Abstracts

What is an abstract?

- An abstract is a self-contained, short, and powerful statement that describes a larger work.

- An abstract is a concise **summary of a larger project** (a thesis, research report, performance, service project, etc.) that concisely describes the content and scope of the project and identifies the project's objective, its methodology and its findings, conclusions, or intended results.

- An abstract is a **description of your project** (what you specifically are *doing*) and not a description of your topic (whatever you're doing the project *on*). It is easy to get these two types of description confused. Since abstracts are generally very short, it's important that you don't get bogged down in a summary of the entire background of your topic.

- An abstract is a short summary of your completed research. If done well, it makes the reader want to learn more about your research.

Why write an abstract?

The two most important are selection and indexing.

- Abstracts allow readers who may be interested in a longer work to quickly decide whether it is worth their time to read it.

- Also, many online databases use abstracts to index larger works. Therefore, abstracts should contain keywords and phrases that allow for easy searching.

Characteristics

- Components vary according to discipline; an abstract of a social science or scientific work may contain the scope, purpose, results, and contents of the work.
- An abstract of a humanities work may contain the thesis, background, and conclusion of the larger work.
- An abstract is not a review, nor does it evaluate the work being abstracted.
- While it contains key words found in the larger work, the abstract is an original document rather than an excerpted passage.
- As writing anabstract, stop at the end of every sentence and make sure you are summarizing **the project you have undertaken** rather than the more general topic.

Types of Abstracts

1. **Descriptive abstracts**

- A descriptive abstract indicates the type of information found in the work. It makes no judgments about the work, nor does it provide results or conclusions of the research. It does incorporate key words found in the text and may include the purpose, methods, and scope of the research. Essentially, the descriptive abstract describes the work being abstracted. Some people consider it an outline of the work, rather than a summary. Descriptive abstracts are usually very short—100 words or less.

Types of Abstracts

2. **Informative abstracts**

- The majority of abstracts are informative. While they still do not critique or evaluate a work, they do more than describe it. A good informative abstract acts as a surrogate for the work itself. That is, the writer presents and explains all the main arguments and the important results and evidence in the complete article/paper/book. An informative abstract includes the information that can be found in a descriptive abstract (purpose, methods, scope) but also includes the results and conclusions of the research and the recommendations of the author. The length varies according to discipline, but an informative abstract is rarely more than 10% of the length of the entire work. In the case of a longer work, it may be much less.

Key process elements:

- *Reason for writing:*
  - What is the importance of the research?
  - Why would a reader be interested in the larger work?
  - Why do we care about the problem?
- *Problem:*
  - What problem does this work attempt to solve?
  - What is the scope of the project?
  - What is the main argument/thesis/claim?
  - What practical, scientific, theoretical or artistic gap is your research filling?
- *Methodology:*
  - An abstract of a scientific work may include specific models or approaches used in the larger study.
  - Other abstracts may describe the types of evidence used in the research.
  - What did you actually do to get your results? (e.g. analyzed 3 novels, completed a series of 5 oil paintings, interviewed 17 students)

Key process elements cont'd

- *Results:*
  - Again, an abstract of a scientific work may include specific data that indicates the results of the project.
  - Other abstracts may discuss the findings in a more general way.
  - As a result of completing the above procedure, what did you learn/invent/create?
- *Implications:*
  - What changes should be implemented as a result of the findings of the work?
  - How does this work add to the body of knowledge on the topic?
  - What are the larger implications of your findings, especially for the problem/gap identified in step 1?

Other Considerations

- Meet the word count limitation. If your abstract runs too long, either it will be rejected or someone will take a chainsaw to it to get it down to size. An abstract word limit of 150 to 200 words is common.

- Any major restrictions or limitations on the results should be stated, if only by using "weasel-words" such as "might", "could", "may", and "seem".

- Think of a half-dozen search phrases and keywords that people looking for your work might use. Be sure that those exact phrases appear in your abstract, so that they will turn up at the top of a search result listing.

- Usually the context of a paper is set by the publication it appears in (for example, *IEEE Computer* magazine's articles are generally about computer technology). But, if your paper appears in a somewhat un-traditional venue, be sure to include in the problem statement the domain or topic area that it is really applicable to.

- Some publications request "keywords". They are used to facilitate keyword index searches, which are greatly reduced in importance now that on-line abstract text searching is commonly used. However, they are also used to assign papers to review committees or editors, which can be extremely important to your fate.).

