

Change – The transformative power of citizen science

Scrolling through science: exploring secondary school students' consumption of science communication on social media

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Abstract

In recent years science communication has changed drastically, driven by the rise of social media. To date, there is an enormous amount of content available online that offers potential for informal learning opportunities for school students if it is effectively integrated into their social media habits. In this study – which is part of the Sparkling Science project “We Talk About Science” – we worked with two secondary school classes and analysed on which platforms science communication is perceived and how it is evaluated. Afterwards, the experiences and consumption habits of the students were explored in group interviews. Many students were surprised by the amount of content that is already available on social media, as they had previously consumed hardly any or no science communication. Also, the submitted content was rated highly in terms of its comprehensibility, interest, attractiveness and trustworthiness. However, science communication was not or only barely integrated into their daily social media usage, indicating that the content does not meet their demands yet.

Keywords: science communication, social media, informal science learning.

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Introduction

Nowadays, students are turning increasingly to social media platforms like Instagram, TikTok, and YouTube for information (Belova et al. 2022; Feierabend et al. 2022). Some studies have already examined the strategies and criteria employed by students to assess the credibility of scientific content on social media (Belova et al. 2022; Kresin et al. 2024). However, the general role of social media in disseminating scientific information for students and their consumption habits of scientific content remains poorly understood. Mass media, especially social media, may serve as a potential source for informal science education, which could assist young people in acquiring scientific knowledge. Accordingly, the aim of this study is to explore whether and where students consume scientific content on social media.

Project Overview

This study is part of the contributory citizen science project “We Talk About Science” which aims to explore student’s perspectives on science communication. Starting with a competition, the students mainly took part in data collection. Over four months, they collected data about and evaluated scientific content in their digital environment. Two participating classes were particularly committed to this competition and were therefore asked for their experiences and views regarding science communication in social media. After the summer break, a recap was held to assess the medium-term effects of participating in the project. Once the results were analysed, the participants discussed and interpreted the findings. We incorporated different principles of Citizen Science (ECSA 2015). In addition to data collection and discussion by students, they also played an important role in gaining new perspectives on science communication. Students were given feedback and insights into their data as well as in scientific work and processes. However, it has to be noted that the students were both research subjects and participants in this study. Altogether, participation enhanced the students’ awareness of science communication and science in their everyday lives, and we gained new scientific knowledge about science communication for students.

Methods

42 Students, all female, completed digital log sheets for each content including general information, a screenshot and a brief evaluation using a 4-point Likert scale to assess comprehension, design, interest and trustworthiness.

To deepen our understanding, eight semi-structured-group interviews with 24 students were conducted to facilitate a discursive dialogue focusing on their experiences and consumption habits and how these changed after participation. All interviews were audio recorded and transcribed. Summarizing content analysis was undertaken to determine key experiences and perceptions (Mayring 2022).

Results and Discussion

A total of 1,750 digital log sheets were successfully completed. The submitted content was mainly found on the platforms TikTok (45.2%) and Instagram (43.6%). YouTube (3.5%) and other platforms (7.7%) were used rarely. Figure 1 shows the mean values of science communication content in terms of the descriptions easy to understand, attractive, interesting, and trustworthy. The submitted content was rated very highly in these areas. Students offered potential explanations for this high rating. They indicated that they often submitted only the “good content” and that they found it interesting because it was new to them.

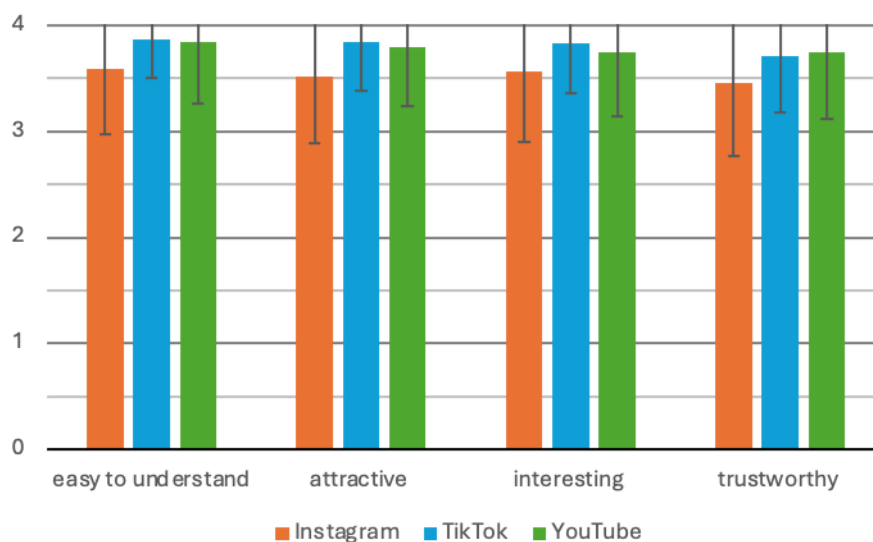


Figure 1. The figure displays the mean values and calculated standard deviations for each assessment for “easy to understand”, “attractive”, “interesting”, and “trustworthy”, as rated on a 4-point Likert scale.

The content analysis of the interviews revealed that most students had consumed little or no scientific content on social media prior to the contest. Some were even positively surprised by the extent of scientific content available on social media.

It wasn't that hard to find something and that surprised me, because I thought it is somehow hidden, the good stuff. But if you put in the right things, a lot of things came up and that surprised me in a positive way. (BHS3,18; translated from German by the first author)

Besides positive aspects, the students also addressed the negative aspects of social media, such as advertising or fake news.

And what I've also noticed is that there's quite a lot of advertising in these facts. So there's always a link or an advert at the bottom, yes, I really noticed that. I wouldn't have expected that. (BHS3,6; translated from German by the first author)

This may contribute to the students' general lack of trust in these platforms. Especially TikTok is classified as untrustworthy in the conducted interviews very often. This stands in contradiction to the information in the log sheets, where students rated content from social media as highly trustworthy. A possible reason for this discrepancy might be that students have a high level of trust in science (Krüger et al. 2022), which might explain the high level of trustworthiness concerning the scientific content submitted in the digital log sheets. In contrast, in the interviews, they didn't evaluate the content but the platforms in general.

Content that students remember or enjoyed consuming often has a connection to their everyday lives or is perceived as beneficial. Topics related to health, medicine and diseases as well as space and universe are frequently mentioned.

At last, the students reflected their consumption. When interviewed, most students stated that they now see more scientific content on their social media due to their changed algorithms. Many of them also reported that they watch some of it in their free time. Unfortunately, this effect did not last long. Three months later, after the summer break, the students reported in the recap that they no longer received any or only very limited scientific content on their social media feed. The students interpreted this by stating that the competition motivated them to consume more scientific content, which they found both interesting and engaging at the outset. Once they spent more time on certain topics, their thirst for knowledge was satiated. Additionally, both the topics and the structure of scientific content were found to be too similar, which made it boring and tiring to consume this content over an extended period.

Conclusion

Prior to participation in this study the students did not consume much or any science communication content on social media. Upon taking part, they were surprised by the wide variety of content that was already available. They also rated most of the content as trustworthy, easy to understand, interesting and attractive. Some scientific content was even integrated into their daily consumption habits. In our follow-up we found declining consumption of science communication content. This indicates that science communication on social media might not be tailored to the participating students. Further testing of how more suitable content should look like might prove interesting. Also, future studies will have to continue exploring what kind of science communication students perceive and how they evaluate it.

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