Separation & Purification Reviews
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713597294

So What? or Required Content of a Review Article

Alain Berthod[a]
[a] Laboratoire des Sciences Analytiques, Université de Lyon, Villeurbanne, France

Online publication date: 13 January 2011

To cite this Article Berthod, Alain(2009) 'So What? or Required Content of a Review Article', Separation & Purification Reviews, 38: 3, 203 — 206
To link to this Article: DOI: 10.1080/15422110903095110
URL: http://dx.doi.org/10.1080/15422110903095110

Separation & Purification Reviews, 38: 203–206, 2009

ISSN 1542-2119 print/1542-2127 online
DOI: 10.1080/15422110903095110

So What? or Required Content of a Review Article

Alain Berthod

Laboratoire des Sciences Analytiques, Université de Lyon, CNRS,
Villeurbanne, France

Abstract: As the editor of a journal publishing only review articles in the field of separation methods, a division of analytical chemistry, the need to delineate what a review article is arose in light of the increasing number of inadequate submissions received.

DEFINITION OF A REVIEW ARTICLE

The 1968 definition provided by Leroy B. Townsend was: "A review is the documentation or compilation of all significant publications in a specific area with a careful and impartial examination of each individual publication, with interpretation or evaluation as needed in view of advances in the area subsequent to the publication date" (1). After 40 years, this definition is still fully appropriate. The generalized access to modern scientific search engines, non-exhaustive, such as SciFinder®, Scirus®, Scopus®, Web of Sciences®, or even general search engines such as Yahoo® or Google® allow an impressive list of articles dealing with a particular subject to be obtained in few clicks. While it is true that this compilation, done in minutes today, needed weeks of competent library searches in the sixties, it is wrong to think that a review article can be prepared in just a few clicks. If these clicks will fulfill the compilation part of the definition, the last and essential part of a review article, the critical evaluation, is absolutely not doable electronically. The "careful and impartial examination of each individual publication" can be summarized by the "So what?" question that should always be in the mind of the review author.

Address correspondence to Alain Berthod, Laboratoire des Sciences Analytiques, Université de Lyon, CNRS, Bat. CPE, 69622 Villeurbanne, France. E-mail: berthod@univ-lyon1.fr

THE WRONG MANUSCRIPTS

Inappropriate review manuscripts generally fall into the following categories:

- Non-review articles

The author presents an interesting selection of works done on a particular subject and then features in details his/her own work. A review article can contain a summary of previously published works of the author when he (she) is an expert in the field. It cannot contain new research results.

- Non-evaluative review articles

The second class of rejected manuscripts is reviews ignoring the second part of the Townsend definition. The manuscript rapidly describes the reviewed field staying on a technical level and goes on with text looking like: "Alpha incubated 1 mL of urine at 37°C with 2 mL of sodium acetate and extracted furosemide by solid phase extraction (ref.). Beta added glucuronidase to form a conjugate with glucuronic acid (ref.). Gamma used a similar procedure, etc…" The text continues this way for pages, giving the names of the authors that worked on the subject and a few words coming from the article abstract. Reviews of this type appear to be derived from an electronically downloaded list of abstracts obtained keying the relevant keywords into a search engine.

Slightly more sophisticated review manuscripts show that the article was read somewhat beyond its abstract and look like: "Furosemide was extracted by toluene (refs.), chloroform (refs.), diethyl ether (refs.), heptane (refs.)…". While the reader may find this information somewhat useful, there is no guidance of which solvent is best for this extraction. Compilation is not enough, the review must also be critical: so what?

Both of these types of review lack a critical compilation and hence, ignore the second part of the Townsend definition.

- Plagiarized review articles

Plagiarism is the "cut and paste" use of a portion of text taken from a non-cited source. In a review article it is not recommended to use verbatim portions of an article even citing it. Plagiarism can be automatically detected today using dedicated software such as e.g., CopyCat Gold®, Wcopyfind®, Glatt GPSP or Plagiarism Detector. Of course, plagiarism is considered as scientific theft and fraud, and it will produce the immediate rejection of the submitted manuscript as the first and minimum sentence (4).

