

2022 Academic Journal



LEE  UNIVERSITY
MCNAIR SCHOLARS PROGRAM

Table of Contents

- 6 Kevin Ung, Director of McNair Scholar's Program
Introduction

ARTICLES

- 8 ***No Significant Difference Found in the Application Method of Eprinomectin on Angus Cattle in Southeast Tennessee.***
Moriah Auker, *McNair Scholar*
Sherry Kasper, Ph.D., *Faculty Mentor*
- 13 ***Impact of Protective Gear on Dynamic Balance Mobility, and Motor Control in Firefighters Using the Y-Balance Test***
James Bernedo, *McNair Scholar*
Mikael Iosia, Ph.D., *Faculty Mentor*
- 21 ***Differences in Monthly Activity Contribute to the Maintenance of Jumping Spider Biodiversity***
Sarah Bertram, *McNair Scholar*
Thaddeus McRae, Ph.D., *Faculty Mentor*
- 42 ***Comparison of Archaic and Woodland/Early Prehistoric Lithics and Resources***
Michael Dillinger, *McNair Scholar*
Richard Jones, Ph.D., *Faculty Mentor*
- 77 ***Mind and Memory***
Valerie Emmert, *McNair Scholar*
Ashley Mulligan, *Faculty Mentor*
- 86 ***Music Therapy and Reduction of Test Anxiety in Nursing School Students***
Kylie Estrada, *McNair Scholar*
Samantha Spinks, Ph.D., and Matthew Adams, *Faculty Mentor*
- 103 ***The Role of School Based-Speech Language Pathologists in Supporting At-Risk Students with Communication Disorders***
Jenna Franklin, *McNair Scholar*
La-Juan Bradford, Ed.D., *Faculty Mentor*
- 134 ***Impact of Integration: Analysis on the Impact of Decision-Making Skills when Integrating Literacy with Robotics in Grades 3-5***
Ashley Gross, *McNair Scholar*
Deborah Rosenow, Ed.D., *Faculty Mentor*
- 153 ***Research and Design of a Quartz Tuning Fork Based Atomic Force Microscope Utilzing 3D Printing and Linked Raspberry Pi Controllers***
D.W. Hall, *McNair Scholar*
David Harkins, Ph.D., *Faculty Mentor*

- 165 ***Anomaly Detection of Extrusion-Based Additive Manufacturing***
Blake Harris, *McNair Scholar*
Monique McClain, Ph.D., *Faculty Mentor*
- 171 ***Du Bois, Double-consciousness, and the Hate U Give***
Maia Hines, *McNair Scholar*
Donna Summerlin, Ph.D., *Faculty Mentor*
- 187 ***Victims and Survivors: Framing of Human Trafficking in Popular Culture***
Ava LaBoy, *McNair Scholar*
Ruthie Wienk, Ph.D., *Faculty Mentor*
- 211 ***Pluviophilia, and Other Foundational Childhood Experiences***
Elliott Lay, *McNair Scholar*
Will Woolfitt, Ph.D., *Faculty Mentor*
- 240 ***Self Efficacy & The Role of Paternal Involvement***
Jada Ledgister, *McNair Scholar*
Bryan Poole, Ph.D., *Faculty Mentor*
- 254 ***Wives Who Stay: A Grounded Theory Study on Infidelity***
Gillian Little, *McNair Scholar*, and Nichole Sandell, *McNair Scholar*
Julie Gardenhire, Ph.D., and Kirstee Williams, Ph.D., *Faculty Mentors*
- 282 ***Daughter Zion as Holy Space: A Pentecostal Reading of Lamentations 1 and 2***
Blake Long, *McNair Scholar*
Justin Walker, Ph.D., *Faculty Mentor*
- 304 ***Spiritual Assessment Use in Physical Therapy Practice***
Viktoriya Marushka, *McNair Scholar*
Pamela Hobbs, D.PT., *Faculty Mentor*
- 320 ***Testing Zoom's Best Practices on a Live Zoom Meeting***
Ariana Medina, *McNair Scholar*
Andrea Phillips, Ph.D., *Faculty Mentor*
- 335 ***Anne Boleyn and the English Reformation***
Cassandra Olson, *McNair Scholar*
Randy Wood, Ph.D., *Faculty Mentor*
- 349 ***Wives Who Stay: A Grounded Theory Study on Infidelity***
Nichole Sandell, *McNair Scholar*, and Gillian Little, *McNair Scholar*
Julie Gardenhire, Ph.D., and Kirstee Williams, Ph.D., *Faculty Mentors*
- 377 ***Lose the War, Win the Peace: American Democratic State-building in Occupied Japan, 1945-52***
Lake Preston-Self, *McNair Scholar*
Jason Ward, Ph.D., *Faculty Mentor*

- 423 ***Women Gun Use and Ownership: “It’s Not About Pink, It’s About YOU”***
Madilyn Voiles, *McNair Scholar*
Ruthie Wienk, Ph.D., *Faculty Mentor*
- 438 ***Finding a Faster Algorithm for Computing the Genus of a Cayley Graph***
Jessica Williams, *McNair Scholar*
Jason Schmurr, Ph.D., *Faculty Mentor*

Introduction

The Ronald E. McNair Post-Baccalaureate Achievement Program is one of eight federally funded TRIO programs designed to support first-generation, income-eligible students towards scholastic achievement. The McNair grant specifically prepares students for doctoral studies through involvement in faculty-guided, undergraduate research and other scholarly activities. As the Program Director at Lee University, it is an honor and privilege to serve these scholars as they navigate through their academic aspirations, graduate school opportunities, and vocational calling. This journal is a representation of the scholars' unwavering commitment, focused dedication, and unrelenting pursuit of scholarly excellence. We honor their amazing work by publishing and publicizing their research studies for broad dissemination for the academic community. Many of the works you see in this journal have been presented at regional and national conferences, with some receiving distinguished awards in their fields.

With every program milestone, success is improbable without the support and advocacy of several key contributors. Through their tireless efforts, the program staff and scholars have enjoyed stability and continuity. I would like to recognize the support of President Dr. Mark Walker, and the executive cabinet for continuing Lee's mission to intentionally serve TRIO-eligible students. I want to acknowledge University Provost Dr. Debbie Murray for her faithful dedication and advocacy towards undergraduate research with committed faculty mentors. The Director of Grants, Vanessa Hammond, casted the vision for the McNair Program at Lee over six years ago and remains an avid supporter every year. I want to extend my gratitude to the McNair Advisory Council members: Dr. Michaelia Black, Dr. Jonathan Cornett, Dr. Joe Daft, Dr. Debra Gladden, Dr. Racheal Lawler, and Dr. Ruthie Wienk.

I want to thank each faculty mentor for their dedication to our scholars through the research development, planning, and execution of their studies; the scholars' work appropriately recognizes these faculty mentors' contribution by bearing their names. Broadly, I would like to recognize the Council for Opportunities in Education's (COE) ongoing advocacy in Washington for access and equity on behalf of all TRIO Programs. I want to extend my appreciation to McNair Association of Professionals (MAP) colleagues around the country for their collective assistance in developing best

practices and finding innovative solutions to serve scholars. While we are small in numbers, there is great strength in the McNair community!

McNair Scholars, this journal is a testament of your hard work over the last year. In those moments when you felt like you were unable to continue further, let this journal be a reminder of your grit and tenacity to overcome any academic obstacles you may encounter now and in graduate school. When doubt creeps in and imposter syndrome is overwhelming, let this be a reminder of your proven success. I hope this inspires you when you feel discouraged or have a momentary setback. You have a lifetime supporter and advocate in the McNair team. We pray the Lord will continue to keep you and bless you in your current and future endeavors.

Grace and Peace,

A handwritten signature in black ink, appearing to read "Kevin Ung". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Dr. Kevin Ung

PI/Director, TRIO McNair Scholars Program

Director, Office of Undergraduate Research & Scholarship

Lee University

Volume 5

Article 1

Summer 2022

No Significant Difference Found in the Application Method of Eprinomectin on Angus Cattle in Southeast Tennessee.

Moriah Auker

Lee University

Under the guidance of Sherry Kasper, Ph.D.

Introduction

Veterinarians and other professionals interested in anthelmintic response in cattle have conducted trials over the years, testing the efficacy and resistance rates of various deworming products on the market. Concerned for the economic loss and performance decline caused by gastro-intestinal nematodes (GIN), producers have misused anthelmintic treatments, contributing to the resistance issues observed today. As anthelmintic resistance in cattle rises globally, veterinary professionals are making stronger efforts to understand the increasing resistance and work with producers to establish deworming management protocols that will significantly reduce the rate of increasing resistance while offering producers the most efficient, economical products for their herd. One contribution to managing anthelmintics is experimentation. Regularly evaluating product performance provides veterinarians and producers with current efficacy assessments, informing their approach to anthelmintic management.

LongRange and Eprinex are Eprinomectin products used to deworm cattle. Eprinomectin is a macrocyclic lactone, or endectocide, of the avermectin family that is a veterinary parasiticide used to control nematode and arthropod infestation of livestock.¹ Avermectins are known for their application ease and convenient use given their low toxicity, making them a popular option for deworming. As a result of poor management of treatment procedures and administering incorrect dosages, GIN have started to show resistance in cattle. Despite showing beginning signs of resistance, Eprinomectin still leads the market as an effective anthelmintic. Without considering a comparative evaluation of Eprinex and LongRange efficacy rates, there are advantages and disadvantages to each. With a transdermal pour-on application, Eprinex is less invasive to the animal than an injection. Having been on the market for longer than LongRange, Eprinex advertises a success rate of up to 99.9% GIN elimination; however, it does not give a protection period for managing GIN in the animal, except in the case of horn flies and lungworms which it protects against for seven and twenty-one days, respectively.²

Methods

For animals to be included in the study, they were required to be in good health (established by the veterinarian overseeing the study) and old enough for anthelmintic treatment to be safe. No animals in the herd were symptomatic for GIN infection, characterized by increased appetite, poor body conditioning, loss of weight, and diarrhea. The LongRange sample group (n=7) were sampled then immediately administered an appropriate dose of the treatment (1mL/110lb). The same was done for the Eprinex group (n=7), each cow sampled and treated according to the recommended dosage (1mL/22lb). A control group (n=6) was sampled at the same time the other groups were sampled and treated.

Fecal samples from each animal were collected via grab sampling through rectal palpation. Fitted with a sleeve-length plastic glove, the handler's hand was gently inserted into the rectum where a small handful of feces was collected. Using rectal palpation for fecal sampling provides a non-contaminated sample and makes an efficient use of the researcher's time, eliminating time that would be spent waiting for the target animal to defecate. In addition,

¹ Floate, Kevin D. (2006). *Endectocide use in cattle and fecal residues: environmental effects in Canada*. Can J Vet Res 70,1. 1-10.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1325088/#:~:text=Endectocides%2C%20or%20macrocyclic%20lactones%2C%20are,species%20that%20accelerate%20dung%20degradation.>

² *Eprinex Pour-On for Beef and Dairy Cattle*. Boehringer Ingelheim Animal Health USA Inc.

sampling occurs when the animal is properly restrained in a squeeze chute, ensuring the process is safe for all participants involved. When the sample is retrieved, the animal is immediately released, offering a rapid procedure and relatively stress-free experience.

To establish a parasitic egg count, two grams of feces were measured within 0.1g, mixed with 30mL of a sodium nitrate fecal solution, and allowed to set for five minutes. The fecal solution was then strained into a clean beaker with a cheesecloth material to sift out undigested plant fibers that would otherwise obscure a clear microscopic reading. This strained solution was immediately pipetted into both chambers of the McMaster slide and set aside for an additional five minutes to allow GIN eggs in the solution to adhere to the top of the slide. Both grids on the McMaster slide were read under 10X magnification and completed within an hour of filling the slide to prevent a compromised reading from crystal formation caused by evaporation of the fecal solution.

Results

Results from the initial assessment of GIN presence included an average FEC of 493 eggs per gram (EPG). Upon resampling, EPG results showed slight change from the initial analysis with an average FEC of 570 EPG, but a significant change when examined by group. As expected, the control group had a higher level of GIN in the second sample than the first, while when analyzing the test groups, both demonstrated a significant decrease in EPG (Figure 1). It was noted that while types of nematodes were not considered for analysis, a qualitative assessment was made. The initial analysis featured a majority of *Trichuris* and *Strongylid* nematode eggs that were co-infected with coccidia oocysts. Conversely, few coccidia oocysts appeared in the second sample, accompanied by nematode eggs resembling *Toxocara*. *Trichuris* and *Strongylid* did not appear in the second sample. The percent difference between groups notes the change between two variables where the direction of change is unknown. As seen in Figure 2, the control experienced a significant percent increase in GIN while both treatment groups experienced a similar percent reduction of GIN.

Discussion

Results from the study demonstrate an ideal response to anthelmintic treatment. Dramatic increase in control EPG signifies heightened GIN activity over the sample interval of eight weeks. This is consistent with the known seasonal changes in nematode activity level. In the spring, worm population is highest in the pasture whereas during the summer, internal infestation rises while ground population plummets. Young cattle who have not previously been exposed to internal parasites and older cattle whose immune response has declined are most at risk for developing clinical symptoms. This pattern emerged in the FECs. Younger animals maintained a higher FEC than the older animals, though these results are not dramatic enough to qualify as clinical cases of infection. As the summer progresses and infestation increases, the most susceptible in the population can begin to show signs of infestation that include but are not limited to increased appetite, loss of weight, and poor body conditioning.

To establish an appropriate sample size that would produce viable results for analysis, we used an analysis of variance (ANOVA) test where the number of animals needed to produce significant results “E”=total number of animals minus the total number of groups. It is preferred that “E” be between ten and twenty to have an adequate sample size. When $E < 10$, there are not enough animals studied to produce meaningful data whereas when $E > 20$, the sample size is

determined unnecessarily large.³ Animals in the study were equally and randomly distributed to the three sample groups. With GIN showing an increasing resistance response to many anthelmintic products, regularly testing the efficacy of these products is necessary to combat further contributions to increased resistance.

It was proposed that cattle treated with LongRange would demonstrate a greater percent difference EPG on the second sample because administration uses an injection route rather than pour-on. A pour-on method would be subject to herd behavior (such as animals grooming each other or rolling on their backs) and weather conditions where rain would wash a portion of the dose off the animal before an appropriate amount had been absorbed into the body. With an injectable application method, the entire dose is guaranteed to enter the animal and thus has fewer variables preventing product efficiency. We did not find LongRange to be the better anthelmintic option, however, as both LongRange and Eprinex had comparable EPG reduction when compared to the control. This could suggest that the pour-on method of application, when properly managed, is as reliable and efficient as the injectable. For some producers, variables that influence the type of treatment are specific to a certain operation. For example, if the premises have no access to proper restraint systems such as a squeeze chute, a pour-on option may be the safest option for handlers. It can be sprayed from a distance or along the dorsal midline of a moving target, variables that must be resolved when using an injectable. A transdermal pour-on will also be more difficult to over or underdose as the solution is less concentrated than the injectable.

