

# Writing a Research Paper for Publication

An Examination of Three Open-Access  
Examples

Presenter: Chris Hinkle

# Open Access Academic Publishing

- Problems with the current model of peer review and restricted access.
- New steps by governments will force change: In the USA, the UK and the EU, new laws specify that research that receives government funding must be made available free to the public.

# Two models for Open Access policy

## Gold OA

- OA journals conduct peer review
- Various funding models

## Green OA

- Papers are deposited in OA archives
- May involve preprints or postprints, embargo period

# PLoS One: a successful, non-commercial open access journal

The screenshot displays the PLoS ONE journal homepage. At the top, a banner reads "Great Reagents Drive Great Research". Navigation links include "plos.org", "create account", and "sign in". The main header features the PLoS ONE logo, "Subject Areas", "For Authors", and "About Us" links, along with a search bar and "advanced search" link.

Below the header, a navigation bar highlights "In the News" (selected), "Recent", and "Most Viewed".

The main content area features two article previews:

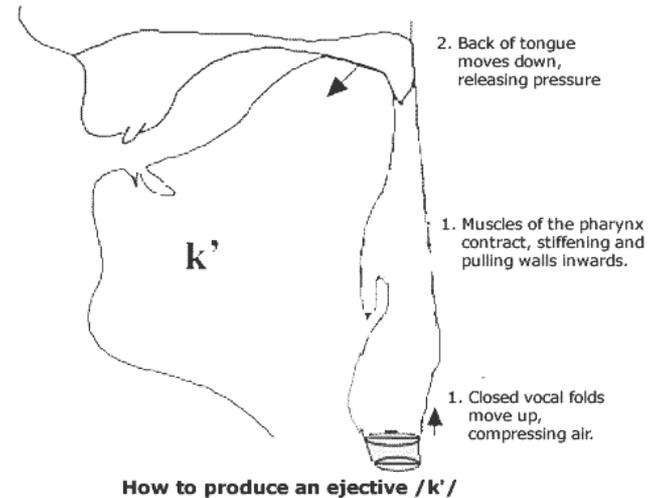
- Article 1:** "Holsteins Favor Heifers, Not Bulls: Biased Milk Production Programmed during Pregnancy as a Function of Fetal Sex". The preview includes a graph showing "Milk Yield (kg)" for "1st Lactation" with values 8000 and 8250. The authors listed are Katie Hinde, Abigail J. Carpenter, and Barry J. Bradford.
- Article 2:** "Diving-Flight Aerodynamics of a Peregrine Falcon (*Falco peregrinus*)". The preview includes an image of a falcon in a "wind-tunnel" and lists authors Benjamin Ponitz, Anke Schmitz, and Christoph Brücker.

A sidebar on the right displays "Tweets" from Amy Cuddy (@amyjccuddy), Steven Pinker (@sapinker), and Noah Smith (@Noahpinion). The bottom of the page features a "PLOS ONE" logo and an "OPEN ACCESS" badge.

# Paper 1: Caleb Everett, 'Evidence for Direct Geographic Influences on Linguistic Sounds: the Case of Ejectives' (PLoS 2013 – linguistics)

Linguists assume that geography does not influence language. This paper shows that ejective consonants occur mainly in languages spoken in or near mountainous regions world-wide. It hypothesizes that this may be because ejectives are easier to pronounce or conserve water vapor at high altitude.

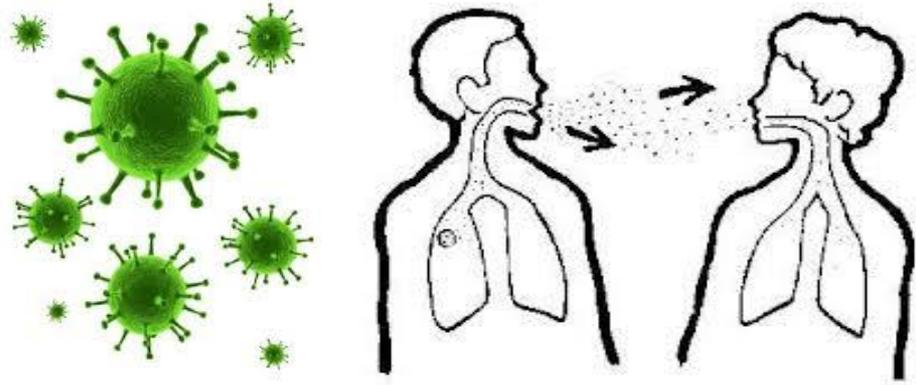
Keywords: ejective consonants, geography, language typology, phonetics



