

Introduction to this Special Issue: Digital genres and Open Science practices

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Guest Editors

The Open Science movement is changing how scientific knowledge is being produced, communicated and accessed. In agreement with the tenets of Open Science, funding institutions and governments are increasingly encouraging researchers to provide free access to their results, methods and data, engage in disciplinary and interdisciplinary collaboration with other researchers, democratize access to scientific information and engage public audiences. Vicente-Sáez and Martínez-Fuentes' (2018) definition of Open Science as “transparent and accessible knowledge that is shared and developed through collaborative networks” (p. 428) identifies clearly its key features. Transparency involves representing research in a way that enables scrutiny, peer control and reusability. Accessibility involves making the output of research accessible and free to all, and making scientific data and knowledge available to (and reusable by) other researchers but also wider publics. The whole process (and not only results) needs to be shared to facilitate collaboration at different stages of the research, enhance reproducibility and engage various societal actors. To respond to this need for more open practices in knowledge production and communication, a myriad of new genres and new forms of web-mediated communication have emerged which facilitate the open sharing of data, knowledge and information, both within the scientific community and with more diversified audiences (Luzón & Pérez-Llantada, 2022). These genres exploit the affordances of the digital medium (e.g., hypertextuality, multimodality, wide reach, interactivity) (boyd, 2010) to support Open Science practices which contribute to improving research efficiency and to public understanding of science.

In the last decade there has been an increasing interest in analyzing the discourse features of digital genres used for science communication and dissemination (Kuteeva & Mauranen, 2018; Luzón & Pérez-Llantada, 2019,

2022; Hafner & Pun, 2020; Mur-Dueñas & Lorés, 2022; Guillén-Galve & Vela-Tafalla, 2023; Hafner et al., 2023) and in exploring the new academic literacies that the composition of these genres involve (Hafner & Pun, 2020; Jiang et al., 2022; Darwin, 2023). In the last years, the online communication of science has also been a running theme in Applied Linguistics (and specifically English for Academic Purposes [EAP]) conferences. Two recent examples are the 40th International Conference of the Spanish Association of Applied Linguistics (AESLA), held in April 2023, under the theme “Interdiscourse and digital genres: Open science and multilingual approaches”, and the Joint AELFE-LSPPC International Conference, held in June 2023, under the theme “Genres and languages in digital communication: Trends and new directions”. Some of the papers in the current issue originated in the Open Science and Digital Genres conference, held online in May 2022 at the University of Zaragoza. In line with the strands of the conference, the articles in this issue are concerned with how digital genres support Open Science in two ways: (i) by facilitating access and improving transparency, and reproducibility; and (ii) by helping to visibilize scientific results, to disseminate them to wider publics and to improve societal engagement. Before considering these aspects in more detail, it is necessary to discuss briefly the concept of digital genres and the features that make them suitable to support Open Science practices.

1. Digital genres for science communication and dissemination

Definitions of digital genres (also referred to as “online genres”, “internet-mediated genres” or “cybergenres”) draw on previous definitions of genres (Miller, 1984; Swales, 2004), but, in line with Askehave and Nielsen’s (2005) claim that the medium adds distinctive features, they emphasize the importance of the medium (Hafner & Pun, 2020; Luzón & Pérez-Llantada, 2022). Hafner & Pun (2020) define “digital genres” as “recurrent, goal-directed, communicative events, mediated by digital tools, along with the constellation of activities that surround such events” (p. 4). Luzón and Pérez-Llantada (2022) view genres as “forms of *social action*, as tools to achieve *particular purposes* by using various *semiotic resources* strategically” and “*typified responses* to recurrent rhetorical and social situations”, and use the term “digital genres” to refer to “genres which harness the affordances of the internet to varying degrees” (p. 26).

The medium affordances (e.g., searchability, modularity, multimedia, interactivity, enhanced connectivity, wide reach, hyperlinking) (Baym, 2010; boyd, 2010) is what makes these genres particularly suitable to give response to the demands of Open Science. The wide reach of these genres enables scientists to disseminate knowledge to non-specialist readerships, without journalists or intermediaries, and engage citizens in research processes. Connectivity and interactivity make it easy to establish a dialogue, interact in new ways with various stakeholders, discuss research and collaborate with diversified audiences. Modularity, hyperlinking, and multimodality facilitate the sharing of data, the connection of various genres and the integration of various modes to create meaning and make content easier to understand.