Several factors contribute GIN infestation that were not included in this study. The eight-week testing period was selected to ensure all parasites accounted for in the first sample were eliminated from the herd and thus would not be present in the second sample. From the second sample, we could then assess how quickly and to what extent internal parasite activity reappeared. The turnover rate, or time it takes for GIN numbers to return to pre-treatment values, is three-months. By this date, we can generally expect animals to need another round of treatment or, if late in the season, forego treatment due to nematode ground populations going dormant for the winter season.⁴

The Fecal Egg Count Reduction Test (FECRT) has been used for decades to evaluate an anthelmintic drug's efficacy rate, establishing the presence of gastrointestinal parasite resistance, and tracking the corresponding rate of progression for resistance. For cattle and other ruminants, the Modified McMaster Procedure⁵ is used to prepare fecal samples for analysis. Ruminant fecals require an additional preparation step to separate indigestible fibers from the solution, otherwise transferal of the solution to the McMaster slide is difficult and the fiber particles obscure microscopic evaluation of the solution containing nematode eggs. To strain the solution, any cheesecloth-like material will work, if the strained solution has no visible debris.

Graphs

³ Charan, Jaykaran and N.D. Kantharia. (2013). "How to calculate sample size in animal studies?" J Pharmacol Pharmacother 4,4: 303-306. [10.4103/0976-500X.119726](https://doi.org/10.4103/0976-500X.119726).

⁴ Kennedy, Murray. (2004). "Intestinal Roundworms of Cattle." Agdex 655,9. <https://open.alberta.ca/dataset/e4eda94f-a721-4fcd-9996-29455a90265a/resource/c2279714-35af-4fba-a291-0389af747920/download/2004-655-9.pdf>.

⁵ We followed the Modified McMaster Procedure as provided by veterinary researchers at the University of Rhode Island and Virginia Tech.

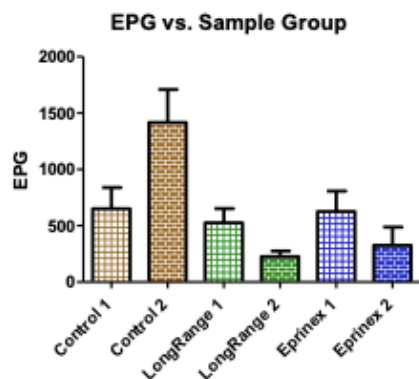


Figure 1. Comparative view of EPG results from all three groups during each sample. The control shows an increase twice as high in the second analysis as the first. Both treatment groups demonstrate a significant reduction of GIN between the first and second sample.

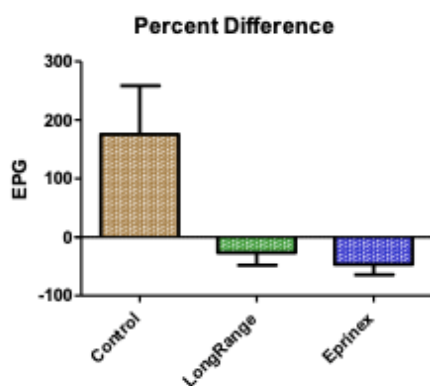


Figure 2. Graph depicts the percent difference in EPG from its respective group. The control shows a significant percent increase from the original sample and both treatment groups depict a percent decrease from the original.

Volume 5

Article 2

Summer 2022

Impact of Protective Gear on Dynamic Balance Mobility, and Motor Control in Firefighters Using the Y-Balance Test

James Bernedo

Lee University

Under the guidance Mike Iosia, Ph.D.

ABSTRACT:

Objective: The purpose of this study was to measure the impact of personal protective ensembles/bunker gear (PPE) and self-contained breathing apparatus (SCBA) on firefighters' upper body dynamic balance and motor control using the Y-Balance Test (YBT). **Methods:** Dynamic balance was measured using the upper-body Y-balance test. Fourteen firefighters were recruited for the study from the local municipal fire department (13 M, 1 F) participated in the study. Upper body composite reach scores were measured on each side (RC, LC) on three separate occasions, wearing workout gear (PT), Bunker gear (PPE), and Bunker gear and SCBA (PPE + SCBA). SPSS was used to identify statistical differences using paired sample t-tests. **Results:** There was a statistically significant decrease ($p < 0.001$) on both right and left upper body composite scores respectively, between PT (94.58 ± 9.30) and SCBA (82.42 ± 10.01), as well as PPE (92.91 ± 9.13) and SCBA (82.42 ± 10.01). On the left PT (95.96 ± 8.81) and SCBA (84.68 ± 9.37), as well as between PPE (94.54 ± 9.92) and SCBA (84.68 ± 9.37). **Conclusion:** Data from the study indicates that the SCBA had the greatest impact on upper body Y-Balance scores. The average decrease in statistically significant data on right side was 12.16% (PT vs SCBA) and 10.49% (PPE vs PPE + SCBA) and on the left 11.28% (PT vs SCBA) and 9.86% (PPE vs PPE + SCBA). Decreases in dynamic balance in the upper body can be attributed to the self-contained breathing apparatus (SCBA) that firefighters wear. Firefighter command structures may wish to take into consideration the impact of upper body reach balance and stability when training with the SCBA.

Introduction:

The job requirements of a firefighter include tasks that could bring harm to the individual performing them. According to the International Association of Fire Fighters (IAFF, 2020) the tasks of structural firefighters include but is not limited to hose line operations, extensive crawling, lifting and carrying heavy objects, ladder climbing, ventilating rods or walls using power or hand tools for forcible entry while wearing approximately 22.6 kg or more of personal protective ensembles (PPE) or bunker gear and self-contained breathing apparatus (SCBA). Any injury that may occur to a firefighter is detrimental as it can impede an individual's ability to perform the tasks mentioned above. In 2020, Campbell and Evarts (2020) conducted a survey for the National Fire Protection Association (NFPA) and reported that over 40% of the injuries that occurred on the fireground could be accounted for by strains, sprains, and muscular pains.

The Y-balance test (YBT) is an assessment that aims at measuring quadrant "strength, flexibility, core control, and proprioception at the limit of the client's stability" and upper quadrant "shoulder girdle and core stability, as well as adequate shoulder and

thoracic mobility in a closed kinetic chain” (Cook and Plisky, 2015). Gorman et al (2012) conducted a study which reported reliability and validity of the YBT upper-quarter (YBT-UQ) as an appropriate tool to be used as a clinical measurement of upper body performance. Not only has the YBT been shown to be a reliable performance test for upper and lower body (Plisky, Schwartkopf-Phifer, Huebner, Garner, & Bullock, 2021), but it has also been shown to have the potential to identify elevated risk of injuries in different populations. For example, Smith et al (2015) found that D1 athletes that had an anterior asymmetry >4 cm was more at risk for non-contact injuries than individuals who had less asymmetry. Additionally, Cosio-Lima et al (2016) reported incidence of injury into different strata based off the YBT composite score. They found that the Coast Guard members whose composite scores fell between 81.8-89.3% on the right side of the upper YBT were 5x more likely to get injured than those who scored above 102.8%. The same was observed on the left side with the range being 77%-88.9%. With both studies, it has been shown that the YBT may have the ability to predict injury in different populations.

However, assessments mentioned above were conducted without excessive equipment or protective gear typically worn in the line of duty by fire fighters. Even though the fireground responsibilities of a firefighter are done while wearing their PPEs (Personal Protective Ensembles), there is limited information as to how varying levels of weight (load carriage) affects dynamic balance performance. Games et al (2021) conducted a study in which firefighters completed the YBT in both station attire (t-shirt, pants, active and station athletic shoes) and PPE with SCBA. The study found that PPE +SCBA had a significant negative impact on dynamic balance. There is also limited research on YBT-UQ for firefighters. However, to the author’s knowledge, there is no study in which firefighters have performed the YBT in 3 different attires: station attire (PT), bunker gear (PPE), and bunker gear + SCBA. Therefore, the purpose of this experiment was to measure the impact of 3 different attires (PT, PPE, and PPE + SCBA) using the YBT.

Methods

Prior to testing, IRB approval was obtained along with support from the Fire Chief and its command structure. All members of the fire department were invited to participate in the study via email from the Training Captain a week prior to the start of testing. Data was collected over the course of five weeks at the main Fire station. Researchers were given a two-hour window to test the volunteers between 1300 and 1500 hrs. Volunteers for this study read and signed an informed consent form. Firefighters were on duty during testing. If firefighters had to respond to a call, testing was stopped, and scores were kept. After responding to the call, participants who did not finish were asked to self-assess the difficulty of their call on a Likert scale of 1-10 (1 being light and 10 being extremely difficult) the average reported score was a 1.5 based on 3 separate

responses with three different firefighters. Firefighters were given the option to discontinue testing, but all three decided to complete testing on that day.

Procedures:

Testing sessions were counterbalanced in order to mitigate the learning effect. The firefighters were randomly divided into one of three groups. The first group consisted of: PT, PPE (personal protective ensemble), and PPE + SCBA (self-contained breathing apparatus). The second group: PPE, PPE + SCBA, and PT. Third group: SCBA, PT, and PPE. Testing dates were separated by a minimum of one week to a maximum of 1.5 weeks. This was based on the 24 hours on duty and 48 hours off duty. The testing schedule was also built around the normal training schedule and vacation time.

Subjects:

Fourteen firefighters volunteered (13 M, 1F) for the study. Descriptive statistics can be found in Table 1.

TABLE 1		DESCRIPTIVE STATISTICS			
	N	Mean	Std. Error	Std. Dev.	Variance
YOS	14	7.64	1.41	5.26	27.67
AGE	14	30.64	1.94	7.24	52.40
WT	14	196.36	7.37	27.58	760.40
WT+PPE	14	220.71	7.63	28.54	814.68
WT+SCBA	14	248.85	7.37	27.59	761.30

YOS= Years of service. WT

After volunteers signed informed consent, limb lengths were taken following the guidelines from Functional Movements Systems (Cook and Plisky, 2015). The right arm was measured from the “C7 spinous process to the distal tip of the third digit to the nearest half centimeter with the arm elevated to 90 degrees”. Body mass was measured using a Detecto balance Physician scale (Brooklyn, NY). The scale was calibrated at the start of each testing day. Body mass was measured at the beginning of each testing session.

Y-balance instructions:

To perform the YBT, volunteers were instructed to assume a pushup position perpendicular to the block they were positioned on. Feet should be shoulder width apart with the arm positioned so that the hand is parallel to the line on the block. After establishing themselves, the volunteers were to push the blocks in three different directions with the hand that wasn't on the block in the following order: medial, inferolateral, and superolateral. For the scores to count, participants had to show control by performing all three directions consecutively without fault. Faults were constituted as: falling or touching the ground with the reaching hand in between each

movement, lifting a foot while reaching in any direction, shoving the push box, and failing to return to starting position under control (Cook and Plisky, 2015). During the first testing session, firefighters who had to wear PPE or PPE + SCBA were given the option to take up to 6 practice rounds before recording their scores. This was to give the firefighters an opportunity to familiarize themselves with the YBT while wearing heavy gear. All other sessions and groups were limited to three trials before recording their scores. The firefighters did not have to use up all their trials, however, they were required to do at least one trial before recording. Scores were recorded to the closest half centimeter.

Statistical analysis:

Data were analyzed using the Statistical Package for Social Sciences (IBM SPSS Statistics for Window, Version 25.0. Armonk, NY: IBM Corp). Alpha was set at $p < 0.05$ to determine statistical significance. Multiple paired-sample T-tests were used to identify statistical differences between composite reach scores for PT, PPE, PPE + SCBA. The upper quarter composite scores were calculated by adding all the best scores in each direction and dividing them by three times the right arm limb length.

Results:

Mean scores can be found in Table 2.

TABLE 2

PAIRED SAMPLES STATISTICS					
		Mean	N	Std. Deviation	Std. Error Mean
PAIR 1	R CRD PT	94.58	14.00	9.30	2.48
	R CRD PPE	92.91	14.00	9.13	2.44
PAIR 2	R CRD PT	94.58	14.00	9.30	2.48
	R CRD SCBA	82.42	14.00	10.01	2.68
PAIR 3	R CRD PPE	92.91	14.00	9.13	2.44
	R CRD SCBA	82.42	14.00	10.01	2.68
PAIR 4	L CRD PT	95.96	14.00	8.81	2.36
	L CRD PPE	94.54	14.00	9.92	2.65
PAIR 5	L CRD PT	95.96	14.00	8.81	2.36
	L CRD SCBA	84.68	14.00	9.37	2.50
PAIR 6	L CRD PPE	94.54	14.00	9.92	2.65
	L CRD SCBA	84.68	14.00	9.37	2.50

CRD= Composite reach score (%) R= Right arm. L= Left arm. PT= station attire. PPE= Bunker Gear.
SCBA= Self-contained breathing apparatus

There were statistically significant differences between the following variables: PT and PPE + SCBA and PPE and PPE + SCBA on both the left and ride side. Decreases can be

seen between station attire (PT) and PPE+SCBA (right arm, $t_{(14)} = 4.99$; $p < 0.001$, mean difference: 12.16 ± 9.13 ; 95% CI=6.89, 17.43; left arm, $t_{(14)} = 6.06$; $p < 0.001$, mean difference: 11.28 ± 6.97 ; 95% CI=7.26, 15.31). Significant decreases were also observed between PPE and PPE+SCBA (right arm, $t_{(14)} = 4.38$; $p < 0.001$, mean difference: 10.49 ± 8.96 , 95% CI= 5.31, 15.66; left arm, $t_{(14)} = 5.26$; $p < 0.001$, mean difference: 9.86 ± 7.02 , 95% CI= 5.81, 13.92). All differences can be seen in Table 3. There were no statistically significant differences in either the right or left composite scores between PT and PPE.

TABLE 3

	Paired Samples Test				95% Conf. Interval of the Diff.			
	Mean Diff. (%)	Std. Dev.	Std. Error Mean		Lower	t	df	Sig. (2-tailed)
RC PT - RC PPE	1.67	5.58	1.49	-1.55	4.90	1.12	13.00	0.28
RC PT - RC SCBA*	12.16	9.13	2.44	6.89	17.43	4.99	13.00	0.001
RC PPE - RC SCBA*	10.49	8.96	2.39	5.31	15.66	4.38	13.00	0.001
LC PT - LC PPE	1.42	5.48	1.46	-1.74	4.59	0.97	13.00	0.35
LC PT - LC SCBA*	11.28	6.97	1.86	7.26	15.31	6.06	13.00	0.001
LC PPE - LC SCBA*	9.86	7.02	1.88	5.81	13.92	5.26	13.00	0.001

RC= Right Composite score. LC= Left Composite score. PT= workout gear. PPE= Bunker Gear. PPE + SCBA= Bunker gear and SCBA. Mean difference is the difference between composite scores in %.

