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Cover Page Footnote

Thank you to Sara Fox and the other undergraduates within the University of Extension Natural Resources Institute that helped with data entry and processing. Additional thanks goes to the National Park Service and Wildlife Forever for allowing their spiny water flea video to be used in this evaluation.

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Comparing Relative Advantages of a Narrative Versus Didactic Approach by Using Invasive Species Education Videos

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Abstract. Video is a common tool for engaging audiences in Extension topics, yet evaluation of the different video production approaches is lacking. We compared learning and emotional outcomes after boaters in the Great Lakes watched either a narrative or didactic video focused on how to prevent the spread of an aquatic invasive species. There were differences in how each approach affected viewers, indicating that there can be utility in both approaches to video production. Extension staff that are creating videos should have these outcomes in mind to promote desired behaviors.

INTRODUCTION

Video is a common tool for engaging audiences in Extension content. Advice for creative videos exists within the *Journal of Extension* (Dev et al., 2018; Epley, 2014; Kinsey & Henneman, 2011), but evaluations of different approaches to video production are lacking. Existing information on video evaluation provides insights indicating that video can be an effective training tool (Mathiasen et al., 2012), that shorter YouTube videos can gain more views (Langworthy, 2017), and that video can provide information that helps move viewers toward more informed action (Cone, 2013).

In addition to receiving more general advice on communication planning (Chappell, 1990), Extension has been encouraged to be more creative and innovative (Argabright et al., 2012) and to incorporate pop culture and creative approaches into its products and services (Stafne, 2015). We believe that creative approaches to communicating Extension programming can lead to desired outcomes and should be explored. One specific aspect we examine is the difference between didactic, informational videos and narrative-style video outreach materials. Didactic informational advice contains facts, statistics, or statements that summarize evidence from reliable sources to provide a representative overview of the issue (Brosius & Bathelt, 1994). This approach is common in Extension programming and for many science-based outreach organizations, where information is communicated by scientists who explain the facts and how to perform a behavior better.

In contrast, narrative information is packaged as a story, which has the potential to persuade in a storylike fashion without explicit factual support or explanations: The story itself packages the necessary information (Chung et al., 2020). Narrative persuasion can elicit less reactance than a didactic argumentative message, which is generally a rejection of a presented message; can create different emotional appeals (Moyer-Gusé & Dale, 2017); and can be easier to understand than a nonnarrative message (Bullock et al., 2021). Given these differences, we expect that different approaches to creating an educational Extension video may lead to different audience outcomes.

In this study, we explore whether a more creative narrative-based Extension video led to different outcomes than did a more traditionally produced didactic video. Specifically, our research questions were as follows:

R1: Are there differences between the two video types for variables related to the intention to implement aquatic invasive species prevention actions?

R2: Are there differences in learning outcomes between the two video types?

R3: Are there different emotional responses between the video types?

R4: Are there differences in viewer willingness to share the message seen in the videos?

Each of these research questions explores different aspects of video-based Extension outreach designed to promote behavioral change. Our results are intended to provide insights into how outcomes may differ by using a narrative versus didactic, informational approach to Extension programming.

METHODS

To explore how creative narrative video affects viewer outcomes, we produced a creative outreach video to educate boaters about the invasive spiny water flea, a topic that was believed to be challenging to teach boaters about due to the invasive species' small size and difficulty in observing the impacts of spiny water fleas in lake ecosystems. The video we produced was targeted at male boaters because surveys of registered boaters in Wisconsin have indicated that men are overwhelmingly the primary users of watercraft (Hammond et al., 2019; Witzling et al., 2016). We included narrative elements, special effects, and references to two popular movie scenes in the video to increase the edutainment elements of the video (Stafne, 2015). We also intentionally added elements in the video to make viewers feel *reactance*, which is an emotional reaction to pressure or persuasion that results in the strengthening or adoption of a contrary belief. We hoped that this approach would challenge them to perform the actions necessary to stop the spread of spiny water fleas. Throughout the remainder of this paper, we refer to this video as "the narrative video."

We showed a different video on spiny water fleas produced by the National Park Service for the Great Lakes region as a comparison. It used a more traditional didactic approach, with scientists and managers discussing the importance of invasive species prevention by incorporating footage of lake environments and scientists as spokespeople. Throughout the remainder of this paper, we refer to this as "the didactic video."

