Research, Student Scholarship and Beyond: My Academic Journey

Liam Hart
Department of Psychology
Grand Valley State University

Why is Research Experience Important?

Master's: unfunded, 2-3 years

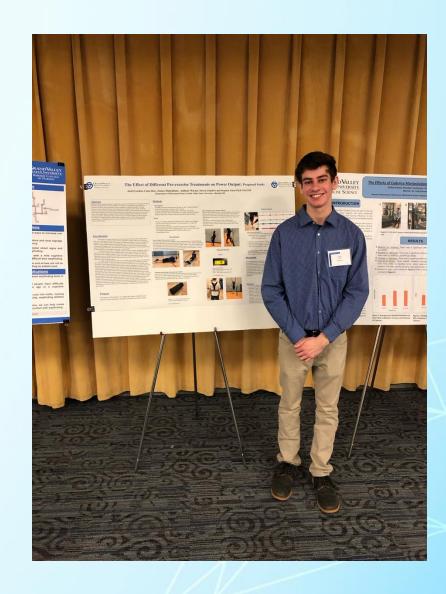
- Goal: psychology professional
 - Work experience is more important than research experience
 - Get an internship (Psychology Practicum: PSY 490)

PhD: funded, 4-6 years

- Goal: psychology researcher
 - Research experience is extremely important
 - Mentorship from faculty is invaluable

Freshman

- Professor Steven Glass's exercise science research lab
 - Measured muscle activation during exercise
 - IRB proposal, data collection, study protocols
- Found interest in psychology through YouTube videos, Ted Talks, and podcasts
 - Psychology, neuroscience, and philosophy of mind
 - Meditation and psychedelics
 - Very broad



Sophomore

- Perspectives on Aging with Professor Jing Chen
 - Wisdom
 - Meditation
 - Intermittent fasting
- PSY 499 and PSY 399
 - Work on research project for course credit
 - 1-on-1 meetings with professor and email



Art and Science of Aging Conference

First oral presentation!



COVID-19!

Meditation study ended ©

New project: Can a course on aging with a service-learning component change students' attitudes toward aging?

Junior

- Psi Chi student board
- Social Cognition Lab (Professors Michael Wolfe and Todd Williams)
 - Watched Ted Talk
 - Read their most recent article
 - Sent email indicating interest (and that I did my homework on their work)
- Professor Wolfe sent articles to read
 - McNamara and Magliano (2009)

Can Ageism be reduced by service learning built in a lecture-based aging course?

Liam Hart

Department of Psychology

Grand Valley State University



Student Summer Scholars (S3)

- Office of Undergraduate Research and Scholarship (OURS)
- \$5000 stipend to work on research during the summer
- 30 hrs/wk
- Final research paper and presentation
- Solidifies relationship with mentor(s)



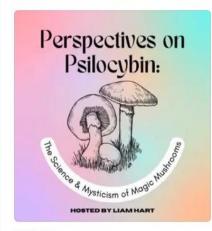




Senior

- Honors Senior Project
 - Podcast discussing research on psychedelic substances
 - Enabled by research experience
- Continued psychology research

Apple Podcasts Preview



5 episodes

Promising preliminary research on psilocybin, the active ingredient in magic mushrooms, has led to mainstream attention and acceptance. Through discussions with experts in relevant areas such as neuroscience, clinical psychology, pharmacology, and mycology, this podcast takes the listener on a journey of becoming well-informed about the research, culture, and history surrounding psilocybin.

Art by Holly Heathfield

Song: M87 - Backing Track [Creative Commons] Music provided and produced by LonePeakMusic

Perspectives on Psilocybin: The Science and Mysticism of Magic Mushrooms

0

Liam Hart

Education

**** 4.8 • 18 Ratings

Listen on Apple Podcasts 7

JAN 10, 2022

Mycologist:

In this episode, I talk with a mycologist that is a part of the "underground" psilocybin community, and the general mushroom community. As an amateur scientist, she provides a different perspective on psilocybin and it's potential uses than academics.

PLAY 59 min

JAN 10, 2022

Pharmacist: Dr. Chris Kotsones

Dr. Chris Kotsones presented a review of studies showing potential for psilocybin as a treatment for cancer patients with anxiety from a life-threatening diagnosis in a doctoral presentation while he was still in pharmacy school. We talk about current directions in the research, aspects of the experience,...