*Indicates stat. sign. diff between means at the 0.001 level.

Discussion:

Based off our findings we concluded that the SCBA firefighters' wear significantly decreases overall dynamic balance. The changes from station attire to bunker gear contradicted our initial hypothesis as researchers expected there to also be a significant decrease in composite scores.

Cosio-Lima also conducted a study with the coastguard where participants completed the YBT before a 2-month long training regimen. At the end of their training course, participants would retest YBT in order to observe the relationship between injury rate and YBT scores. The study found composite scores between 81.3% and 89.3% on the right side of the body had a risk ratio of 5.40. Similar reporting was found on the left side with the same risk ratio, but the range was 77% to 88.95%. Within our study, when firefighters were wearing PPE + SCBA average scores for the right side were 82.42% and 84.68% for the left side. I hypothesize that the negative impact that SCBA has on dynamic balance could potentially impact a firefighters' mobility to a level that should

be monitored. Campbell and Evarts found that most injuries occurred while on the firegrounds. Program coordinators could attempt to incorporate a training program that emphasizes mitigating the loss of mobility while wearing the SCBA.

References:

1. CAMPBELL, K. R. I. S. T. Y. N. E., PARENT, E. R. I. C. C., CRUMBACK, D. A. N. I. E. L. J., & HEBERT, J. A. C. Q. U. E. L. I. N. E. S. (2021). Predicting upper quadrant musculoskeletal injuries in the military: A cohort study. *Medicine & Science in Sports & Exercise*, 54(2), 337–344. <https://doi.org/10.1249/mss.0000000000002789>
2. Campbell, R., & Evarts, B. (2021). United States Firefighter Injuries in 2020. *National Fire Protection Association (NFPA)*.
3. Cosio-Lima, L., Knapik, J. J., Shumway, R., Reynolds, K., Lee, Y., Greska, E., & Hampton, M. (2016). Associations between functional movement screening, the Y balance test, and injuries in Coast Guard training. *Military Medicine*, 181(7), 643–648. <https://doi.org/10.7205/milmed-d-15-00208>
4. Cook, G., & Plisky, P. (2015). *YBT Online Manual - Functional Movement Systems*. Retrieved September 7, 2022, from https://www.functionalmovement.com/files/Articles/660a_YBT%20Online%20Manual%20v1.pdf
5. Games, K. E., Csiernik, A. J., Winkelmann, Z. K., True, J. R., & Eberman, L. E. (2019). Personal protective ensembles' effect on dynamic balance in firefighters. *Work*, 62(3), 507–514. <https://doi.org/10.3233/wor-192885>
6. Gorman, P. P., Butler, R. J., Plisky, P. J., & Kiesel, K. B. (2012). Upper quarter y balance test. *Journal of Strength and Conditioning Research*, 26(11), 3043–3048. <https://doi.org/10.1519/jsc.0b013e3182472fdb>
7. Plisky, P., Schwartkopf-Phifer, K., Huebner, B., Garner, M. B., & Bullock, G. (2021). Systematic Review and meta-analysis of the Y-balance test lower quarter: Reliability, discriminant validity, and predictive validity. *International Journal of Sports Physical Therapy*, 16(5). <https://doi.org/10.26603/001c.27634>
8. SMITH, C. R. A. I. G. A., CHIMERA, N. I. C. O. L. E. J., & WARREN, M. E. G. H. A. N. (2015). Association of Y balance test reach asymmetry and injury in Division I Athletes.

Medicine & Science in Sports & Exercise, 47(1), 136–141.
<https://doi.org/10.1249/mss.0000000000000380>

Volume 5

Article 3

Summer 2022

Differences in Monthly Activity Contribute to the Maintenance of Jumping Spider Biodiversity

Sarah Bertram

Lee University

Under the guidance of Thaddeus McRae, Ph.D.

ABSTRACT:

This paper goes over the possible causes of the high biodiversity in jumping spiders, specifically if any niche differences would reduce competition between species. Body size, habitat, and monthly peak activity were examined as possible niche differentiation in salticid that was observed on the website iNaturalist. To do this examination, body size and habitat were compiled in a literature review for each of the 23 species with at least 50 sightings from chosen southeast states. The monthly activity was used directly from the timestamps in the observations. From this data, we compare body size as a possible correlation for monthly activity differences.

INTRODUCTION:

Biodiversity, particularly species diversity, is the diversity of species in a habitat. The more species are present, termed *species richness*, the higher the biodiversity. Also, the more similar in abundance the species are to each other, termed *species evenness*, the higher the biodiversity. Biodiversity is vital because it provides the ecosystem the ability to adapt to changing conditions on the planet by increasing both the overall stability of the ecological community and its resilience when facing disturbances. Yet, some communities are much more diverse than others. Highly diverse communities present are a mystery. Typically, if two species are similar enough to compete, one would outcompete the other, which would go locally extinct, thus reducing biodiversity. This is the competitive exclusion of one species by the other. Therefore, to maintain high biodiversity, the competition must be reduced. Just as some areas have far more species than others, in a given area, some taxa have far more species than others. The question is, how do groups that maintain high levels of species biodiversity reduce competition between species? There are two main possibilities to reduce competition. Species may specialize in different ways of life (niche differentiation), reducing competition. Or random processes of colonization could maintain high biodiversity. In these random colonization hypotheses, each species has an equal chance to colonize habitat patches that are occasionally vacated. According to this explanation, which species colonizes a newly available patch of habitat is not a result of competition, but luck and random chance. In this study, we examine jumping spiders, family Salticidae, which consistently has very high biodiversity relative to other spider families. We test for potential niche differences that might reduce competition between otherwise similar species and therefore explain how they maintain their unusually high

biodiversity. We examine body size difference, habitat, and seasonality difference as possible differentiation. Using information from the existing literature on the body size and habitat of each species, and using observation records from online databases, we examined whether jumping spiders of similar size show differences in the months of their peak activity.

METHODS:

Body size and habitat

Salticidae of different sizes are able to hunt different-sized prey. Small and large jumping spiders are unlikely to be direct competitors, at least for prey. Likewise, spiders that occur in different habitats do not compete with each other. So, to explore whether salticidae might reduce competition between species by having different periods of peak activity throughout the year, it would be ideal to compare spiders of similar size in similar habitats.

We surveyed the literature for accounts of body size and habitat. Given the highly variable amount and quality of size data in the literature, Bradley's (2012) *Common Spiders of North America* was the primary source for male and female total body size ranges. Habitat information was collected from a search of the primary literature.

Seasonality

The data on monthly jumping spider activity comes from research grade observations on the website iNaturalist (2022). Research grade observations are defined as direct observations with species identity validated by at least two observers. For each observation, it lists the location, time, and species of the jumping spider. From this global data set, we restricted observations to the southeast states to eliminate drastic temperature and habitat differences. These nine states are Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Florida was not included due to its unique subtropical environment and a correspondingly unique spider community. Only 23 species with at least 50 sightings were included from our nine states.

We collected body size and habitat information from the existing literature, and it will be referenced as we compare monthly activity as a possible form of niche differentiation.

RESULTS:

Body size and habitat

Anasaitis canosa

A. canosa is a small salticid, ranging from 5-6 mm. They reside in leaf litter (Edwards et al., 1974). Although not a strict specialist, ants comprise a large portion of their diet (Edwards et al., 1974). In field observations, Schadeegg and King (2021) observed that 69.2% of prey items were ants. Jackson and Van Olphen (1991) found a strong preference for ants in choice experiments. This is notable, as many salticids do not prey on ants, or actively avoid them.

Colonus sylvanus

Bradley (2012) says females range from 8-10mm and males from 7-9mm. Hill (2018) says that *C. sylvanus* is found almost exclusively on woody plants, particularly shrubs and small trees of the forest edge and understory, and describes *C. sylvanus* maturing from April to early summer. *Colonus sylvanus* goes by many other names, including *Thiodina sylvana*. Edwards G.B (1974) notes *T. sylvana* feeding on ants.

Eris militaris

E. militaris is a medium-sized salticid, females are 6-8 mm long and males are 5-7 mm long respectively (Bradley, 2012). Madison (1986) notes that *E. militaris* is a very common woodland species that thrives on woody plants and shrubs. (Hentz, 1845) concurs and notes this species is commonly found under bark and within decaying trees. Hentz also notes that this species is commonly seen in Alabama and North Carolina.

Habronattus coecatus

H. coecatus is a species that has been described by many names, it is around 5 mm in length for males and 6 mm for females (Bradley, 2012). This spider is found most often in Alabama from May to July. (Hentz, 1846)

Hentzia mitrata

H. mitrata is a small salticid. The females range from 2-4 mm and the males range from 4-5 mm (Richman, 1989). Richman (1989) adds that this genus inhabits shrubs and trees, he

notes that *H. mitrata* has been known to live on oak trees. Stietenroth (1987) showed mature females were captured between June and August, but adults have been collected all months of the year (Stietenroth, 1987). Townsend (1998) collected spiders from March to September.

Hentzia palmarum

Females range from 5-6 mm and males range from 4-5 mm (Bradley, 2012) many studies such as (Chamberline, 1944), reference this species as *Attus marginatus*. *H. palmarum* is a tree-dwelling species that inhabit a wide range of tree genera depending on the population of *H. palmarum* (Draney et al., 2021) very common in southern states such as Georgia and Tennessee (Chamberlin, 1944).

Lyssomanes viridis

L. viridis is a medium salticid. Jackson, R.R., and Macnab (1991) have recorded females as 7-8 mm, and males as 5-6 mm. They are found on flowers and high foliage areas (Roth et. al., 2005). *L. viridis* has been most noted on herbaceous plants, but are also common in tree canopies (Bradley, 2012). They mature from March to May. Richman and Whitcomb (1981) say that *L. viridis* were collected on the undersides of leaves, commonly living on the tree, magnolia grandiflora. They found that mating occurred in May and the males disappeared in mid-June.

Metacryba taeniola

M. taeniola is a small salticid, with sizes that range between 5-7.2 mm for females and 4.4-6 mm for males (Barnes, 1958). According to Richman (1965), *M. taeniola* prefers dark environments, and is often found under rocks and man-made structures such as boards.

Maevia inclemens

M. inclemens is a medium salticid with females from 6.5-10mm and males from 4.8-7 mm in length (Bradley 2012). This particular spider is common on trees, shrubs, and various leafy plants (Rose 2022).

Naphys pulex

N. pulex is a small salticid with females ranging from 4.5-5.5mm and males from 4-5.5mm. (Bradley, 2012). It is a species frequently seen on the ground as it camouflages well with the ground. According to Hentz (1946) these spiders are most common from April to May. They are known to feed on ants (Bradley, 2012)

Paraphidippus aurantius

P. aurantius is a large salticid. Females range from 8-12 mm and males range from 7-10 mm (Bradley, 2012). Cobbald (2021) says it has been reported on trees and shrubs in riparian areas. It is noted that they are commonly found in wetland areas (Bradley, 2012; Richman, 2019). Uma et. al. (2013) say they collected *P. aurantius* in a weedy habitat between May and July. Bradley (2012) states that they mature in late summer.

Phidippus audax

P. audax is a large salticid, ranging from 8-15 mm for females and 6-13 mm for males (Edwards, 2004). Taylor (1974) notes females range from 12-18 mm, averaging at 14 mm. Males range from 10-14.5 mm, averaging 12.2 mm. Edwards (2004) notes that they prefer open grasslands and fields. Johnson, S. R. (1996) states that *P. audax* frequents moist lowlands, and notes that they are a tallgrass prairie species. Edwards (2004) notes spring seasonality.

Phidippus clarus

P. clarus is a large salticid. Females range from 4-14 mm, averaging 8 mm (Edwards, 2004). Males range from 3-10 mm, averaging 6 mm. This species is commonly found in old fields and weedy areas of open woodland (Sivalinghem, 2010). Maturation is in summer; females live until autumn. (Guarisco, 2018). Males and females build and live in silken nests in rolled-up leaves. Females stay with eggs to defend; they lay on tall grasses so fiercely they often die of starvation. (Terranova, 1987). Guarisco (2018) notes that there may be a niche difference between *P. clarus* and *P. apacheanus* because of the height difference of the grass that they reside on.

Phidippus otiosus

Edwards (2004) states that *P. otiosus* is a large salticid, with females ranging from 8-18 mm, and males to 6-13 mm. They are known as arboreal species residing in tree canopies. They prefer open woodlands. It is hypothesized that this is due to the greater light availability (Roach, 1988). Terranova (1987) notes that they mature in the autumn, laying egg sacks through December to February. It is noted that females often survive through the following summer.

Phidippus putnami

Phidippus putnami is a medium to large salticid. Edwards (2004) notes the females ranging from 8.5-11mm, and the males ranging from 7.35-9mm. Uma et. al. (2013) collected *P. putnami* from a weedy habitat between May and July although it was noted that most of the species they collected were found on a metal fence railing. Edwards (2004) says that *P. putnami* is a summer species and notes that they are a canopy species typically found in open woodland. He notes that they are found on coniferous trees most frequently. Roach (1988) says that *P. putnami* is rarely collected but when found they were collected on the low limbs of a mixed hardwood area during the late summer and early fall, roughly maturing from July to August. The mix of these sources would point to *P. putnami*'s frequent habitat being woodland.

Phidippus whitmani

Females range from 5-12 mm, averaging 8 mm. Males range from 4-10 mm, averaging 6 mm. Edwards (2004) says that they are a ground species found on forest floors, commonly in leaf litter. Edwards notes that *P. whitmani* is one of the few species known to be found primarily in this microhabitat. They mature in the spring and lay eggs from July to August (Roach S. H., 1988). *P. whitmani* was found in tall grass while feeding in late May (Smith, 1987).

Phidippus princeps

Females range from 6-11 mm and males range from 4-8 mm. Their habitat is open woodland, commonly nesting on the underside of shrubs (Edwards, 2004). Jakob (2007) notes this as well with *P. princeps* was found in an open field with a mixture of grass and flowers. They mature in the spring and lay eggs from May to July (Edwards, 1990).

Platycryptus undatus

P. undatus is a large salticid. Kaston(1981) says they are ranging from 10-13 mm for females and males range from 8.5-9.5 mm. These sizes are noted again by Ross (2008). Ross (2008) says that *P. undatus* is found typically on wood, specifically tree bark, fence posts, and man-made structures. Additionally, he states that they are commonly found on dead trees. Ross notes *P. undatus* hunting specifically from late May to mid-September.

Pelegrina galathea

P. galathea is a small salticid, males range from 2.7-4.4 mm and females range from 3.6-5.4 mm. *P. galathea* inhabits a wide area, from Canada to Mexico. According to North Carolina parks, and are usually found in herbaceous growth and fields (Rose, 2022).

Pelegrina proterva

Rose (2022), says *P. proterva* lives in forests, unlike its congener above.. Males range from 3.5-4 mm, and females range from 4.5-5.5 mm at adult sizes (Maddison, 1996). The average size according to Banks (1892) is 4.4 mm. Banks also concur with the above marsh habitat listing.