Both videos were of similar length (7:10 vs. 7:07) and discussed similar topics in equal detail, including describing five actions boaters can perform to prevent the spread of spiny water fleas and four impacts of spiny water fleas on lakes. The narrative video can be viewed at go.wisc.edu/m0qwy2, while the didactic video can be viewed at go.wisc.edu/0rmfur.

Figure 1. Example screenshots from the narrative video (left) and the didactic video (right).

The narrative video included storytelling elements and had more creative aspects, while the didactic video included more short interviews with people explaining impacts and sharing facts.

To compare the videos, we commissioned a panel of respondents from Qualtrics in early 2017 to complete a survey. Our respondents were all males ages 25–54 and motorized boat owners who lived in Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, or New York. Respondents were randomly put into groups, and each treatment group included 84 respondents, for a total of 168 completed surveys, at $6 per completion. This survey had no response rate because the completed surveys were from a commissioned online panel.

The survey consisted of a short section of screening questions to ensure that the respondents met our targeting criteria, time to watch one of the two provided videos on the spiny water flea, and a series of 5-point Likert-scale questions on intention to implement, perceived impacts of the spiny water flea, and social norms. A 7-point Likert scale was used for emotional response questions, with higher scores indicating a more negative emotional response. Additionally, two open-ended questions asked respondents to list the negative impacts of invasive spiny water flea populations and the prevention actions the respondents could perform. Respondents were scored from 0–4 for each correct impact listed and 0–5 for each correct prevention action listed. *T* tests were used to compare the differences between the two treatment groups. A copy of the survey instrument is available as supplemental material online.

RESULTS

Statistically significant differences were found between some outcomes of the narrative video and those of the didactic video (see Table 1). Specifically, the didactic video group felt significantly more stressed than did the narrative video group after watching the video (4.0 vs. 3.4 out of 7, respectively). The didactic video group reported that they were more likely to share the video on social media (3.5 vs. 3.0 out of 5, respectively) and more likely to discuss it with their family and/or friends (4.0 vs. 3.4 out of 5, respectively) than did the narrative video group. The didactic video group also thought that it was more important to prevent the spread of spiny water fleas than did the narrative video group (4.5 vs. 4.2 out of 5, respectively).

The narrative video group performed better than the didactive video group in answering the two open-ended questions (see Table 1). The narrative video group correctly listed significantly more prevention steps (2.8 vs 2.1, out of 5, respectively), and they correctly named more impacts from the spiny water flea (1.8 vs 1.5 out of 4, respectively).

No other measured outcomes were significantly different between the videos.

Table 1. Key Results from the Post-Video Questionnaire, Highlighting Differences

RQ1: Are there differences in intention to implement invasive species prevention action?			
How likely are you to… (not at all likely to extremely likely)	Narrative	Didactic	p value
Remove plants from your boat and trailer before leaving the landing?	4.5	4.4	0.68
Drain water from your boat and bilge before leaving the landing?	4.5	4.6	0.40
Drain water from your livewell, bucket, or container holding your catch before leaving the landing?	4.4	4.6	0.31
Add lake water to your bait bucket?	2.4	2.4	0.96
Clean mud off your anchor before leaving the water body?	4.6	4.4	0.13
RQ2: Are there differences in learning outcomes between the two video types?			
	Narrative	Didactic	p value
Please list the invasive species prevention steps you remember from the video. (open-ended, 5 possible)	2.8	2.1	<0.001
Please list the impacts of spiny water fleas on our environment that you remember. (open-ended, 4 possible)	1.8	1.5	0.041
How big of a threat are spiny water fleas to the waters you boat in? (5-point scale)	3.9	3.9	0.84
How important do you think it is to prevent the spread of spiny water fleas? (5-point scale)	4.2	4.5	0.039
R3: Are there different emotional responses between the video types?			
After watching this video, how do you feel on the below scales? (7-point scale)	Narrative	Didactic	p value
Hopeful to hopeless?	3.2	3.4	0.38
Motivated to unmotivated?	2.4	2.6	0.32
Entertained to bored?	3.6	3.3	0.20
Relaxed to stressed?	3.4	4	0.003
How memorable was this video?	3.2	3.5	0.14
R4: Are there differences in viewer willingness to share the message seen in the videos?			
How likely are you to… (5-point scale, not at all likely to extremely likely)	Narrative	Didactic	p value
Tell others about the prevention steps from the video?	4.1	4.3	0.26
Spend time researching ways to prevent the spread of spiny water fleas?	3.4	3.7	0.13
Share this video on your social media pages?	3	3.5	0.048
Talk about this video with friends and family?	3.4	4	0.004

DISCUSSION

How information is presented within an educational video context can affect how viewers respond, with different approaches potentially influencing different learning outcomes, emotional responses, and behavioral intentions. In this case, a more standard didactic approach (didactic video) led to more desirable outcomes around sharing the video's message and issue importance. In contrast, the more creative narrative approach (narrative video) led to better learning outcomes. Ideally, a single video approach would be best for everything—and in practice, the approaches could be blended—but understanding the differences in outcomes between production approaches can help Extension professionals craft more effective videos, depending on the goal of their communications. Didactic and more creative narrative styles can play a role in Extension programming.