THE RIGHT REVIEW AUTHOR(S)

Townsend's definition of a review article implies the reading, understanding and critical evaluation of the quality of each selected publication

before its possible inclusion in the review article. It clearly means that the author must be an expert in the field. However, this does not necessarily imply that the author can only be a senior author with an impressive record in the subject. Indeed graduate students are also required to investigate literature critically in preparing a critical literature chapter for their Ph.D. dissertation. They must gain a deep knowledge of their research projects. They have to know what has been done as well, as what could be done to make progress in their chosen area. Graduate students may also have a fresh and original view of the subject. However, they often see it too closely, lacking scientific experience and hindsight. Also dissertations are not very much read after the defense. There is a possible win-win situation when the research advisor works on the student literature chapter to revise it and easily turn it into a valuable and useful review article.

THE RIGHT REVIEW ARTICLE

"The vast amount of scientific literature makes it difficult for clinicians and researchers to keep abreast of all published information. The review brings together information about previously published research and provides a valuable critical appraisal of the subject over a stated period of time" (2), cited in 1984 by (3). Critical review articles have still the same interest in the 21st century because scientists initiating investigations in a new area will look first for recent review articles on the subject. Hence, the subject of a potential review article should be carefully evaluated: is a review article needed here? Is there enough new information, since the last review article, to be compiled and sorted out to prepare another valuable review article?

When an appropriate subject for a review has been identified, fundamentals of the topic must be briefly covered for potentials readers who may be novices in the field. Partitioning a difficult subject into subsections can render the material more accessible to the readers.

The huge amount of easily accessible scientific information creates a serious need to order and extract the very substance of the flooding number of articles pulled by the search tools. Exhaustive listing of the extracted articles is not desirable. The review author must have a critical view, selecting the best articles and discarding the ones that just duplicate previous information or cover results of lower quality.

The review article should be critical. Alpha did this and that, so what? Why is it important? If the review article deals with a topic with a large amount of results, clear and concise tables should be prepared. The useful information should be extracted from each article and organized in the table. Using again as an example the solvents used for a particular

extraction, the table should associate the solvent nature (polar, apolar, proton donor…) with the obtained results. It should point out the most appropriate solvent and make recommendations (toxicity, environmental problems, cost…) based on all of the articles covered in the review. It may be appropriate to re-interpret published results associating data coming from different sources. It is very possible to propose conclusions differing from the originally published articles if they are well justified by the critical and combined evaluation of the different sources.

CONCLUSION

Review articles receive a significantly higher number of citations than regular research articles. Authors like to cite a review to introduce the field of their research work. Search engines identify reviews as such and pull them apart from research articles. The lifetime of a review article is relatively short especially on hot and emerging topics, so it is really the quality of the critical evaluation and compilation work that makes the value of a review. A gathering of abstracts has no interest since it can be obtained in few clicks on a computer; it cannot be considered as a review. The potential review author should always have in mind reading the compiled articles: so what? It could be argued that the need for serious critical reviews is even more important today than before the advent of the computer and Internet era.

REFERENCES

1. Townsend, L.B. (1968) Critical reviews: The author's point of view. *J. Chem. Doc.*, 8: 139–241.
2. McClure, L.W. (1982) in L. Darling (ed.) *Handbook of Medical Library Practice, v.1. Public Services in Health Sciences Libraries*, 4th ed. Chicago Medical Library Association: Chicago, IL.
3. Van Buskirk, N.E. (1984) The review article in Medline. *Bull. Med. Libr. Assoc.*, 72: 349–350.
4. Coghill, A.M. and Garson, L.R. (1997) *The ACS Style Guide*, Ch. 1. ACS Publications: Washington, DC.