Sample Format

Sample Format of Heading and Body of an Abstract

Title of Project/Presentation*

    Joe M. Smith**

    Mentor: Mary J. Wilson***

Abstracts must include sufficient information for reviewers to judge the nature and significance of the topic, the adequacy of the investigative strategy, the nature of the results, and the conclusions. The abstract should summarize the substantive results of the work and not merely list topics to be discussed. An abstract is an outline/brief summary of your paper and your whole project. It should have an intro, body and conclusion. It is a well-developed paragraph, should be exact in wording, and must be understandable to a wide audience. Abstracts should be no more than 250 words, formatted in Microsoft Word, and single-spaced, using size 12 Times New Roman font. It highlights major points of the content and answers why your work is important, what was your purpose, how you went about your project, what you learned, and what you concluded.

* If your title includes scientific notation, Greek letters, bold, italics, or other special characters/symbols, make sure they appear correctly here in Microsoft Word.

** Include additional undergraduate co-authors, whether they are presenting or not presenting, if applicable

*** Include additional faculty mentors, if applicable

Pros and Cons

Pros (All abstracts include) :

- A full citation of the source, preceding the abstract.
- The most important information first.
- The same type and style of language found in the original, including technical language.
- Key words and phrases that quickly identify the content and focus of the work.
- Clear, concise, and powerful language.

Pros (Abstracts may include) :

- The thesis of the work, usually in the first sentence.
- Background information that places the work in the larger body of literature.
- The same chronological structure as the original work.

Cons

- Do not refer extensively to other works.
- Do not add information not contained in the original work.
- Do not define terms.

Abstracting your own writing

Reverse outlining:

- This technique is commonly used when you are having trouble organizing your own writing. The process involves writing down the main idea of each paragraph on a separate piece of paper. For the purposes of writing an abstract, try grouping the main ideas of each section of the paper into a single sentence. For a scientific paper, you may have sections titled Purpose, Methods, Results, and Discussion. Each one of these sections will be longer than one paragraph, but each is grouped around a central idea. Use reverse outlining to discover the central idea in each section and then distill these ideas into one statement.

Cut and paste:

- To create a **first draft** of an abstract of your own work, you can read through the entire paper and cut and paste sentences that capture key passages. This technique is useful for social science research with findings that cannot be encapsulated by neat numbers or concrete results. A well-written humanities draft will have a clear and direct thesis statement and informative topic sentences for paragraphs or sections. Isolate these sentences in a separate document and work on revising them into a unified paragraph.

Abstracting someone else's writing

Identify key terms:

- Search through the entire document for key terms that identify the purpose, scope, and methods of the work. Pay close attention to the Introduction (or Purpose) and the Conclusion (or Discussion). These sections should contain all the main ideas and key terms in the paper. When writing the abstract, be sure to incorporate the key terms.

Highlight key phrases and sentences:

- Instead of cutting and pasting the actual words, try highlighting sentences or phrases that appear to be central to the work. Then, in a separate document, rewrite the sentences and phrases in your own words.

Don't look back:

- After reading the entire work, put it aside and write a paragraph about the work without referring to it. In the first draft, you may not remember all the key terms or the results, but you will remember what the main point of the work was. Remember not to include any information you did not get from the work being abstracted.

Examples

- [G:\ENM311_Fall2011\36-Hospital Time and Motion Study.pdf](G:\ENM311_Fall2011\36-Hospital Time and Motion Study.pdf)

- [G:\ENM311_Fall2011\A 0-1 goal programming model for nurse scheduling.pdf](G:\ENM311_Fall2011\A 0-1 goal programming model for nurse scheduling.pdf)

- [G:\ENM311_Fall2011\A DATA-INTEGRATED SIMULATION-BASED OPTIMIZATION APPROACH.pdf](G:\ENM311_Fall2011\A DATA-INTEGRATED SIMULATION-BASED OPTIMIZATION APPROACH.pdf)

Descriptive Abstracts

- In descriptive abstracts, which are often written before a project is completed, the emphasis is placedon the problem and method.

Title: Machine-Intelligent Gust Front Detection

- Doppler weather radar imagery [method] is being used to detect gust fronts [problem] as part of a program at Lincoln Laboratory to anticipate hazardous weather conditions [problem]. The project goal, under contract with the Federal Aviation Administration, is to develop a Machine-Intelligent Gust Front Algorithm (MIGFA) [method] as part of a suite of hazardous-weather detection functions.

Informative Abstracts

- In informative abstracts, which are written after the project has been completed, care is given to provide information on the results and conclusion of the project.

