ISSN: 2525 - 5347
Experience report

Analysis of scientific outreach strategies on Instagram: an extensionist experience during the Covid-19 pandemic

Análise de estratégias de divulgação científica no Instagram: experiência extensionista durante a pandemia de Covid-19

Análisis de estrategias de divulgación científica en Instagram: una experiencia extensionista durante la pandemia de Covid-19

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Funding Agencies: Fundação de Amparo à Pesquisa do Estado de Minas Gerais – FAPEMIG
Conflict of interest: The authors declare no conflict of interest.

How to cite this article (Vancouver):
Morais ACJ, Cassini-Vieira P. Análise de estratégias de divulgação científica no Instagram: experiência extensionista durante a pandemia de covid-19. Ext Rev. 2025;15:e002. https://doi.org/10.59666/extensaoemrevista.2025.v15.3002.

Editor-in-chief: Wagner Ferreira Monteiro
Scientific editor: Maria Itayra Padilha

Submission: 21 June 2023
Revision: : 15 July 2025
Approval: 15 July 2025

Abstract
Objective: Report and analyze the strategies used by a university extension project that employed Instagram as a tool for scientific dissemination during the Covid-19 pandemic. **Methods:** The actions were carried out remotely during the pandemic, with the production of content in the areas of Cell Biology, Tissue Biology, Biophysics, and General Biology. Strategies such as the creation of short videos, polls to gather preferences, and real-time interactions through Instagram Stories were employed. **Results:** The actions were carried out remotely during the pandemic, with the production of content in the areas of Cell Biology, Tissue Biology, Biophysics, and General Biology. Strategies such as the creation of short videos, polls to gather preferences, and real-time interactions through Instagram Stories were employed. **Final Considerations:** Instagram has proven to be an effective tool both for scientific dissemination and for maintaining university extension activities in remote contexts. The analyzed experience reinforces the potential of social media as allies of science education, highlighting the relevance of content strategies and digital marketing to expand audience reach and engagement.
Key words: Science Communication; Social Media; University Extension; Covid-19; Science Education.

Resumo
Objetivo: Relatar e analisar as estratégias utilizadas por um projeto de extensão universitária que empregou o Instagram como ferramenta de divulgação científica durante a pandemia de Covid-19. **Métodos:** As ações foram realizadas remotamente durante a pandemia, com a produção de conteúdos nas áreas de Biologia Celular, Biologia dos Tecidos, Biofísica e Biologia Geral. Foram utilizadas estratégias como criação de vídeos curtos, enquetes para levantamento de preferências e interações em tempo real por meio dos *Stories*. **Resultados:** Os vídeos curtos apresentaram os maiores índices de engajamento. Publicações com temas de atualidades geraram maior interesse. Além disso, o perfil ultrapassou sua base de seguidores, atingindo usuários de outras localidades. **Considerações Finais:** O *Instagram* demonstrou ser uma ferramenta eficaz tanto para a divulgação científica quanto para a continuidade das ações de extensão universitária em contextos remotos. A experiência analisada reforça o potencial das redes sociais como aliadas da educação científica, evidenciando a relevância de estratégias de conteúdo e marketing digital para ampliar o alcance e o engajamento do público.
Palavras-chave: Divulgação Científica; Redes Sociais; Extensão Universitária; Covid-19; Educação em Ciências.

Resumen
Objetivo: Reportar y analizar las estrategias utilizadas por un proyecto de extensión universitaria que empleó Instagram como herramienta de divulgación científica durante la pandemia de Covid-19. **Métodos:** Las acciones se realizaron de forma remota durante la pandemia, con la producción de contenidos en las áreas de Biología Celular, Biología de los Tejidos, Biofísica y Biología General. Se emplearon estrategias como la creación de videos cortos, encuestas para recopilar preferencias e interacciones en tiempo real a través de las *Stories* de Instagram. **Resultados:** Los videos cortos presentaron los mayores índices de participación. Las publicaciones sobre temas de actualidad generaron mayor interés. Además, el perfil superó su base original de seguidores, alcanzando usuarios de otras regiones. **Consideraciones finales:** *Instagram* demostró ser una herramienta eficaz tanto para la divulgación científica como para la continuidad de las actividades de extensión universitaria en contextos remotos.La experiencia analizada refuerza el potencial de las redes sociales como aliadas de la educación científica, destacando la relevancia de las estrategias de contenido y del marketing digital para ampliar el alcance y el compromiso del público
Palabras claves: Divulgación Científica; Redes Sociales; Extensión Universitaria; Covid-19; Educación en Ciencias.

