How to write an abstract

Steve Wallace

The problem with motivation as a researcher

- Why computer games?
- **Tell our own story**
  - 1) motivation
  - 2) clear mission
  - 3) try different ways to succeed
  - 4) quantified success
  - 5) make a difference in my online world
- Highly effective researchers stay motivated
- We need excitement and purpose in our research

Writing research is telling our own story

Research is interesting for the same reasons

Research can “tell our story”

- motivation (background)
- mission (objective)
- try different ways to succeed (methods)
- quantified success (results)
- impact (implications or discussion)

We must find motivation in our research

Abstract Elements Mirror the Paper

1) Reason for writing: Motivation

Why should we be interested?

2) Problem: Clear mission

What problem do we attempt to solve?

3) Methodology: Ways to succeed

What approach do we use to solve the problem?

4) Results: Quantify progress

What happened?

5) Implications: Making a difference in the world

How does this work add to the body of knowledge on the topic?

Simpler abstract structure

- **6 questions**
- Why this study?
- What did you investigate?
- What did you do?
- What did you find out?
- What do your results mean?
- So what?

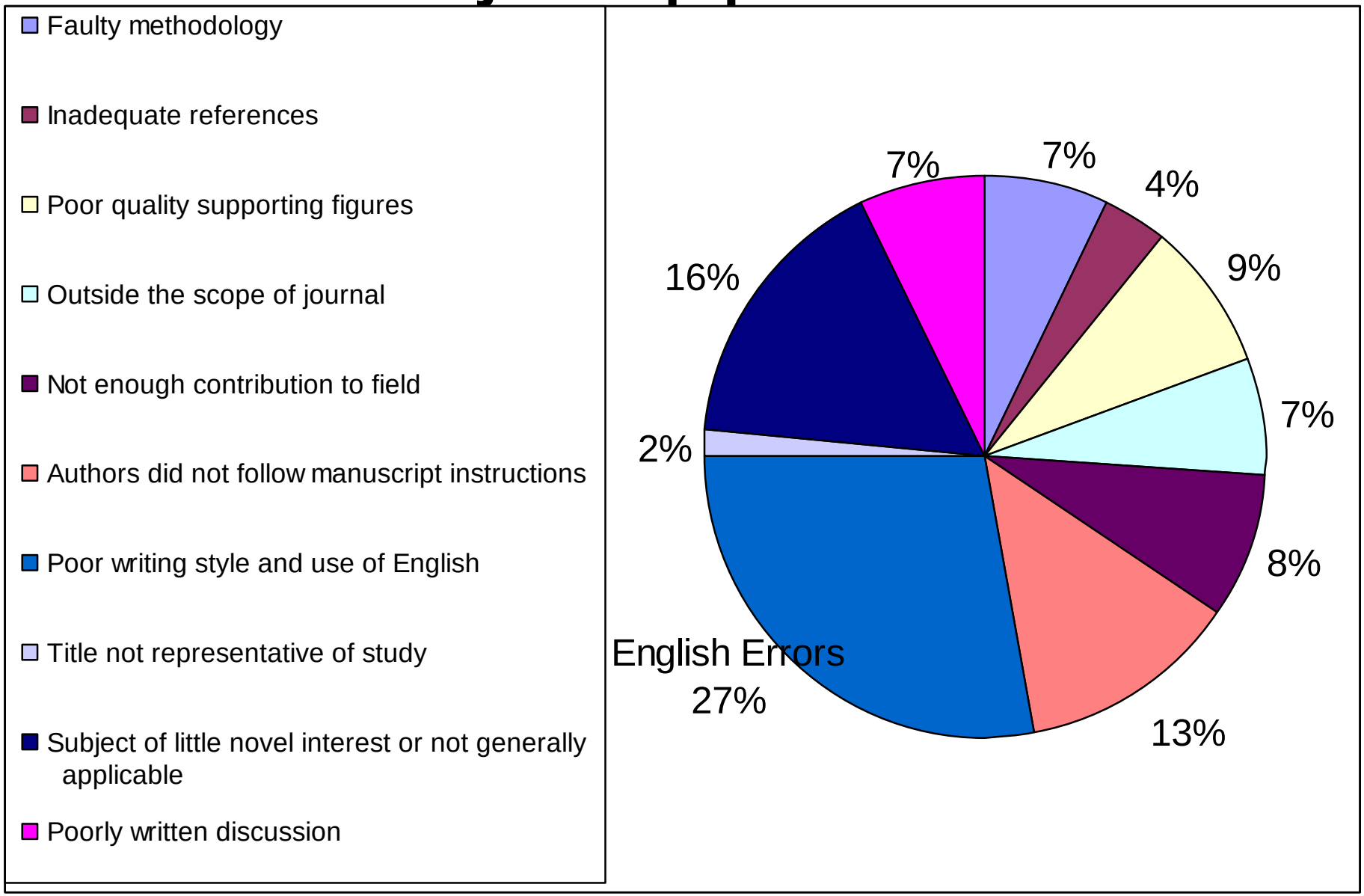
Heroes vs. Researchers

- Both are judged by their problems
- Both use methods to achieve their results
- Both serve as a lesson for others
- Both can live or die but keep their hero status if the problem is interesting

Stories vs. Research

- Both must be interesting or they won't be retold or cited
- Interesting = help solve a problem
- Both can end good or bad
- Both must be well told
- - Sometimes the way we tell the story is more important than the story itself

Reasons for major revision or rejection of Taiwanese journal papers



Why is an abstract important?

- Used for conferences and papers
- Published in computerized databases and printed indexes abstracts for scholars
- Often you are cited based only on abstract
- Indicative and informative and descriptive
- We will discuss the structured informative

Purpose of the abstract

- Like a movie preview -15 seconds
- Should create a “why” for reading the paper, something feared or needed
- Unlike a movie preview it should be able to stand alone and be read as a separate unit – Apple example

Choose an interesting title

If the title is boring, readers will avoid your paper. Your paper won't be cited.

- Never try to put all the content of your paper in the title. One line is best. Never use more than two lines.
- Avoid starting with "On the...". It implies that the paper is a note.