PLAY 1 hr 3 min

JAN 10, 2022

Neuroscientist: Professor Glenn Valdez

Professor Valdez was the instructor for my behavioral neuroscience course while I made this podcast. During office hours, I met with him to discuss his understanding of how psilocybin works in the brain and interpretations of the preliminary studies. We also look at the comparison of psilocybin and SSR...

PLAY 1 hr 1 min

JAN 10, 2022

Clinical Psychologist: Dr. Robin Billings

In this episode, Dr. Robin Billings gives an overview of the historical use and regulations of psilocybin both in the US and indigenous cultures. He also provides his perspective on how psilocybin can be used in the future.



Gap Year(s)

 Worked at Planet Rock Climbing Gym 	Jan 2022
Poster presentation at Midwest Psychological Association	Apr 2022
Oral presentation at Society for Text and Discourse	Jul 2022
• First authorship on manuscript published in Educational Gerontology	Jan 2023
Author on manuscript submitted to Acta Psychologica	Feb 2023
• First authorship on manuscript submitted to Instructional Science	Apr 2023
• Starting as research project coordinator at Henry Ford Health	Apr 2023
Applying to Human Factors Psychology PhD Programs	Dec 2023

MPA



Society for Text & Discourse

Belief Change After Reading Predicts Argumentative Essay Content

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

> Psychology Department Grand Valley State University





First authorship



Racial differences in attitudes toward aging, aging

knowledge, and contact >

be an effective approach used to change undergraduate students' attitudes toward aging.

Research Project Coordinator

HENRY FORD HEALTH

Key Takeaways

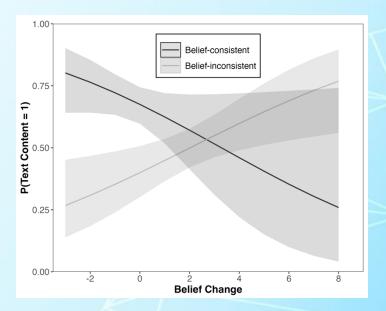
Watch Talk, Read Paper, Indicate Interest

- Want to join a research lab?
 - It is on YOU to show your worth
- GVSU is not ivy league
 - Opportunities to take a larger role in research
 - Network with faculty
- First authorship
 - Single best thing you can have on PhD application
 - Work hard on one project for a long time (~2 years)

Statistics are Important

- Essential part of research (in any discipline)
- Statistical computing and programming
 - SPSS, Jamovi, R
- Recommended classes
 - Computing and Graphics with R (STA 418)
 - Multivariate Data Analysis (STA 426)
 - Applied Regression Analysis (STA 321)

	Belief Consistent			Belief Inconsistent			Belief Consistency*Belief Change						
	Estimate	95% CI	Z/t	p	Estimate	95% CI	Z/t	p	Estimate	95% CI	Z/t	p	R^2
Claim	-0.34	[-0.65, -0.03]	-2.20	.03	0.07	[-0.09, 0.23]	0.80	.42	0.40	[0.06, 0.75]	2.32	.02	.054
# Reasons	-0.13	[-0.28, 0.02]	-1.76	.08	0.09	[0, 0.17]	1.96	.052	0.22	[0.05, 0.39]	2.52	<.01	.09
Text Content	-0.22	[-0.49, 0.03]	-1.70	.09	0.20	[0.05, 0.36]	2.61	<.01	0.42	[0.13, 0.73]	2.79	<.01	.06
Statement About Belief Change	-0.11	[-0.92, 0.46]	-0.30	.77	0.31	[0.09, 0.55]	2.66	.008	0.42	[-0.20, 1.26]	1.11	.27	.043
Evaluative	-0.01	[-0.59, 0.42]	05	.96	-0.23	[-0.44, -0.04]	-2.22	.03	-0.21	[-0.70, 0.40]	-0.77	.44	.070
Consider both sides	0.15	[0.02, 0.27]	2.26	.03	0.06	[-0.03, 0.14]	1.36	.17	09	[-0.25, 0.06]	-1.17	.24	.016
Supported by facts	-0.20	[-0.35, -0.05]	-2.58	.01	0.07	[-0.01, 0.14]	1.68	.09	.26	[0.10, -0.42]	3.17	<.01	.019



Struggling is Learning

- Try hard!
- Academic writing
 - Revise, rewrite, persevere
- Reading research articles
 - Every section is important
- Statistics
 - I dropped STA 418 and had to take it again in the summer

Narrowing Interests

- Which subfield of psychology are you interested in?
 - Clinical
 - Cognition
 - Neuroscience
 - Social
 - Developmental
 - And many more...
- Eventually you need to pick one
 - Read research articles (outside of lab/class!)
 - Specialize in an area (ie., text comprehension)

Thank You and Good Luck!

