

Argument Scaffolding: A Template for Quick and Effective Communication

Unit 0 Lecture 1

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Writing is central to any career—including statistics

- ▶ But students struggle to balance strong narratives that sustain interest with strong arguments that are supported by data.
- ▶ This presentation reviews a writing template developed with Regina Nuzzo, which we call argument scaffolding, to help students consciously balance these goals.
 - ▷ The template suggests phrases to help develop an argument.
 - ▷ It is useful for both constructing arguments and deconstructing the arguments of others.
- ▶ In this presentation, I'll provide
 1. some thoughts on the use of templates in writing.
 2. an overview of argument scaffolding.
 3. an example from ASA communications and my own teaching.

Writing templates facilitate the creative process.

- ▶ Creative processes like scientific discovery and writing are iterative.
 - ▷ Imaginative you generates a new idea.
 - ▷ Analytic you evaluates the idea.
- ▶ Idea generation is where you develop novel insight.
 - ▷ Insight comes from playing with a problem and considering solutions from different angles.
- ▶ Idea evaluation is where you assess the quality of the idea.
 - ▷ You keep the parts of the idea you like and identify new problems that require new ideas.
- ▶ While idea generation can take months or years, idea evaluation is immediate. You simply review your idea or show it to someone else.
 - ▷ A template is useful for arranging your idea into an argument that can be easily communicated and evaluated.

Templates do not replace the creative process.

- ▶ Evaluating ideas too soon or too often stifles creativity. Writers waste time:
 1. trying to argue an idea that has not been fully worked out.
 2. rejecting a good idea because it failed to fit a predetermined but arbitrary argument.
- ▶ But failing to critically evaluate an idea makes its merits inaccessible to your audience—and possibly even yourself.
 - ▷ Nothing kills a good idea as quickly as a bad argument.
 - ▷ Yet (to paraphrase Fisher) the best ideas seem to attract the worst arguments. In the fierce competition for your audience's attention, bad ideas have the advantage.
- ▶ A good template keeps writers focused on their audience—what they know, what they don't, and what they expect.
 - ▷ Allows student writers to anticipate where they may lose their reader.

Different templates serve different purposes.

- ▶ Currently students learn Introduction, Methods, Results, Discussion (IMRaD)
 - ▷ But IMRaD clarifies how you found your idea, not what you found.
 - ▷ That's great for recreating the discovery process. Terrible for generating interest and communicating relevance.

- ▶ Randy Olson in “Houston, We Have a Narrative” (2005) suggests writers use And-But-Therefore (ABT).
 - ▷ He argues every good story can be reduced to this structure.
e.g. ever hear that story about

*a girl living on a farm in Kansas **AND** her life is boring, **BUT** one day a tornado sweeps her away to OZ, **THEREFORE** she must undertake a journey to find her way home.*

ABT streamlines the argument.

- ▶ AND, BUT, and THEREFORE guide the narrative.
 - ▷ The contradictory word BUT draws the attention of the reader to the problem that the THEREFORE resolves.
 - ▷ Everything else is extraneous detail that diverts the reader's attention.
- ▶ However, we don't believe the words AND, BUT, and THEREFORE themselves are particularly important.
- ▶ We build on this idea. We suggest an argument with four parts: Situation, Complication, Conclusion, Relevance
 - ▷ We recommend helper phrases like AND, BUT, and THEREFORE that guide students in their writing.
 - ▷ Students then delete the helper phrases and make adjustments for pace and style.

Argument scaffolding in a nutshell

- ▶ *Situation* to establish common ground
 - ▷ Connect with audience and lay the foundation of your argument, answering questions such as who, what, when, why, and how.
- ▶ *Complication* to disclose a gap in knowledge
 - ▷ Disclose a problem with the situation, preparing the reader for new and valuable information.
- ▶ *Conclusion* to close the gap with your idea
 - ▷ Solve the problem, offer a new perspective, or otherwise resolve the tension.
- ▶ *Relevance* to reestablish common ground
 - ▷ Combine both what the audience knew at the start of the argument with the additional information you provided.