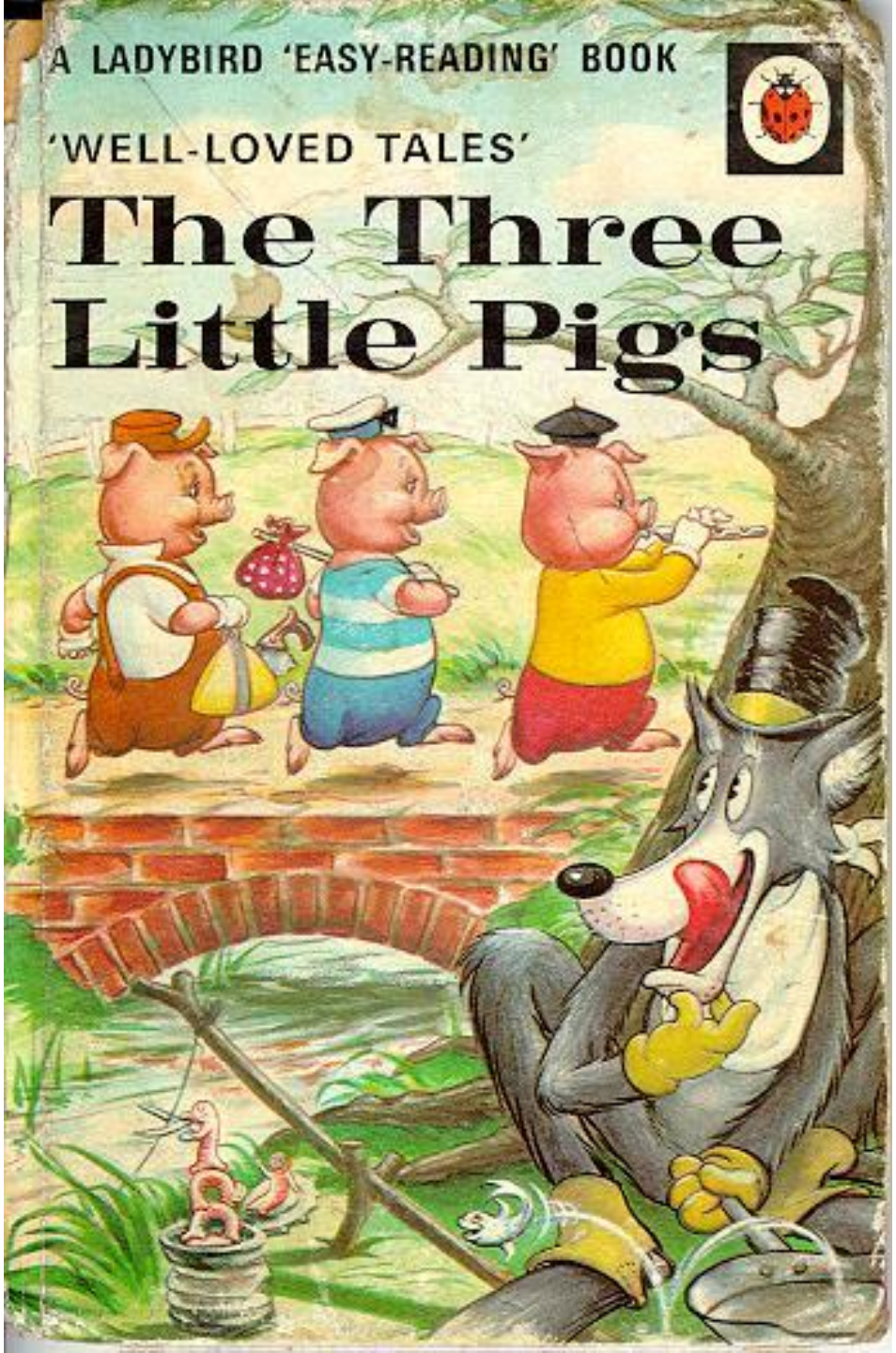
The Title

- Informative title = the key concept, the device or group studied and your argument.
- Title and subtitle separated by a colon is often a good way to maximize information
- Choose a title after writing the abstract

A LADYBIRD 'EASY-READING' BOOK

'WELL-LOVED TALES'

The Three Little Pigs



Titles

- A good title should contain the fewest possible words that describe the contents of a paper
- Convey the main findings of the research
- Be specific and concise without focusing on only part of the content
- Avoid jargon, non-standard abbreviations and unnecessary detail
- Comply with word limits
- Some journals also require a shorter ‘running’ title

Titles

- Poor title:
- **Mouse Behavior**
- *A better title would be*:
- **The Effects of Estrogen on the Nose-Twitch Courtship Behavior in Mice**
- Why? Because the key words identify a specific behavior, a modifying agent, and the experimental organism.
- Or give the result
- **Estrogen Stimulates Intensity of Nose-Twitch Courtship Behavior in Mice**

1) Motivation

- Why did you study the problem?
- We need a “why” before we care about “how”
- Why do you want to kill the monster?
- Don’t assume people know
- Fear and relevance - Fear of not understanding the solution must be stronger than fear of reading the paper

Context and background

History of the problem

(A long, long, time ago, in a land far, far, away…)

- We mention other heroes or researchers who have fought similar problems with similar weapons

Example of motivation in an abstract

- “Previous research on GPS calibration focused mainly on the methods of integrating costly auxiliary hardware, ignoring the user’s context information and basic demands.”

Example of Motivation

- “Research reported by Daly, Miller, and their colleagues suggests that writing apprehension is related to a number of factors we do not yet fully understand.”

