Belief Change After Reading Predicts Argumentative Essay Content

Liam Hart, Michael Wolfe, Greg Russell, and Todd Williams

Psychology Department

Grand Valley State University

Multiple Factors Determine Essay Content

Argument schema – Knowledge about what components are included in an argument

- Components: **claim**, **supporting reasons**, **counterarguments,** and **rebuttals** (C. Wolfe et al., 2009; Voss & Means, 1991)

- Claim has "slots" for **theme**, **side**, and **predicate** (Britt et al., 2008; C. Wolfe et al., 2009)

- Individual variation in schema / essay quality (C. Wolfe, 2012)

Multiple Factors Determine Essay Content

Argument schema – Knowledge about what components are included in an argument

- Components: **claim**, **supporting reasons**, **counterarguments,** and **rebuttals** (C. Wolfe et al., 2009; Voss & Means, 1991)

- Claim has "slots" for **theme**, **side**, and **predicate** (Britt et al., 2008; C. Wolfe et al., 2009)

- Individual variation in schema / essay quality (C. Wolfe, 2012)

Prior attitudes or beliefs

- May influence selection of information included in argumentative essay

- Argument schema "activates knowledge, attitudes, and beliefs relevant to the theme" (C. Wolfe, 2012)

- Beliefs and attitudes are constructed by salient information at the time of report
  - Information recently read (Anglin, 2019; M. Wolfe & Williams, 2018)

- Contributes to "side" of argument schema
  - Students with more polarized beliefs write more biased essays (Van Strien et al., 2014)

- Influences evaluation of evidence and argument quality (Kahne & Bowyer, 2017; C. Wolfe et al., 2009; M. Wolfe & Williams, 2018)

Research Questions

- Do argumentative essay contents change after reading a belief consistent vs. inconsistent text?

- After reading a belief inconsistent text, variation in belief change may emerge. Is essay content associated with belief change?

Methods

Subjects: N = 320 undergraduates

Initial beliefs: On-line prescreening

"To what extent do you believe that increased gun control will reduce gun violence in the United States?" (9-point scale)

  - Believers and disbelievers invited to participate
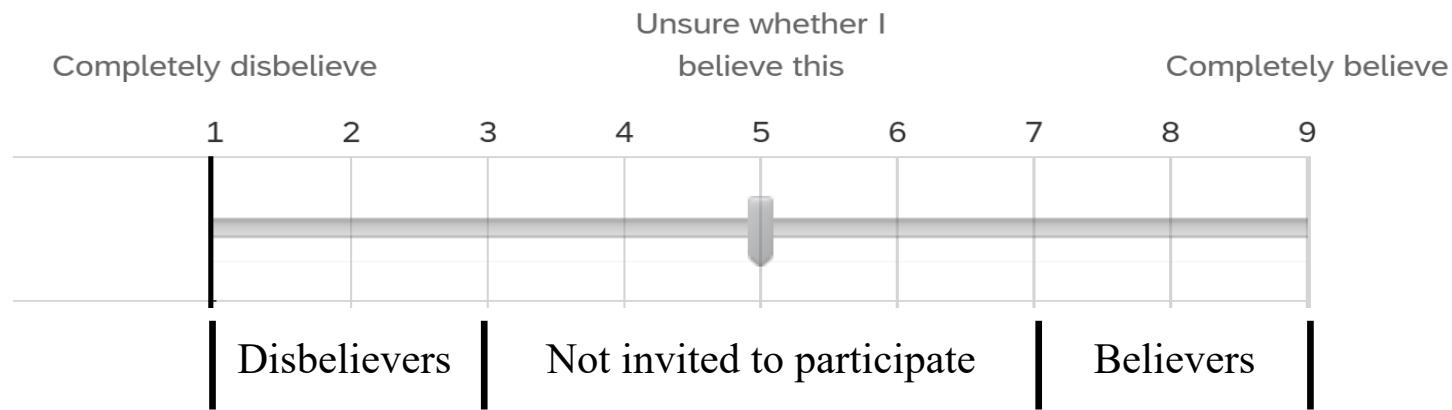
Methods

Initial gun control beliefs

	Believer	Disbeliever
Pro text	Belief Consistent	Belief <u>In</u>consistent
Con text	Belief <u>In</u>consistent	Belief Consistent

Text position

"Pro text" – Argues gun control is effective
- 2,252 words

"Con text" – Argues gun control is NOT effective
- 2,223 words

Methods

Prescreening
Survey

Experiment

Report Initial Beliefs

(1-3 month delay)