Although some of the significant differences between these two videos may be perceived as small, even minor differences could be influential when we consider the thousands of people reached with Extension communications and programming. For example, waterfront property owners in Wisconsin who feel negative emotions toward aquatic invasive species are more likely to prefer chemical treatment for those species, even if it harms the lake ecosystem (Shaw et al., 2024). These small shifts of emotion on the population level could push communities to different outcomes, and the message frames and communication approaches that influence these emotions should be considered for invasive species management (Verbrugge et al., 2016).

Some prior work focused on Extension programming has found that narrative videos are more effective when people are in earlier stages of considering behavioral change, potentially because they are more entertaining and immersive and, therefore, people are less likely to feel that they are being persuaded (Chung et al., 2020). Other work on podcasting has found that narrative sections of a podcast episode received more interest than did a logical scientific section and that differences in attitudes toward science can influence how listeners perceive scientific information (Opat et al., 2022). Our research finds that the narrative video was better for enhancing learning outcomes, while the didactic video led viewers to think that prevention of the invasive species was more important and increased their willingness to talk about or share the topic with others. This result suggests that future Extension programmers should consider their desired objectives when developing video-based outreach materials.

Although we found differences between the two videos tested, we acknowledge some shortcomings with the narrative video. Specifically, our chosen militaristic frame may have been less optimal for some of the engagement metrics and generally problematic for invasive species communication (Lower & Campbell, 2024). We specifically chose a militaristic frame to reference an iconic scene in the movie *Patton*, which we believed might resonate with our generally older target audience. However, recently completed message tests have suggested that militaristic frames for presenting invasive species information are no more engaging than scientific frames and are not the most shared frame (Shaw et al., 2021). They may also produce unintended consequences and generate conversation that is not helpful to programmatic goals. Similarly, a scene later in the narrative video that referenced the movie *Zoolander*, which we thought might draw in different audiences than references to the iconic *Patton* movie scene, was described by multiple people as "weird." This response may also have influenced their answers to questions about sharing the video message, with people not wanting to share or talk about something they perceived to be "out there."

Future work could use a less polarizing message frame while keeping the same creative approach that allowed us to repeat key messages often and likely drove some of the better learning outcomes. Additionally, immersive technologies, such as virtual reality, are being used for invasive species communication (Rannow et al., 2023) and could be further explored to educate water users about invasive species issues. Lastly, a previously published evaluation of this video suggested that the creative approach drove earned media attention (Campbell et al., 2019), so future work could more explicitly explore how narrative approaches could leverage earned media to improve the cost-effectiveness of these approaches.

An additional benefit that should not be discounted is the enjoyment that can be had when making a narrative-style video. It provides space for Extension professionals to be creative and explore new ways to communicate with target audiences. We hope that future creative efforts can learn from our endeavor and use some of the strengths of our approach while avoiding some of our pitfalls. The creative narrative approach might lend itself better to incorporating theory and production techniques that would lead to different desired outcomes and should be in the toolbox for any Extension professional.

REFERENCES

Argabright, K., McGuire, J., & King, J. (2012). Extension through a new lens: Creativity and innovation now and for the future. *Journal of Extension*, *50*(2). https://tigerprints.clemson.edu/joe/vol50/iss2/39

Brosius, H. B., & A. Bathelt. (1994). The utility of exemplars in persuasive communications. *Communication Research*, *21*(1), 48–78.

