

Sharing Science through Social Media: Lessons from @NASAMoon and the Lunar Reconnaissance Orbiter.

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Introduction: Love it or hate it, social media has become a vital method of how we communicate. 67% of adults discover news via social media, with the number increasing to 78% for those under age 50 and 74% for people of color [1]. As of this writing, Twitter has 330 million users, Instagram hosts 700 million users, and Facebook, the behemoth of all social media, has 2.07 billion users [2]. A productive social media account certainly takes time and effort, but it is still a relatively low-cost outreach method for reaching potentially millions of people.

The Lunar Reconnaissance Orbiter (LRO) was one of NASA's pioneers of social media, launching in May 2008 while the spacecraft was in its integration and testing phase. The account speaks from the spacecraft's perspective and shares new discoveries, answers questions from the public, and features photographs and products made with LRO's data. Over ten years on social media, LRO has attracted 162,000 Twitter users and 222,000 Facebook followers.

Despite the high number of followers, the LRO account has a fairly specialized audience. Three-quarters of our audience on Twitter and Facebook are male and the majority of our users on both platforms have a strong interest in space science and technology. In an effort to widen our appeal, the LRO Communications Team, with the help of NASA Goddard Social Media Team, launched @NASAMoon on Twitter in June 2017. While not everyone is aware of the Lunar Reconnaissance Orbiter, everyone is certainly aware of what it studies – the Moon. Since its launch, the @NASAMoon account has been wildly successful, passing 100,000 users on Twitter after only 6 months and reaching millions of viewers with posts on Snapchat, Instagram, and Tumblr. The account has increased visibility of NASA's lunar science efforts nationally, internationally and within NASA itself.

Audience Demographics: Like the audience for LRO, the audience for @NASAMoon is male-dominated and specialized – most of the audience has an interest in space science and astronomy. However, @NASAMoon's audience is slightly more diverse than LRO's audience, with a higher percentage of female followers and a wider array of interests.

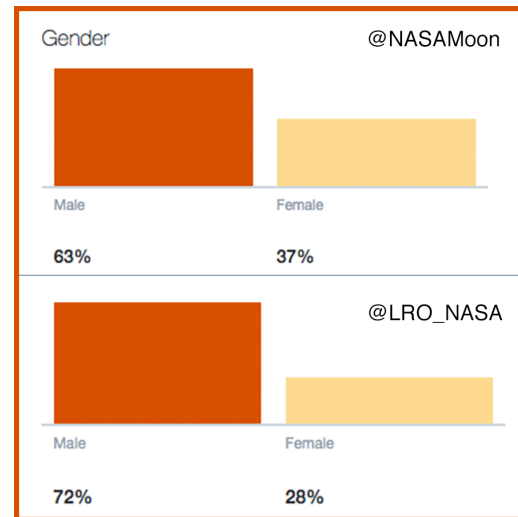


Figure 1: Slight difference in self-identified gender demographics of the @NASAMoon Twitter account and the @LRO_NASA Twitter account

Lessons Learned: Over our tenure running the @NASAMoon and LRO accounts, we have gained some important lessons on what resonates with the public.

Visual content is vital. On social media, you have a matter of seconds to capture a viewer's attention – and visual content is better at doing so than text. Tweets and Facebook posts with videos or images are seen more, liked more, and shared more than those without attached media.

Consistent messaging across platforms. Each social media platform has slightly different user bases. For example, Snapchat's audience is primarily under age 35 [3] whereas Facebook reaches older demographics [4]. Spreading your message across platforms reaches a wider array of people and allows you to tailor your story for each platform. For example, the LRO team released a visualization at the end of 2017, the 2018 Moon Phase and Libration. To publicize the scientific visualization, we posted a blog on Tumblr, shared a story on Snapchat, Instagram, and Facebook, and tweeted. Altogether, we had nearly 3 million impressions and views.

Collaboration. @NASAMoon's most popular tweet ever, which was also the most popular NASA tweet of the total solar eclipse, was a true expression of the power of collaboration. We worked with the @NASASun and @NASAEarth accounts to create this exchange, in Figure 2. While we do not typically pre-

tend we are the Moon, this tweet was fun and emphasized the motions of the Sun-Earth-Moon system.



Figure 2: Collaborative tweets between @NASAMoon and @NASASun on 21 August 2017

Embrace the hits. Robert Plant of Led Zeppelin famously hates playing “Stairway to Heaven” – but the hits are what bring the people to the concert. In our world, there are some tried and true hits that bring the audience to us: Moon phases and supermoons. While these may not be the most scientifically interesting topics, they draw the audience in so we can continue to share new discoveries.

Silly can still be smart. Much of social media is funny and silly – and playing with the tropes of each platform can enhance your message and draw people in. The internet has distinctive vocabulary, including memes, acronyms, and hashtags. Incorporating the existing internet language into your messaging can result in the most clever and educational posts. In the example in Figure 3, Twitter had just changed its character limit from 140 to 280 characters. At first, we thought this tweet was primarily funny – but in reading the responses, we realized that it was highly educational and emphasized the data that LRO collects.

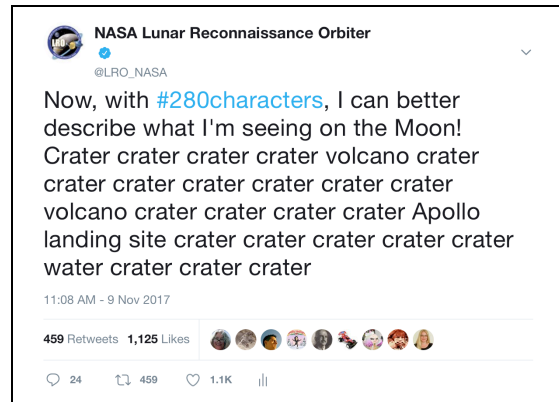


Figure 3: This humorous tweet emphasized how many craters are on the Moon, that the Moon contains evidence of water and volcanic activity and emphasized LRO's scientific capabilities.

Get Involved: We are eager to feature stories from the wide array of NASA lunar science. If you'd like to share your work with the public or would like to contribute tweets to the account, please contact @NASAMoon Social Media Lead, Molly Wasser, at molly.l.wasser@nasa.gov.

References: [1] Mitchell, A., Gottfried, J., Barthel, M., and Shearer, (2017) *E. Pew Research Center: Journalism and Media*, <http://www.journalism.org/2016/07/07/pathways-to-news/>. [2] Shearer, E. and Gottfried, J. (2017) *Pew Research Center: Journalism and Media*, <http://www.journalism.org/2017/09/07/news-use-across-social-media-platforms-2017/>. [3] Chaykowski, K. (2017) *Forbes*, <https://www.forbes.com/sites/kathleenchaykowski/2017/03/01/snapchats-big-weakness-the-olds/#218d23e5230b> [3] Social Media Fact Sheet (2016) *Pew Research Center: Internet and Technology*, <http://www.pewinternet.org/fact-sheet/social-media/>