Digital genres often meet new social needs (including the demands of Open Science) by remediating and recontextualizing traditional academic genres, i.e., traditional genres are imported into new media, transformed and repurposed to fit a new context. This process of remediation and recontextualization may involve adapting a genre by incorporating internet-enabled features which enhance the genre and facilitate new practices. This is the case, for instance, of the enhanced digital article, which incorporates visualization (Harmon, 2019), the open peer review (Ross-Hellauer, 2017), which makes the review process more transparent, or the video methods article, which facilitates science reproducibility (Hafner, 2018). Recontextualization very often also involves adapting the genre to open it to diversified audiences, by using various strategies to make it easier to understand and more engaging (Luzón, 2013, 2019; Zou & Hyland, 2019; Carter-Thomas & Rowley-Jolivet, 2020; Ye, 2021; Xia, 2023). As a result of this process of recontextualization, the rhetorical and discourse features of digital genres differ from those of formal genres of academic communication (Luzón & Pérez-Llantada, 2022). Research on genres such as science blogs (Luzón, 2013), crowdfunding proposals (Mehlenbacher, 2019b), TED Talks (Xia, 2023), or 60-Second Science podcasts (Ye, 2021), has shown that many of these genres are characterized by highly interpersonal and dialogic discourse so as to engage the audience and prompt a response on their part.

Two prominent features of digital genres are multimodality and hybridity. Since different modes have different potentials for making meaning (Bezemer & Kress, 2008), the possibility of combining a high variety of semiotic modes afforded by the digital medium increases the meaning-creation potential of digital genres, when compared to traditional academic

genres. A great deal of recent research has explored how digital multimodal genres draw on a variety of semiotic resources, and not only language, to achieve their communicative purpose(s), e.g., TED Talks (Xia, 2023), academic Twitter (Luzón, 2023), three-minute thesis presentations (3MTs) (Carter-Thomas & Rowley-Jolivet, 2020), research group videos (Luzón, 2019) or video abstracts (Cocchetta, 2020). In these genres various semiotic resources are exploited to communicate science in a more accessible and/or engaging way. The affordances of multimodality for meaning creation in digital genres are discussed in several contributions to this Special Issue: Ma and Jiang, Parkinson et al., Ruiz-Garrido and Palmer-Silveira, and Valeiras-Jurado and Ruiz-Madrid.

The other prominent feature of digital genres is their fluidity, high dynamism and hybridity, which actually makes the concept of “digital genre” elusive (Belcher, 2023) and the task of identifying specific digital genres as clearly distinguishable from their traditional counterparts or from other digital genres a daunting one. Many digital genres are hybrids that include elements from various other genres. The modularity (embedding) and hyperlinking affordances of the digital medium facilitate this hybridity and genre interconnectedness. For instance, when migrating to the Internet the research article has incorporated a high variety of add-on genres (Harmon, 2019), such as graphical abstracts (Sancho Guinda, 2015), podcasts (Ye, 2021), lay summaries (Breeze, 2016), or video abstracts (Cocchetta, 2020), intended to enhance the article content and increase its visibility and to improve re-usability and reproducibility. Crowdfunding proposals or citizen science projects are also composite genres, composed of various subgenres which work together towards a common objective, i.e., raising funds for research projects in the case of crowdfunding proposals (Mehlenbacher, 2017), and supporting participatory science in the case of citizen science projects (Pérez-Llantada, 2023). In addition to this composite nature of many genres, hybridity is also manifested in the mixture of discourses. Many digital genres combine features of academic discourse with features of pedagogical or promotional genres, e.g., crowdfunding proposals (Mehlenbacher, 2017).

2. Digital genres to improve access, transparency and reproducibility

Advances in digital technologies have led to the adaptation of traditional research genres to the digital environment, or the emergence of digital genres, so as to provide open access to results, methods, and data, increase the transparency of the research process, and address reproducibility issues.