Title: Machine-Intelligent Gust Front Detection

- Techniques of low-level machine intelligence, originally developed at Lincoln Laboratory to recognize ground vehicles obscured by camouflage and foliage, are being used to detect gust fronts in Doppler weather radar imagery [method and problem]. A Machine-Intelligent Gust Front Algorithm(MIGFA) has been developed [result] as part of a suite of hazardous-weather detection functions being prepared under contract with the Federal Aviation Administration. Initially developed for use with the latest generation Airport Surveillance Radar equipped with a wind shear processor (ASR-9WSP), MIGFA was deployed for operational testing in Orlando, Florida during the summer of 1992. MIGFA has demonstrated levels of detection performance that have not only markedly exceeded the capabilities of existing gust front algorithms, but are also competing well with human interpreters [result and conclusion].

Writing the Introduction, Body, and Conclusion

The Introduction

- If the research paper can be compared to a meal, than the introduction is the appetizer.

- The purpose of the introduction is to entice your reader to further delve your paper.

- The introduction starts with a broad basis and then narrows it down to your particular field of study, explaining the rationale behind each step.

The Introduction—Function

- The introduction should:
  - **Identify the specific topic** (general) and then define, limit, and narrow it down to one specific issue.
  - Provide the **relevant background information**.
  - **Identify and explain the complications** found within the topic.
  - **Use the thesis statement** to establish the direction of study and point the audience toward the conclusion.
  - **Attempt** to inform the reader about the rationale behind the work, justifying why your work is an essential component of research in the field.
  - **Not have** a strict word limit, unlike the abstract, but it should be as concise as possible.

The Introduction—Form

- Well written paragraphs (up to a page or more)
- Provide a thesis
- Attention grabbers
  - Relate to the well known
  - Provide background information
  - Literature Review
  - Review History and Background of a Subject
  - Take Exception to Critical Views
  - Challenge the Assumption
  - Supply Data, Statistics, and Special Evidence
  - Provide a Brief Summary

The Body of the Paper--Function

- This is your main course. You are the cook.
- Provide rich, specific facts, quotes, and details.
- The body of the paper
  - Classifies the major issues and analyzes them.
  - Asserts and supplies detailed evidence.
  - Uses a variety of rhetorical modes to support position.

The Body of the Paper--Form

- Paragraphs should
  - be varied in length (four to twelve-fifteen sentences long)
  - Use transitions (repetition of key words, transitional words)
  - Contain a solid, topic sentence
  - Each paragraph should contain a writer's rationale for including a quote or statistic.
  - Never end a paragraph with a quote/paraphrase/ summary. Always tell the reader why that particular piece of information was important (connect it back to the thesis).

The Body of the Paper--Form

- Avoid
  - "The purpose of this study is to…."
  - Repeating the title in the text (redundant)
  - Jargon or difficult questions
  - Webster's dictionary defines monogamy as "marriage…."
  - Humor (unless that is the topic of the paper)
  - Cute or decorative elements

The Body of the Paper--Form

- Remember your outline?
  - Logical progression
  - Specific, supporting evidence
- Mix the modes of development
  - Use appropriately and effectively
  - Include the research material

- *Check out the 3 examples posted in Doc Sharing. Read one, they're very good papers!*

The Conclusion--Function

- Consider this the dessert and the after dinner conversation.

- Wraps up the paper—should be more than a simple summary.

- Don't leave the guests hanging—let them know the party is over and it's time to go home.

The Conclusion--Form

- The conclusion
  - Reaffirms thesis statement
  - Reaches a judgment about the merits of a subject
  - Discusses the implications of findings
  - Offers plan of action or proposal
  - Brings closure (specifically by the effective final paragraph/sentence)

The Conclusion--Form

- Avoid
  - "Oh, and by the way..."
    - I forgot to mention this earlier
    - Here's a whole new thought
  - Using "thus", "in conclusion", and "finally" at the beginning of the last paper (visually redundant)
  - Leaving the reader hanging
  - Questions that raise new issues
  - "The End" or decorative elements

These are the new thoughts that you didn't incorporate into the body of the paper.

The Conclusion--Form

- Approaches
  - Reach beyond the thesis statement
    - Why you should believe me
    - Implications
    - In a literary study-refocus on author
  - Close with an effective quotation
    - "Not with a bang and but a whimper." (T.S. Elliot)
    - "Once more unto the breach, dear friends, once more;/Or close the wall up with our English dead." (Shakespeare)
    - Research material
  - Compare the past to the future
  - Offer a directive or solution
    - Discuss test results