Read Belief Consistent/Inconsistent Text

Report Current Belief
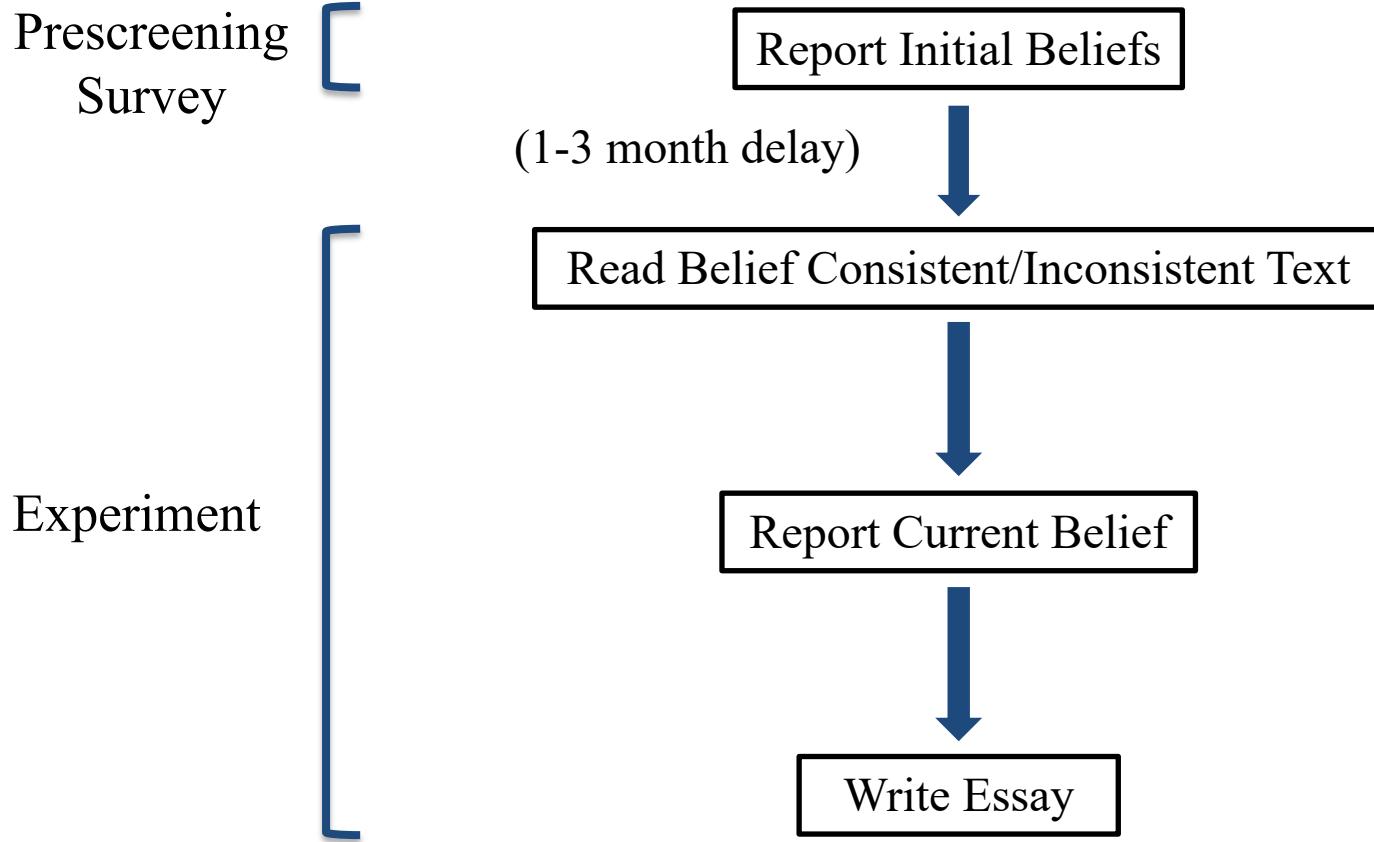
Write Essay

Essay Task

Prompt:
"Please write an argumentative essay in which you describe and explain your beliefs about the effectiveness of gun control."

Subjects could include information and/or opinions that were either in the text they read, or that they did not read.

