



Types of Research Articles

Three main types of articles:

1. Experimental Articles
 - a. Experimental testing
 - b. Scientific communication about personal/lab group experiments
 - c. Experimental methodology
2. Meta-Analysis Articles
 - a. Combination of multiple experimental results
 - i. Commonly from different groups/labs
 - b. Secondary data analysis to find trends
3. Review Articles
 - a. Summary of research data from a particular topic
 - i. Scientific communication analyzing others' experiments
 - b. Meant to provide reader general overview of "state-of-the-field"
 - c. Can serve as starting point for exploring literature
 - d. Meant to give big picture of research area, may exclude some details
 - e. Components
 - i. Abstract
 - ii. Introduction including statement of purpose
 - iii. Relevance of particular research area
 - iv. Breakdown of specific research questions
 - v. Figures that are examples of representative work
 - vi. Discussion/future directions of research area
 - vii. References
 - f. Why do we need review articles?
 - i. Reviews help us to avoid having to reinvent the wheel
 - ii. Can be used as a map through many experimental articles that can be found on a subject
 - iii. Help point to "holes" in the literature—areas for improvement

Sources of Information

Who creates and organizes articles? Anyone! You as a mentee must learn to identify the sources of information for the article that you are reading. Some sources of information are:

- Government
- Companies
- Individuals
- Clubs
- Universities
- Standard Organizations

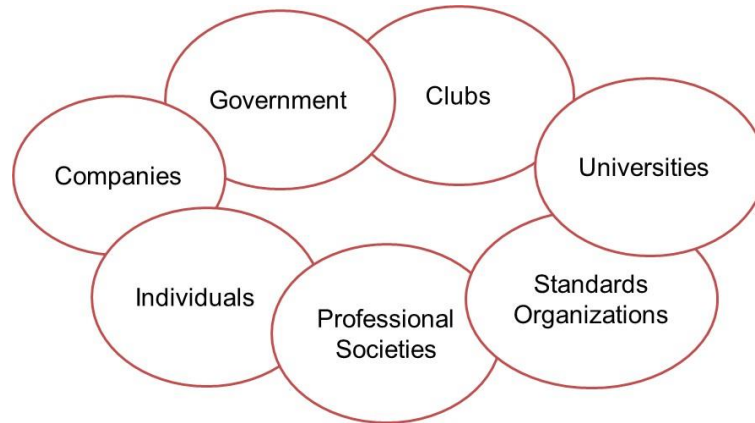


Research Experience and Mentoring

Finding Research Articles Handout 1: Types and Sources of Articles

- Professional Societies
- Technical Societies

As the figure shows, many organizations create and publish information. The trustworthiness of an article or publication is related to trust in the organization and how the sources distribute “products”.



A particularly important source of information is a technical society. A technical society comprises members in a particular field who work together to share information. You may already belong to the student chapter of a technical society.





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Summary of Sources of Information and Research Articles

Type and Content	Trustworthiness	Potential Freshness	Cost
Handbook – summary of technical facts		Information > 3-4 years old	Access through library or purchase.
Book - written to explain a new topic		Information > 3-4 years old	Access through library or purchase.
Standard – commercial, how to do something or what something must do. Example: USB standard so that all USB ports work the same.	Manufacturers or users follow these documents for design or measurement.	Information > 3 year old	Purchase
Journal - highly technical description of a very narrow subject. Main source of research articles.	Peer Reviewed, 4-5 experts attempt to find errors and challenge results.	Information < 2 years old	Access through library or personal subscription.
Thesis and Dissertation – summary of technical work of a masters (thesis) or doctoral (dissertation) student		Information > 2 years old	Access through library or request from author
Patent - a government document describing an invention and giving the inventor rights to exclude others from making, using, or selling an invention	Review by patent examiner does not ensure that idea is technically correct.	Information > 1 year old	Free online
Technical Magazine - overview of a technology		Information < 2-3 years old	Membership in a professional society
Conference Proceeding - short, highly technical, may be preliminary, with goal of sharing early phase reporting of emerging thoughts and ideas		Information < 1 year old	
Trade Magazine - technical content, often related to use of a commercial product	Editor, limited peer review. Goal is to sell advertising.	Information < 1 year old	Magazines free to qualified users.
Wikipedia	Peer curated - sometimes reviewed, sometimes not.	Immediate	Free online
Website	Based on the publisher or content owner	Immediate	Free online

