kUV0FNvjc&feature=youtu.be>). My favorite is, and has always been, “Life of a Low-Mass Star” (<http://www.youtube.com/watch?v=f-4tErv4-OOI>), one of the first videos from 2009. Students choose a variety of topics (Fig. 1) and formats (Fig. 2) reflecting their own personal interest and style. Over 350 students, 75% of whom are registered for the class, have participated in 140 videos. To see these non-science majors share their newfound knowledge of astronomical science or history through this creative outlet impresses me each and every semester.

The creators of the video judged best by the class each semester receive a prize (usually some piece of NASA swag that I picked up at a conference) and the video gets posted on my blog (<http://campus.albion.edu/nzellner>). Students evaluate the videos for content (i.e., science) and entertainment value, and I evaluate the videos for content, scientific accuracy, entertainment value, and adherence to instructions. I usually follow up with an exam question about what students learned from making their own videos and from watching the videos of their classmates. The overall experience of the students is positive and many report that they are more inclined to search for astronomy-related topics after the video project than before (Table I). This supports results of studies that indicate that introductory astronomy courses can stimulate interest in the public’s perception of science in general.²⁻⁴

I start my lecture on the “History of Astronomy: Aristotle to Zellner” with a quote from Maria Mitchell (1818-1889): “We especially need imagination in science. It is not all mathematics, nor all logic, but is somewhat beauty and poetry.”

The video project helps students realize that they can learn science through “beauty and poetry.” I find that students look forward to this project because it gives them the opportunity to showcase talents and knowledge that may not be reflected in the questions on exams. And that’s okay with me. Because the point of the class is to help students learn how to appreciate the night sky, in all its wonder, and how we know what we know about it. And with this video project, they do.

A detailed description of this activity, including instructions for the video assignment, can be found in the December 2018 issue of the *Journal of Astronomy & Earth Sciences Education*.⁵

Acknowledgments

NEBZ thanks the Hewlett-Mellon Fund for Faculty Development at Albion College, Albion, MI, for conference travel to the 2016 National Astronomy Teaching Summit to present an earlier version of this project. She also thanks student Victoria Della Pia, funded by Albion College’s Foundation for Research, Scholarship, and Creative Activity, who sorted and classified the original lists of videos. Links to “People’s Choice Award” winners can be found on NEBZ’s personal blog at campus.albion.edu/nzellner and other videos can be found by searching on “Albion College Astronomy” on YouTube.

References

1. J. P. Adams et al., “Observations of student behavior in collaborative learning groups,” *Astron. Educ. Rev.* **1** (1), (2001).
2. A. Heck and C. Madsen, *Astronomy Communication*, Vol. 290 (Springer Science and Business Media, 2013).
3. J. R. Percy, “Teaching astronomy: Why and how?” *J. Am. Assoc. Variable Star Obs.* **35** (1), 248–254 (2006).
4. A. Fraknoi, “Astronomy Education in the United States,” <https://www.astrosociety.org/education/astronomy-resource-guides/astronomy-education-in-the-united-states/> (1998), accessed May 5, 2018.
5. N. Zellner, “Video killed the writing assignment,” *J. Astro. Earth Sci.* **5**, to be published (2018).