Introduction

With technological advances in the fields of science and technology, society has reached a consensus on the importance and necessity of developing policies and strategies that foster connections between students, teachers, and the broader community with scientific knowledge beyond the academic environment.[1]

In recent years, the internet has stood out as a space for mediating social life outside of school, and social media platforms such as Facebook, Twitter, Instagram, and WhatsApp have reshaped patterns of sociability and information consumption.[2]

In this context, social media plays a significant interdisciplinary role, allowing students to present their scientific work to a diverse audience beyond the classroom. In addition to being a powerful teaching tool, social media enhances communication between teachers and students while also cultivating a range of skills among participants, such as critical thinking, innovation, inquiry, and creativity.[3]

Furthermore, due to the social isolation imposed by the Covid-19 pandemic in 2020 and 2021, teaching, research, and outreach activities began to be conducted remotely with the aid of digital technologies.[4] This led to a significant increase in the number of users seeking information through social media, consolidating these technologies as important tools for communication, production, and dissemination of knowledge.[5]

Indeed, one of the negative impacts observed during the period of social isolation was the interruption of university outreach initiatives, which had to reinvent themselves and incorporate information and communication technologies as a central strategy to continue their activities.[4]

In light of this context, the present study aims to report and analyze the strategies adopted by a university outreach project that used Instagram as a tool for scientific dissemination during the Covid-19 pandemic.

Methodology

This is an experience report describing the actions carried out in a scientific education and outreach project**.** The experience took place between June 2021 and September 2022. Initially, a professional Instagram profile (@compartilhauba) was created with the aim of encouraging the creation and dissemination of content related to the subjects of General Biology, Cell Biology, Tissue Biology, and Biophysics. These materials were produced by students enrolled in these subjects within the undergraduate programs in Biological Sciences and Chemistry at the *Universidade do Estado de Minas Gerais* (UEMG, State University of Minas Gerais), Ubá campus.

The procedures adopted included the creation of the Instagram profile, training students in the use of digital content production tools, and the development of strategies to improve engagement with the page's content.The project's objectives were discussed with students during meetings held via Microsoft Teams, and an activity plan was created using the Trello app, covering everything from the design structure of the project to the selection of relevant scientific topics for publication.

The scientific content was developed based on topics related to the subjects of Cell Biology, Tissue Biology, Biophysics, and General Biology. In addition, a scientific initiation scholarship student participated in the project, being responsible for organizing and managing the Instagram profile, as well as assisting in training students in the use of digital tools.Social media posts were scheduled to be published three times a week using Facebook's "Creator Studio" tool.

At the beginning of each semester, a tutorial was sent to students via the Teams platform, containing the necessary instructions for creating each type of digital content using the Canva graphic design editor. The work was carried out in pairs, with each team developing at least one post based on topics covered in class. Before publication, all materials were reviewed by the course professor and the scholarship student.

During the analyzed period, a total of 116 posts were made, including 38 short videos (under two minutes, such as Reels), three long videos (published on Instagram TV (IGTV) with more than two minutes), and the remaining posts consisted of static images, including memes and informative content.

Monitoring the reach and engagement of scientific outreach activities was carried out through analysis of data provided by the Instagram platform. For analytical purposes, interactions included information related to audience actions, such as story views, profile visits, and clicks on posts. Engagement involved active participation with the account, including

likes, shares, comments, and saves. Reach was defined as the number of unique users who viewed the account's posts. The data collected were gathered monthly, organized in Microsoft Excel spreadsheets, and analyzed during team meetings, where strategies for content improvement, topic selection, and ways to increase engagement were discussed.

Regarding ethical considerations, although approval from a Research Ethics Committee was not required—since this was a university outreach activity with an exclusively educational purpose—all actions were conducted responsibly and confidentially. Information provided by students, as well as interactions on posts and private messages (Directs), were handled ethically, ensuring privacy and respect for all participants.

Results and discussion

Due to the pandemic, university outreach activities had to undergo significant adaptations—a challenge faced by many researchers.[6,7]

Data were collected from the project's Instagram page between June 2021 and May 2022 using the "Engagement and Interaction Analysis" feature available for professional accounts. During this period, a total of 116 posts were published. Initially, it was expected that an increase in the number of posts would lead to greater user engagement. Nevertheless, it was observed that there was no significant rise in interactions or engagement relative to the volume of publications. A specific event, however, had a notable impact on the page's engagement: the inclusion of a scientific initiation scholarship student in February 2022. With the active participation of this student, engagement rates increased by approximately 200% (Figure 1), reinforcing the importance and necessity of involving scholarship holders and scientific initiation programs to ensure the effectiveness of outreach efforts on social media, as widely discussed in the literature.[8,9]