## Paper 2: Paul Thibodeau and Lena Boroditsky, 'Natural Language Metaphors Covertly Influence Reasoning' (PLoS 2013 - psychology)

Social issues like crime are complex. Often people use metaphors when discussing them, such as 'crime is a **beast**' or 'crime is a **virus**'. A series of studies were carried out to show how the choice of metaphor can affect people's beliefs about social issues, and in particular that the solutions they choose are influenced by metaphorical framing. This study shows that this is true even when subjects forget which metaphor was used, and that metaphor may have less influence on politically committed subjects.

Keywords: metaphor, social issues, crime



## Paper 3: Carla Prater and Jie-Ying Wu, 'The Politics of Emergency Response and Recovery: Preliminary Observations on Taiwan's 921 Earthquake' (public policy – disaster response)

In 1999 an earthquake in central Taiwan killed more than 2,000 people. This paper examines the response to the disaster by the government and various other groups. It finds that the government failed to respond quickly due to lack of preparation and over-centralized decision-making. Other bodies, such as the army and a Buddhist charity, were more effective, suggesting that overall Taiwan's civil society is quite strong. Regional differences and the political impact of the earthquake are also addressed.

Keywords: Taiwan, centralization, disaster response



# Style point: formal vs. informal language

- Formal English is appropriate when writing the paper, but when you present it orally, you'll want to move to a more informal register.
- The amount of technical language or “jargon” you include depends on your audience, but this doesn't effect the requirement for formality.
- Don't let formality get in the way of clarity – longer isn't better.
- General point: Stay away from Google Translate!

# 1. Formal and Informal: Verbs

Formal: Latinate verbs	Informal: Anglo-Saxon/Phrasal verbs
'A standardized approach to measurement <u>was adopted</u> ...'	'We <u>chose</u> a standardized way to <u>make</u> our measurements...'
'Some of this revenue is then <u>disbursed</u> to lower levels of government...'	'Lower levels of government then <u>get</u> funding from this revenue...'
'Metaphors <u>pervade</u> discussions of social issues...'	'You will <u>come upon</u> numerous metaphors in discussions of social issues...'
'The languages <u>are categorized</u> into two groups...'	We <u>put</u> the languages into two groups...
This research <u>has reinforced</u> what we know about the importance of planning in disaster response.	This research <u>backs up</u> the idea that we need to plan ahead for disaster response.

## 2. Passive vs. Active Voice

### Formal: Passive Voice, Active Voice with I/We

‘This is illustrated by changes in the amount of benefits...’

‘The neighborhood watches option was counted as enforcement-oriented...’

### Informal: Active Voice, Often with You

‘You can see this in the changes in the amount of benefits...’

‘You could treat the neighborhood watches option as enforcement-oriented...’

### Formal: Long Noun Phrases

‘Another indicator of centralization is the location of the planning process...’

‘A significant disparity in the elevations of the two language groups is present everywhere, except for the North American landmass.’

‘Looking at where planning takes place can tell us how centralized the system is...’

‘The two language groups are present at different elevations. This is true everywhere except in North America.’

## 3. Other Issues

### Word Choice (Formal vs. Informal)

Perhaps the most remarkable facet of the elevation data...

The neatest thing about this data might be that...

A small percentage of participants identified the metaphor as influential.

Just a couple of people thought the metaphor changed made them change their view.