Please feel free to contact me with any questions

hartli@mail.gvsu.edu









Research is Hard, Perseverance is Key!

- Academic writing
 - Revise, rewrite, persevere 5x or more
- Reading research articles
 - Often takes me 3+ hours to read 25-page paper, still don't fully understand it
- Statistics
 - Messed up a "simple" t-test at least 5 times, drastically changing results
 - Dropped STA 418 and took again in summer (sorry Professor Bradford)
- You are still learning
 - Try hard

GVSU is not Ivy League

- Is this a disadvantage?
- Less competition
- More opportunities for
 - Faculty mentorship
 - Undergraduate research experience
 - Taking a larger role in research projects
 - Getting involved in research culture
- Networking
 - A few cold emails led to many opportunities

Becoming Involved with Research

- Engage with faculty
 - Talk to professors after class about your interests
 - Look at faculty and their research on GVSU website
- Steps to joining a research lab
 - Watch talk
 - Read paper
 - Indicate interest
- Psychology degree is what you make of it
 - Classes (statistics)
 - Research/internships

First authorship

- Gets most of the credit for a publication
- Responsible for most of the work that goes into a manuscript
 - Writing and final organization
 - Literature review
 - Involved in initial conception of experiment
- Work closely with one professor for a long time
 - Ideally, beginning to end of research project
 - Meaningfully contribute
 - Understand the study, relevant literature
 - Be able to talk about the study clearly and concisely







Outline

- My academic journey
 - Dr. Steven Glass's exercise science lab
 - Dr. Jing Chen meditation and aging research
 - Drs. Michael Wolfe and Todd Williams Social Cognition Lab
 - Student Summer Scholar (S3)
- Why is research experience important?
 - PhD vs. Masters

Student Summer Scholars (S3)

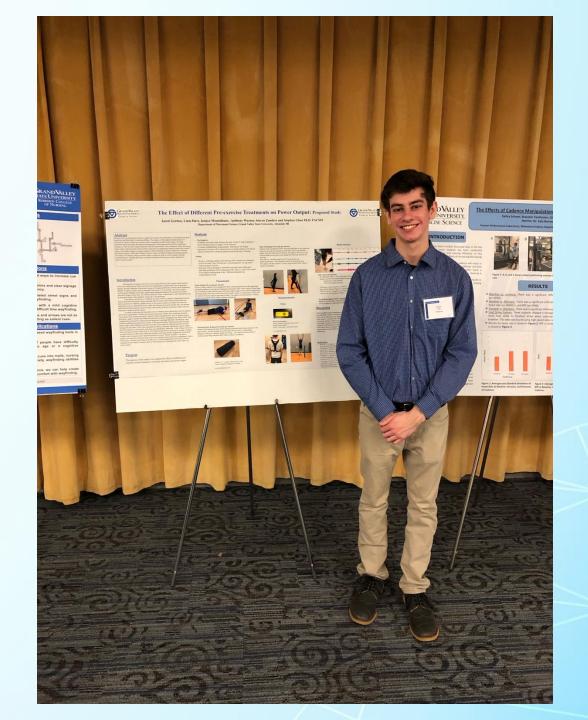






Student Scholars Day

• "The Effect of Different Pre-exercise Treatments on Power Output"



Art and Science of Aging Conference

First poster presentation!



The Effect of Mindfulness Meditation on Life Satisfaction and Self-Esteem Liam Hart Department of Psychology Grand Valley State University

simple practice to improve mental health. As a result, there is an increasing amount of research studies being conducted to determine the actual psychological effects of mindfulness.

Mindfulness meditation has many advantages over other interventions. It is cost-effective, simple to practice, and convenient; it can be practiced at virtually any time and place. The purpose of meditation is to train a specific type of attention and way of thinking, called mindfulness.