Problem statement or Objective

Problem:

What problem does this work attempt to solve?

What does the monster look like?

Are you trying to kill it?

Solutions and problems

- Don’t think your reader will know what your problem is
- If we don’t know where we are going we can’t get there and there is no way to evaluate success

Problem statement or Objective

- Our “mission” in a computer game and research uses a “to” statement
- “to save the princess”
- “to kill the monsters”
- “to obtain the treasure”

Example abstract problem statement

- This paper presents an approach for calibrating GPS position by using the context awareness technique from Pervasive Computing. The paper proposes a novel approach, called Perceptive GPS (PGPS) **to improve GPS positioning accuracy** directly from the contextual information of received GPS data.

Example abstract problem statement

- The theoretical modeling of the wave forms that would be produced in particular systems will expedite the search and analysis of the detected signals. The characteristic formulation of GR is implemented **to obtain an algorithm capable of evolving black holes** in 3D asymptotically flat spacetimes.

Methodology:

- ***Methodology:***
  What did you do?
- An abstract may include specific models or approaches.
- How did you kill the monster?

Methods

- What weapon did we use to kill our monster?
- A sword? Shield? Spear? Or something novel?
- If the method is commonly known in our field we don't need detail
- If it is novel we need to define it so following heroes can imitate our method

Sample abstract - methodology

- To utilize the characteristics of GPS sequential and temporal data, PGPS starts by sampling received GPS data and builds a stable Transition Probability Matrix (TPM), based on a derived Newton Markov Model (NMM), to learn the carrier's behavior.

Sample abstract - methodology

- Using compactification techniques, future null infinity is included in the evolved region, which enables the unambiguous calculation of the radiation produced by some compact source. A module to calculate the waveforms is constructed and included in the evolution algorithm.

Results

- ***Results:***
  What did you find out?
- Include specific data that indicates the results of the project
- Did we kill the monster or did it kill us?

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Results

- **Be specific:** Conclude that something is faster, cheaper, smaller, or better than something else
- Avoid general words such as "very", "small", or "significant."
- Don’t mix with the methods section

Sample abstract - results

- Significant differences in levels of belief in giftedness were also found among students who differed in their perceptions of the most important purpose for writing, with students who identified "to express your own feelings about something" as the most important purpose for writing having the highest mean level of belief in giftedness.”

Sample Abstract - Results

- “The results showed that signals do improve a reader's comprehension, particularly comprehension two weeks after the reading of a passage and comprehension of subordinate and superordinate inferential information.”

Implications

- **What do your results mean?**
- **Who cares?**
- What changes should be implemented because of your research?
- How does this research add to the knowledge on the topic?
- How could you have done better defeating your monster?
- What lessons can other heroes learn for fighting their monsters?

Implications

- What are the implications of your answer?
- Is it going to change the world?
- Be a significant contribution?
- Be a nice project?
- Or warn other researchers that this area is a waste of time?
- All of these are appropriate conclusions.

Implications (continued)

Can mention “we” here in the discussion section.
“We believe” “It is our opinion that…”

- “They lived happily ever after”

Sample abstract - implications

- “The code carefully excises a region surrounding the singularity and accurately evolves generic black hole spacetimes with apparently unlimited stability.”

Sample abstract - implications

- “Although the validity of the notion that writing ability is a special gift is not directly addressed, the results suggest that belief in giftedness may have deleterious effects on student writers.”