Plexippus paykulli

P. paykulli is a widely distributed salticid ranging from Texas to Florida in the United States with females from 10-12 mm and males about 9 mm in length (Bradley, 2012). This species arrived here on a shipment from tropical regions. It is found mostly around man-made structures (Nyffeler, 2008, Chamberlin, 1944).

Synemosyna formica

S. formica is a spider that hunts ants by camouflaging as them. It is about the size of an ant at 6.35 mm. Because of this species' hunting strategy, it is common to see this species around colonies of ants (Emerton 1902).

Zygoballus rufipes

Z. rufipes is a small salticid that grows to 3-5 mm in length with females tending to be larger. These spiders thrive in tropical environments, and are found on leafy plants from Canada to Mexico (The Spider Book).

Almost all species for which we had over 50 sightings were described as using woody plants as habitat to some extent and either sometimes or exclusively occupying woodland. The exceptions were four species described as ground-dwelling and four that could potentially be categorized as not associated with trees. The four ground-dwelling species, *A. canosa*, *M. taeniola*, *N. pulex*, and *P. whitmani* could also be found in woodland but occupied leaf litter or the ground. Interestingly, both *A. canosa* and *N. pulex* have the unusual habit of preying on ants. The four species not clearly associated with the ground or woody plants were *P. audax*, *H. coecatus*, *Z. rufipes*, and *P. galathea*. Although the habitat descriptions across various sources listed a wide variety of non-woody habitats, such as agricultural fields, yards, grassland, prairie, and herbaceous plants. There was not a clear habitat category for these four species other than not being consistently associated with the ground or woody plants.

From a review of the literature, we took the mean of the total body length ranges reported for the species, and refer to that number as the typical size of each species. All species fall between 3.74 and 11.5 mm. We divided the species into three size categories of small (<6mm), medium (6-9mm), and large (>9mm) by dividing the range of sizes into roughly equal thirds and were supported by the rough clustering of species into at least three size classes in a histogram of species by size with 10 bins (Figure 1). While this method cannot accurately determine mean species size, it enabled us to categorize each species into a broad size category. This is relevant to competition as body size has a strong effect on what prey species can be successfully hunted.

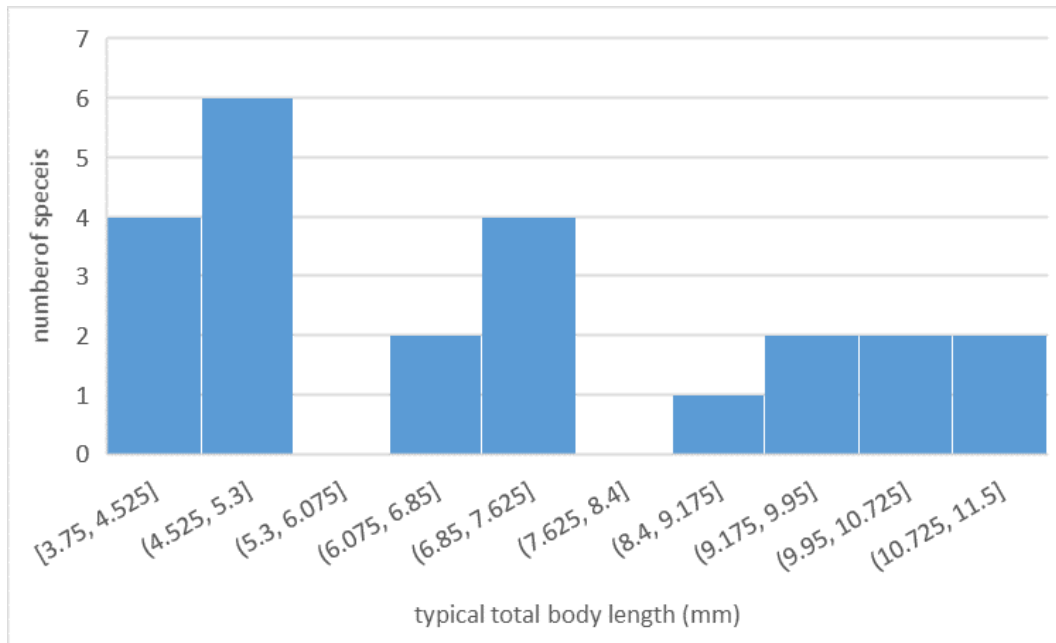


Figure 1. The distribution of typical size (total body length) for the twenty-three most commonly observed species in our dataset.

Seasonality

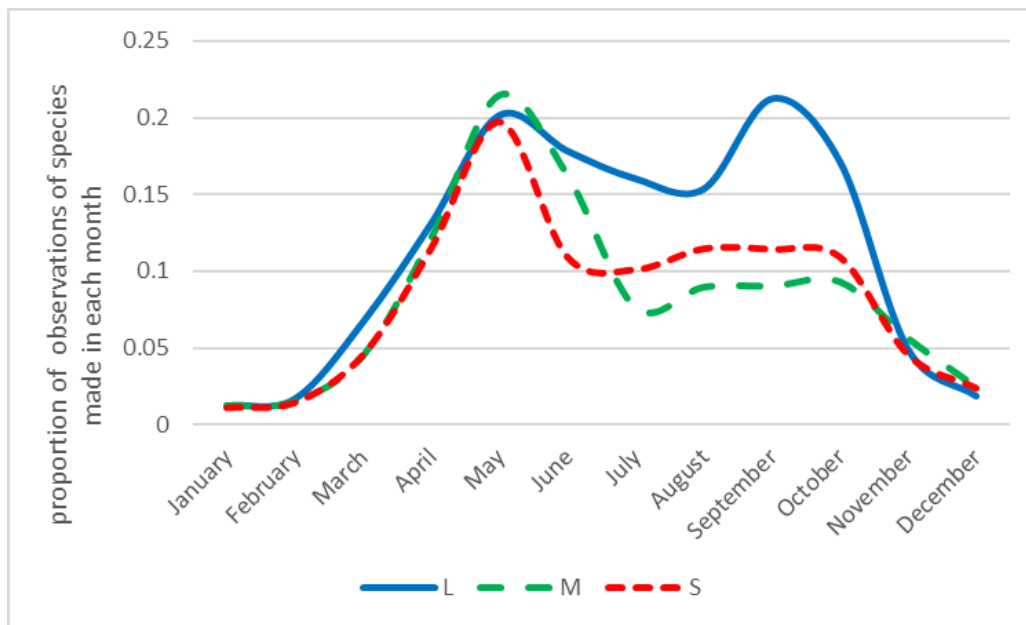


Figure 2. Proportion of all observations of small (<6mm), medium (6–9), and large (>9) species of salticid made each month.

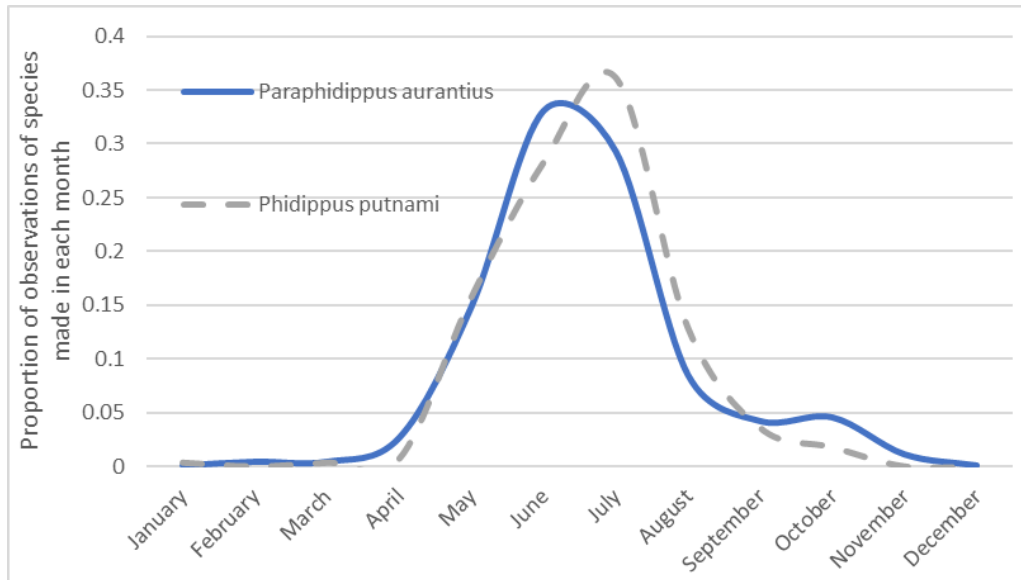


Figure 3a.

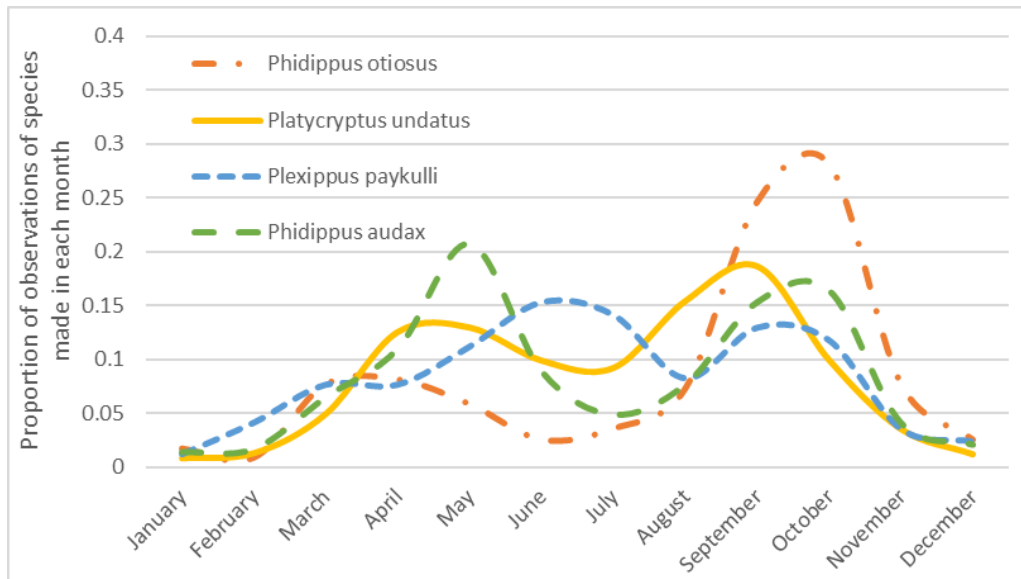


Figure 3b.

Figure 3 has the monthly activity for large salticids. a) *P. aurantius* and *P. putnami* have singular peaks. b) *P. otiosus*, *P. undatus*, *P. paykulli*, and *P. audax* have two peaks.

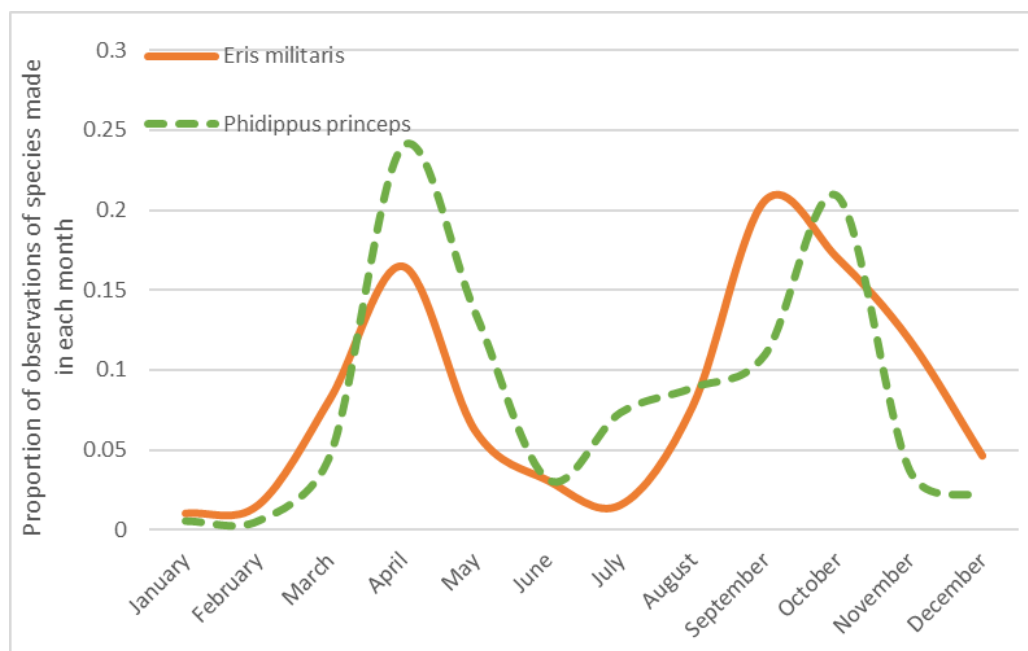


Figure 4a.

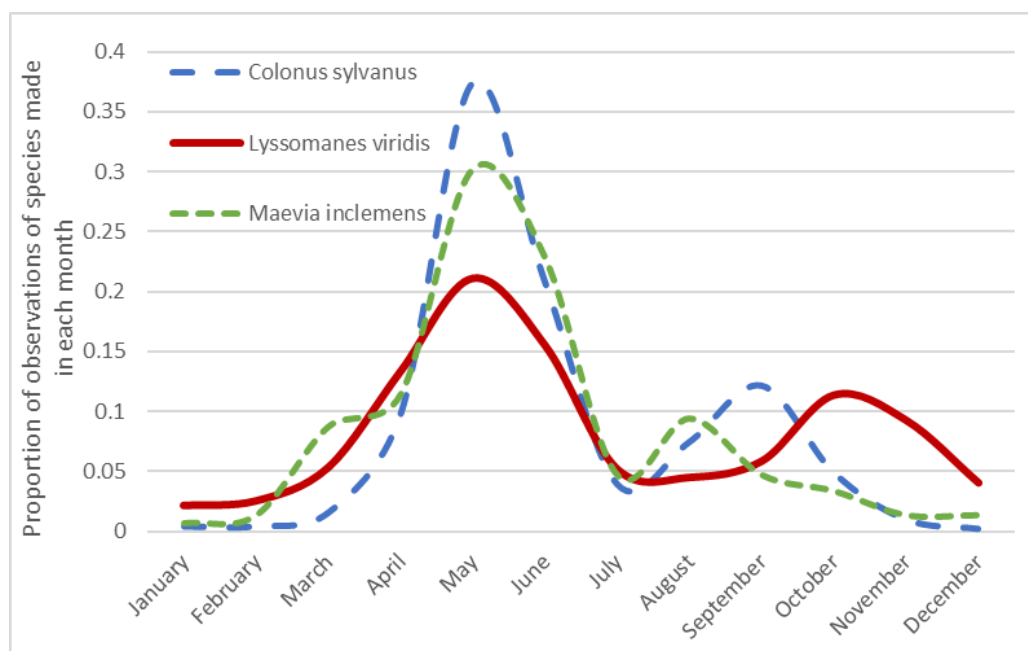


Figure 4b.