Older adults have the highest rates of health care needs of any age group. Consequently, many are prescribed a large amount of pharmaceutical drugs which has only increased over time. Mindfulness meditation offers a nonpharmacological approach to treating psychological negative affect older adults.

What is Mindfulness?

- · Mindfulness is a way of thinking
- . Originates from the teachings of Buddha and Eastern culture
- . Defined as the awareness that arises through intentionally attending to one's moment-to-moment experience in a nonjudgmental and accepting way (Shapiro et al. 2008)
- . An enhanced attention and awareness of the present moment (Brown &
- · Meditation is the practice of cultivating mindfulness
- · Simply noticing both internal and external sensations without judgement. openly noticing what is there
- · Mindfulness-based programs for stress reduction and cognitive therapy are often used in research studies and for clinical applications





Mindfulness-Based Programs ss-Based Stress Reduction (MBSR)

- . 8 weeks of weekly 2.5 hour mindfulness training sessions with one 6-
- · Sessions include body scan, meditation, and yoga
- Moderately effective at reducing depression, stress, anxiety and pain (Khoury et al. 2015)

Mindfulness-Based Cognitive Therapy (MBCT)

- 8 weeks of weekly 2.5 hour mindfulness training sessions with one 6-
- · Sessions include cognitive behavioral therapy and mindfulness
- · Effective at treating for anxiety (Helmes & Ward 2017) and · Aims to train participants to distance themselves from thoughts and
- emotions rather than being controlled by them

The cultivation of mindful awareness is the foundation for both

Benefits of Mindfulness Meditation

On Life Satisfaction and Self-Esteem in Younger Adults

There are not many studies focusing on life satisfaction and self-esteem in an aging population, so we had to generalize the results from studies on younger adults. Both MBSR and MBCT have been shown to be effective tions to improve life satisfaction and self-esteem

Mindfulness was also found to be associated with lower neuroticism and higher self-esteem, life satisfaction, optimism, and self-actualization. This supports that the cultivation of mindfulness through meditation can increase life satisfaction and self-esteem. (Brown & Ryan 2003)



life satisfaction in adolesc

with suicidal ideation (Raj

2019). Significant improve

were found in all measure

psychological constructs.

(Branstrom et al. 2011). Increases in well-being and decreases in stress and anxiety showed strong associations

ents	Comparison between per and past interestries or Orientation, Department and Society Stretter.								
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et al.		Non	-	Men					
ments	Life Sandardine	108	140	2.4					
4	S.B. Orestolea	130	1.00	2.4					
	Treproces	1670	126	1000					

On Anxiety, Depression, and Loneliness in Older Adults

Although there is limited research on the effects of meditation in older adults, especially in regard to life satisfaction and self-esteem, there are studies on psychological effects, Arviety, depression, and loneliness are negatively correlated with measures of life satisfaction and self-esteem (Heady et al. 1993) (Pyszczynski et al. 2004) (Doyle & Forehand 1984).

symptoms for 52 older adults in residential care (Helmes & Ward 2017).

In a meta-analysis of mindfulness-based programs, MBCT was moderately effective in reducing depression in older people. MBSR was also found to reduce symptoms of worry, aroxiety, stress, and chronic lower back pain

MBSR showed a significant decrease in loneliness for 40 older adults. Proinflammatory genes, which are increased in lonely adults and play a major role in the development of late-life diseases, were also shown to be downregulated as a result of the meditation program (Creswell et al. 2012).

Factors That Contribute to Life-Satisfaction and Self-esteem

Fredrickson et al. (2018) found that positive emotions increased with minutes of meditation per day in 339 middle-aged adults practicing mindfulness meditation and loving-kindness meditation. In-the-moment positive emotions have been shown to increase life satisfaction (Cohn et al. 2009).