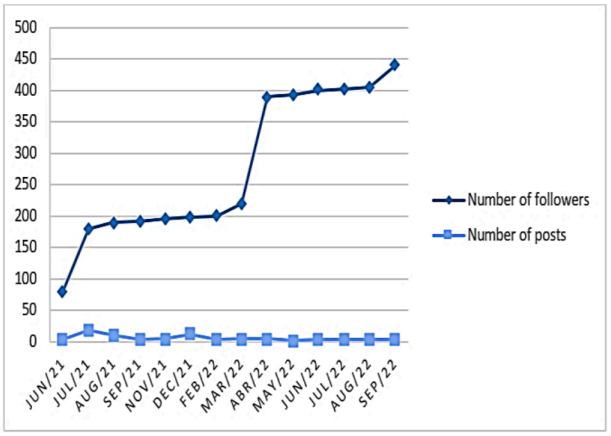

Figure 1. Trend - followers in relation to the number of publications on Instagram
Source: Data obtained through Instagram @compartilhauba (2024).

In Figure 2, we analyzed the impact of general publication categories on the Instagram page. The posts were classified into three categories — General Biology, Current Events, and Health—based on the topics addressed. Surprisingly, we found that posts related to Current Events were the most engaging for the audience, demonstrating higher levels of interaction. This observation suggests that followers of the page are particularly interested in content that is timely and aligned with global developments. The positive influence of current events posts highlights the importance of keeping the audience informed and engaged with relevant, up-to-date information. Considering these results, it is recommended to prioritize the inclusion of current and topical subjects to optimize follower engagement and strengthen the connection with the Instagram page's audience.

On top of that, posts with "Current Events" themes stood out for their significantly higher engagement compared to other types of content. Of the 116 posts published, approximately 15% addressed emerging topics, such as Covid-19 vaccination, environmental issues, recent discoveries in scientific journals, and relevant academic publications. These topics generated greater interest because they were new to the audience, which typically does not follow scientific sources directly. This impact was evident through spikes in views, likes, shares, and new followers. It is believed that this ripple effect is due to the immediate social relevance of the subjects and the public's curiosity about scientific news.

These findings are consistent with other similar studies, which also reported higher

engagement with science outreach content related to current topics. In an astronomy study, increased interest among younger audiences was observed in posts with this profile.[10] In the field of science education in ichthyology, informal posts with strong visual appeal resulted in up to a 25% increase in the number of followers and interactions. Similarly to what was observed in this project, an analysis of scientific journal profiles in the field of biotechnology concluded that osts featuring images and videos achieved better engagement rates.[12]

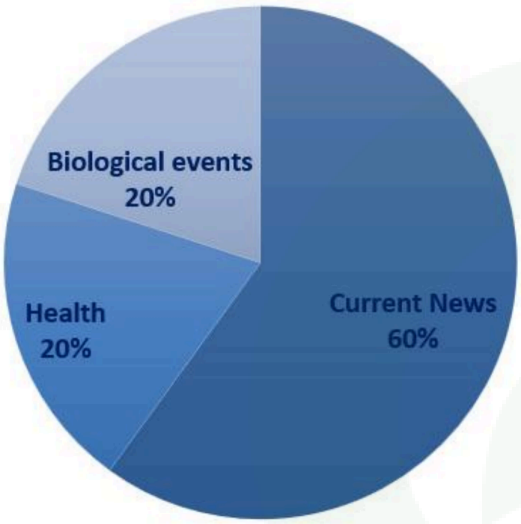

Figure 2. Relationship Between Published Topics and Engagement: The Effect of Post Categories on Instagram.
Source: Data obtained through Instagram @compartilhauba (2024).

Content approach is a crucial factor for audience engagement in science education and outreach on social media.[13,14] In this study, we identified four content formats: short videos (under two minutes, such as Reels), image-based memes, general image posts, and long videos (published on IGTV with more than two minutes). A meme, in the context of the internet and social media, refers to a viral form of communication consisting of images, videos, texts, or ideas that spread rapidly and are shared among users. Memes are generally characterized by humor, irony, satire, or references to popular events or trends.[15,16] Our results revealed that short videos were the most successful in terms of engagement, reaching a rate of 59%. Next, long video posts achieved a 29% engagement rate. These findings indicate that videos, in general, play a significant role in audience involvement. Moreover, it is worth noting that videos were effective not only in attracting existing followers but also in reaching non-followers of the page, reinforcing their potential as a powerful tool for scientific dissemination.

