
Alan G. Gross; Joseph E. Harmon; Michael Reidy. Communicating Science: the Scientific Article from the Seventeenth Century to the Present.(Book Review)

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Alan G. Gross; Joseph E. Harmon; Michael Reidy. *Communicating Science: The Scientific Article from the Seventeenth Century to the Present*. xii + 267 pp., illus., tables, apps., bibl., in dex. Oxford/New York: Oxford University Press, 2002. \$60 (cloth).

Communicating Science is a substantial contribution to the literature mapping out the changing language and rhetoric of the scientific article from 1665 to the present. Since the scientific journal literature is enormous, and the tools of language and rhetorical analysis are varied, after twenty years of investigation our picture is still quite spotty. Studies have typically been limited to the English language and to works of single authors, articles surrounding particular controversies, or at most extended runs of single journals. Some studies have also limited the disciplines or genres examined.

Alan Gross, Joseph Harmon, and Michael Reidy have attempted a much broader view of four centuries of scientific articles of all genres from the most significant journals in English, French, and German. To create categories for comparison, they aggregate their data by century and by language. The analysis is a mixture of qualitative and quantitative procedures. Ten-line samples from about 1,800 articles drawn from the three languages over the four centuries were quantitatively examined for such stylistic features as sentence length, syntactic complexity, object-focused statements, noun phrases, hedges, metaphors, and evaluative language. Examples of typical and atypical style accompany the quantitative analyses.

Additionally, 430 articles were read entire to characterize quantitatively aspects of the argument made, such as focus on presentation of observational or experimental results versus presentation of theoretical explanations or methodological refinements, presence and character of introductions and conclusions, use of headings, use of visuals, and use and form of citations. The chapters presenting the argument analyses also give in-depth qualitative analyses of selected examples.

The sweep of this study allows for a broadbased confirmation of what earlier studies had found--for example, that the canonical form of argument emerged only gradually; that style moved from a more agent-oriented account of events to a more object-oriented one; that presentations became more quantitative fairly early; that comparison of methods and experimental conditions grew in importance, as did methodological articles; that arguments became more theory based over time, but particularly in the last century; that technical language increased greatly in the last century; that citation practices took their modern form only late. The most striking findings concern language-based comparisons. Despite some similarities among all groups and periods, French articles from the beginning through the nineteenth century showed a more object-oriented and theoretical style and argument than English articles. In contrast, German journals emerged later and seemed to lag behind stylistic and theoretical tendencies in both the English and the French journals.

Given the amount of careful work involved in the collection and analysis of the quantitative data, it is unfortunate that the aggregating categories were so large--entire centuries of texts within each language, without consideration of discipline or text genre. Nor is placement within the article considered for the passages examined for style. As a result, much of the potential detail is washed out. Only on occasion do the quantitative analyses demonstrate unequivocal contrasts, and the authors several times caution that their findings are only of tendencies in a varied landscape. In trying to find noteworthy trends, they at times identify small or equivocal differences in numbers as indicating trends (see, e.g., Table 6.5, on p. 125). Recognizing the limits of their large aggregating categories, they make passing observations about early century versus late century or they reaggregate data around twenty-five-year periods. They also make passing comments about disciplinary and genre differences. The discussion of argument does attend to the overall structure and functioning of the argument parts, but this is not systematically related to the style data.

The authors have advanced an emerging broad but concrete view of the realities of scientific style and argument over history. They have especially extended our view to scientific writing in French and German. But the task of understanding scientific writing is far from finished, and in many ways we are still in a period of observation and collection.

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