Significant increase in hippocampus unlume Scanned two weeks after MBSR intervention (Hozel et al. 2011). The hippocampus regulates emotions and depressed individuals hippocampal volume (Videbech &



Proposed Study: The Effect of Mindfulness Meditation on Life Satisfaction and Self-Esteem in Retirement Home Residents

· Limited studies on the effect of meditation in an aged population

Less intensive and more accessible to retirement home residents than MBSR and MBCT

Participants: Residents at Lincoln Square Independent Living Center

- · Satisfaction With Life Scale (SWLS)
- · Rosenberg Self-Esteem Scale (RSES)
- . Mini-Mental Status Exam (MMSE): Participants with similar scores on the MMSE will be paired then randomly assigned to the experimental or control

- . Experimental group meets for 8 weeks with 3 weekly session consisting of
- a 10-minute guided meditation Daily meditation will be encouraged
- . Control group will be told they are on a waitlist to receive the intervention at

Post-test

- . Life satisfaction and self-esteem will be measured again at the end of the intervention with the SWLS and RSES
- . Intervention group responses on pre- and post-tests will be compared to
- examine for significant changes in life-satisfaction and self-esteen . Score differences will also be compared from the intervention group to the

Implications of Pilot Study

- · Adds to the growing research on mindfulness-based interventions
- Assess the effectiveness of a less intensive mindfulness program than MRSR and MRCT
- Experimental design to determine cause and effect relationship of meditation on life satisfaction and self-esteem, not correlational
- Quick guided meditation sessions could be a convenient, non that have anxiety, depression, or low self-esteem
- · Potential to be implemented in any retirement home without much difficulty

Future Studies

- · Need for active control groups that receive clinical treatment
- More long term studies most data is taken within 3 months (Chiesa &
- Larger sample sizes most studies have small samples (n=~40)
- . Long-term follow up assessments to examine whether the effects are
- · Samples of experienced meditators
- Different types of meditation Zen, loving-kindness, transcendental, and mindfulness are only a few of the many meditation techniques

Contact Information

MPA

Information about Past Beliefs Influences Current Beliefs

Liam Hart, Greg Russell, Michael Wolfe and Todd Williams

INTRODUCTION

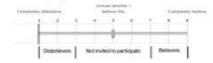
Research suggests easily available information in memory influences judgments about our selves. Examples: attitudes (Schwarz, 2007), and metacognitive judgments (Benjamin & Bjork, 1998). We propose that beliefs are similarly constructed in context and influenced by salient information. We test this hypothesis by examining whether knowledge of prior beliefs influences current beliefs following belief change.

Research Questions:

- Will we elicit belief change on a contentious topic (gun control)?
- When verifying initial beliefs, will subjects distinguish accurate from false initial beliefs?
- 3. Will verification of initial beliefs influence reporting of current beliefs?

METHODS

- N = 324 undergraduate students
- · Initial beliefs assessed during on-line prescreening:
- "To what extent do you believe that increased gun control will reduce gun violence in the United States?" (9-point scale)



Materials:

"Pro text" - argues gun control is effective.
"Con text" - argues gun control is not effective.

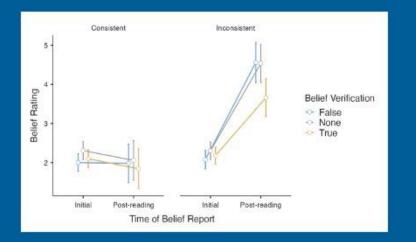
Design: Reading belief consistent / inconsistent text

Initial subject gun control beliefs Believer Disbeliever Pro Belief Belief text Consistent Inconsistent position Con Belief Belief Consistent text Inconsistent

Belief verification: After reading, participants verified true or false information about past beliefs, or did not verify past beliefs.

Beliefs can be swayed by reading belief inconsistent information

Reminders of previous beliefs moderate current beliefs







RESULTS

The belief verification task was effective

- 82% verified false initial beliefs to be true
- · 91% verified true initial beliefs to be true

Influence of consistency and feedback on belief change

- Reading a belief inconsistent text resulted in belief change.
- Verifying true information about initial beliefs led to less belief change than verifying false information, or not verifying.
- No difference in belief change between verifying false information about initial beliefs and not verifying

DISCUSSION

- Reading a belief inconsistent text leads to more moderate beliefs – even on a contentious topic like gun control effectiveness
- Subjects were not accurate in distinguishing true from false initial beliefs, suggesting poor awareness of belief change.
 - 82% verified false beliefs to be true
- Verifying true information about past beliefs led to less belief change than other information conditions
- Verifying false information about past beliefs did not affect belief change, however it was also unnoticed
- Ratings of the argumentative essays were collected from a separate pool of subjects, which will serve as a convergent measure for beliefs
 - Analyses ongoing