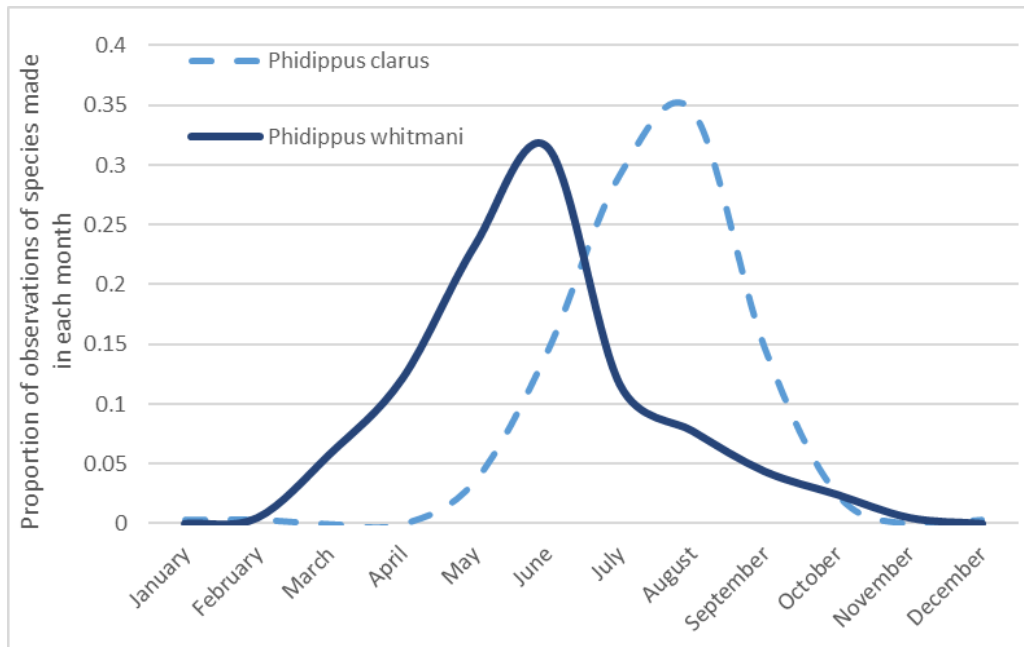


Figure 4c.

Figure 4 has monthly activity for medium salticids. a) *E. militaris* and *P. princeps* have two peaks. b) *C. sylvanus*, *L. viridis*, and *M. inclemens* have two peaks. c) *P. clarus* and *P. whitmani* have singular peaks.

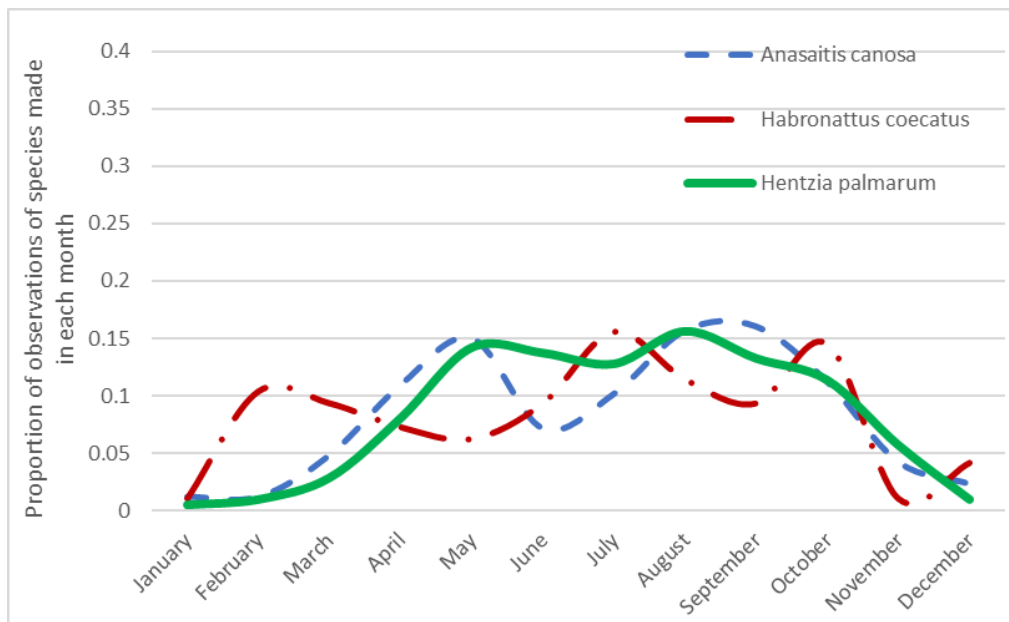


Figure 5a.

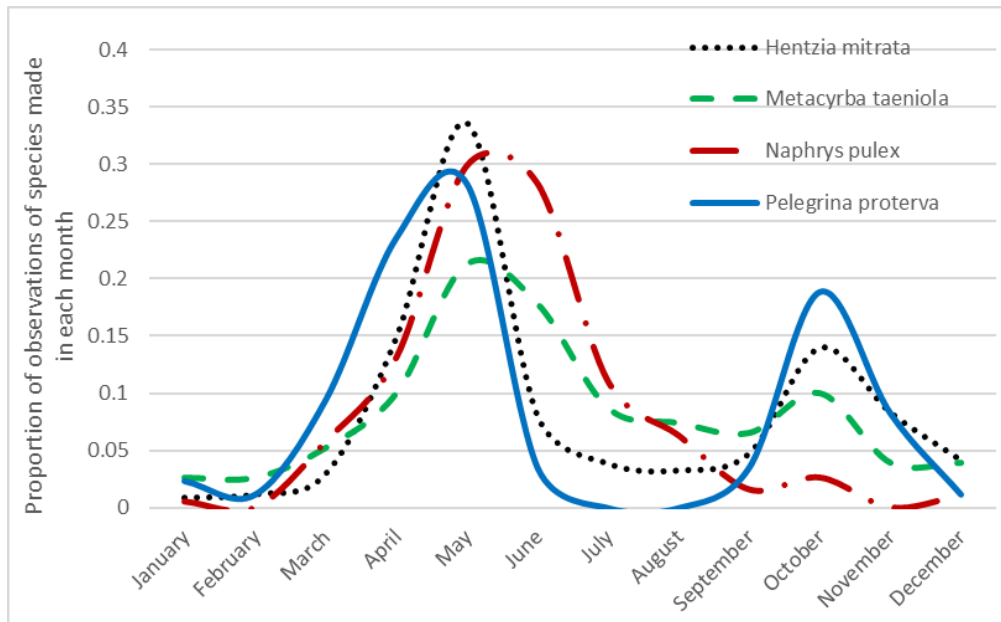


Figure 5b.

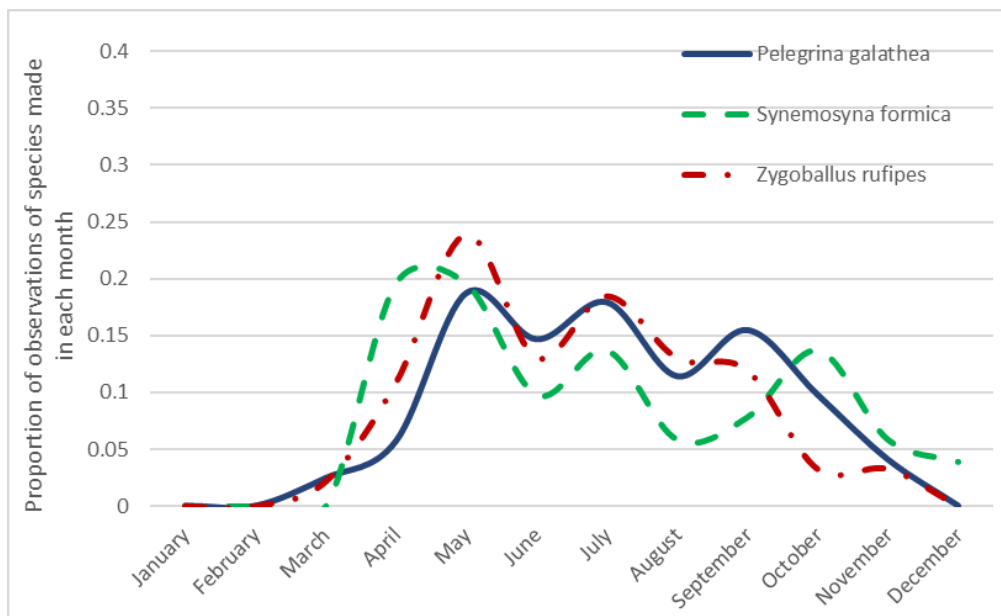


Figure 5c.

Figure 5 has the monthly activity for small salticids. a) *A. canosa*, *H. coecatus*, and *H. palmarum* have mixed peaks. b) *H. mitrata*, *M. taeniola*, *N. pulex*, and *P. proterva* have two peaks.. c) *P. galathea*, *S. formica*, and *Z. rufipes* have three peaks.

Figure 2 shows a broader view of salticid seasonality when combining all twenty-three species into three-size bins and looking at seasonal patterns of small, medium, and large salticids. Figures 3, 4, and 5 break down what figure 2 shows but for each species specifically to

see each species' monthly peak activity in their respective size categories. After being separated by size, the figures are separated in ABC order based on how similar their slopes are.

Overall, salticids are mostly observed through November, with a peak of observed activity in May. Large salticids show a second large peak in September, while the other two size classes plateau from June (small) or July (medium) until October at about half their peak observations (Figure 2).

Figure 3 shows the seasonality of large salticid observations. a) *P. aurantius* (N=583) and *P. putnami* (N=279) share similar singular peaks, but the peaks slightly vary. *P. aurantius* peaks in June, while *P. putnami* peaks in July (Fig 3a). b) *P. otiosus* (N=484), *P. undatus* (N=1918), *P. paykulli* (N=170), and *P. audax* (N=1289) all have two peaks of activity, but none of them match perfectly (Fig 3b). This theme of salticid sharing the same pattern but all varied in some way continues across all three size categories. Of the six large salticid species, two show a single narrow peak in summer (Fig 3a). The other four large salticids each have at least two peaks, although the relative size of the peaks varies (Fig 3b). Note that only one of these species, *P. paykulli*, has a peak corresponding to the single peaks of *P. aurantius* and *P. putnami*. Interestingly, *P. paykulli* almost appears to have three peaks, but if so, the early peak is small.

Figure 4 has monthly peaks for medium salticids. a) *E. militaris* (N=194) and *P. princeps* (N=173) have two well-defined peaks in spring and fall, with very few observations in mid-summer. b) *C. sylvanus* (N=508), *L. viridis* (N=1320), and *M. inclemens* (N=147) have two peaks. The first peak is highest, peaking in May and the second peak is smaller and varies from August to October. c) *P. clarus* (N=278) and *P. whitmani* (N=206) have singular peaks that are at their highest points at different months but have some overlapping in June and July. *P. clarus* peaks in August, while *P. whitmani* peaks between May and June.

Figure 5 has monthly peaks for small salticids. a) *A. canosa* (N=1160), *H. coecatus* (N=96), and *H. palmarum* (N=211) have unique peaks compared to the other small salticids, with two to three peaks (Fig 5a). *H. palmarum* has no distinct pattern and seems to stay active starting in April and ending in November. *H. coecatus* has three distinct peaks in February, July, and October. *A. canosa* has two peaks from April to May and again in August to October. 5b) *H. mitrata* (N=336), *M. taeniola* (N=221), *N. pulex* (N=189), and *P. proterva* (N=85) have two distinct peaks (Fig 5b). Although they do not match exactly, the first peak is from March to June, and the second peak is from September to December roughly. 5c) *P. galathea* (N=122), *S.*

formica (N=51), and *Z. rufipes* (N=91) have three peaks (Fig 5c). *S. formica* peaks from April to May, in July, and from October to November. *P. galathea* peaks in May, July, and between September and October. *Z. rufipes* peaks in May, July, and has a slight peak in September, giving the slope a distinct decline in observations.

DISCUSSION:

The data on habitat suggests most of these species can use forest habitats. However, it is not possible to construct a clear habitat description for most species that is comparable to that of others. This is in part due to a lack of habitat use studies and in part due to widely divergent terms and methods used to categorize habitat. There are a few exceptions, like Hill's (2018) comparison of the two eastern North American *Colonus* species, where it appears *C. purpureus* is a grassland species and *C. sylvanus* is a forest species. Given the relatively small scale on which these animals use their habitat each day, it is possible that the habitat may be partitioned by plant structure or some other aspect not easily extractable from the highly varied descriptions in the literature. This is certainly true for some salticids, for example, the southwest species *Paraphidippus basalis*, which shows a strong habitat preference for plants that form rosettes instead of other vegetation available in its habitat (Cobbold & O'Donnell, 2012).

Given the lack of clarity on the specific habitat used by each species, we focused on comparing monthly activity across spiders of similar size, who may be likely to compete. If spiders can reduce competition by having different peaks of activity throughout the year then there should be different peaks of spider species in the same size class.

In figure 2, it is seen that all three sizes share the feature of two annual peaks. This demonstrates that there is no clear difference in seasonality based solely on size. The first peak is nearly identical across the three size categories, but the second peak is not. While small and medium sizes plateau at about half their first peak, large salticids rise again to a second high peak. The sample size for large salticids is larger than it is for small and medium salticids, but the peak seems to be a distinct pattern that would not indicate sample size is the issue. There is a possibility of larger spiders outcompeting small and medium spiders as the year progresses. However, the first peak is identical so it is difficult to see that as the case. Perhaps larger spiders have more mass and the ability to stay warmer during the temperature drop later in the year,

therefore being more active in the later seasons. Further studies are needed to determine why larger spiders are more active in the autumn season than medium and small salticids.

Figures 3, 4, and 5 display large, medium, and small activity patterns respectively, and are further grouped by similar monthly activity peaks. In each size class, yearly activity patterns can be roughly categorized based on the number of peaks, and further differentiated by the timing of each peak. There are distinct one-peak species and two-peak species in every size class, and in the case of small salticids, there are also three-peak species. There are very few species that blur these boundaries, suggesting that these one, two, and three peak patterns may be distinct life history strategies with the potential to reduce competition between similar-sized species.

Among the large salticids, the two single peak species have almost identical peaks. It would be interesting to examine their specific habitat preferences. Some sources suggested that *P. aurantius* is associated with wetter habitats than *P. putnami*. This and other potential habitat differences in how they occupy trees would be worth exploring as potential explanations for how they coexist. The two-peak large salticids show a variety of patterns with no two species aligning well. This suggests that these differences in seasonality may represent important aspects of niche differentiation.