Focusing on reach and accessibility, the Internet has provided a means of distributing knowledge and research to all easily, quickly, and at low cost. Online journals enable faster publication (e.g., the *Online First* feature through which articles appear online before the publication of the final issue) and wider dissemination of research than print-based journals (Paltridge, 2020). Even more importantly, online journals can be open access, that is, freely available to all on the public internet, thus facilitating access to knowledge and the participation of all scholars in knowledge production. However, despite increasing awareness of the benefits of open access, the rapid increase in the number of full open access journals raises questions regarding the quality of some of these journals. Some of them are new journals with low impact factors; others fall within the category of predatory journals, i.e., journals that offer high acceptance rates but do not assure the quality of the submissions (Tennant et al., 2016). For these reasons, researchers may be reluctant to publish in full open access journals, which makes it necessary for them to promote themselves. The contribution by Cheng in this Special Issue explores how the Aims & Scope statements of open journals are used to claim legitimacy and reliability.

Open access to knowledge involves not only access to research publications, but also to other forms of research outputs (e.g., multimodal media texts, visualizations), to scientific data and source materials, so that they can be re-used for new research (Sitek & Bertelmann, 2014) and to methods and procedures, so that research can be replicated. Digital genres contribute to facilitating access to research data and to the whole research process. First, new genres have emerged or existing genres have been adapted to make data available online, e.g., databases (Mehlenbacher, 2019b), data articles (Pérez-Llantada, 2022); to make methods more transparent and avoid publication bias, e.g., registered reports (Mehlenbacher, 2019a); or to report and discuss research in progress, e.g., open laboratory notebooks (Carter-Thomas & Rowley-Jolivet, 2017; Luzón & Pérez-Llantada, 2022). In addition, the online articles published in some journals have also been enhanced to provide

access to data. They have evolved to become hypermodal contexts, which resort to hypertextual links to incorporate electronic files with research data or information on experimental procedures, or to link to datasets or repositories elsewhere, e.g., GitHub (<https://github.com>).

Transparency, reproducibility and reusability are also key demands of Open Science, arising from the need to ensure the reliability and validity of results, to conduct cost-effective research and to make efficient use of resources. Digital genres such as open lab notebooks or video methods articles increase the transparency of experimental methodology and facilitate reproducibility. Open lab notebooks are used by researchers to document their research process online, reporting the different steps and providing access to data, so that it is freely visible to others (Nielsen, 2012). Video methods articles, published in JoVE, consist of a recording of the procedures followed during the research. The video is embedded in the hypermodal context of the journal, and works together with other genres, such as the written methods article, to facilitate the understanding and replication of the method (Hafner, 2018; Engberg & Maier, 2019). Hafner's contribution to this Special Issue focuses on the video methods article, exploring the possibilities for interpersonal engagement in this genre.

Digital genres contribute to transparency not only in reporting results and methods but also in academic assessment, by supporting openness in the peer-review process. The internet offers the possibility to make peer review more effective, transparent and reliable, thus aligning this process with the principles of Open Science (Tattersall, 2015). Some journals publish the reviews of referees and the responses from the authors openly, offer interactive and collaborative review, or provide a forum where readers can comment on published papers (Luzón & Pérez-Llantada, 2022). Many journals now include genres for open post-publication evaluation, which open the review process to the scientific community and contribute to the collaborative construction of knowledge, e.g., online peer review responses, electronic comments, rapid responses (Casper, 2016; Hodonu-Wusu, 2018). This openness of the reviews and the fact that the reviewers are publicly responsible for their assessment may have consequences in the language they use. In this issue, Sonmez and Akbas analyze this aspect, focusing on the use of politeness strategies in open peer reviews.

The digital research article is a clear example of how an academic genre has leveraged the digital medium to adapt to the new paradigm of Open Science.

Research on digital research articles has emphasized that although these articles are not radically different from print-based articles in function, the medium affordances have made it possible to incorporate new content that complements the article and make the sharing of research results and data more efficient (Casper, 2016; Harmon, 2019). Enhanced digital research articles can be: (i) non-linear, with internal and external links, which connect the different parts of the articles and link to other genres such as data files or open-peer reviews; (ii) multimedia, with non-textual genres or elements, such as video or audio elements (e.g., video abstracts, simulations, visualizations, interactive graphs and charts). Many of the new add-on genres incorporated in the hypermodal context of the digital research articles are “summary-genres” used to increase the visibility of the research or make it accessible to a wider audience, e.g., graphical abstracts (Sancho Guinda, 2015), video abstracts (Cocchetta, 2020), lay summaries (Breeze, 2016). The contribution by Ma and Jiang in this issue explores one of these genres, the graphical abstract.

