Digital Scientific Communication

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Editors

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Identity and Visibility in Research Dissemination

palgrave
macmillan

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ISBN 978-3-031-38206-2 ISBN 978-3-031-38207-9 (eBook)
https://doi.org/10.1007/978-3-031-38207-9

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Prologue: State of the Art of Research Dissemination

Abstract The Foreword looks at how academic publications have been influenced by the rapid expansion of digital means of communication and by the global extension of the participation framework provided by the web. In a research context that is increasingly digital and international, identity and visibility have become a major issue, especially with the proliferation of academic publications, the availability of new communicative environments—websites, blogs, social media—and the radical changes that have involved even the traditional key elements of publishing—abstracts and journal articles. Attention is paid to the linguistic dimension of this impact, ranging from issues of communicative inequality to the need to compete for visibility and self-promotion: the new context requires attention to a complex media ecology and to the changes taking place in the whole knowledge system. Another key element of the wider social context that is important to consider is the growing social need for academia to engage with stakeholders and the public. Access to knowledge has become a key issue in a "knowledge society". This involves debates on Public Science—transferring the results of research to professionals or to the wider public, with a view to contributing to society—as well as Open Science—responding to problems of communicative inequality by favouring access to knowledge, for example, with open

access publishing and education. The role of the web in engaging with the wider public opens a whole cline of possibilities that further characterise the discourse of knowledge, well beyond the basic distinctions traditionally opposing knowledge communication and popularisation.

Keywords Academic publishing • Digital communication • Media ecology • Access to knowledge • Science communication

The rapid expansion of digital means of communication and the global extension of the participation framework provided by the web have changed academic life and publications profoundly (e.g. Lorés & Diani, 2021). Understanding this change is essential for academics, and particularly so in the world of science. Digital affordances have had an undeniable impact on the ways in which science is communicated, by multiplying the channels and the semiotic modes at the disposal of researchers and readers. In a research context that is increasingly digital and international, identity and visibility have become a major issue, especially with the proliferation of publications that are available. At the same time, as digital communication has drawn attention to issues of access to information, scientists are increasingly asked, on the one hand, to make sure that their research is available to all other researchers and that the presentation of their results is fully transparent and, on the other, they are required to disseminate the content of their research to a wider and often undefined audience. These are major changes in the context of science communication, in which the challenges of self-promotion and knowledge dissemination are found to co-exist in always novel combinations.

Understanding the impact of the digital transformation on academic writing practices requires adopting a wide perspective. It is a perspective that takes all the affordances of digital discourse into consideration—multimodality, hypertextuality, interactivity, anonymity—and that acknowledges the effect of digital media on many old and new genres (Luzón & Pérez-Llantada, 2019) in a complex digital media ecology (Weitkamp et al., 2021). In a wider social perspective, however, it is important to look also at how the whole knowledge system seems to be changing under technological, economic and distributional influences, as

well as under the influence of a new emphasis on the social role of knowledge (Cope & Kalantzis, 2014). This wider focus throws light on the questions of identity and visibility in research dissemination that are explored in the volume.

Primarily, digital scientific communication should be understood in the light of the present-day nature of publishing as a massive commercial industry, with the inevitable marketisation of knowledge and the need for self-promotion. Academic publishing has become a massive commercial industry (Hyland, 2016): the 2018 report of the STM (the association of Scientific, Technical and Medical publishers) accounts for over 3 million articles published every year in English-speaking peer-reviewed journals (Johnson et al., 2018). This has not only led to a marketisation of knowledge but also to the emergence of alternative metrics, such as the number of views of an article, its downloads, the presence of a study or a scholar on social media. The expansion of academic publishing in general has also meant an expansion of publishing in English, with all the related problems of communicative inequality (Plo-Alastrué & Pérez-Llantada, 2015), the complex forms of bilingualism required of most researchers, and the increasing number and types of "literacy brokers" (Lillis & Curry, 2010) that play a role in the process of publication. The standards of English for research publication purposes are changing, in the context of international communities where English is mostly a Lingua Franca (Mauranen, 2010). In the framework of a general need to be "always on" (Baron, 2008)—a "fast academia" (Berg & Seeber, 2017) where the omnipresence of work tends to blur the distinction between personal and work life—scholars are pushed towards "continual publishing" (Lockley & Carrigan, 2011) for visibility.