The medium-sized salticids also present evidence for some degree of niche differentiation through differing yearly activity. There were again two single-peak species, but their curves were quite distinct, with about two months between the peaks, and a fairly steady dropoff before and after the peak for each species. Again, this seasonal difference in activity may reduce competition. Among the two-peak medium salticid species, there were two distinct groups, those with a first peak in April and those with a first peak in May. Interestingly, among species with the same first peak month the second, smaller peak month was always different, and vice versa. Again, this suggests that there is some seasonality to their activity that reduces their competition. We see very distinct peaks across species of the same size.

Similar to large and medium salticids, smaller salticids also had two peaks. The two peaks were almost identical but were overlapping each other. Interestingly, *N. pulex* had one big peak in May and June and tapered off. This species did not have a distinct second peak. It seems that their overlap could indicate some other niche differentiation like specific habitat, daily activity, or prey differentiation that would reduce competition. Small salticids, perhaps because

more species met our minimum sample size, show a new pattern of three peaks. Three species, in particular, show a unique pattern of three descending peaks. Despite this striking similarity, each of the species has at least one peak that falls in the valley of the other two species' activity curves. This is certainly worthy of further study, both to examine what drives the presence of three distinct periods of heightened activity and whether the differences we observed are playing any role in reducing competition. There were many differences between the mixed peaks small salticids. *A. canosa* has two peaks, *H. coecatus* has three distinct peaks, and *H. palmarum* has no distinct peaks. *H. coecatus* is the only salticid in this study that peaks in February. This could be due to the data being from human observers, where they could be found in people's homes. Conversely, it could be that this species has a niche different from the other salticids.

There needs to be further research conducted on why none of the spiders match in terms of monthly activity such as a daily activity comparison to see if these different spiders have completely different daily cycles. The daily activity difference could be because the spiders are changing their activity due to the other spiders around, or they are waking up at different times. This would mean the spiders that share the same habitat would not interact with each other, thus reducing competition and maintaining biodiversity.

Although we do not have habitat data that is precise or consistent enough to analyze, habitat differences likely play a role in explaining some of the overlap in activity of similar-sized species. Future studies on specific habitat use by woodland salticids that work to identify the criteria that predict a species presence or absence are needed. That would enable more informed analysis of these activity curves.

One limitation of this work is that the curves are not direct measures of activity, but the frequency of observation by human observers. Periods of apparent low activity outside of the winter months in these data may actually reflect high activity, simply in habitats that are less visible to humans, like the forest canopy, or under leaf litter. The rise and fall of observation in these data could also represent changing adult population size, time spent moving (foraging, mate-seeking), staying in shelter (guarding eggs, molting, etc.), or other variations in behavior that affect their detectability to human observers. More descriptive natural history of these species, including seasonal and daily vertical movement, would go far to improve our understanding of how they escape the constraints of competition.

What these data do show is that there appears to be some form of niche differentiation at work reducing competition between similarly-sized salticids in the Southeast United States. The notable differences and similarities in activity curves, whatever the exact cause, suggests the existence of specialization in some respect, which would likely reduce competition with neighboring species. Species differences in activity from month to month seem to be part of the explanation for how jumping spiders reduce interspecific competition, thereby allowing them to maintain their high diversity.

WORKS CITED:

- Barnes, R.D. (1958). North American Jumping Spiders of the Subfamily Marpissinae (Araneae, Salticidae). *American Museum Novitates* ; No. 1867. *AMNH Digital Repository*, New York, N.Y. : American Museum of Natural History, 1 Jan. 1970, <https://digitallibrary.amnh.org/handle/2246/4449>.
- Maddison, W. P. (1996) Pelegrina Franganillo and other jumping spiders formerly placed in the genus *Metaphidippus* (Araneae: Salticidae). *Bulletin of the Museum of Comparative Zoology* 154(4): 215-368
- Bradley, R.A. (2012) *Common Spiders of North America*. U. California Press
- Chamberlin, R.V. "Spiders of the Georgia Region of North America: Uscholar Works." *J. Willard Marriott Digital Library*, 10 Dec. 1944, <https://collections.lib.utah.edu/details?id=708791>.
- Cobbold, S. M., O'Donnell, R. P. (2021) Plant structure specialization in *Paraphidippus basalis* (Araneae: Salticidae), a jumping spider of the Madrean Sky Islands *Journal of Arachnology*, 49(2):159-166. <https://doi.org/10.1636/JoA-S-20-053>
- Draney, M. L., Berry, J. W., & Spaid, M. (2021). Spiders (Araneae) of the Everglades National Park, Florida, USA. *Florida Entomologist*, 104(4), 261. Spiders (Araneae) of the Everglades National Park, Florida, USA. <https://doi.org/10.1653/024.104.0402>
- Edwards, G. (2004). "Revision of the Jumping Spiders of the Genus *Phidippus* (Araneae: Salticidae)" *Occasional Papers of the Florida State Collection of Arthropods Volume 11*. Collect. Arthropods. 11.
- Edwards G. B., Carroll J. F., Whitcomb W.H. (1974). *Stoidis aurata* (Araneae: Salticidae), a spider predator of ants. *Florida Entomologist* 57: 337–346.
- Emerton, J. H. (1902). *The common spiders of the United States*. Boston, Ginn & Company
- Nyffeler, M., Breene, R. G. & Dean, D. A. . *Facultative monophagy in the jumping spider, Plexippus Paykulli ...* (n.d.). Retrieved June 14, 2022, from <https://archive.org/download/PeckhamiaNumbers1.1To96.1/Peckhamia65.1.pdf>
- Guarisco, H. (2018). Microhabitat selection of the jumping spiders *Phidippus clarus* Keyserling and *Phidippus apacheanus* Chamberlin and Gertsch (Araneae: Salticidae) in northeastern Kansas. *Transactions of the Kansas Academy of Science*, 121(3-4), 417. <https://doi.org/10.1660/062.121.0419>
- Hentz, N. M. (1846). Descriptions and figures of the araneides of the United States. *Boston Journal of Natural History* 5: 352-370 <https://doi.org/10.5962/bhl.part.16996>

- Hill, D. E. (2018). Notes on the jumping spiders *Colonus puerperus* (Hentz 1846) -and *Colonus sylvanus* (Hentz 1846) in the southeastern United -States (Araneae: Salticidae: Amycoida: Gophoini). *Peckhamia*, 99(2), 1–63.
- iNaturalist contributors, iNaturalist (2022). iNaturalist Research-grade Observations. iNaturalist.org. Occurrence dataset. <https://doi.org/10.15468/dl.jbsg4f> via GBIF.org
- Jackson, R. R., & Macnab, A. M. (1991). Comparative study of the display and mating behavior of lyssomanine jumping spiders (Araneae: Salticidae), especially *asemonea tenuipes*, *goleba puella*, and *lyssomanes viridis*. *New Zealand Journal of Zoology*, 18(1), 1–23. <https://doi.org/10.1080/03014223.1991.10757943>
- Jackson R. R., Van Olphen A. 1991. Prey-capture techniques and prey preferences of *Corythalia canosa* and *Pystira orbiculata*, ant-eating jumping spiders (Araneae, Salticidae). *Journal of Zoology* 223: 577–591. <https://doi.org/10.1111/j.1469-7998.1991.tb04389>.
- Jakob, E. M., Skow, C. D., Haberman, M. P., & Plourde, A. (2007). Jumping spiders associate food with color cues in a T-maze. *The Journal of Arachnology*, 35(3), 487–492. <https://doi.org/10.1636/JOA-ST06-61.1>
- Johnson, S. R. (1996). Use of coleopteran prey by Phidippus audax (Araneae, Salticidae) in tallgrass prairie wetlands. *Journal of Arachnology*, 39–42.
- Jumping spiders - menemerus bivittatus and Plexippus Paykulli. (n.d.). Retrieved June 14, 2022, from https://entnemdept.ufl.edu/creatures/misc/jumping_spiders.htm
- Kaston, B. J. (1981). *Spiders of Connecticut*. Dept. of Environmental Protection, State Geological and Natural History Survey of Connecticut.
- Maddison, W.P.. (1986). Distinguishing the Jumping Spiders *Eris Militaris* and *Eris Flava* in North America (Araneae: Salticidae). <https://doi.org/10.1155/1986/27959>
- Maddison, W. P. (1996) Pelegrina Franganillo and other jumping spiders formerly placed in the genus Metaphidippus (Araneae: Salticidae). *Bulletin of the Museum of Comparative Zoology* 154(4): 215–368
- Peckham, G. W., & Peckham, E. G. (1889). North American Spiders of the Family Attidae (Vol. 7).
- Richman, D. B. (1965). Jumping Spiders (Salticidae) from Yuma County, Arizona, with a Description of a New Species and Distributional Records. *The Southwestern Naturalist*, 10(2), 134. <https://doi.org/10.2307/3669162>
- Richman, D. B. (1989). A revision of the genus Hentzia (Araneae, Salticidae). *Journal of Arachnology*, 285–344.
- Richman, D. B., & Whitcomb, W. H. (1981). The ontogeny of Lyssomanes viridis (Walckenaer)(Araneae: Salticidae) on Magnolia grandiflora L. *Psyche*, 88(1–2), 127–133. <https://doi.org/10.1155/1981/85970>
- Richman, D. B., Dean, D.A., Brantley, S., Cutler, B. 2019. The spiders of the arid southwest. New Mexico State University. <http://aridspiders.nmsu.edu>
- Roach, S. H. (1988). Reproductive Periods of Phidippus Species (Araneae, Salticidae) in South Carolina. *The Journal of Arachnology*, 16(1), 95–101. <http://www.jstor.org/stable/3705808>
- [Rose, S. \(2022\), Spiders of North America. Princeton University Press. ISBN 978-0-691-17561-4](#)
- Ross, L. K. (2008a). Predation on Platycryptus undatus (DeGeer 1778) by Parasteatoda tepidariorum (CL Koch 1841) (Araneae: Salticidae Theridiidae).

- Ross, L. K. (2008b). A jumping spider feeding on an earthworm. *Peckhamia*, 71(1), 1-2.
- Roth, V. D., Ubick, D., & Dupérré, N. (2005). *Spiders of North America : an identification manual*. American Arachnological Society.
- Schadegg, P. and King, J.R. (2021) Feeding Habits of the Jumping Spider *Anasaitis canosa* (Araneae: Salticidae) in the Field. *Florida Entomologist*, 104(1):54-55 (2021). <https://doi.org/10.1653/024.104.0109>
- Sivalinghem, S., Kasumovic, M. M., Mason, A. C., Andrade, M. C. B., & Elias, D. O. (2010). Vibratory communication in the jumping spider *phidippus clarus*: Polyandry, male courtship signals, and mating success. *Behavioral Ecology*, 21(6), 1308–1314. <https://doi.org/10.1093/beheco/arq150>
- Stietenroth, C. L., & Horner, N. V. (1987). The jumping spiders (Araneae: Salticidae) of the Virginia Peninsula. *Entomological News*, 98(5), 235-245.
- Taylor, B. B., & Peck, W. B. (1974). A comparison of northern and southern forms of *Phidippus audax* (Hentz)(Araneida, Salticidae). *Journal of arachnology*, 89-99. <https://www.jstor.org/stable/3704983>
- Terranova, A. C., & Roach, S. H. (1987). Electrophoretic key for distinguishing South Carolina species of the genus *phidippus* (Araneae: Salticidae) as Spiderlings and adults1. *Annals of the Society of America*, 80(3), 346–352. <https://doi.org/10.1093/aesa/80.3.346>
- Banks, N. 1892. The spider fauna of the Upper Cayuga Lake basin. *Proceedings of the Academy of Natural Sciences of Philadelphia*. 44, 11-81.
- Townsend Jr, V. R., & Felgenhauer, B. E. (1998). Cuticular scales of spiders. *Invertebrate Biology*, 318-330. <https://doi.org/10.2307/3227034>
- Uma, D., Durkee, C., Herzner, G., & Weiss, M. (2013). Double deception: ant-mimicking spiders elude both visually-and chemically-oriented predators. *PLoS One*, 8(11), e79660. <https://doi.org/10.1371/journal.pone.0079660>

Volume 5

Article 4

Summer 2022

Comparison of Archaic and Woodland/Early Prehistoric Lithics and Resources

Michael Dillinger

Lee University

Under the guidance of Richard Jones, Ph.D.

Introduction

This research compares lithic artifacts from the Archaic period, 8,000 B.C. – 1,000 B.C., and the Woodland/Early-Prehistoric periods, 1,000 B.C., - 1,000 A.D. which have been found in various archaeological sites in the American southeast with stone tools sites in the Rocky Mountain region. It also compares the environmental conditions and availability of geological resources which would have influenced the construction of lithic artifacts in each of these regions.

The sites in the American Southeast focused on in this research are the Icehouse Bottom excavation, the North River Project survey, and the various sites of the Appalachian Summit Area. The sites in Wyoming which will be covered in this research are the old Cabin Area site, the Pilgrim open-air habitation site, the Game Creek site, the Osprey Beach site, the Libby Reservoir site, the Sand Dune site, the Fishing Bridge Point site, and the Eagle Rock Shelter site. The results of this research will assist future archaeologists to develop better theories on the relationship between tool types, resource utilization, and the ecology of differing environments.

Lithics

Appalachian Region

Two excavations were done at the Icehouse Bottom site (Tables 1 – 4). The first excavation was conducted by the University of Tennessee in 1969. The second excavation was done by the Webb School of Knoxville and took place over the summers of 1970 and 1971 (Chapman 1973, 5). Both of these excavations were conducted by Jefferson Chapman. In his report from 1973, *Icehouse Bottom Site - 40 Mr 23*, Jefferson Chapman describes the findings of the 1970-1971 excavation, only referencing the 1969 excavation occasionally. The information

and artifacts gathered from these excavations are housed in The McClung Museum of Natural History and Culture at the University of Tennessee Knoxville. During the Webb School excavation at Icehouse Bottom 10 Archaic features (Chapman 1973, 21) and 48 Woodland features (Chapman 1973, 33) were found.

The Archaic features were distinguished by their lack of ceramic artifacts and their stratigraphic placement (Chapman 1973, 21). The Archaic features uncovered were the remains of campfires (Chapman 1973, 32). As such Chapman and his team were able to use C-14 dating to determine that they dated back to roughly 1170 B.C. (Chapman 1973, 32). Several charred logs from a Woodland period rock filled fire basin yielded a C-14 date of 605 A.D. (Chapman 1973, 34).