- Previous research on GPS calibration focused mainly on the methods of integrating costly auxiliary hardware, ignoring the user's context information and basic demands. This paper presents an approach for calibrating GPS position by using the context awareness technique from Pervasive Computing. The paper proposes a novel approach, called Perceptive GPS (PGPS) to improve GPS positioning accuracy directly from the contextual information of received GPS data. To utilize the characteristics of GPS sequential and temporal data, PGPS starts by sampling received GPS data and builds a stable Transition Probability Matrix (TPM), based on a derived Newton Markov Model (NMM), to learn the carrier's behavior. From the perceptive data of the stable TPM and online received GPS data, PGPS infers the behavior of the GPS carrier to verify the rationality of the GPS data and then interactively rectifies received GPS data online. Preliminary experimental results show the proposed approach effectively improves the accuracy of GPS positioning.
- NCU class homework

- Research reported by Daly, Miller, and their colleagues suggests that writing apprehension is related to a number of factors we do not yet fully understand. This study suggests that included among those factors should be the belief that writing ability is a gift. Giftedness, as it is referred to in the study, is roughly equivalent to the Romantic notion of original genius. Results from a survey of 247 postsecondary students enrolled in introductory writing courses at two institutions indicate that higher levels of belief in giftedness are correlated with higher levels of writing apprehension, lower self-assessments of writing ability, lower levels of confidence in achieving proficiency in certain writing activities and genres, and lower self-assessments of prior experience with writing instructors. Significant differences in levels of belief in giftedness were also found among students who differed in their perceptions of the most important purpose for writing, with students who identified "to express your own feelings about something" as the most important purpose for writing having the highest mean level of belief in giftedness. Although the validity of the notion that writing ability is a special gift is not directly addressed, the results suggest that belief in giftedness may have deleterious effects on student writers.

- Palmquist, M., & Young, R. (1992). The Notion of Giftedness and Student Expectations About Writing. *Written Communication,* 9(1), 137-168.

- The problem of detecting gravitational radiation is receiving considerable attention with the construction of new detectors in the United States, Europe and Japan. The theoretical modeling of the wave forms that would be produced in particular systems will expedite the search and analysis of the detected signals. The characteristic formulation of GR is implemented to obtain an algorithm capable of evolving black holes in 3D asymptotically flat spacetimes. Using compactification techniques, future null infinity is included in the evolved region, which enables the unambiguous calculation of the radiation produced by some compact source. A module to calculate the waveforms is constructed and included in the evolution algorithm. This code is shown to be second-order convergent and to handle highly non-linear spacetimes. In particular, we have shown that the code can handle spacetimes whose radiation is equivalent to a galaxy converting its whole mass into gravitational radiation in one second. We further use the characteristic formulation to treat the region close to the singularity in black hole spacetimes. The code carefully excises a region surrounding the singularity and accurately evolves generic black hole spacetimes with apparently unlimited stability.

Luis Lehner, "Gravitational radiation from black hole spacetimes" Ph.D. University of Pittsburgh, 1998 DAI-B 59/06, p. 2797, Dec 1998

- This study investigated the role of "signaling" in helping good readers comprehend expository text. As the existing literature on signaling, reviewed in the last issue of the Journal, pointed to deficiencies in previous studies' methodologies, one goal of this study was to refine prose research methods. Two passages were designed in one of eight signaled versions each. The design was constructed to assess the individual and combined effect of headings, previews, and logical connectives. The study also assessed the effect of passage length, familiarity and difficulty. The results showed that signals do improve a reader's comprehension, particularly comprehension two weeks after the reading of a passage and comprehension of subordinate and superordinate inferential information. This study supports the hypothesis that signals can influence retention of text-based information, particularly with long, unfamiliar, or difficult passages.
- Ref. Houp & Pearsall, Reporting Technical Information, 7th edition, Macmillan Publishing Co., 1992

Conclusion to abstract

- We are looking for a motivation, mission, quantified success and impact, so we are attracted to online games because they keep us motivated
- We must find ways to motivate ourselves in our research writing life
- We are telling stories, we are solving problems, we do have a mission, we are successful, we are making an impact
- But none of this is possible unless we first believe we are.

Conference Abstracts

Why go to conferences?

