



Popularizing Science in the Digital Era: A Multimodal Genre Perspective on TED Talk Videos

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Scientific popularization in the modern era has been a riveting research topic, especially in the field of English for Specific Purposes (ESP) studies (e.g., Wingrove, 2017; Liu & Chen, 2019; Xia, 2023). The research focus of most of such studies, however, has often been laid on the popularization process of science from the perspective of written genres and specialized communication (Hafner & Miller, 2019). As noted by a plethora of scholars, new communication channels such as online videos (e.g., Erviti & Stengler, 2016) have made it necessary to examine new scientific genres that transcend the boundaries of academic institutions and resolve knowledge/power asymmetries. In other words, research attention should be shifted to aspects of scientific communication such as how multimodal resources, afforded by modern technologies, are utilized by specialists, and how science is communicated or disseminated to lay people especially in a digitally mediated context. Xia Sichen's recent work, entitled *Popularizing Science in the Digital Era: A Multimodal Genre Perspective on TED Talk Videos*, is a timely response to the above research gap and makes significant contributions to the field of ESP studies from the perspective of multimodality.

Chapter 1 of the book serves as an introduction, describing the general research background and aims of the work. As noted by the author, communicating with a non-specialist audience constitutes an important part of a scientist's communicative competence and the popularization of science. Unfortunately, this has often been overlooked by many specialists. In light of such research deficiency, this study aims to investigate how specialized knowledge is communicated between specialists and non-specialists in the current digital era, and also how ESP researchers can investigate such professional practice from a multimodal perspective.

To fulfill the aim of the study, chapter 2 first examines the differences in lexical resources, syntactic structure and discursive features between

specialized communication and popularization communication. The sharp contrasts between the two types of communication justify further investigations into the less researched specialists-to-non-specialists communication. In addition, this chapter also reviews the development and mechanism of scientific popularization. As a means to facilitate the dissemination of scientific knowledge, scientific popularization is depicted in communication studies as a top-down process. The oversimplification of the process is met with considerable criticism, which further gives rise to the idea that scientific popularization should be perceived as a continuum that covers all levels of technical communicative activities. In contrast, scientific popularization, from a linguistic perspective, was once seen as the process of reformulation, i.e., rewording process, and now is being reconsidered as a recontextualization process, taking into account a number of factors such as communicative acts, cognition and authorship. Such a linguistic perspective particularly foregrounds the discursive skills needed but neglected by popularizers when communicating with non-specialists. With the advent of digital technologies, crucial elements including the discursive skills involved in scientific popularization seem to have undergone tremendous changes. Against such background, this chapter further explains the selection of TED talk videos as the targeted digitally mediated popularization genre.

Chapter 3 offers a detailed description of the theoretical background and conceptual framework for researching TED talk videos. As summarized in this chapter, digital technologies, bearing new affordances, have influenced and even transformed various aspects of communication activities, among which context, audience, multimodality, and collaborative construction process, all closely related to TED talk videos, are examined thoroughly. It is argued that digital technologies have spurred enormous changes in contextual complexity, information accessibility, communication modes, and approaches to collaborative construction. In order to understand those changes in TED talks, genre theory and multimodality are used as the major theoretical toolkits as “the concept of genre is a multimodal concept” (van Leeuwen, 2005, p. 129). Inspired by Hyon (1996), and by Hafner and Miller (2019), the author delimits genre as a social action and a response to recurrent rhetorical situations. Furthermore, integrating views of systemic functional approaches to multimodal discourse analysis and a social semiotics approach to multimodality, this chapter argues that both meaning making and communication are socially constructed, and that genre studies, in this case, are best complemented by a multimodal approach.

Chapter 4 zooms in on the context of TED talk videos in search of a faithful description of the communicative purposes, audience, authorship, and genre construction process. To pinpoint the communicative purposes of TED talk videos, a multi-perspective approach to genre analysis is employed. Such an approach examines the textual, ethnographic, socio-cognitive, and socio-critical perspectives of the genre in question. An investigation of the community texts and interview responses reveals that TED talk videos have three major communicative purposes, i.e., to explain knowledge to a wide audience, to engage the audience in the popularization practice, and to persuade the audience to take action. The audience targeted by TED talk videos includes not only the immediate attendees at the real-time conference venue, but also the general public around the globe interested in the topic, for whom scientific knowledge is expected to be recontextualized in a comprehensible and multimodal way. It is further pointed out that the construction process of a TED talk video reflects the very process of rematerialization, resemiotization, or the semiotic remediation where multiple authors, including scientists, TED curators and TED production crew, get to collaborate, contribute their own expertise, and finally rematerialize intellectual scientific knowledge for a wide range of audience.