During the Webb School excavations 29,702 lithic artifacts were recovered. This number mostly consisted of cores, flakes, and debitage. There were 137 projectile points recovered from this excavation. (Chapman 1973, 88) Those associated with the Archaic period included 1 Palmer Corner Notched point; 1 Decatur point; 1 Cotaco Creek point (Figure 1). The projectile points which were associated with the Woodland period included 53 Connestee Triangular points, 11 Hamilton points, 9 Bradley Spike points, 8 Flint River Spike, 4 Swan Lake points, 1 Bakers Creek point, 1 Plott Short Stemmed point (Figures 1 and 2). The provisional projectile point types which were associated with the Archaic and Woodland periods include 9 P-1w points, 8 P-1z points, 5 P-1u points, 4 P-1lu points, 4 P-1y points, 3 P-1x points, 3 P-2y points, 2 P-1v points, 2 P-2z points, 1 P-2x point, 1 P-4y point, 1 P-4z point, and 1 P-13 point (Figures 3 and 4). There were 43 bifaces which were classified into 5 classes of knives. There were 9 K-1 bifaces, 11 K-2 bifaces, 5 K-3 bifaces, 3 K-4 bifaces, and 9 K-6 bifaces (Figure 5). Details of this classification system can be found in Jefferson Chapman's writing from 1973 on pages 98 – 107

Knives from each class were found in strata associated with both the Archaic and Woodland periods (Chapman 1973, 104). 477 prismatic blades made of local chert were also collected from the Icehouse Bottom excavations and were associated with the Woodland period (Figure 6). These blades were comparable to the Ohio Hopewell blades in their length (Chapman 1973, 112). 154 flint chisels, 5 drills, and 3 digging implements (Figures 7 and 10) which were associated with the Woodland period were recovered from at this excavation. In addition, 5 side scrapers, 3 end scrapers, 3 spokeshaves, 4 Gravers, and 598 flakes which showed signs of use were recovered from the site though they were not tied to a specific cultural period (Figure 7). 47 notched pebbles which were attributed to the Archaic period were also recovered from this excavation. These pebbles could have been used as sinkers for fishing nets but were more likely used as bolas weights, boiling stones, atlatl weights, or weights for land-based nets (Chapman 1973, 122). 14 worked pieces of stone whose type could not be determined, 14 anvil stones, 13 pieces of worked hematite, 8 hammer stones, 6 ax fragments¹, 4 fragments of slate gorgets, 1 atlatl weight, 1 celt², (Figures 8 and 9) were also recovered in the strata and features associated with the Archaic and Woodland period during the Webb School excavations at the Icehouse Bottom site (Table 1 – 4).

The sites of the Appalachian Summit area (Tables 5 – 13) include the Tuckasegee site, the Garden Creek sites, and the Warren Wilson site. The excavations at these sites were led by Joffre L. Coe, Bennie C. Keel, and Roy S. Dickens (Keel 1976, 15 – 16). The information and artifacts gathered from these excavations are housed in Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill (UNC Research Laboratories of Archaeology | Archaeology).

During the excavation at the Tuckasegee site several projectile points were uncovered. 2 Savannah River Stemmed points, 1 Palmer Corner Notched point, and 1 Kirk Corner Notched point, were uncovered which were associated with the Archaic period (Keel 1976, 51). 2 Pigeon Side Notched points, 1 Coosa Notched point, and 1 Swannanoa Stemmed point which were associated with the Woodland period were also recovered from this excavation (Figure 11) (Keel 1976, 51 – 57)

Though the Garden Creek sites consist of 3 mounds and 1 village midden all within an area of 12 acres on the south side of the Pigeon River, only Mound No. 2 was able to be definitively associated with Woodland period (Keel 1976, 86). Mound No. 1 (Keel 1976, 69) and the midden near it (Keel 1976, 78 & 85) were associated with Mississippian period occupation, and Mound No. 3 (Keel 1976, 70) has aspects of both Mississippian and Woodland, but the Woodland items are most likely intrusions (Keel 1976, 124 – 148). The lithic artifacts recovered from Mound No. 2 include types associated with the Archaic period and types associated with the Woodland period (Keel 1976, 124 – 148). The projectile points associated with the Archaic period include 30 Savannah River Stemmed points, 18 Otarre Stemmed points, 9 Guilford Lanceolate points³, 6 Palmer Corner Notched points, 6 Kirk Corner Notched points, 5 Morrow Mountain I points, 4 Morrow Mountain II points, 4 Kirk Stemmed points (Figure 12), 1 Kirk Serrated point, and 1 Stanly Stemmed point. The projectile points associated with the Woodland period include 53 Swannanoa Stemmed points, 53 Pigeon Side Notched points, 5 Plott Short Stemmed points, 4 Copena Triangular points, 2 Bradley Spike points, 2 small triangular serrate points, 1 Connestee Triangular point, 1 Haywood Triangular point, 1 Transylvania Triangular point, 1 Garden Creek Triangular point, and 1 South Appalachian Pentagonal point (Figure 12 and 13). The lithic artifacts recovered which were not projectile points included 79 prismatic

blades, 28 blackened blades, 18 celt fragments, 15 hammer stones, 14 gorget fragments, 7 triangular knives, 5 scrapers, 4 possible Savannah River Stemmed point blanks, 3 polyhedral cores, 3 gravers⁴, 2 drills, 1 bifacially chipped stone disc, 1 gorget, and 1 celt (Figures 14 - 17). These blades and other artifacts were linked to the Woodland period (Keel 1976, 136 – 144).

The Warren Wilson site has shown an association with the Woodland and Mississippian periods (Keel 1976, 175). The projectile points associated with the Woodland period yielded by this site were 10 Morrow Mountain I Stemmed points, 10 Swannanoa Stemmed points, 8 Garden Creek Triangular points, 6 Plott short Stemmed points, 5 Guilford Lanceolate points, 2 Lecroy Bifurcated Stem points, 2 Pigeon Side Notched points, 1 Haywood Triangular point, and several Savannah River and Otarre stemmed points (Figures 18 – 20). The non-projectile point lithic artifacts recovered from this site include 2 steatite beads which were linked to the Archaic period as well 31 scrapers, 7 axes, 5 gorgets⁵, 4 bifaces, 2 celt fragments, and 2 pestles which were linked to the Woodland period (Figures 21 – 23) (Keel 1976, 191 – 205).

The survey excavations of the North River survey (Table 14 – 15) have been led by Dr. Richard Jones since 2016 and are still ongoing (Jones 2022a). Since 2019 I have participated in the excavation and curation of the artifacts from the North River Project survey. The data which have been collected from this excavation are housed in Lee University's Archaeology Research Center. The predominate method of excavation which had been used in the North River Project was digging shovel test pits (Jones 2016c, 20). In addition to shovel test pits, metal detection, 1-meter test squares, test trenches, and field collections were also used. The methods of curation which have been used for the artifacts recovered from this survey have been cleaning, cataloging, classifying and photography (Jones 2016a, 2). During the 2016 field season Jones and his team identified 1 site with Archaic period and Woodland period association near the Long Branch

Watershed (Jones 2016a, 1) and 1 site with only Woodland association (Jones 2016b, 1). The following field season, which took place in 2017, yielded another site with both Archaic period and Woodland period association in the same area (Jones 2017, 1).

The lithic artifacts recovered from Site #1 included 1 Bradley Spike point (Figure 29), 1 preform, 1 preform fragment, 1 small-stemmed point, 2 cores, 4 medium triangular point, 4 notched rocks, 5 small triangular points, 16 bifacial thinning flakes, 22 primary reduction flakes (Jones 2016a, 3). The artifacts recovered from Site #1 were linked to a span of time from the Middle Archaic period to the Late Woodland period based on the depth of the deposits (Jones 2016a, 3). Site #2 yielded 1 South Appalachian Pentagonal point (Figure 30), 1 Hamilton Triangular point (Figure 31), 1 small triangular point, 1 knife, 2 flakes with matrix, 3 bifacial thinning flakes, 174 flakes (Jones 2016b, 3 & 4). The lithic artifacts from Site #2 were linked to a span of time from the Middle Archaic period to the Late Woodland period (Jones 2016b, 4). Site #3 yielded 1 Otarre/Swannanoa point (Figure 34), 1 Connestee point (Figure 35), 1 Hamilton point (Figure 36), 1 broken point tip, 1 nutting stone, 2 Morrow Mountain points (Figures 32 and 33), 2 preforms, 11 cores, 72 bifacial thinning flakes, 1,254 pieces of debitage (Jones 2017, 3 - 5). The lithic artifacts recovered from Site #3 were linked to a span of time from the Middle Archaic period to the Late Woodland period (Jones 2017, 5).

Rocky Mountain Region

The Pilgrim open-air habitation site Survey was an archaeological investigation which was conducted from 1979 to 1982 (Davis 1983, 235). It was led by Dr. Leslie B. Davis. The Pilgrim site showed signs of intermittent occupation from ca. 1,400 B.C. to 1,450 AD (Davis 1983, 235). The lithic artifacts dated to before ca. 1,000 AD recovered during this excavation

includes projectile points from the Pelican Lake phase, Besant phase, and the Avonlea phase (Figure 43). As well as bifaces, edge-retouched flakes, end scrapers, cobble side scrapers, chopper, cores, and debitage (Figures 44 – 47).

In 2010 an archaeological investigation began at the Game Creek site (Tables 16 – 22) in Wyoming. The excavation ran until 2012 (Eckerle et al. 2017, 1). The site showed evidenced of occupation from before the time of the Archaic period all the way through prehistoric period (Eckerle et al. 2017, 410). The Cultural Levels (CL) which contain artifacts from the Archaic period are CLs 2, 3, 4, 5, and 6 (Table 32). The CL which contained artifacts from the Early-Prehistoric period was CL 6. 2 drills, 2 gravers, 3 thick Lanceolate projectile points, 5 cores, 7 primary flakes, 10 blades, 14 bifaces, 18 retouched flakes, 20 biface thinning flakes, 67 secondary flakes, 97 utilized flakes, 974 tertiary flakes, 1,789 pieces of debitage, and 8,667 flake fragments were recovered from CL 2 (Figure 48). 1 projectile point, 1 end scraper, core, 2 bifaces, 2 drills, 3 primary flakes, 6 biface thinning flakes, 9 retouched flakes, 10 secondary flakes, 30 utilized flakes, 324 tertiary flakes, 711 pieces of debitage, 3,085 flake fragments were recovered from CL 3 (Figure 49). 1 drill, 1 end scraper, 1 side scraper, 1 mano, 1 metate frag, 2 gravers, 3 cores, 9 projectile points, 11 primary flakes, 14 bifaces, 14 biface thinning flakes, 20 retouched flakes, 71 secondary flakes, 77 utilized flakes, 883 tertiary flakes, 1,108 pieces of debitage, and 7,089 flake fragments were recovered from CL 4 (Figure 50). 1 hammerstone, 2 cores, 2 bifaces, 3 drills, 4 projectile points, 6 primary flakes, 10 biface thinning flakes, 11 retouched flakes, 36 secondary flakes, 39 utilized flakes, 374 tertiary flakes, 526 pieces of debitage, and 3,111 flake fragments were recovered from CL 5 (Figure 51). The above-mentioned artifacts are all from the Archaic period. CL 6 consisted of 1 end scraper, 1 spokeshave, 1 primary flake, 2 projectile points, 4 retouched flakes, 6 bifaces, 7 secondary

flakes, 16 utilized flakes, 97 tertiary flakes, 173 pieces of debitage, and 918 flake fragments which could be linked to the Archaic and Early-Prehistoric periods (Eckerle et al. 2017, 181 – 246).

In 2013 Ann M. Johnson and Brian O. K. Reeves published an analysis of the lithic artifacts retrieved from the Osprey Beach site (Tables 23 – 24) in Yellow Stone National Park. The lithic artifacts related to the Archaic period include 2 wedges, 3 end scrapers, 4 cores, 5 side scrapers, 6 Scottsbluff points, 7 Eden points, 12 Retouched and Utilized Flakes, 15 Bifaces, 18 Cody knives, 21 Lanceolate points/point fragments, and 34 gravers and Burins (Johnson and Reeves 2013, 61 – 63). These lithic artifacts were all linked to the early Archaic period, and some were also present in the late Paleoindian period (Johnson and Reeves 2013, 63).

Another excavation done in Yellow Stone National Park was the Fishing Bridge Point excavation (Table 25 – 30) on the shore of Yellowstone Lake. This research was led by anthropologists from University of Montana, Douglas H. MacDonald, and Michael C. Livers. This site showed signs of occupation throughout the Archaic period. MacDonald and Livers' research consisted of surface collections and Test Squares (MacDonald and Livers 2011, 219). The lithic artifacts from the Archaic period recovered through surface collections include 1 uniface, 2 freehand cores, 3 projectile points, 11 bifaces, and 95 flakes (Table 24) (MacDonald and Livers 2011, 225). The lithic artifacts uncovered via excavation which are related to the Archaic period include 1 radial flake tool, 1 McKean point, 1 scraper, 1 hammerstone, 1 red ochre, 2 bifaces, and 297 flakes (Table 26 – 30) (Figures 52 – 58) (MacDonald and Livers 2011, 242 – 257).

The excavation of site 48SW2302 took place in 1980 and 1981 (Tucker 1985, 305). It was led by Gordon C. Tucker who recorded it in *Archaeological Investigations at 48SW2302, a*

Sand Dune Site in Southwestern Wyoming in 1985. Carbon dating results from the excavations linked the site to the Early-Prehistoric period (Tucker 1985, 305). The lithic artifacts recovered consisted of 360 pieces of debitage, 10 biface preforms, 2 unifaces, 2 projectile points, and 1 chopper (Figure 59) (Tucker 1985, 311).

The excavation at Eagle Rock Shelter was conducted by Dr. Richard Jones and Dr. Dudley Gardner from the years 2007 to 2019. The excavation at this site showed periodical occupation well into the Paleoindian period (Martin 2022, Gardner 2022a). Levels 4 through 8 of this site are of interest to this research, as they were correlated to the archaic period (Martin 2022, Gardner 2022a). The lithics recovered from these levels include 3,219 pieces of debitage 40 projectile points, 39 bifacial tools, 21 cores, 12 utilized flakes, 4 unifacial tools, 3 drill, 2 blanks, 2 utilized pebble tools, 1 awl, 1 hammerstone (Gardner 2019).

Geological Resources

Appalachian Region

Ordovician dolomites and Knox limestones were found in the Icehouse Bottom region (Chapman 1973, 134). These yielded many of the worked cherts and flints recovered from the Icehouse Bottom excavation (Chapman 1973, 134). Tools made from locally available quartz, as well imported chalcedony, and jasper, were also recovered from the Icehouse Bottom site (Chapman 1973, 107 – 110).

The mineral resources local to the Appalachian Summit area (Table 31) which were recovered in the Tukasegee, Game Creek, and Warren Wilson sites included quartz, quartzite, diorite, various schists and gneisses, mica, steatite, talc, and some cherts (Keel 1973, 5). Tools made of chalcedony were also recovered at these sites, though this material and some of the

cherts used were not endemic to the Appalachian Summit area (Dickens 1976, 135). The type of mineral which was most commonly used in the manufacturing of lithic artifacts was quartz, with chert being only slightly less common on average (Miller et al. 1977, 14).