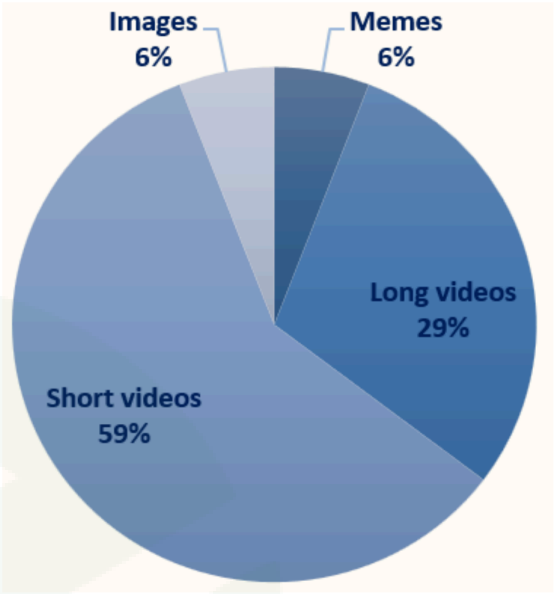

Figure 3. Distribution of Content Formats on the Instagram Page: Comparison Between Memes, Long Videos, Short Videos, and Images.
Source: Data obtained through Instagram @compartilhauba (2024).

In the analysis that was carried out, another relevant factor was identified for assessing the effectiveness of scientific outreach efforts: in addition to the number of followers, the reach of the posts is an aspect to be considered. It was observed that various pieces of content shared on the page reached not only followers but also users from other locations, both within and outside the country. This reinforces instagram as an important channel for promoting university activities.

Following the entry of the scientific initiation scholarship student, additional communication strategies were adopted that played a significant role in increasing engagement on the Instagram page. These strategies included using the “follow back” feature to attract new followers, conducting surveys to identify content preferences among followers, and interacting in real time through Stories to engage the audience. These actions demonstrate that merely posting content on Instagram is not sufficient to attract an audience — it is necessary to incorporate marketing strategies to expand reach and interaction on the page, as highlighted by other researchers as well.[17-19]

This study offers a practical contribution to university outreach by presenting a replicable digital action model based on the use of Instagram as a tool for scientific dissemination. The results may guide other outreach projects in the field of science education that aim to expand reach and engagement with society through social media, especially in remote contexts.

As a limitation of this work, it is worth noting the restricted analysis based solely on metrics provided by Instagram, without the application of formal instruments to assess pedagogical impact on students. Additionally, the results refer to a localized experience, which may limit their generalizability. However, new projects are being developed with the goal of deepening these analyses and broadening the understanding of the educational effects of scientific dissemination efforts on social media.

Final considerations

The results obtained indicate that the main objective of this study — to report and analyze the strategies adopted by a university outreach project that used Instagram as a tool for scientific dissemination — was successfully achieved. The experience demonstrated that the strategic use of content, particularly short videos and current topics, contributed to increased engagement and reach of the posts. The involvement of a scientific initiation scholarship student was crucial for the organization and consistency of the posts, highlighting the importance of academic training in managing digital media. Additionally, complementary strategies such as polls, interactions through Stories, and the practice of "following back" proved effective in enhancing the profile's visibility and strengthening the connection with the audience. It can be concluded, therefore, that Instagram is a viable and effective tool for scientific dissemination and for sustaining outreach activities in remote contexts. The data gathered provide valuable input for future scientific communication initiatives on social media, contributing to the democratization of knowledge and the strengthening of the relationship between the university and society.