REFERENCES

Benjamin, A. S., Bjork, R. A., & Schwartz, B. L. (1998). The Mismeasure of Memory: When retrieval fluency is misleading as a metamoromic index. Journal of Experimental Psychology: Georgia, 127(1), 35–68. https://doi.org/10.1037/0996-3445.127.1.55
Schwarz, N. (2007). Attitude construction: Evaluation in context. Social Cognition, 25(5), 638–656. https://doi.org/10.1521/asecs.2007.25.5.618

Beyond





Worked at Planet Rock Climbing Gym	Jan 2022
Poster presentation at Midwest Psychological Association	Apr 2022
 Oral presentation at Society for Text and Discourse 	Jul 2022
• First authorship on manuscript published in Educational Gerontology	Jan 2023
Author on manuscript submitted to Acta Psychologica	Feb 2023
• First authorship on manuscript submitted to Instructional Science	Apr 2023
• Starting as research project coordinator at Henry Ford Health	Apr 2023

The Research Process

- Hypothesis
- Study design
- Collecting data
- Cleaning and analyzing data
- Presenting results at conferences
- Writing manuscript
- Submission to academic journals (peer review)
- Publication!

Formulation of hypothesis

- Formulation of hypothesis
 - Usually after a literature review (but sometimes before)
 - Professors are experts of a specific area
 - For example, text comprehension
 - As an undergrad or grad student, you've got some reading to do
 - Pick the area you want to become an expert in

Study design

- Experimental conditions
- Materials (can involve lots of writing and/or programming)
- Measurement
- Procedure

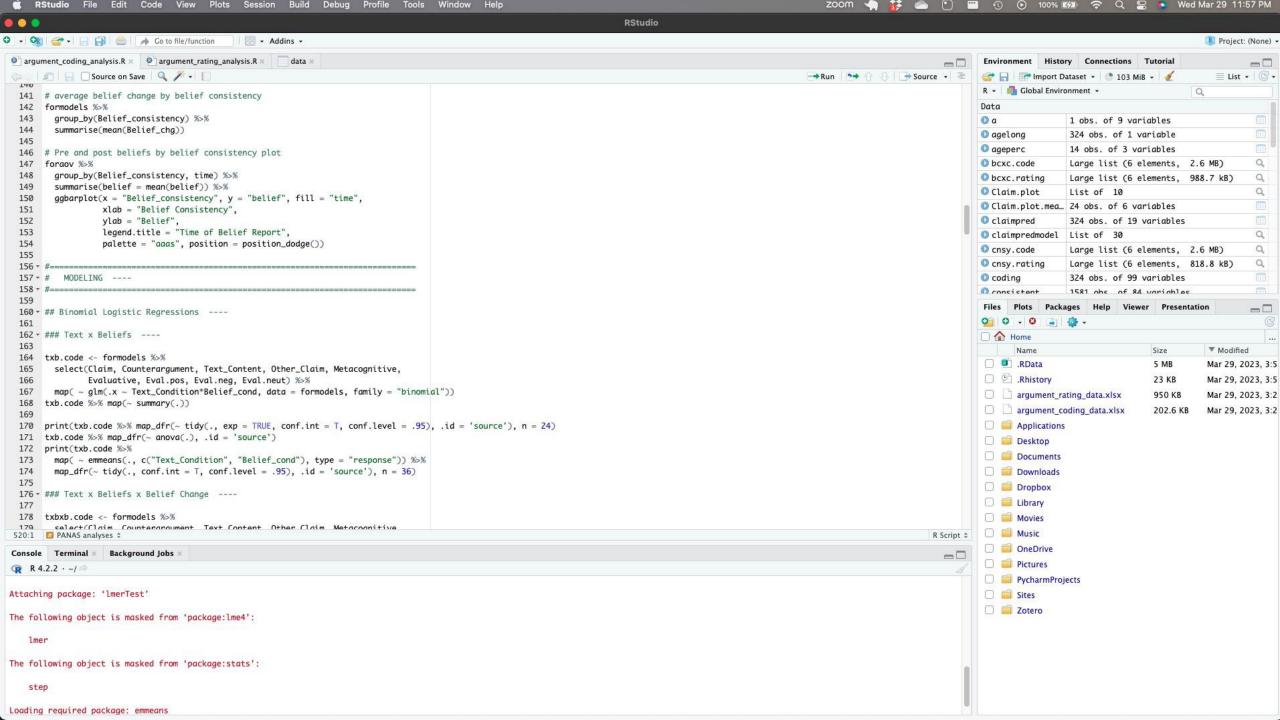
Collecting data

- Obtain IRB approval for study
- Lots of logistics, planning, and organization
- In psychology, PSY 101 students are usually the subject pool
 - Otherwise, some incentive must be given for subjects (\$\$\$)

Clean and Analyze Data

- Cleaning and analyzing data using statistical software
 - Excel, SPSS, R, Python, Jamovi
- Technical and important "hard" skill
- Statistics are used for research in ALL disciplines
- Academia likes RStudio







LIAM HART

Hello!