### Reduce Wordiness

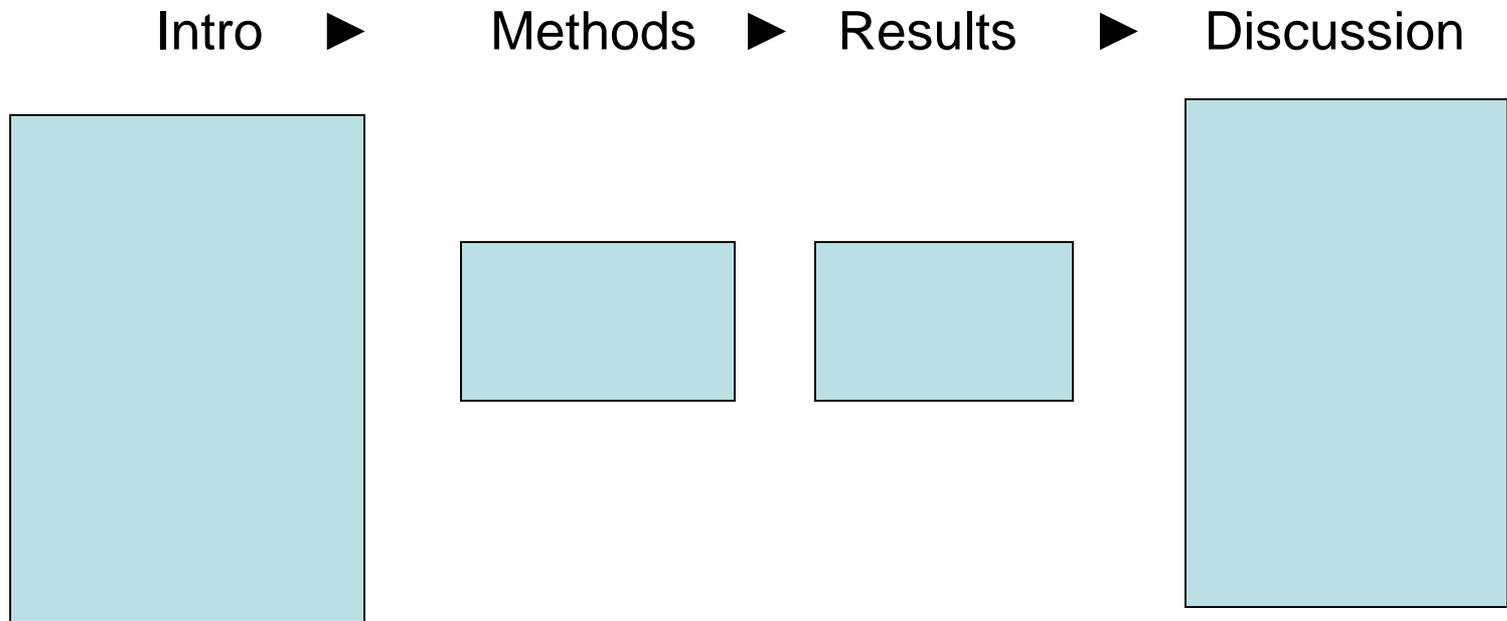
Our work shows that people can be unwittingly swayed by metaphors when reasoning about social policy.

As you can see from what we have presented in this paper, when they are thinking about social policy people may make different decisions depending on which metaphors were used in presenting the given issue.

# IMRaD Structure

- Not universal, but useful. Depends on the field, the publication and the audience.
- What to avoid – ‘cookie cutter’ paper writing
- What to aim for – ‘positioning’ your research to show why it’s significant

With IMRaD, the scope typically goes from general to specific, then back to general.



# 1. Introductions (the CARS model)

- How to begin? Usually not with a simple thesis statement.
- Instead, work to Create a Research Space (CARS model) Steps:
- 1. Show importance of research area, \*selectively\* discuss literature
- 2. Highlight a gap in knowledge. Language can be negative here:
  - “However, no studies have examined...”
  - “One aspect has been neglected in previous studies...”

- 3. Show how the present research will fill the gap. This usually includes a statement of purpose. Research questions and findings may also be summarized.

# Everett's Introduction: A Radical New Idea

- Begins with the general view about the relationship of language and geography:  
“It is generally assumed that the worldwide variation of sounds in human languages is largely arbitrary.”
- Cites related research: languages spoken in hot climates have been found to have more vowels. Is this language feature due to geography? Only indirectly.
- The turn:  
“Here we offer evidence for a **direct geographic effect** on arguably the most basic facet of phonology, the inventory of phonemes in a given language.”

- Filling the gap: “We speculated that atmospheric pressure might impact the production of non-pulmonic sounds [like ejectives].” This leads to a working hypothesis : “Ejective phonemes might be more likely to occur in areas of high elevation.”
- Question: Does the way you frame your research problem in the introduction have to reflect the sequence in which your understanding developed? In Everett’s case, it may not.

# Boroditsky's Introduction: Building on Previous Research

- Begins with a generalization:  
“To discuss social and political issues, we rely heavily on metaphor.”  
Explains why, then moves to the general purpose:  
“In this paper we investigate the role of metaphor in reasoning about social policy in the domain of crime.”
- Summarizes their own research on metaphor, then identifies a gap: “However, this previous work leaves a number of key questions unanswered.”