Helper phrases to achieve these goals

► Situation: Establish Common Ground

- ▷ Helper Phrases: “As I’m sure you are aware”; “Every day, thousands of people”; “As a statistician, I have often found that”; “In a recent paper, a team of scientists discovered”; “Policymakers have long known that”

► Complication: Disclose a Gap in Knowledge

- ▷ Helper Phrases: “But only recently have scientists considered”; “While that may be true, it ignores the fact that”; “But you may not have known that”; “But what if I told you that”; “That’s only half the story, however”

► Conclusion: Tell the Reader Something They Didn’t Know

- ▷ Helper Phrases: “Consider this”, “Fortunately, there’s a solution”; “Recently, that’s all started to change”; “The problem arises because”; “The secret is”; “Here’s a clever trick”

► Relevance: Reestablish Familiar Ground

- ▷ Helper Phrases: “Now you know why”; “Here’s the bottom line”; “So the next time you”; “It is handy to remember”; “That’s why I’m recommending”; “You should consider”

Example: Joe Biden wrong ... (Politifact 3/3/21)

As a statistician, I disagree with the “three Pinocchio” rating given to Biden’s statement that the “fastest-growing population in the United States is Hispanic.” The article argues Hispanic Americans were only the second fastest growing demographic—assuming “growth” means growth rate, the percent change over time.

While true, it ignores the fact that “growth” can also mean absolute growth, the difference in population size over time, in which case Hispanic Americans grew fastest. Measuring the difference, as the President may well have intended, is perfectly reasonable. Parents measure the height gained by children in inches per year, and news programs report the accumulation of snow in feet per hour.

Consider this. Percent growth is sometimes preferred because it gives the same answer regardless of the units of measurement (e.g. inches or centimeters). But comparing rates can be misleading because the highest percent changes typically come from the smallest populations, not necessarily the most relevant ones. For example, of all U.S. states, the Hispanic and Asian American populations grew at the fastest rate in sparsely populated North Dakota, growing at 129% and 79%, respectively, compared to 19% and 28% countrywide. But North Dakota has only .05% and .07% of the country’s Hispanic and Asian American population.

Here’s the bottom line. Fact checking as typically performed by Fact Checker is vital for civil discourse. But Biden’s statement at worst overgeneralizes a complex demographic phenomenon—an offense undeserving of three Pinocchios: “significant factual error and or obvious contradictions.”

Example: Tests can backfire (Daily News 8/14/19)

Earlier this year, Mayor de Blasio launched LeadFreeNYC. Its stated mission: to eliminate childhood lead exposure by 2029. The vision zero mission is admirable: lead poisoning is a serious problem. Research has demonstrated no safe level of lead, and any pollutants actively harming a child must be tracked down and eliminated.

But the strategy outlined to accomplish this mission dangerously underestimates how difficult this task really is. It relies on mandatory blood tests to screen kids and trigger investigations, based on the assumption that New York's most vulnerable children are easily identified when every kid is tested. This is incorrect. As counterintuitive as it may seem, routine screening actually obscures which children are most at-risk.

The problem with routine screening is that laboratory tests measure the amount of lead in a child's blood with error, falsely identifying some healthy kids as sick and some sick kids as healthy. The majority of positive tests are wrong for children without symptoms or risk factors. Studies have found more than 70% of positive tests to be error. Ignoring this — as policymakers typically do — harms children in two ways...

It's important to remember that while there is nothing wrong with a law that requires every child to take a lead test, diagnosis is best left to medical professionals who can evaluate each kid on a case-by-case basis. Indeed, the Centers for Disease Control and Prevention, which sets the standard for the lead test, urges "recommending environmental assessments PRIOR to blood lead screening of children at risk for lead exposure" (their emphasis). Without this additional evidence, the mere existence of positive tests is inconclusive, unexceptional, and unworthy of public outrage.

To summarize, writing is central to any career

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