I am an experimental psychologist living in Macomb, Michigan. I will be applying to psychology PhD programs in the fall. I am currently working with Drs. Michael Wolfe and Todd Williams investigating beliefs under the hypothesis that beliefs are constructed using salient information at the time of report.

Outside of academics, I am an avid rock climber - the two places I spend the most time at are the climbing gym and at my desk, typing away on my computer. Check out my podcast "Perspectives on Psilocybin: The Science and Mysticism of Magic Mushrooms" on any streaming service.

Interests

- Metacognition
- Attention
- Learning

Education

B.S. (Hons) in Psychology, 2018-2021

Grand Valley State University, Allendale, MI









Presentations

July 22, 2022

Belief Change Predicts Argumentative Essay Content After Reading



April 13, 2021

Can Ageism Be Reduced by Service Learning Built in a Lecture-Based Aging Course?



Feb. 26, 2020

Proposed Study (Discontinued because of COVID-19): Effect of Mindfulness Meditation on Life Satisfaction and Self-Esteem in Retirement Home Residents



LIAM HART RESENTATIONS CV PODCAST O

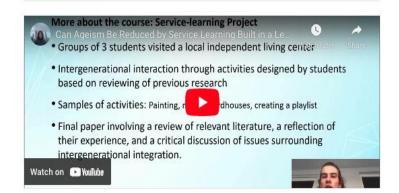
Can Ageism Be Reduced by Service Learning Built in a Lecture-Based Aging Course?

I gave a talk at the 25th annual Student Scholars Day at Grand Valley State University in Allendale, Michigan. I present preliminary evidence on an ongoing study that found a significant decrease in ageism in college students following a lecture-based psychology course on aging that included a service-learning project.

Abstract

Ageism, or prejudicial attitudes about individuals based on age, is pervasive in society. Theories such as terror management theory, social identity theory, and stereotype embodiment theory have been used to explain what may give rise to ageism. Research also suggests that education about aging and reciprocal intergenerational interactions can reduce ageism and a combination of these two could be most effective. The present study investigated whether college student's perception of old age can be influenced by taking a psychology class on aging, a lecture and discussion-based course with a project that requires students to participate in activities with residents at a local retirement home. The Fraboni Scale of Ageism (FSA) was administered to the students at the beginning and end of the course. The results showed a significant reduction in the overall score and two out of three subscales of FSA (stereotype and separation but not affective attitudes).

Talk



Dissemination of Findings (part 1)

- Presenting results at conferences
 - Abstract
 - Poster
 - Slideshow for a talk
- Conference presentations are like a rough draft of a manuscript
 - Summarizes findings
 - May not be as fleshed out as the final product (ie., title change)
 - Sometimes don't even make it to the publication stage

Dissemination of Findings (part 2)

- Writing and submission of the manuscript
 - The most difficult and tedious part (in my opinion)
 - Like writing a research paper for class but it has to be 100% perfect
- APA format
- Cover letter to the editor
- Anonymous and non-anonymous copies
- Peer review takes a long time
 - \sim 2 months after submission, then 2 months to revise...
 - Took 6 months to publish
- Then, hopefully publication!

PhD vs. Master's

- PhD trains you to be a researcher (funded, 3-7 years)
- Master's trains you to apply knowledge in a job (unfunded, 1-3 years)
- IF GOAL IS TO GET A WELL-PAYING JOB QUICKLY
 - Master's
 - Get an internship
 - Work experience is more important than research experience
- IF GOAL IS RESEARCH
 - PhD
 - Undergraduate research experience is extremely important
 - Mentorship from faculty is invaluable

THANK YOU!

Please feel free to contact me with any questions

hartli@mail.gvsu.edu