- To get published
- -Meet your reviewers
  - Stay at the conference hotel
  - Buy coffee
  - Birds of a feather (BOF's) and Special interest groups (SIG's)
- -Meet your editor
  - Get invited to submit
  - See what the editor wants
- -Meet coauthors
  - Share your research with your field
  - Get feedback that can make your work better

Proceedings

- Fast way to get a publication
- Ask about being included in this book or CD
- May become a textbook

What are the different conference types

Theme based conferences

General conferences

Professional conferences

Types:

COLLOQUIUM

SYMPOSIUM

- **single or multiple track**

WEB CONFERENCING

WEBINAR

Conference Paper Types

- **Paper with Respondent**
- **Panel Presentation**
- **Roundtable**
- **Workshop**
- **Poster, Poster Talk, Poster Presentation, Poster Discussion**

When to submit a conference abstract

- When you have data and analysis. Don't submit if you have not started your study
- Your study **does not need** to be completed when you submit the abstract.
- The conference paper is the first step to publication.
- You can submit an abstract for research you have already *submitted* for publication. As long as the paper has *not* been published when you submit the abstract.
- Unlike academic journal papers, it's acceptable to present the same research at more than one conference.

Make a Good First Impression

- Meet the deadline. Late submissions suggest preparation.
- Prepare a clear, easy to read abstract. Clean, printed copies using the guidelines for your area makes your abstract easy to read.
- If you must FAX or e-mail your abstract to meet the deadline, also send a hard copy by mail.

Customize your abstract for the conference

- Show that you wrote this abstract for this conference.
- Do not send the entire paper, a section of paper, or anything that does not summarize what your paper says.

Talk about the theme of the conference

- Carefully read the "Call for Papers/Proposals/Abstracts." Use keywords from the list of acceptable topics in the call.
- If the conference is sponsored by a journal, look at a copy of the journal for a statement of its philosophy, inside the front cover.
- Know your audience. What do they already know about your topic? Do they need any background information to understand your research?

Select a narrow topic

- Conference talks are only 15 to 20 minutes long. You cannot present your entire dissertation or an entire research article.
- You should choose a small sample of data that makes a single point; choose either one long piece of data or several smaller pieces that offer interestingly different perspectives to your argument.

Be clear and simple

- Remove generalizations, extra words and little known technical words. Use strong and specific language. Ask a friend read your abstract. If your reader cannot understand a sentence immediately; rewrite it.
- Conference organizers read hundreds of abstracts. Do not make them work hard to understand yours.

Word limit

- Your abstract should be single-spaced in an easy-to-read 12pt font, like Times New Roman. Come as close as possible to the word limit, but don't go over.
- If your abstract is too long, either it will be rejected or someone else will shorten it. Your paper will be better if you shorten it.
- A typical conference abstract word limit is 300 to 500 words. A typical paper abstract word limit is 150-200 words.

Don’ts for abstract

- Do not use company names, acronyms, abbreviations or symbols in your abstract. You don’t have the space to explain these
- Do not refer in the abstract to information that is not in the document.
- Do not want to tell your reader that your study has information it does not have.

Tense

- In writing the abstract, do not use the future tense, even to say "In my presentation, I will...." if you use the future tense some abstract reviewers may think you haven't completed the research.
- Don’t confuse verb tenses: use present tense to describe results with continuing applicability; use the past tense to describe tests applied; and future tense to project research and predict findings.

Style

- Be precise and detailed about your argument and analysis. Avoid long sentences which use room and give no real information.
- “Policy implications are discussed”
- “It is concluded that,”
- "Results of the study will be discussed"
- Say what the results are and why they matter.
- Use your own words. Emphasize your own ideas. Quote or paraphrase others seldom.
- Any major limitations: use conditional words such as "might", "could", "may", and "seem".

Don’t Use “I” and Avoid Passive Voice

- Do not use the first person "I" or "we." In addition, whenever possible, choose active verbs instead of passive ones (ex: use "*the study tested*" instead of "*it was tested by the study*" or "*I tested in the study*").
- Do not include references to figures, tables, or sources.