3. Digital genres to communicate science to wider publics

The public school of Open Science is concerned with sharing results and scientific knowledge not only with peers but also with various types of non-expert audiences (Fecher & Friesike, 2014). Digital genres can contribute to democratizing science in two ways. First, digital genres such as science blogs and science podcasts help to make science more understandable for a wide audience (i.e., practitioners, students, interested public, scientists in related research areas) and thus give knowledge back to society. Second, genres such as citizen science projects or crowdfunding proposals support Open Science practices which involve opening up the research process by enabling the participation of a wide community in this process.

The increasing importance given to public communication of science at the institutional level has resulted in a call for scientists to write in a clear style, so that the research can be conceptually accessible to the general public. As Kelly and Kittle Autry (2013) point out, now that non-experts can easily access scientific knowledge online, there is still a distinction between “a user’s ability to *obtain* and a user’s ability to *understand* and use scientific and other scholarly research” (Accommodating science section, para. 3). It is

important to note, however, that in digital contexts scholars often address and interact with diversified and unpredictable audiences. Since researchers are turning to the Internet to share knowledge both with the scientific community and with the wider public, the line between communication with peers and communication with other publics is getting blurred (Trench, 2008; Luzón, 2013), giving way to context collapse, i.e., multiple audiences are flattened into one (Marwick & boyd, 2011).

Recently, there has been increasing research on how digital genres in general and social media in particular are being used to engage the public (see Kelly & Miller's [2016] concept of transcience genres; Mur-Dueñas & Lorés, 2022). Blogs and micro-blogs have received the most attention as genres for transcience communication. Many studies on the discourse of blogs have explored how authors use various discourse strategies to recontextualize scientific knowledge for diverse audiences, including strategies to tailor information and adjust it to the readers' knowledge, strategies to engage the reader, or strategies to reconstruct their authorial identity and their relation with the audience (Luzón, 2013; Bondi, 2018; Zou & Hyland, 2019). Studies on academic/science tweeting have revealed a variety of emerging Twitter genres (Tardy, 2023), since researchers tweet for a variety of purposes and to engage diverse audiences (Luzón & Pérez-Llantada, 2022; Luzón, 2023; Tardy, 2023). In this issue, Xu et al. explore Twitter engagement strategies across disciplinary groups and Tardy analyzes the rhetorical strategies used in information tweet threads about COVID19.

In addition to research on the discourse of academic blogging and tweeting, researchers are increasingly focusing their attention on the limitless possibilities that other digital genres and social media offer for reaching a wider audience and promoting scientific literacy among the general public. They have analyzed, for instance, the generic features and rhetorical functions of 60-Second Science podcasts (Ye, 2021), the strategies to engage a potential wide audience with the research presented on the websites of international research projects (Mur-Dueñas, 2018), or the interactions between lay people and scientists through Ask Me Anything (AMA) sessions on Reddit's "Science" subreddit (r/science) (Hara et al., 2019). In this issue, Diani analyzes linguistic-discursive strategies employed to disseminate legal information on online law forums in English and Italian.

Audiovisual genres to communicate science online have received particular attention, e.g., TED talks (Scotto di Carlo, 2015; Xia, 2023), Three Minute

Thesis presentations (Hu & Liu, 2018; Carter-Thomas & Rowley-Jolivet, 2020), research group videos (Luzón, 2019), science YouTube videos (Valeiras-Jurado & Bernad-Mechó, 2022). While some of these studies have analyzed these genres from a rhetorical and linguistic perspective, exploring aspects such as moves or linguistic expressions of stance and engagement (Scotto di Carlo, 2015; Hu & Liu, 2018), other studies have adopted a multimodal approach, and have analyzed how various semiotic resources are combined in these genres to create meaning and improve audience engagement (Luzón, 2019; Valeiras-Jurado & Bernad-Mechó, 2022; Xia, 2023). In this issue, two contributions adopt a multimodal approach to analyze aspects of two audiovisual genres: FameLab presentations (Ruiz-Garrido & Palmer-Silveira) and science online videos (Valeiras-Jurado & Ruiz-Madrid).