On the premise of the research findings from chapter 5, the next chapter presents a detailed description of the rhetorical moves and steps of twenty-eight most-viewed TED talk videos of the discipline of biology. Following Upton and Cohen's (2009) top-down corpus-based move analysis method, the study examines the transcripts of the sampled videos and identifies ten moves of the genre, among which three are obligatory, i.e., *Introducing the topic*, *Developing the topic*, and *Closing the topic*. The findings show that the macro-structure of the TED talks follows a general-particular-general pattern, which is somehow similar to the overall structure of research articles (Swales, 1990) and indicates traces of interdiscursivity. The chapter further explains the functions and lexicogrammatical realization of each and every move identified in the transcripts.

Investigations of the rhetorical structure of TED talks in chapter 5 are mainly text-based, while chapter 6 goes beyond the textual level and introduces the multimodal dimensions. The chapter explains issues like the placement of cameras and video editing in the actual professional practice and goes on to answer the essential questions of how certain semiotic choices are made, what motivates such choices and what differences these choices lead to from the perspective of multimodal discourse analysis. By

using *Multimodal Analysis Video*, the sampled TED talks are transcribed in terms of the represented participant, shot size, angle of shot, height of shot, gesture, speech and visuals. And then the systemic functional approach to MDA is used to examine how different semiotic resources are exploited to create ideational meaning, interpersonal meaning and textual meaning. The multimodal configurations found in the study help to elucidate functions of semiotic resources and relations between multimodal resources employed in the TED talk videos.

Chapter 7, via cross-time comparison, centers on the diachronic changes pertaining to the rhetorical moves and use of multimodal resources in TED talk videos. It is reported in this chapter that TED talk videos have generally become more viewer-friendly, interpersonal and less technical. For instance, the time length of the videos is found to be much shorter, shot sizes are more diverse, and audience recognition is much more salient.

The final chapter yields a model for researching digitally mediated popularization genres. This chapter puts forward and explains a four-level model, covering context, generic structure, multimodal strategies and diachronic developments. For each level of the model, this chapter offers some guiding principles and detailed demonstration, which helps illustrate ways of understanding, interpreting and constructing important elements such as communicative purpose, collaborative authorship, intended audience, and interdiscursivity in studies of genre and multimodality.

It should be duly noted in this book that the analysis of the rhetorical structure and the interpretation of the functions of different moves is largely a qualitative and subjective one. However, when analyzing the rhetorical structure of the sampled TED videos, the author seems to have overlooked the detailed procedure of inter-rater reliability, which is intended to confirm whether there is agreement on what the move types are and how they are realized by text segments. In addition, description and explanation of the discrepancies between different coding processes are also necessary for further clarification of the research procedure. It is also worth mentioning that when detailing the communicative context of TED talk videos, the author only incorporated interview data of two specialist informants. Obviously, the relevant research findings would be more reliable if more informants were included in the study. Future studies can incorporate more participants and more sample videos to provide much more diversified insights into digital genre construction and interpretation. Similar caution is

also suggested for the diachronic exploration of TED videos. Even though changes can be observed from overall comparisons, a wider time span and more variety of subjects of the videos would surely provide a clearer picture of the changes.

Nevertheless, this book in general is a great asset to genre researchers (especially novices), teachers, and students interested in genre studies or scientific communication. Firstly, the book is very reader-friendly and logically organized, considering the brevity and precision of its academic language, and the abundance of examples and illustrations. Secondly, the book presents an exploratory study and specific steps for research into digital genres with an integrated perspective. By integrating previous insights from a number of genre schools and multimodal analysis studies, this book demonstrates that this integration can help demystify professional practices in current digitally mediated contexts. Such an attempt offers practical experience for future digital genre studies through a combination of, say, genre analysis and multimodal analysis. Thirdly, this book can successfully facilitate people's understanding of science. Demystifying the construction of digitally mediated genres like TED talk videos can help scientists and specialists understand the popularization process of scientific knowledge and multimodal strategies of utilizing semiotic resources so as to help popularize science and improve people's understanding of science.

By and large, Xia's work offers fresh perspectives for genre research, and bears significant implications for teaching and researching English for scientific communication. Certainly, this book is worth reading.

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