



Iowa Research Online  
The University of Iowa's Institutional Repository

---

Latham Science Communication Project

---

4-1-2019

## Talk Science to Me

Jesse Cochran  
*University of Iowa*

---

Copyright © 2019 Jesse Cochran

Hosted by [Iowa Research Online](https://www.lib-iir.uiowa.edu/). For more information please contact: [lib-ir@uiowa.edu](mailto:lib-ir@uiowa.edu).

## Project Narrative



**Figure 1:** A picture of co-hosts, Jesse Cochran (left) and Chase Urias (right).

funding for this immense expenditure, it is paramount that they understand the great strides and accomplishments that have been made due to their contribution. Thus, the “Talk Science to Me” podcast sought to instill sufficient scientific literacy in the lay public to understand some of the basic approaches used in biomedical research and their connection to real-world examples.

The podcast was co-hosted by Chase Urias and me (**Figure 1**). All subject matter for the podcasts was chosen jointly; however, research and development of the podcast was executed by me. Consequently, Chase had minimal exposure to the material prior to recording, ensuring that he would respond similarly to an audience member. One month was devoted to composing and editing scripts for the podcast while the remainder of the time was dedicated to recording, editing, and publishing the podcasts. Final podcasts were uploaded to SoundCloud and linked to the Stem-O-Sphere page. Additionally, competency quizzes and evaluations of the podcasts were published under the project page. The effectiveness of the podcast was probed via the competency quizzes while the audience’s demographic and attitude towards the podcast was assessed via surveys.

The podcast sought to teach about a variety of concepts within the health sciences. For any given podcast, scripts were written, outlining the main topics that needed to be addressed. Chase filled in his responses and transitions briefly before recording of the podcast. An excerpt from a script is shown in **Figure 2**. The podcast was

In 1953, James Watson and Francis Crick elucidated the structure of DNA, the biomaterial that codes for the constituents of the life around us. Jumping forward a mere 60 years, not only have numerous connections been established between changes in our DNA (mutations) and pathology, but gene therapy has been developed in order to correct these defective sequences of DNA and treat these diseases. In accord with the growth rate of science, federal spending on research and development has increased over the years – a near \$60 million in the last 42 years alone.<sup>1</sup> With taxpayers being the source of

### Script #1: The Scientific Method

Jesse: Hello listeners, my name is Jesse Cochran.

Chase: ... and I'm Chase Urias.

Jesse: Today marks the first episode of our podcast series, 'Talk Science to Me.' A series where we discuss science, its advancements, and its implications in society... Now, let's get things rolling. Chase, describe a scientist to me?

Chase: knowledgeable, meticulous, ... (more things Chase lists), ... green eyes, dirty blonde hair, and a slightly receding hairline.

Jesse: haha alright Chase, not all scientists look like me. Some are more bald. Now, in all honesty, what make science, science? How do we do, what we do?

Chase: I don't know. That's what we have you for.

Jesse: Good point, well, all this complex and intricate knowledge that we have come to know, stems from a simple and streamlined process call the scientific method.

Chase: they were really creative with that one.

Jesse: Well, we're nerds, not creative writers. Anyways, it all begins by identifying a problem or asking a question.

Chase: okay, brain-boy, why do people get sick?

Jesse: Good start. Now, speaking more broadly, many ailments are caused by pathogens, which are microbes that find their way into our body and use its resources to reproduce.

Chase: So, how was the scientific method used to discover these little guys?

Jesse: well, I'll begin with one of the greatest medical stories known today. To begin, we rewind back to later 1970s. At this point in time, nearly 10% of adults were afflicted with ulcers; however, they are not like modern ulcers, which we dismiss as being less than the common cold. These ulcer patients became severely ill, frequently had to have their stomach removed, and even died from significant blood loss.

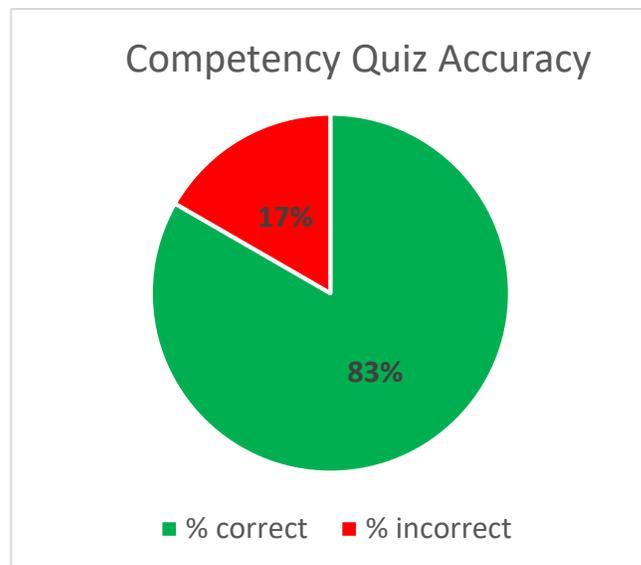
**Figure 2:** Illustrated above is an excerpt from Script #1 of the podcast series.

