Scientific Literature

Scientific literature allows researchers to communicate the results of their studies with others in the scientific community. These communications then become part of the permanent, historical record of the advancement of knowledge in a particular field of study. Scientific literature is usually categorized as primary, secondary, or tertiary.

The term "primary literature" refers to first-hand accounts of research studies, authored by the researcher or team of researchers who conducted the study. These accounts, referred to as papers, usually are submitted for publication in peer-reviewed journals of the particular scientific discipline. Most papers follow a standard structure; they include a title; an abstract, which is a brief summary of the study; an introduction; and sections on materials and methods, results, discussion, and references. The author provides detailed citations when referencing previous studies or the works of others.

The editor of the journal to which the paper is submitted will call on a number of referees—researchers recognized as experts within the discipline—to read the paper and determine its merits. Does it present new data? Does it build on previous studies? Is the methodology scientifically sound? And are the researcher's conclusions valid in light of the results? Based on the referees' reports, the editor may then accept the paper as is for publication, require either minor or major revisions, or reject it.

Other forms of literature considered to be primary sources include online journals, theses, dissertations, peer-reviewed papers presented at a conference or symposium, and citation-referenced monographs—a formal, written discourse on a particular subject.

The term "secondary literature" refers to published works that rely on primary sources for the information presented. The authors of secondary works need not be among those who conducted the research, but they are usually within the discipline of the research involved. Review articles and journals, which provide an overview of studies conducted on a specific topic or area of interest, are secondary sources. Secondary publications may or may not the follow the format of primary literature, but they must include detailed reference citation specifying the sources of the information presented. Other forms of secondary literature include citation-referenced textbooks and manuals.

The term "tertiary literature" refers to published works that present information gathered from both primary and secondary sources. They are usually aimed at a broader, more general audience, so the style and format may be more popular than scientific. Although a bibliography may be included, tertiary sources rarely include reference citations. Examples of tertiary sources include science articles in magazines, newspapers, and encyclopedias; websites; research directories; science newsletters; and ordinary textbooks.