Citizen science genres which enable the interested public to engage in research by getting informed about new projects and contributing to funding them (e.g., Crowdfunding proposals) (Mehlenbacher, 2019b) or by actively participating in the research (e.g., citizen science projects) (Pérez-Llantada, 2023) have also been the object of study. These genres have been studied from the perspective of rhetorical move analysis (Mehlenbacher, 2019b), but also adopting a multimodal approach which focuses on the visual and verbal strategies drawn on by authors to fulfil the communicative purpose of the genre (Pérez-Llantada, 2023; Vivas-Peraza, 2022). In the contribution by Vela-Rodrigo in this issue corpus analysis is used to explore the linguistic features of crowdfunding proposals.

Research on digital genres to communicate science to diversified audiences has provided insights into how these genres differ from traditional genres of academic communication. These genres tend to use a variety of linguistic and other semiotic resources to make the scientific content more relevant, interesting and accessible to the audience, while at the same time constructing their credibility. They tend to deploy features typical of a personal and interactive register, with a high frequency of markers of engagement and dialogicity, e.g., first-person pronouns, reader pronouns, questions, affective and personal commentaries, boosters to emphasize novelty and importance, storytelling. The contributions by Tardy and Valeiras-Jurado and Ruiz-Madrid in this issue provide further evidence that these features are determined by the goal of engaging a non-expert audience and meeting its expectations.

4. This issue

Digital genres are transforming how research is conducted and communicated and are facilitating Open Science practices. The papers in this Special Issue are concerned with Open Science practices involving both communication within and beyond the disciplinary community. They address issues related to open access publications and review processes, multimodal compositions, and digital communication through platforms such as Twitter, forums or crowdfunding websites. There are certain aspects that are recurrent in the Special Issue and intrinsic to the idea of Open Science, as may be the role of the medium in shaping communicative practices, or the relevance of engagement strategies to attract and hold the attention of potentially new publics in the researcher's disseminating endeavor.

In the “Forum” section, Ken Hyland reflects on the concept of Open Science, looking at both sides of the coin and inviting the reader to critically analyze some of its implications. He emphasizes the importance of the digital medium itself, i.e., the web, as the key aspect that has allowed to reach new audiences—a phenomenon that may not have so much to do with genre change. He also refers to possible problems that, for the moment, Open Science has failed to solve. These include difficulties that may arise in collaborations among multiple entities; the focus on the universal, often Western-like, over the local; the exclusion of some world areas, leading to increased inequity in the academic sphere; the need of more peer-reviewers as publishing rates increase; or the costs of open access publishing practices for authors. Ultimately, Hyland portrays Open Science as a positive movement which, however, is not perfect and needs to be worked on to address arising issues and accommodate necessary changes.

In the first full research paper in the issue, with the aim of gaining a better understanding of open access journals, An Cheng provides a comparative thematic analysis of the Aims and Scope statements of journals with a DOAJ Seal and subscription-based journals. He studies the themes covered in this section and looks at the way open access journals, through the probably conscious and purposeful reference to concepts such as peer-review processes, seek to find their place in an academic world that seems to be driven by the so-called “prestige economy”. Additionally, he provides suggestions as for how open access journals could reinforce this portrayal through the inclusion of more detailed accounts of aspects such as editorial

policies, criteria, or even examples of feedback given to authors. Besides, the study sheds light on other strategies used by these journals, not to show compliance with the current principles of prestige economy, but rather to redefine them, as may be the case with references to their role in the international dissemination of results or their open access status itself.

Delving into peer-review processes, Derya Sönmez and Erdem Akbaş' article looks at politeness strategies used by referees in 110 transparent peer review files of the high-impact journal *Nature Communication*. They draw on Brown and Levinson's (1978) Politeness Theory and enrich it with insights from other studies to construct their framework. When presenting their findings, they emphasize the predominance of negative politeness strategies as a way of mitigating criticism, which contrasts with previous findings in traditional, anonymous peer-review processes, where fewer hedging mechanisms seem to have been employed. Interestingly, in the transparent peer-review files analyzed by Sonmez and Akbas, less than 1% of the comments included on-record bald criticism. Indirect recommendation or personalization of statements are some of the strategies on which the article comments to showcase how referees are cautious with the language they use when commenting on improvable aspects. The article offers an opportunity to understand interpersonal communication in this “previously occluded genre”, and can definitely be useful for reviewers to gain knowledge about possible strategies they can use to communicate feedback in a respectful and constructive way that does not discourage authors.