recorded with the Audio-Technica AT2020 microphone. The raw audio files (**Audio File 1**) were then edited with the Audacity software. Intervening pauses and noise sequences were removed, background noise was corrected, and peak volume was normalized. Finally, sound bites were assimilated into the file, generating the final product for export (**Audio File 2**). The edited file was then uploaded to Stem-O-Sphere. Listeners were encouraged to complete the various evaluations through incentivization with a \$10 Amazon gift card.

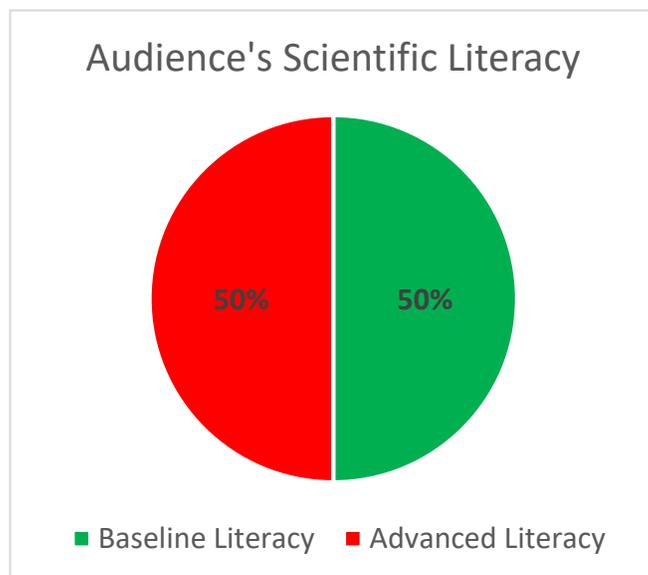
The impact of the podcasts was evaluated through quizzes, surveys, and google analytics. As can be seen in **Figure 3**, listeners performed fairly well on the competency quizzes, achieving an accuracy of 83%. Furthermore, 50% of these listeners considered themselves to have baseline knowledge defined by an understanding equipped by high school coursework (**Figure 4**). Thus, the podcast was quite successful in achieving its goal to teaching basic scientific concepts to the lay community. Finally, google analytics was employed to assess page traffic. As can be seen in **Table 1**, my podcast had 19 unique pageviews within the last week, which comprised 6% of Stem-O-Sphere’s total consumption. Analytics yielded an average time on the page of 1 minute and 13 seconds, a bounce rate of 100%, and an exit rate of 85%, suggesting that users selected a podcast quickly and entered a new page (presumably, SoundCloud) thereafter. Many opportunities are still available for the “Talk Science to Me” podcast. Firstly, our podcasts only covered a few concepts pertaining to health sciences. Thus, it would be beneficial to expand and communicate other scientific fields such as chemistry, physics, psychology, etc. Secondly, to expand the project’s reach, the series can be published on other streaming platforms such as Apple Music and Spotify, which have an enormous user base.

The Latham fellowship has imparted many useful skills and lessons. One important

**Table 1:** Google analytics analysis of the “Talk Science to me” page on Stem-O-Sphere.



**Figure 3:** All responses to the competency quizzes were pooled, and total accuracy is depicted above (n=24).



**Figure 4:** Demographic analysis of the audience’s background in science is shown above. Baseline literacy is defined as knowledge granted from high school/ grade school coursework. Advanced literacy is defined as knowledge imparted from the pursuit of a bachelor’s, master’s, or doctoral degree in the natural sciences (n=4).

GOOGLE ANALYTICS ANALYSIS			
Unique Pageviews	Average Time on Page	Bounce Rate	Exit Rate
19	1:13	100%	85%

lesson is that even with adequate use of incentives, evaluation response rates can still be rather low. This is particularly compounded by projects that use virtual means for delivery such as podcasts and videos, which cannot directly oversee the completion of the evaluations. Secondly, I learned that organization is key in the producing a refined, well-developed product. It is difficult to properly appraise many aspects of a project without sufficient experience. Thus, it is essential to be proactive and structure deadlines accordingly.

### References:

1. American Association for the Advancement of Science. Historical Trends in Federal R&D. **2018.**