Competition for visibility has brought about changes in the publishing industry and in publishing sites in general, leading to the increasing importance of journal rankings and branding and to the birth of predatory journals (see Bocanegra-Valle, this volume). Even more importantly, the issue of visibility has become central for scholars themselves, often determining a rhetorical foregrounding of novelty and significance in research writing (Hyland, 2016), combined with greater writer assertiveness in many contexts. The "hard sciences," in particular, show an increase in the use of involvement features (interpersonal and evaluative

meanings) away from their traditional objective style towards "more involved, stance-laden discourses, which emphasise the role of the interpreting researcher" (Hyland & Jiang, 2019, pp. 227–230).

One of the key elements of the present volume is thus the focus on visibility and self-promotion. The need for self-promotion spans across all sectors (see, for example, Sancho-Guinda, this volume, on technology disclosures). The performance of an academic self—a "persona," a strategically developed public identity—becomes central in the construction of online reputation (Marshall et al., 2017) and in self-branding. This has also increased the attention paid to the visibility potential of a multiplicity of new environments such as blogs (Diani & Freddi, this volume), video abstracts (Dontcheva-Navratilova, this volume) and 3-minute thesis presentations (cf. the three chapters in section D).

Another important issue dealt with in the present volume is the growing social need for academia to engage with stakeholders and the public. Access to knowledge has become a key issue in a "knowledge society." The huge expansion of specialised journals and the speed of dissemination (including pre-prints and forms of self-publishing) has highlighted the need to facilitate public access to research and its data, adopting accessible and transparent processes of knowledge creation and public knowledge dissemination. In this context, two perspectives are inextricably interconnected, usually referred to as "public science" and "open science." In Public Science, scholars are asked to transfer the results of their research to professionals or to the wider public, with a view to contributing to society by shaping communities' development, developing community-based research and aligning curricula with the needs of the community. The international dimension of academic communities has also drawn attention to issues of inequality in access to knowledge and suggested that the results of research should be openly available to everyone.

Open Science is expected to respond to problems of communicative inequality by favouring access to knowledge, for example with open access publishing and education (see Vicente-Sáez & Martínez-Fuentes, 2018 for a literature review). A further development, referred to as "open data," also requires that data are shared with other researchers or citizens, so that research transparency is guaranteed and data are accessible and exploitable by others, thus creating new connections between the

traditional research narrative and the evidence, which is no longer simply reported but made accessible.

Open access publishing is now a widely acknowledged practice. Starting with the *Journal of Medical Internet Research* (1999) and especially the *Public Library of Science (PLOS)* (2001), the trend to promote Open Access scientific publishing has acquired increasing centrality over the past 20 years. The pandemic has somewhat intensified the process, highlighting the need for open access of research and data (Lee & Haupt, 2021), as well as the needs and challenges of appropriate public health science (Richardson, 2020).

It should be noted, in fact, that the web makes knowledge potentially available to a large virtual community, but it also creates new problems of information selection for users and clearly shows the limits of purely technical participatory mechanisms. After a long process that over the centuries had separated the expert reader of research publications from the general reader of popular science, the digital media now often reach indeterminate audiences. General readers now have potential access to the same texts as expert readers, but can they cope cognitively? And do they have similar interests? The blurring of the different publication environments does not in itself guarantee cognitive access or equal interests. Changes are brought about in both authorial identity and readership. This often means researchers need to produce a range of texts or textual clusters addressing different audiences and to adopt different textual strategies that may respond to the needs of different readers (see Benelhadj, this volume).