IEEE Guidelines

- “If you wish, you may write in the first person singular or plural and use the active voice … Remember to check spelling. If your native language is not English, please get a native English-speaking colleague to proofread your paper.
- **Template for Preparation of Papers for IEEE Sponsored Conferences & Symposia**
  Frank Anderson, Sam B. Niles, Jr., and Theodore C. Donald, *Member, IEEE*

AMA Manual of Style recommends that:

- “In general, authors should use the active voice, except in instances in which the author is unknown or the interest focuses on what is acted upon.“
- *AMA Manual of Style: A Guide for Authors and Editors.* 10th ed. New York, NY: Oxford University Press; 2007.

The *Publication Manual of the American Psychological Association* (APA) has similar advice:

- "Prefer the active voice....The passive voice is acceptable in expository writing and when you want to focus on the object or recipient of the action rather than on the actor.“
- American Psychological Association. (2001). *Publication Manual of the American Psychological Association* (5th ed.). Washington, DC: Author.

Nature

- "Nature journals like authors to write in the active voice, as experience has shown that readers find concepts and results to be conveyed more clearly if written directly."

How to write a paper: writing for a Nature journal. Nature Publishing Group Web site: *Nature.* http://www.nature.com/authors/author_services/how_write.html.

Accessed March 4, 2009.

Search Phrases and Keywords

- Keywords in the abstract are used by search engines more than index keywords.
- Use exact phrases in your abstract, so your abstract is listed at the top of a search results.
- Some publications and conferences request "keywords". They are used to assign papers to review committees or editors. Choose keywords that make you review category clear.

Consider putting together a panel for a symposium

- It's easier to get a panel accepted into a conference than an individual paper because panels save the committee work.
- Your panel should have a clear theme connecting all of the participants' papers.
- In your panel abstract, state the theme, and then describe how the various papers discuss the theme.

Abstract for a Symposium

The most important conference talk is the invited talk, next is the symposium, then the round tables and finally, the poster sessions.

- **Ways to increase the probability of getting your symposium paper accepted**
  1. Organize a symposium, where your paper is connected to the other papers by more famous people in the field.
  2. Get famous people in the domain to be the discussant and or the chair of your proposed symposium.
  3. Put your paper in between the two most famous people, so people won't leave your presentation.
  4. Don't schedule yourself right after a very exciting speaker.

Symposiums (continued)

- Symposium proposals are better if you have an "organizing framework" for the group of papers in the symposium.
- If you are not a famous guy yourself, contact people to participate early.
- Contact the person most likely to agree first, and then when you contact the second person, mention that the first person has agreed and the others who will be contacted.

What happens next with your abstract?

- A few conferences will send comments from reviewers about your abstract.
- You should receive notification of the acceptance or rejection of your abstract.
- If you don't receive notification by the specified date, your abstract may have been lost.

References for conference abstract only

- Cite a few references in the text
- No more than five in a 500-word abstract.
- A “key reference” may depend on who's hosting the conference, the theme, the theoretical position of the conference.
- It's often best to cite at least one "classic" reference and one "cutting-edge" recent reference.
- Also cite anyone who centrally represents the problem you're discussing.
- If you cite yourself, do so in the third person.

Additional tips for conferences

- Prepare an “elevator pitch” for your research
- Prepare questions for editor and reviewer sessions based on their online abstracts

How to convince your boss

- **Conferences can be expensive**
- You are equipment for your company or school
- Trip report
- Recruiting
- Professional development
- Divide the costs

What to do before you go

- Email for a meeting with editors if you have a book
- Email to attendees you want to meet

For More Information

Handout of our talk available

- www.seminars.tw Workshops around Taiwan
- www.editing.tw
- **Editing** from 86 colleges and universities, domain specialized editors, understand Taiwanese English, educational comments
- Three Stage **translation** process to preserve meaning and clarity
- **Books**
- How to write and publish an academic paper in 16 weeks
- How to attend, speak or present a poster at an academic conference