Then, the articles written by Parkinson et al., Ma and Jiang, and Hafner stress the relevance of multimodality in the open access era. Jean Parkinson, Angelicia Anthony Thane, Erandi Kithulgoda and Zihan Yin compare visuals in two different, interrelated genres: research articles and News and Views articles, which are based on the former. They use Kress and van Leeuwen's (2006) framework to examine the images of 60 News and Views articles and 30 research articles. This analysis is informed and complemented with an interview with different disciplinary experts, namely four research article authors and a News and Views author. The results presented point to an expert audience in both genres, although News and Views present a higher degree of accessibility, making themselves suitable for experts that do not belong to the specific field. News and Views articles are described here as a multi-purpose genre, and they appear to encourage collaboration across different fields and to expand on the implications of research. The findings also point to the use of images as “persuasive evidence” in research articles,

and as “conceptual overviews” in News and Views articles. Parkinson et al. highlight the relevance of the study as a step towards a better comprehension of recontextualization processes for disciplinary insiders.

Yuanyuan Ma and Feng (Kevin) Jiang’s article deals with graphical abstracts and presents the results of an analysis considering both visual and verbal elements, showcasing how visual communication can contribute to Open Science practices. In their study they look at how this genre recontextualizes information from the research article, exploring the ways in which content is made accessible to the intended audience. Interestingly, some graphical abstracts are shown to include, among other moves, a rhetorical unit in which the possible implications and applications of the study are emphasized. However, only a small percentage of them have been found to include a move in which research background is provided. The study contributes to a deeper understanding of the communicative purposes of graphical abstracts and of the multimodal realization of their rhetorical functions.

Another multimodal genre that supports Open Science practices is the video methods article, studied by Christoph A. Hafner. In his article, Hafner performs a detailed multimodal move analysis of selected parts of a corpus of 11 videos, focusing on how stance and engagement are built through the interplay of various semiotic resources. He emphasizes that this genre offers possibilities for interpersonal engagement with the audience absent in traditional methods articles. The findings point to the existence of different textual voices, which shows the plurality of new roles researchers need to adopt in an era of research dissemination and Open Science. Hafner also stresses the role of multiple agents (e.g., speaker, production staff) in the “co-construction” of stance and engagement, as filmic aspects such as framing and other editing steps or techniques condition the way in which scientists’ bodies are visually presented onscreen. Overall, the findings of the article can contribute to guiding LSP teachers regarding possible expectations students may need to meet in potential academic and professional communicative practices in digital contexts.

The next two articles in the Special Issue, written by Tardy and by Xu et al., deal with engagement in Twitter communication. Christine Tardy focuses on the emerging genre of tweetorials, i.e., informational threads of tweets with an educational purpose. She looks at the rhetorical structure of this genre and at the strategies used by authors not only to convey information, but also

to get and keep users' attention. Authors need to take into consideration that any of the tweets contained within a tweetorial may be shown in a user's feed, for him/her to decide to access the whole thread or not, so, as pointed out by Tardy, all tweets need to be potentially attractive. Quite remarkably, among the possible moves found in tweetorials, apart from giving information on the issue discussed, Tardy finds "establishing exigency", i.e., urgency or relevance of an aspect, "building curiosity" and "proposing actions or solutions" as some of the most frequent rhetorical functions realized in the genre. This relates to the call-to-action and awareness-raising function of popularization genres in Open Science, and so, the insights gained in this article can definitely be useful for the integration of tweetorials to teach science dissemination strategies in LSP courses.

Xiaoyu Xu, Jeroen Gevers and Luca Rossi explore engagement strategies employed in tweets in different disciplinary areas. They do this by focusing on engagement rates, taking into consideration the number of replies, retweets and likes, as well as on multimodal elements, tweet types, and linguistic interaction. Xu et al. find Social Sciences tweets to have a higher engagement rate than tweets in other disciplines, while being the ones in which fewer multimodal elements are used. By contrast, Life Sciences are found to use a comparatively high number of multimodal items, such as emojis to express positive attitude. However, according to Xu et al., tweets in this discipline address peers and students, rather than the general public, while Social Sciences tweets deal with issues of public life and call for action. This blurs certain traditional differences found among disciplines, as new roles and rhetorical strategies are adopted in line with new communicative goals in the Twitter sphere. In this way, the article contributes to exploring how different disciplines seem to employ different resources in Twitter, presumably for different communicative purposes and target audiences, obtaining distinct engagement rates.

