

The Evolution of the Format for Physics of Thin Films

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by **Chris Brown**

It is crucial that a scholarly journal develop over time to adapt to the advancing needs and demands of its readers. Every change, though not always drastic, should be an attempt to improve the quality of information provided and expand on research already published. *Physics of Thin Films* is a highly technical journal that publishes in-depth research in the field of physics, and as with most technical journals, it has experienced many alterations from its original volume in 1963. The overall objective behind the changes in the articles is to provide a clearer and more effective layout, thus giving the audience a better understanding of the information provided.

The key changes to *Physics of Thin Films* can be seen in the extensive implementation of tables, equations, sub-headings, and other practical aspects found in more recent publications. To gain an understanding of the development of *Physics of Thin Films*, a collection of articles was randomly chosen from four separate time periods: 1963, 1975, 1987, and 2002. These articles present a brief outlook concerning the evolving design of the journal and how this more accessible format engages a wider range of readers.

Original Format the Journal

An examination of an article within the original volume of *Physics of Thin Films* provides an overview of the initial format of the journal. The article in 1963 contained very technical information; however, there was a lack of organization and structure to back up the results. The entire article was sixty-three pages long, containing only two tables and three clear equations. The text was packed with numbers, calculations, and other less explicit equations.

This format may be clear for a very technical audience, but to a general viewer, its contextual density could be confusing and difficult to follow. The author provided the readers with a number of visuals to supplement the text, though there was a lack of variety in these figures, a great majority of the thirty-seven presented being graphs. Once again, an informed technical audience may be able to decipher these visuals, but less educated readers could possibly have trouble comprehending them. Each figure was followed by a brief explanation stating the purpose of the image, on average containing around twenty words. The article seemed to be well researched, containing seventy-two sources; however, when compared to later entries this amount appears minuscule.

Brief Alterations

The years following the debut article led to a few alterations of the journal in an aim to focus more on a non-technical audience. The 1975 section of *Physics of Thin Films* removed many of the disordered presentation of numbers and equations found within the text of the article, thereby providing a more reader-based structure. The author implemented a greater number of visuals (sixty-seven) and expanded the variety in attempt to further the understanding of the information provided. The caption length increased slightly to an average of twenty-two words.

Most of the key aspects, however, remained relatively similar to the original article from 1963. The references cited by the author numbered seventy-seven, there were only two tables used, and four clear equations were clearly distinguished from the text. The article was effective in being more understandable, but did not include the amount of technical information found in articles from other scholarly physics or engineering journals.

Further Advances

The journal excerpt taken from 1987 featured many modifications that lead to a more technical and well organized article. It was substantially more condensed, containing only forty-six pages, yet it included many additional features. The author provided a more balanced combination of figures, tables, and equations. The article had seventeen figures, five tables, and nine equations. This format was easier to comprehend because of the implementation of multiple techniques used to display data. The author also provided a much more researched article, referencing 164 sources. This allows the article to be more widely accepted by technical audiences, being that all of the information is sufficiently supported by distinguished sources. The author was effective in making highly technical information easy to follow and understand, while also ensuring its acceptability among even the most esteemed critics.

Today's Journals

The most current articles, as shown by the 2002 journal, combine all of the changes seen since the original volume to create an article practical for both general and technical audiences. By 2002, the length of the articles was drastically increased, the sampled excerpt containing 215 pages. Once again, the author tried to create a more balanced article by including a variety of different visual aids to assist the reader in understanding the content. The layout of the article included eight tables, seventy-seven figures, and seventy-six clear equations. A wide variety of figures were used throughout, including pictures, drawings, and supplementary examples, which contrasts earlier articles that primarily focused on the use of graphs. The length of the captions used to describe these figures was also augmented, with an average of thirty-three words. The author supported his research with 690 sources, a drastic increase from the original 72 references used by the author of the 1963 article. Though this article was extremely long and filled with technical information, it was arranged in such a manner as to allow more general comprehension of the often complicated material.

Constant Elements of the Journal

Even though *Physics of Thin Films* endured many alterations in the style in which information was presented, some of the more effective elements of the journal remained unchanged throughout its publication. The text in each article was always well marked and separated into unique sections, each containing its own subheadings. The majority of the article contained explanatory titles describing exactly what subject matter would be addressed. In all cases, the topic was very technical and not necessarily easy to read for an uninformed audience. Though the number of references cited by each author varied, the topics were well documented throughout, and every source was acknowledged at the end of the article.

Changes Needed for Effective Communication

In order for this journal to reach a more general audience, the authors would need to provide the readers with more definitions describing the subject being discussed. At times, concepts are assumed to be common knowledge; however, for a less technical audience there would need to be extensive background information given to ensure an understanding of the terms. The authors would need to continue with the current trend of providing the readers with a number of figures, tables, and equations describing the written data. These alterations would be effective for less technical readers, but their inclusion would require additional written explanations, possibly significantly lengthening the article. This new format would not appeal to future readers who would already have the knowledge and understanding required to comprehend the article.

In order to accommodate both a non-technical and future audience, the journals could possibly contain a separate section giving background information. The technical readers could easily skip over this section if desired, but it would still provide the necessary information and definitions needed by the common reader. Instead of a separate section providing background information, a logical addition to the journal could be the use of footnotes or a glossary of terms following each article. These accompaniments would allow general readers to become more informed while keeping articles brief and free from unnecessary information.

Conclusion

As with all aspects of research, writing styles are constantly changing to adapt to the needs or demands of an audience. Over time, journals will inevitably experience some alterations so that its content can be better understood by readers. These changes can include the structure of the pages, techniques for displaying information, or an increase or decrease in technicality. However, some features of writing will remain consistent throughout a journal's publication. The author is forced to decide what aspects of his or her writing are connecting with the audience and which need further improvement. Therefore, writers will continually experiment with new techniques in attempt to adapt to the desires of readers and create an article accessible to any audience. Despite the evolution in the way in which material is presented, the desire for scholarly research will always remain constant.

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