240 – 270 words

Coding system

Coding category	Explanation
Claim	States claim that gun control is/is not effective (as specifically instructed)
# Reasons	If claim stated, how many independent reasons support the claim
Counterargument	Argument or data mentioned that is counter to stated claim
Text Content	Specific content from text is mentioned
Policy Claim	States claim that gun control policy should/should not be implemented (note this was not the task)
Statement about Belief Change	Statement that beliefs changed during experiment
Evaluative	Positive or negative evaluation statement about text

All essays were coded by two raters (Cohen's Kappa = .91)

Essay Ratings

N = 680 subjects recruited through Prolific

1. The arguments in this essay **claim that increased gun control will reduce gun violence**.
2. The author **considers both sides** of the issue.
3. The claims made in this essay are **supported by factual evidence**.
4. The claims made in this essay are **supported by personal experiences, anecdotes, or stories**.
5. The author arrives at their **conclusion based on emotion**.
6. The author **clearly articulates their position**.

Strongly disagree				Neutral				Strongly agree
1	2	3	4	5	6	7	8	9
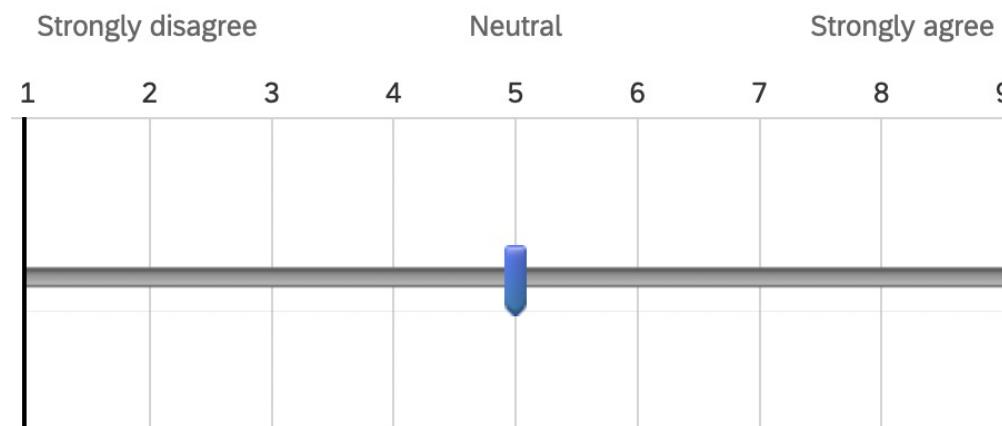
Frequency of Characteristics

	Belief Consistent	Belief Inconsistent
Claim	87%***	70%
# Reasons	1.80***	1.10
Counterargument	39%	35%
Text Content	68%***	50%
Policy Claim	61%	67%
Statement about Belief Change	4%	10%*
Evaluative	6%	21%***
Positive	(89%)	(20%)
Negative	(11%)	(74%)

* $p < .05$; *** $p < .001$

Mean Ratings of Essays

	Belief Consistent	Belief Inconsistent
Belief rating	2.76	4.56***
Consider both sides	4.63	5.07***
Supported by facts	4.96***	4.48
Experiences, stories	5.15	5.26
Emotion	5.65	5.68
Clear position	6.70***	6.26

*** $p < .001$

Belief Inconsistent Text Elicits Belief Change
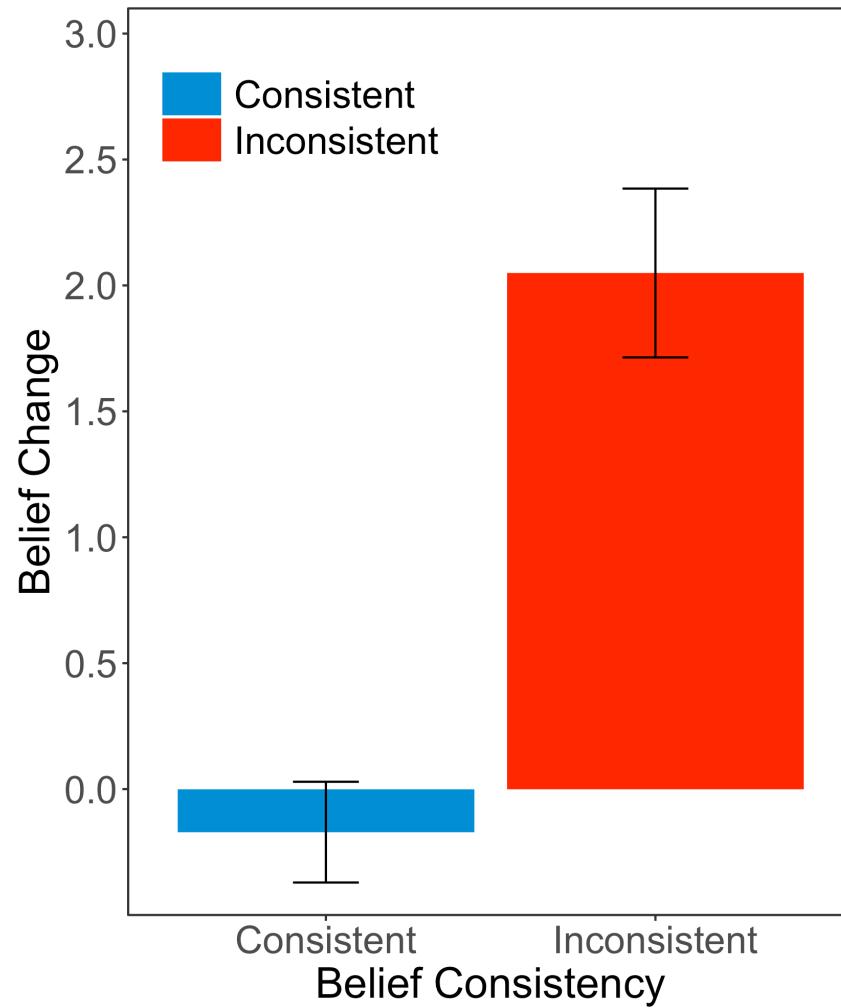
Belief Change Relationships with Essay Characteristics