Also dealing with disciplinary differences and the impact of intended audiences, Julia Valeiras-Jurado and Noelia Ruiz-Madrid focus on audiovisual recontextualization practices in popular science online videos. The results of their detailed qualitative analysis, where they compare four videos from the disciplines of Anthropology and Physics, focusing on different embodied and disembodied modes, highlight how different target audiences, rather than different disciplines, may be related to distinct strategies and modal choices to recontextualize meaning. Additionally, the authors emphasize the role the online medium plays in shaping the genre and the types of semiotic

resources authors use to convey meaning. The study could be particularly useful for researchers to learn about potential strategies they can use to disseminate science multimodally, contributing to the Open Science movement.

Another article that looks at audiovisual compositions is the one written by Miguel F. Ruiz-Garrido and Juan C. Palmer Silveira. The authors study the use of questions in 20 FameLab presentations as a tool to engage a lay audience. Their findings reveal the use of both content-oriented and audience-oriented questions. Interestingly, in line with previous research, the study reveals the use of a high number of questions—especially audience oriented questions—in the opening move of these presentations, which is considered a relevant section in attracting the readers’ attention. In addition, Ruiz-Garrido and Palmer Silveira explore the speakers’ use of multimodal resources when asking questions in these presentations. They analyze the use of gaze, facial expression, body gestures and prosody, supporting the need to consider the relevance of multimodal practices for engagement purposes in science dissemination.

Giuliana Diani’s article deals with the dissemination of legal knowledge in digital contexts. She examines online law forums and compares the way expert-to-non-expert communication takes place in English and Italian language settings. In her article, she uses discourse analysis to examine the strategies experts use to give advice. Her results point to the use of explanatory structures of various types in both English and Italian law forums. However, these results also suggest that at the beginning of their responses British solicitors adopt more informal styles than Italian experts, who employ more formal expressions of address, rather than personal comments or expressions of empathy. In this way, the study contributes to the advance of research into how information is recontextualized in the discipline of law, not only in English-medium communication, but also in contexts where interactants make use of a different language. It is highly enriching to understand the way different cultures and languages shape these communicative practices.

Finally, Alberto Ángel Vela-Rodrigo’s article looks at crowdfunding projects, a genre intended to democratize science funding. Adopting a phraseological perspective, and using corpus analysis techniques, Vela-Rodrigo focuses on the function of lexical bundles, examining how they contribute to informing and persuading the audience to give funding for a

project. His results point, for instance, to the use of less grammatical compression, which reveals a style that is less academic than the one that tends to be used in other genres. The author also discusses the way in which less formal features co-exist with characteristics that are typical of more formal, academic registers, in sections of the crowdfunding proposal such as the methodology or budget planning. Additionally, Vela-Rodrigo emphasizes how researchers make use of descriptive bundles to explain their project, showing its value and potential impact, and of stance bundles to persuasively entice the audience to donate money. In general, the study can help understand the type of discourse employed in crowdfunding proposals to realize specific communicative functions in order to achieve the goal of receiving donations for research.

This Special Issue closes with three book reviews. First, Hang (Joanna) Zou reviews *Digital Genres in Academic Knowledge Production and Communication*, written by María-José Luzón and Carmen Pérez-Llantada. She provides useful summaries that show the way the authors of the book go from introductory and theoretical chapters to related discussion on a wide variety of communicative practices and genres, and underlines the way EAP researchers can benefit from reading it. Sichen Xia reviews *Discourses, Modes, Media and Meaning in an Era of Pandemic*, a volume edited by Sabine Tan and Marissa K. L. E. She emphasizes how the ensemble of chapters contributes to comprehending different multimodal practices used in the COVID19 digital world as an answer to various political, social and educational needs. Finally, Liang Xiao reviews *Popularizing Science in the Digital Era: A Multimodal Genre Perspective on TED Talk Videos*, written by Sichen Xia. He highlights the way the book can be helpful to understand not only multimodal popularization processes, but also the way research into digital, multimodal genres can be conducted.