References

1. Santos S, Terán A. O uso da expressão espaços não formais no ensino de ciências. Areté Rev Amazon Ensino Cienc. 2013 [cited 2025 July 28];6(11):1-15. Available from: https://periodicos.uea.edu.br/index.php/arete/article/view/68.
2. Massarani L, Waltz I, Leal T, Modesto M. Narrativas sobre vacinação em tempos de fake news: uma análise de conteúdo em redes sociais. Saúde Soc. 2021;30(2):200317. https://doi.org/10.1590/S0104-12902021200317.
3. Hartmann ÂM, Zimmermann E. Feira de ciências: a interdisciplinaridade e a contextualização em produções de estudantes de ensino médio. [Anais] 7o Encontro Nacional de Pesquisa em Educação em Ciências; 2002; Florianópolis (SC): [s.n.]; 2002. p. 1-12.
4. Cavalcante LV, Coelho MCS, Silva FO, Silva FRL. A extensão universitária na pandemia: saberes compartilhados num projeto de educação em solos. Geoconexões. 2022;1(13):4-20. https://doi.org/10.15628/geoconexes.2022.13339
5. Xavier F, Olenscki JRW, Acosta AL, Sallum MAM, Saraiva AM. Análise de redes sociais como estratégia de apoio à vigilância em saúde durante a covid-19. Estud Avancados. 2020;34(99):261-82. https://doi.org/10.1590/s0103-4014.2020.3499.016.
6. Nunes RKS, Maciel GAS, Almeida EB, Guedes MR, Henn R. Desafios e adaptações da extensão universitária em tempos de pandemia: um relato de experiência. Rev Cienc Plural. 2021;7(1):211-23.
7. Silva TS, Matos CHC, Costa MOS, Miranda RCG, Bezerra ARTL, Santos CML, et al. Relato de experiência do projeto de extensão universitária remota: readaptações: um olhar resiliente em meio a pandemia. Res Soc Dev. 2021;10(8):e5910817053. https://doi.org/10.33448/rsd-v10i8.17053.
8. Flores MLR, Gonçalves SS, Silva LV, Antunes PB. Importância de vivências em extensão, pesquisa e ensino para a formação acadêmica e em contexto de pandemia. Rev Ext. 2022 [cited 2025 July 28];(24):43-50. Available from: https://seer.ufrgs.br/index.php/revext/article/view/126175.
9. Matos SA, Silva FVS, Lopes ML, Oliveira SA, Parente EP. Importância da iniciação científica e projetos de extensão para graduação em enfermagem. Res Soc Dev. 2022;11(14):e75 111435846. https://doi.org/10.33448/rsd-v11i14.35846.
10. Souza CN, Duarte TSS, Oliveira Júnior F, Costa JS, Martins MR. O Instagram como ferramenta para divulgação científica em

astronomia: um estudo de caso na região do Cariri cearense. Cad Astron. 2024;5(2):112-25. https://doi.org/10.47456/Cad.Astro.v5n2.44627.
11. Nascimento KL, Santos R, Casal-Ribeiro M, Brito MFG. Utilização da rede social Instagram para divulgação científica em ictiologia: relato de experiência. Rev Bras Ext Univ. 2022;15(3):395-405. https://doi.org/10.29327/2303474.15.3-14.
12. Fernandes GO, Thomé RG. Análise do Instagram como mecanismo de divulgação de periódicos científicos da área de biotecnologia. Acta Sci Hum Soc Sci. 2023;44(3):e67338. https://doi.org/10.4025/actascihumansoc.v44i3.67338.
13. Brandão RA, Souza RS. Divulgação científica na luta contra notícias falsas em tempos de pandemia de covid-19. Rev Carioca Cienc Tecnol Educ. 2020;5(2):76–96. https://doi.org/10.17648/2596-058X-recite-v5n2-5.
14. Nascimento TG, Rezende Júnior MF. A produção sobre divulgação científica na área de educação em ciências: referenciais teóricos e principais temáticas. Investig Ensino Cienc. 2010 [cited 2025 July 28];15(1):97–120. Available from: https://ienci.if.ufrgs.br/index.php/ienci/article/view/317.
15. Chagas V. Da memética aos memes de internet: uma revisão da literatura. Rev Bras Inf Bibliogr Cienc Soc. 2021 [cited 2025 July 28];(95):1-22. Available from: https://bibanpocs.emnuvens.com.br/revista/article/view/119.
16. Santos E, Colacique R, Carvalho FSP. A autoria visual na internet: o que dizem os memes? Quaestio. 2016 [cited 2025 July 28];18(1):135-57. Available from: https://uniso.emnuvens.com.br/quaestio/article/view/2570.
17. Avelino MR, Silva AS, Leal SR. Deixe seu like! O Engajamento nas Publicações com Digital Influencers no Instagram das DMOs Brasileiras. Rev Bras Pesq Turismo. 2020;14(3):50–67. https://doi.org/10.7784/rbtur.v14i3.1889.
18. Oliveira ABA, Costa ÍMM, Jesus LSC, Sousa PM. Marketing digital: proposta de criação e gerenciamento de perfil com estratégias publicitárias e de marketing para o Instagram. Rev Multidiscip Amapá. 2022;2(2):125-38. https://doi.org/10.56856/remap.v2i2.403.
19. Toledo LA, Piccioli CF, Montesano JG, Carbone LS, Costa TSO. O Instagram como estratégia de marketing: um estudo na empresa Chocolates Garoto. Rev Ext Inic Científica UNISOCIESC. 2020 [cited 2025 July 28];8(1): 1-28. Available from: https://dalfovo.com/ojs/index.php/reis/article/view/124.