	Belief Consistent	Belief Inconsistent
Claim	-0.32*	0.07
# Reasons	-0.16	0.15
Counterargument	-0.08	0
Text Content	-0.27*	.020*
Policy Claim	0.21	-0.07
Statement about Belief Change	-0.12	0.33**
Evaluative	0.10	-0.21*

$* \ p < .05; ** \ p < .01$

Positive values indicate change to more moderate beliefs.
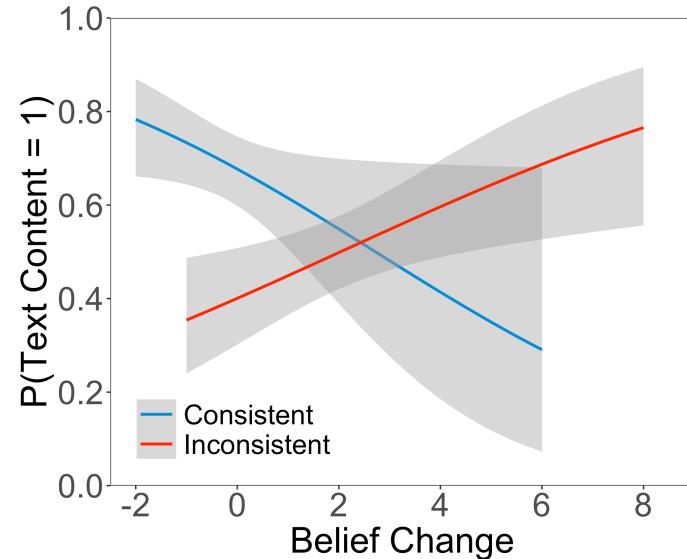
Belief Change Relationships with Essay Ratings

	Belief Consistent	Belief Inconsistent
Belief rating	0.34***	0.67***
Consider both sides	0.15*	0.05
Supported by facts	-0.18*	0.06
Experiences, stories	-0.04	-0.02
Emotion	-0.04	-0.09*
Clear position	-0.12*	-0.03

* *p* < .05 ; *** *p* < .001

Positive values indicate change to more moderate beliefs.

Discussion: Beliefs and Essay Content

Argument schema:

Claim

- Theme

- Side - belief change reflected in arguments within essays

- Predicate –

    - Belief consistent text: Claim predicate (effectiveness) more likely, "clearly articulates position" more

    - More likely when beliefs become more polarized

    - Claim predicate (policy) stated by > 60%, but <u>not</u> related to belief consistency or change. Consistent with poor memory of predicate (Britt et al., 2008). Suggests fuzzy task model (Britt et al., 2018)

Discussion: Beliefs and Essay Content

Argument schema:

Claim

Supporting reasons

- Belief consistent text: Greater # reasons / "supported by facts" more. Inclusion of text content more likely

- More reasons, text content, and "supported by facts" as beliefs change towards text position

Counterarguments

- Unrelated to belief consistency or belief change. Suggests argument schema drives counterargument inclusion more than beliefs.

Thank You!

Please email hartli@mail.gvsu.edu with any questions