5. The way ahead

This Special Issue contributes to research on digital genres that have emerged to help researchers meet the demands of Open Science. The inextricable link between Open Science practices and digital genres and the fact that the constant evolution of digital genres and the emergence of new ones is changing how science is communicated offers multiple possibilities for research on these genres.

Much research on digital genres for science communication focuses on communicating with a diversified audience, exploring the features of genres which help to democratize science. There is much less research on the myriad of new digital genres intended for internal communication among peers. More studies are needed of genres that enhance traditional publications and that may involve radical changes in the journal of the future or the book of the future. One under-researched type of these genres is alive publications (i.e., publications on the internet that are constantly updated by their authors, enabling the readers to get access to the newest knowledge in the area under consideration), such as “living reviews” (e.g., <https://springer.com/gp/livingreviews>) or “living books” (produced by some members of the digital humanities community) (Adema, 2021). Other new genres intended for peers on which more research is necessary are genres to make research methods more transparent (e.g., registered reports, open lab notebooks) or to give access to data (i.e., data articles). All these genres are key for understanding how knowledge is constructed and communicated nowadays and thus research on these genres is essential for getting a comprehensive picture of the transition from the former system of doing science to the new paradigm of open and data-driven science. Additionally, attention should also be paid to digital genres used in arts and humanities for Open Science. Due to the particularities of the field, there are likely to be digital genres specific to these disciplines, but there is little research in this area.

The concept of digital genre itself and the extent to which the demands of Open Science shape the features of these genres also need further exploration. As some researchers have noted, the high number and diversity of digital genres for science communication, some of them radically different from traditional academic genres, poses challenges for traditional genre theory and for genre analysis (Luzón & Pérez-Llantada, 2022; Belcher, 2023; Rowley-Jolivet & Carter-Thomas, 2023). Digital genres may be multipurpose and used to address various audiences simultaneously; they may be non-linear, with no clear boundaries with other embedded or linked genres; they may incorporate conventions from different types of discourse; they are usually multimedia, including a variety of semiotic resources and, in many cases, interactive elements. Some of these genres are less stabilized (in terms of form and conventions) than traditional academic genres, and, as Rowley-Jolivet and Carter-Thomas (2023) suggest for the online research article, could be approached “in terms of a *repertoire of generic features*” that

can be taken up or not by the author. Similarly, Darwin (2023) proposes “the notion of a genre continuum where rhetorical strategies and social purposes are shared across diverse genres using different modes and media” (p. 101). Therefore, more research should be conducted on: the relation between genre and medium; the interrelations between genres in the digital environment and the way they work together; generic integrity, hybridity and interdiscursivity; and, ultimately, on the criteria that can be used to identify a digital artifact as an instance of a specific genre. This also involves exploring how best to analyze multipurpose, interlinked and multimodal publishing on the Internet. Understanding the nature of digital genres which support Open Science practices is essential to teach them effectively, for instance, by raising students’ awareness of the connectedness between genres, the fluid nature of digital genres (Darwin, 2023), or the potentials of various modes for creating meaning in a specific genre.

There is also a need for a more critical analysis of the benefits and challenges of digital genres for science communication, and in particular for Open Science. Research is needed on how digital genres actually contribute to achieving the goals of Open Science. This involves research not only on the production end but also on the reception end of the genres. For instance, further research could be carried out to explore whether digital genres actually contribute to enhancing interdisciplinary collaboration, or to evaluate the extent to which digital genres contribute to the development of scientific literacy among the general public. It is also important to conduct research on the risks of Open Science practices for the advance of science and for the image of the scientist (see Hyland, this issue; Luzón & Pérez-Llantada, 2022). As Hyland (this issue) points out, Open Science may contribute to “aggravating already unequal power relationships in the academic world” (p. 29), it has fostered an assessment culture increasingly dependent on numbers and measurable impact and may be forcing researchers to devote time to promoting their research using digital genres. In addition, the profusion of short digital genres, which involve a reduction and simplification of scientific content (see Rowley-Jolivet & Carter-Thomas, 2023) may lead to a devaluation of scientific expertise. These are all issues worth exploring in more detail.

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