Five Top Tips for Research Appraisal



with Dr Katherine Sanchez

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Tip 1: Check the source

Scientific source	TBD	Not a scientific source
Complete, empirical or high-quality review article in a reputable, peer-reviewed journal	Conference presentation	Industry magazine article
	Poster	Media article
	Pre-print	Self-published article
	Abstract	Blog post
	Empirical article in unknown journal	Workshop
		Podcast
		'Secondary' source (e.g., textbook, commentary)
		Article in a predatory journal

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Check the source

- "Complete" (not just the abstract or 'highlights')
- "Empirical or high-quality review article"
  Describes research completed by the authors (e.g., systematic review, randomised controlled trial, case study); IMRaD format
  'Commentary', 'opinion', 'editorial', some reviews
- "Reputable, peer-reviewed journal"
  - Check the website—look for peer review and who runs the journal
    Check PubMed journal list:
    https://ftp.ncbi.nih.gov/pubmed/J_Medline.txt
    Check Beall's List: https://beallslist.net/standalone-journals/

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Tip 2:
Cultivate Your Inner 3yo



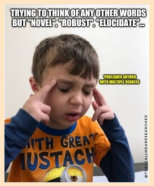


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Get confident

- Read however you want
- Cut yourself a break
  - Research papers are deliberately dense and jargony
  - Many papers have statistical consultants because the researchers need help with stats too



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Get curious

- Ask questions (write them down)
  - Why did they use that test? I thought it wasn't that good.
  - Hang on, all the participants are white kids from one high-income high-school. How does this apply to a more diverse caseload?
  - Wait, do the results necessarily mean that? Or could they be interpreted like this?
  - They said the result was significant; but how much difference does half a point on a language test make to an individual kid?

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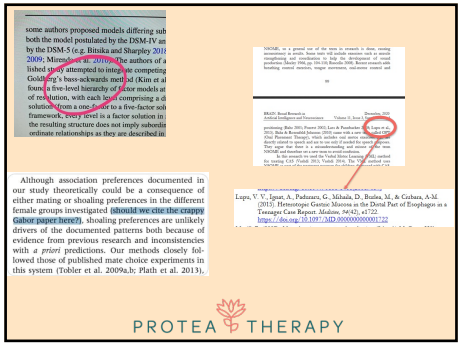
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Get curious

- Try to find the answers in the paper
- If you can't find the answers in the paper—congratulations! You've uncovered a probable limitation or error

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Tip 3:
Make Peace with P-Values

- It also helps to have some basic knowledge of scientific methods, including statistics



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Study Designs

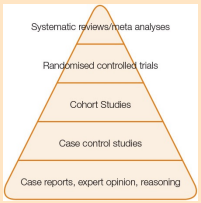
- Study designs
  - Qualitative and quantitative
  - Retrospective vs prospective
  - Intervention (experimental) vs observation



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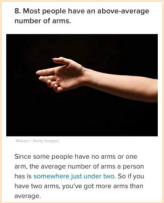
Study Designs



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Why Knowing Your Numbers Matters

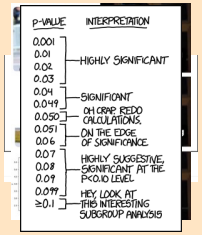


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P Values and Effect Size

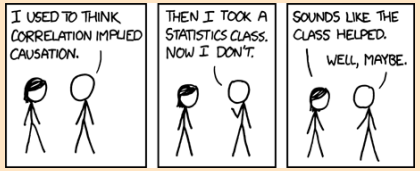
- Statistical significance
  - e.g. p values
- Effect size
  - e.g. correlation coefficients, odds ratios, relative risk



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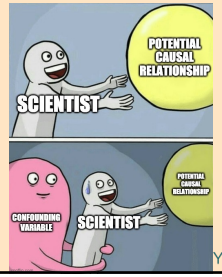
Correlation and Causation



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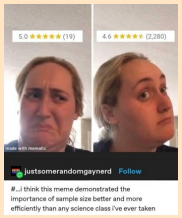
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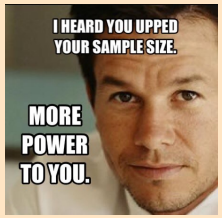
Confounding



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Sample Size

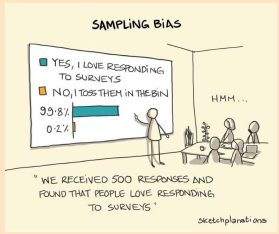




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Sampling Bias



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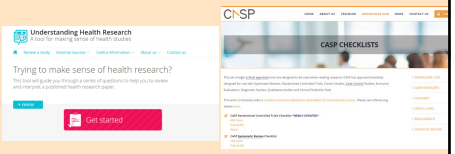
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Tip 4:
Tap Into Tools



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Tip 5:
Know Your Biases and Fallacies



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Cognitive Biases

- Particular cognitive biases to watch out for:
  - Sunk cost fallacy
  - Confirmation bias
  - Availability heuristic
  - Backfire effect
  - Groupthink
  - Placebo effect

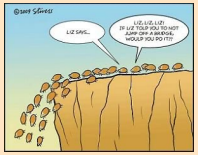


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Logical Fallacies

- Particular logical fallacies to watch out for:
  - False cause
  - Burden of proof
  - Bandwagon
  - Appeal to authority
  - Appeal to nature
  - Anecdote

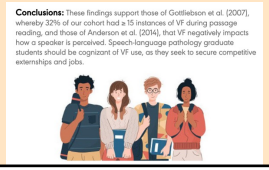


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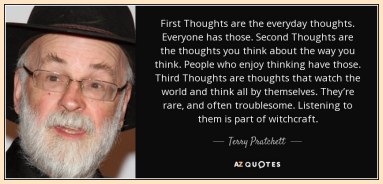
Cultural Biases

- Sex and gender identity
- Disability
- Ethnicity and culture


Conclusions: These findings support those of Gottliebson et al. (2007), whereby 32% of our cohort had ≥ 15 instances of VF during passage reading, and those of Anderson et al. (2014), that VF negatively impacts how a speaker is perceived. Speech-language pathology graduate students should be cognizant of VF use, as they seek to secure competitive externships and jobs.

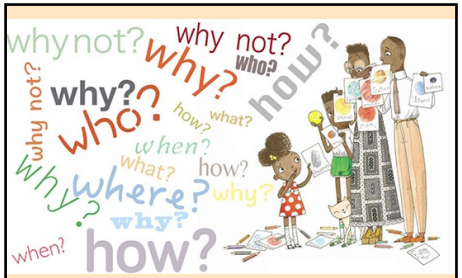
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Thinking about Thinking



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