

The Search for Life: Setting Realistic Expectations for Scientific Results from JWST

Alexandra Lockwood, Joel Green, Bonnie Meinke, Christine Pulliam, Denise Smith
Space Telescope Science Institute, USA (alockwood@stsci.edu)

Abstract

We present JWST public outreach and scientific communication efforts in the areas of exoplanets and habitability. We share the strategic planning that goes into product development and the considerations including audience needs and understanding, messaging, and various distribution channels. Exoplanets and the topic of life are especially interesting to the public and garner lots of visibility in the media. Therefore, it is important to set realistic expectations as to what JWST will actually be able to measure and determine about these other worlds, while keeping the public engaged and excited for the science to come.

1. Introduction

The James Webb Space Telescope (JWST) is NASA's next flagship mission and is an international partnership between NASA, ESA, and CSA. The Office of Public Outreach (OPO) at the Space Telescope Science Institute (STScI) develops public outreach material about the mission science. Ahead of the March 2021 launch date, there are several key scientific concepts to convey to the public to prepare them for the forthcoming mission results. OPO has developed a strategic plan for delivering messaging and products to the public over the next couple of years. The products developed by OPO are free and publicly accessible at www.webbtelescope.org and can and should be utilized by the astronomical community.

2. Methodology

Successful strategic planning for content development includes identifying the audience, messages, and distribution channels you will be targeting. We will discuss the approach to each of these areas.

2.1 Audience

The needs of the audience should drive which content to develop, and their *presumed* level of interest and understanding will dictate the depth and detail of scientific material to include. Additionally, the general public has limited interaction with scientific communication and news and this must be taken into account when deciding what, when, and how to showcase scientific discoveries. We will discuss the choices made regarding this audience with respect to the JWST scientific news.

2.2 Messaging

The top-level messages for the JWST mission are 'Seeking light from the first galaxies in the Universe' and 'Exploring distant worlds and the Solar System'. These messages were chosen intentionally to encompass the breadth of science of the mission while also emphasizing some specific science cases. Moreover, the language used does not overpromise what the telescope will deliver – for example, by claiming that JWST will find life on other planets.

In addition to these key messages, we have developed scaffolded scientific messaging that goes into varying levels of detail, depending on the audience needs (see Figure 1).

2.3 Distribution Channels

The modern age provides us with multiple avenues and media to connect with our audience. JWST publishes regular news releases with associated multimedia products (see Figure 2), which are shared via social media and online portals. The engagement opportunities vary for each of these platforms and we modify our products to maximize our impact with these different audiences.

OPO creates infographics, images, and animated GIFs that are shared on the mission's official social media including Facebook (@webbtelescope), Twitter (@NASAWebb), and Instagram (@nasawebb), and videos that are shared via YouTube. All of this material is also available for download at the public science outreach website: www.webbtelescope.org.

3. Figures

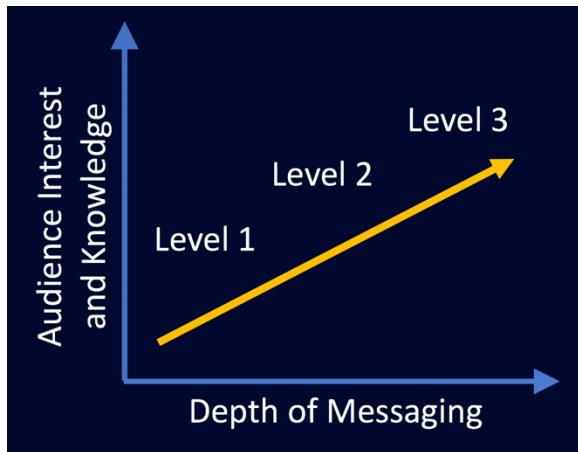


Figure 1: Scaffolded messaging.



Figure 2. Title image for video about transmission spectroscopy, which was a multimedia asset that accompanied a JWST news feature in July 2018.

4. Summary and Conclusions

Communications and outreach can be as methodical, intentional, and eye-opening as scientific research, when done strategically. Furthermore, the question of ethics comes into play when discussing interesting but unsubstantiated topics like the 'search for life'. Utilizing scaffolded messaging to develop material maximizes engagement while tempering expectations as necessary. JWST is committed to accurate yet stimulating scientific communications both before and after the observatory's discoveries begin.

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