Bullock, O. M., Shulman, H. C., & Huskey, R. (2021). Narratives are persuasive because they are easier to understand: Examining processing fluency as a mechanism for narrative persuasion. *Frontiers in Communication*, *6*, 719615. https://doi.org/10.3389/fcomm.2021.719615

Campbell, T., Shaw, B., Rao, A., & Klink, J. (2019). Evaluating promotional efforts for driving traffic to an Extension outreach website. *Journal of Extension*, *57*(3). https://tigerprints.clemson.edu/joe/vol57/iss3/15

Chappell, V. G. (1990). Use creative platforms for better marketing communications. *Journal of Extension*, *28*(4). https://archives.joe.org/joe/1990winter/tt2.php

Chung, J. H., Sarmiento, I. G., Van Swol, L. M., Shaw, B. R., Koshollek, A., & Ahn, P. H. (2020). Promoting reforestation to landowners: The role of advice-giving through information, efficacy, narrative, and identification in storytelling. *Journal of Forestry*, *118*(5), 474–486. https://doi.org/10.1093/jofore/fvaa028

Cone, J. (2013). Creating research-based videos that can affect behavior. *Journal of Extension*, *51*(2). https://tigerprints.clemson.edu/joe/vol51/iss2/3/

Dev, D. A., Blitch, K. A., Hatton-Bowers, H., Ramsay, S., & Garcia, A. S. (2018). How to create videos for Extension education: An innovative five-step procedure. *Journal of Extension*, *56*(2). https://tigerprints.clemson.edu/joe/vol56/iss2/19

Epley, H. K. (2014). Developing a promotional video. *Journal of Extension*, *52*(3). https://tigerprints.clemson.edu/joe/vol52/iss3/15

Hammond, E., Campbell, T. B., Ozedemir, A. O., & Shaw, B. (2019). *Aquatic invasive species prevention: Wisconsin boaters and anglers survey report.* Technical report. https://publications.aqua.wisc.edu/product-category/aquatic-invasive-species/

Kinsey, J., & Henneman, A. C. (2011). Making your online video viral. *Journal of Extension*, *49*(4). https://tigerprints.clemson.edu/joe/vol49/iss4/25

Langworthy, S. (2017). Do you YouTube? The power of brief educational videos for Extension. *Journal of Extension*, *55*(2). https://tigerprints.clemson.edu/joe/vol55/iss2/24

Lower, E., & Campbell, T. (2024). Alien language: Reflections on the rhetoric of invasion biology. *Oceanography, 37*(1).

Mathiasen, L., Morely, K., Chapman, B., & Powell, D. (2012). Using a training video to improve agricultural workers' knowledge of on-farm food safety. *Journal of Extension*, *50*(1). https://tigerprints.clemson.edu/joe/vol50/iss1/7

Moyer-Gusé, E., & Dale, K. (2017). Narrative persuasion theories. In P. Rössler, C. A. Hoffner, and L. van Zoonen (Eds.), *International encyclopedia of media effects* (pp. 1–11). Wiley. https://doi.org/10.1002/9781118783764.wbieme0082

Opat, K., Irlbeck, E., Cummins, R. G., Li, N., & Boren-Alpizar, A. E. (2022). Get the story straight: Comparing narrative and logical-scientific communication to capture Gen Z's interest in science podcasts. *Journal of Radio and Audio Media*, 1–19. https://doi.org/10.1080/19376529.2022.2145481

Rannow, B., Schneider, I. E., Windmuller-Campione, M., Russell, M., & Gupta, A. (2023). Research note: The impact of advanced information communication technologies on visitor acceptance of forest management in response to emerald ash borer. *Journal of Outdoor Recreation and Tourism*, *42*. https://doi.org/10.1016/j.jort.2023.100640

Shaw, B., Campbell, T., & Radler, B. T. (2021). Testing emphasis message frames and metaphors on social media to engage boaters to learn about preventing the spread of zebra mussels. *Environmental Management*, *68*, 824–834. https://doi.org/10.1007/s00267-021-01506-6

Shaw, B. R., Heinrich, R., Brossard, D., Vander Woude, T., & Campbell, T. (2024). Lakeshore property owner perceptions of aquatic invasive species and implications for outreach related to management strategies. *Biological Invasions 26*(4), 989-1000.

Stafne, E. T. (2015). Injecting Extension into the American zeitgeist. *Journal of Extension*, *53*(3), Article 2. https://tigerprints.clemson.edu/joe/vol53/iss3/2

Verbrugge, L. N. H., Leuven, R. S. E. W., & Zwart, H. A. E. (2016). Metaphors in invasion biology: Implications for risk assessment and management of non-native species. *Ethics, Policy, Environment*, *19*(3), 273–284. https://doi.org/10.1080/21550085.2016.1226234

Witzling, L., Shaw, B., & Seiler, D. (2016). Segmenting boaters based on level of transience: Outreach and policy implications for the prevention of aquatic invasive species. *Biological Invasions*, *18*(12), 3635–3646. https://doi.org/10.1007/s10530-016-1254-7