- Filling the gap: Formulates three new research questions.
  - Does the metaphor used affect the choice of solution from several alternatives?
  - Are the subjects aware of the influence of metaphor on the way they choose an alternative?
  - How does political affiliation relate to this?

Summarizes four experiments to answer these questions, alludes to findings.

# Prater's Introduction: Framing Disaster Response

- Begins with basic facts about the earthquake.
- Describes research methods (interviews, documents).
- Literature review covering public policy studies about centralization and disaster response. Identifies a gap: Few studies explicitly relate these two issues.
- Four propositions to be tested are given.

## 2. Methods

- This section is the most specific, and it's often written first.
- Content varies according to discipline, but it can include information on materials, equipment, participants, statistics and other aspects of research.
- For a specialist audience, the writing style can be **condensed**. By contrast, a more **expanded** style gives more background information to facilitate understanding.

## Methods sections in the three papers

- Everett: 'Analysis' section describes how data on over 500 languages correlates with geographic location. Some general points about geography – all in all fairly brief.
- Boroditsky: Clear-cut experimental design. Divided into sections – Ethics statement, Participants, Materials, Design, and Coding. Each experiment is described in detail. Some discussion of issues regarding selection of participants, coding of results.
- Prater: In place of Methods and Results sections, a single 'Findings' section.

## 3. Results

- It is good to have a clear general statement of the main trends in the data.
- Other tasks may be as follows:
  - Assess previous studies in light of yours
  - Compare your data to other sets
  - Discuss reliability and deal with any unexpected problems
  - Discuss general implications (to anticipate the next section)

# Language points for the results section

- Consider how strong a claim to make regarding cause and effect:  
'X [possibly/probably] contributed to/was one cause of/was the major cause of Y.'
- Describing information in tables:  
Table X shows/presents/illustrates/demonstrates/  
suggests/reveals/summarizes...
- When describing information in graphs, different language is typically used, often entailing rise/decline, increase/decrease, etc.

## Results sections in the three papers

- Everett: General statement of results: “Clearly languages with ejectives evince a marked tendency to occur at or near areas of high elevation.”
- Uses adjectives like ‘striking’, ‘marked’ and ‘robust’ when discussing the correlation between ejectives and altitude. Is careful not to overstate the causal link, however.
- Boroditsky: Reports coded responses in experiments, includes statistical evaluation. Final section more interpretative in tone: ‘There are several reasons why Republicans may be less influenced by the metaphor frame than Democrats and Independents.’

- Prater: “Findings” section for each proposition, describes situation with low government preparedness, response of army and private sector, and comparison between two counties. In effect the writers present the information they gathered from interviews and documents and use it to evaluate disaster response by various parties. This takes up most of the body of the paper.

## 4. Discussion

- Content of the discussion will depend on the research question. Make points instead of establishing facts as in the results section.
- Good to start by reformulating the paper's purpose: 'In this paper we have investigated...'
- Possible tasks: say what the research has accomplished, re-evaluate points in the literature, suggest explanations for the data.
- Both strengths and weaknesses should be mentioned – the latter can suggest new research directions.

## Discussion sections in the three papers

- Everett: Move to phonology. Two hypotheses:
  - Ejectives are easier to pronounce at high altitudes.
  - Ejectives help conserve water vapor at high altitudes.
- In a final conclusion, he stresses that “ we regard the link between ejectives and altitude as established.” Calls for more study of the mechanics of ejectives in order to test his phonological hypotheses.

- Boroditsky: This section is only three paragraphs long. It clearly returns to the level of generality of the introduction. The significance of metaphor as influencing a choice from alternatives and when covert is confirmed in both cases.
- This feeds back in to the general interpretative point: metaphors simplify complex issues.
- Prater: Addresses each proposition from the introduction, introduces final point about the impact of the earthquake on politics – the ruling party lost an election held a few months afterwards.

# Problems with the OA Model: A “Perfect Storm”?

- C. Greenberg: Easy access to OSS (open source software) has led to the creation of many low-quality, fly-by-night OA journals charging fees to researchers who feel pressure to publish.
- J. Beale’s list of “predatory” journals:  
<http://scholarlyoa.com/publishers/>

These journals should be avoided!