Engagement with stakeholders and the general public determines new environments, new genres and new sensitivity to the needs of public science. On the one hand, for example, there is the development of new communicative formats, such as research websites, social media, or blogs. All of them can help researchers to publicise their research, to engage in networks with other academics, to disseminate information, to increase visibility, to facilitate discussion and to engage with non-academics. Research websites are an important tool in responding to the needs of disseminating research and building researchers' visibility alike, as they allow researchers to construct and display their vision and values through verbal and visual elements, including, for example, evaluative language

choice, engagement markers and multimodal layout (Pascual et al., 2020; Lorés, 2020; Corona, 2021; Mur-Dueñas, 2021). Blogs are also interesting tools for visibility and potential areas of dissemination, but they are hybrid contexts in many ways, as they seem to collapse not only spoken and written discourse, elements of monologue and dialogue and different semiotic modes, but they also mix and blur the centre and the periphery of research discourses, as well as the private and the public self of bloggers (e.g. Bondi, 2018a, 2018b, 2018c, 2022). Social media are key elements of public engagement (Jünger & Fahnrich, 2020); Twitter, for example, is thought to facilitate immediate sharing and reach potentially interested audience (Klar et al., 2020), using a range of semiotic resources that facilitate dialogue and the creation of online communities (Zappavigna, 2012; Holmberg & Thelwall, 2014) through affordances such as emojis, mentions (@), hashtags (#) and retweeting.

The impact of digital communication has also produced interesting changes in traditional genres. The central role of abstracts, for example, has actually turned abstracting services into "hubs" that direct researchers to the relevant literature. Journals have exploited all the possibilities offered by a digital environment in terms of intensifying intertextual links and hypertextuality in research articles well beyond citation and other cross-references (Pérez-Llantada, 2016). Journal articles now have audio and video components that either complement the verbal text (as when lengthy descriptions of surgical procedures are substituted by images, video components and animations) or lead to the creation of purely visual and video texts, as is increasingly frequent with abstracts. The new freedom from space restrictions in digital publishing leads to much greater complexity in the structure of an article and allows the creation of Virtual Special Issues, with introductions linking independently produced articles and thus mapping an evolving territory (Mur-Dueñas, 2018).

When looking in particular at the world of research dissemination, the public role of science can be understood within the complex network of Knowledge Communication (Kastberg, 2010), looking at how knowledge is constructed, presented and communicated. The difference between communicating within the community of experts and communicating outside the specific community becomes central (Calsamiglia & van Dijk, 2004) and the empowerment of lay people and non-experts

beyond professional circles and academic communities also becomes relevant.

Studies on popularisation have long highlighted the different purposes that guide both writers and readers in public communication, as opposed to communication within the research community. Studies on web-mediated genres (e.g. Bondi et al., 2015; Bondi & Cacchiani, 2021) have developed special attention to the issue of making knowledge accessible also to non-experts (or experts in other fields). The process is often seen as one of reformulation of expert discourse (e.g. Gotti, 2014) and recontextualisation (Calsamiglia & van Dijk, 2004, p. 371). The expectation is also that knowledge will be used by the receiver to change practices or viewpoints or for intellectual growth (see also Bondi, 2020) in an active learning process aiming at an effective use of the transferred knowledge.

The elements defining the process are thus diverse, ranging from the content to be disseminated to the medium of communication, but above all, the context of the message and the intended users. The purposes may vary according to context: knowledge transfer in university–industry research partnership, knowledge translation from basic science to clinical trials in "bench-to-bedside" medical research, and so on. But also different reasons may guide people's interest in acquiring new knowledge, ranging from getting guidance in their practices, satisfying their curiosity, and pursuing intellectual growth to exploring or confirming viewpoints. And different purposes may guide scientists in their attempt to reach out to a wider audience, as shown quite clearly by Engberg (this volume) in his interesting attempt to map different levels and forms of engagement, ranging from forms of vulgarisation (entertainment) to more neutral dissemination of information about research, through to popularisation actually aiming at readers' empowerment. Beyond the binary distinction between research communication and popularisation, the digital transformation has highlighted a whole cline of possibilities that deserve further exploration. The chapters in the volume edited by Plo-Alastrué and Corona Marzol provide interesting insights into his cline of possibilities.

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Acknowledgements

This volume has been funded by the Spanish Ministerio de Industria, Economía y Competitividad under the projects "Toward Greater Visibility and Dissemination of Scientific Research" (FFI2017-84205-P) and "SciDis: Processes of Recontextualisation in the Transfer of Knowledge" (PID2021-122303NB-100).

We wish to express our warmest gratitude to our colleagues, the members of the InterGedi research group (Universidad de Zaragoza), for their continued support and helpful collaboration in the process of publication of this volume.

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