The types of geological material recovered from the North River Project include mica, rhyolite, sandstone, slate, quartzite, various types of quartzes and cherts, and a conglomerate material consisting of various minerals (Jones 2021). The most common of these materials recovered were quartz, quartzite, chert, conglomerate, and slate (Jones 2021).

Rocky Mountain Region

The lithic artifacts associated with the Pilgrim open-air habitation site are made up of 18 different types of geological material (Davis 1983, 242 & 243). The most prevalent of these materials were various types of cherts, with igneous stone and metamorphic stone, respectively, being the second and third most common types of geological material recovered (Davis 1983, 242). A type of chert which was predominantly of poor quality was commonly used (Davis 1983, 243). It was sourced from the Meager, Jefferson, and Pilgrim Formations (Davis 1983, 243). Outcrops of cherts and quartzites are located near the habitation site (Davis 1983, 242). However, chert is much more available than quartzite in these outcrops (Davis 1983, 242). There was also rounded cortex present on recovered specimens of utilized quartzite and basalt which indicates that those geological materials were originally sourced from a stream (Davis 1983, 242). The 3 possible source streams are all within 5 to 8 km away from the habitation site (Davis 1983, 242).

Several uncommon materials were used in the manufacturing of lithic artifacts including mottled white chert, and silicified limestone (Davis 1983, 242). These geological materials were

sourced from the Limestone Hills and Madison Limestone, respectively (Davis 1983, 242).

Basalt and an unidentified volcanic material were linked to a basalt flow just south of the Pilgrim site (Davis 1983, 242). The sources of the quartz and obsidian recovered at this site are unknown, but the conditions necessary for their formation would previously have been present in the region (Davis 1983, 270).

The geological materials from the Game Creek site (Table 32) were divided into two cultural levels. Both of these primarily consisted of obsidian with chert being the second most common material type (Eckerle et al. 2017, 200). The remainder of the recovered material included orthoquartzite, metaquartzite, basalt, silicified wood, and other unclassified stone types (Eckerle et al. 2017, 200).

There are several obsidian sources nearby (Eckerle et al. 2017, 200). The four obsidian pieces analyzed were shown to be from 2 sources nearby (Eckerle et al. 2017, 200). The chert present in the site is most likely from the surrounding regions, but there was difficulty in confirming this (Eckerle et al. 2017, 200). The utilized cherts appeared to have been procured from secondary glacial or fluvial deposits rather than through direct quarrying (Eckerle et al. 2017, 200).

The Osprey Beach site yielded 62% obsidian lithic artifacts and 31% chert lithic artifacts with the remaining 7% being comprised of quartzite, dacite, sandstone, opalized wood, and rhyodacite⁶ (Johnson 2013, 67). The Obsidian recovered from the site was sourced from at least 11 sources⁷ (Johnson 2013, 61). The non-obsidian sources included 10 chert sources, 6 of which also yielded quartzite, as well as 2 rhyodacite (Johnson 2013, 66). There is also evidence for at least 1 dacite and 1 opalized wood sources though they have not yet been identified (Johnson 2013, 67). The source of the sandstone tools found in the Osprey Beach site has also not been

identified but Johnson states that it is most likely local to the Osprey Beach site (Johnson 2013, 61 – 64).

The geological material recovered from the Fishing Bridge site included 86% obsidian which is likely to have been sourced from the Obsidian Cliff formation in Yellow Stone National Park as well as from other sites nearby (MacDonald and Livers 2011, 42). It also included 4% chert which was sourced from the Crescent Hill formation as well as 5.5% chert for which a source could not be determined (MacDonald and Livers 2011, 290). Less than 2% quartz, quartzite, dacite, orthoquartzite, and petrified wood were also recovered, though a source for them was also not found. 2.5% of the geological materials recovered included Moss Agate, porcellanite, and knife River Flint (MacDonald and Livers 2011, 290). These were not local and indicate minor trade interactions (MacDonald and Livers 2011, 295).

In site 48SW2302 the main type of geological material which was predominantly used by the inhabitants to make tools was chert (Tucker 1985, 311). The other geological materials used at this site included quartzite and chalcedony (Tucker 1985, 311). The chert and quartzite would have been derived from lag or alluvial gravels near the site (Tucker 1985, 311). The chalcedony was most likely sourced from the Moss Agate knoll to the northeast of the site (Tucker 1985, 311).

The geological materials used by the inhabitants of the Eagle Rock Shelter site consisted predominately of quartzite, followed, in order of frequency, by chert, and basalt. Silt stone and obsidian were also used in the construction of lithic tools (Gardner 2019). The majority of the basalt tools recovered were made of an extremely localized variety known as Hornfels (Martin, 2022). The obsidian would have been acquired, through trade with neighboring peoples, from sources in New Mexico, Utah, and Government Mountain in Arizona (Gardner 2022a).

Available Flora and Fauna

Appalachian Region

The plants indigenous to the Appalachian region, which would have been present in the region from the end of the glacial period to the historic period, included 4 genera of evergreen trees and 30 genera of deciduous trees. Of these deciduous tree genera 19 were lumber trees, 6 were fruit trees, and 5 were nut trees. In addition to these trees 15 genera of grasses, 27 flowering plant genera, 4 genera of vines, and 3 fruiting plant genera are also native to the Appalachian region (Harshberger 1911, 223 – 226).

According to Jefferson Chapman's article from 1973 the fauna which was indigenous to the Cherokee valley area included 37 species of mammals, 25 species of waterfowl, 58 species of amphibians and reptiles, 128 species of fowl. This area includes the Icehouse Bottom site and the North River survey; however, the North River survey has not yielded any faunal remains (Jones 2022b). Very few animal skeletal remains were recovered from the Icehouse bottom site. They belonged to bear, bird, deer, freshwater drumfish, and turtle (Chapman 1973, 135 – 136). Bennie Keel described the faunal availability of the Appalachian summit area similarly to Chapman's description of the Cherokee valley (1987, 9 – 10). He listed bear, beaver, deer, and raccoon as the most important mammals for food, furs, and tools (Keel 1987, 9). He also listed the most important fowls for food as turkeys, ducks, and geese (Keel 1987, 9). The Indigenous peoples of the region would have also eaten meat from turtles (Keel 1987, 9). The shells of turtles as well as snake skins and rattles were used for ceremonial purposes (Keel 1987, 9). The fish which would have been consumed in this area would have included several freshwater fish species, but very few species of shellfish (Keel 1987, 9 – 10).

Rocky Mountain Region

The plants indigenous to the Rocky Mountain region, which would have been present in the region from the end of the glacial period to the historic period, included 5 genera of evergreen trees and 27 genera of deciduous trees. Of these deciduous tree genera 15 were lumber trees, 10 were fruit trees, and 2 were nut trees. In addition to these trees 42 genera of flowering plants, 5 genera of grasses, 3 genera of mosses, 3 genera of fruiting shrubs, and 2 genera of vines are also indigenous to the Rocky Mountain region (Harshberger 1911, 240 – 250).

The fauna associated with the pilgrim habitation site during the era of habitation included members of the genera *Antilocapra*, *Bison*, *Lepus*, *Odocoileus* (Davis 1983, 245). The excavation at the game creek site yielded faunal material from members of the genera *Antilocapra*, *Bison*, *Branta*, *Canis*, *Castor*, *Cervus*, *Meleagris*, *Neogale*, *Pseudunio*, *Ovis*, *Ursus*, and *Vulpes* (Eckerle et al. 2013, 370). Remains of several unidentified mammals, reptiles, and bivalves were also recovered from this site (Eckerle et al. 2013, 370). The researchers of the Osprey Beach site excavations performed a protein residue analysis on the points recovered from the site to determine which animals were hunted at this site. Blood from large animals such including bears and artiodactyls as well as from small animals such as canids, felids, and lagomorphs (Johnson 2013, 72 – 73). According to Johnson's research at the Osprey Beach site (2013, 71) larger animals would have been hunted for their meat and the smaller animals would have been hunted for their wool and sinew (Johnson 2013, 71). The researchers of the excavation at Fishing Bridge Point performed a protein residue analysis on 13 of the lithic artifacts recovered from the site (Johnson 2013, 70). This analysis revealed blood remains from artiodactyls, bovines, and dogs (MacDonald and Livers 2011, 268). The researchers of site

48SW2302 noted that there were 38 species of mammals, 15 species of birds, 8 species of reptiles and amphibians, and 3 species of fish were endemic to the area (Tucker 1985, 306). The occupants of the site would have relied predominately on the hunting of lagomorphs and artiodactyls for meat. Carnivorous animals of varying size may also have been hunted for their furs and meat (Tucker 1985, 308), however, Tucker also stated that several aboriginal hunter-gatherer groups did not value carnivores for use or consumption (Tucker 1985, 308). The occupants of the Eagle Rock Shelter site subsisted primarily on hunting rabbits as well as grouse, deer, mountain sheep, and mountain martins (Gardner 2022b). The occupants also consumed fish, but this was less commonly eaten than other sources of protein (Gardner 2022b).

Conclusion

The construction of lithic artifacts in both the Appalachian and Rocky Mountain regions was a very finetuned process, however it was dependent on the resources available. An example of this dependency can be seen in the lithic artifacts recovered from the Pilgrim site, which were made from of lower quality chert, being more roughly made than is common. Through this it is evident that the quality and overall style of lithic tools are effected by the geological material used to construct them. The type of geological material used in a region, and at a specific site, was tied closely to what was available nearby.

In the above descriptions of geological material, it is evident that various quartzes, and cherts were commonly used in both regions. This is due to the fact that both of these materials are extremely common and the processes necessary for their production were present in each region (Daniel 2001, 240). In the Rocky Mountain region, in addition to these materials Obsidian was also used. The people of the Appalachian region did not have access to obsidian except,

infrequently, through trade. This is because Obsidian's range was far more limited than quartz and chert. The availability of obsidian in the Rocky Mountain region is due to volcanic activity being a more recent occurrence in that region than in the Appalachian region (Haun and Kent 1965). In addition to this varying availability, quartz and chert are also much harder than obsidian (Miller 2010), however obsidian would have been very desirable due to the fact that it could be worked to an incredible sharpness of 30 angstroms thin (Buck 1982, 266).

The tools of the Rocky Mountain region were predominately of a larger size than those found in the Appalachian region. While, on average, the points and knives in both regions had comparable widths, the lengths of the Rocky Mountain specimens are far greater than those of the Appalachian specimens. It is likely that this is due to a combination of the prey being smaller in the Appalachian region and the availability of Obsidian in the Rocky Mountain region. It would have been advantageous to work with obsidian in large pieces in order to account for the fragility of the material.

The intended uses of the tools also had an impact on the type of tools that were made and their styles. A larger portion of the tools recovered from sites in the Appalachian region would have been used for purposes other than hunting than those from the Rocky Mountain region. In both regions non-hunting tools included tools which would have been used to craft objects as well as tools which would have been used to process plant-based foods. Both of these tools were more common in the Appalachian region sites, but the differences between tools used for processing plant material was greater.

The ratio of small game to large game was higher in the Appalachian region than it was in the Rocky Mountain region. The Appalachian region was also home to many more fruit and nut bearing trees and plants, than the Rocky Mountain region. This caused a greater dependency

on large game for sustenance in the Rocky Mountain region, as seen in Johnson's description of the preferred animals for sustenance by the people of the Osprey Beach site. However, the Appalachian region had a greater dependency on vegetation and small game.

The hunting of large game in the Rocky Mountain region, as well as the use of more fragile geological material, necessitated the use of larger projectile points. Whereas the hunting of small game in the Appalachian region necessitated the use of smaller projectile points. Additionally, a greater reliance on vegetation for sustenance caused tools used for processing plant material to become more common in the Appalachian region.

Throughout this research a relationship between which aspects of the environment could be exploited and the types of tools that were made is apparent. The peoples of the Appalachian region subsisted heavily on hunting small animals and on foraging for plant material for subsistence. They also primarily relied on geological material which was durable and had regular fracturing patterns. The combination of these aspects led the people of the Appalachian region to use smaller projectile points and knives. It also caused them to use more tools related to the processing of plant material. The people of the Rocky Mountain region subsisted on hunting large game for food as the region did not provide abundant edible plant material. The geological material that they relied on included material which was less durable than that of the Appalachian region, though it was capable of being sharper. The combination of these aspects caused the peoples of the Rocky Mountain region to rely on tools which would be useful in hunting and processing meat, such as projectile points and knives. While these people did use some tools which would have been useful for the processing of plant material, this type of tool was far less common in this region.

These relationships have implications for researchers' further understanding of the processes, causes, and behaviors related to lithic tool construction. As this research served to determine what environmental and material aspects effect the construction of tools, further research would be useful in order to determine which characteristics of lithic tools are due to stylized preferences as opposed to environmental necessity. A better understanding of these preferences would help researchers to understand possible ceremonial aspects of the tools as well as the level of skill and specialization present in the cultures of those who manufactured the tools.

This increased understanding may not only relate to the regions of focus in this study. It is likely that other regions which rely heavily on small game and plant material for food, and on more durable geological material for their lithic tool construction, would construct lithic tools which are similar to those of the Appalachian region. It is also likely that regions which rely on larger game and less abundant plant material for food, and on more fragile geological material for tool construction, would use similar tools to those of the Rocky Mountain region. Further comparisons of lithic assemblages from other regions would need to be done in order to determine the validity of these hypotheses.

This research has helped me to further my understanding of the causes of and variation present in the construction of lithic tools. I intend to conduct research into the afore mentioned hypotheses as they would help us to better understand the relationship between the construction of lithic tools and the culture of those who made them.

Endnotes

1. 4 of these ax fragments may be celt fragments instead (Chapman 1973, 125).
2. See note 1 (Chapman 1973, 125).
3. 6 of the Guilford Lanceolate points came from mound fill (Keel 1976, 126).
4. 2 of these gravers were found on specimens of prismatic blades (Keel 1976, 144).
5. Only 2 were complete (Keel 1976, 199).
6. Rhyodacite may be basalt instead (Johnson 2013, 67).
7. Only 10 source locations have been positively identified, but there are still obsidian lithics whose source has not yet been identified (Johnson 2013, 61).

Tables

Table 4. Distribution of projectile point and knife types by excavation levels, Unit A.

Type or Provisional Type	Excavation Levels							Total
	Pre-John	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	
Projectile Points								
Cornered Triangular		6	7	1		1		15
Flint River Spine		1	3					4
Knifing Spine	1	1	1					3
Notched		1	2					3
Notched Triangular		1	1					2
Point Corner Notched				1				1
Point Lute				1				1
Whitewater Triangular			1					1
Total Projectile Points	1	10	15	3		1		29
Provisional Projectile Points								
P1-a		1			3	1	1	6
P1-p		1	2			1		3
P1-u	2							2
P1-v		2						2
P1-w					1			1
P1-x						1		1
P1-y		1	1					2
P2-a								1
P2-p			1					1
Total Provisional Points	2	5	4		4	2	1	18
Knives								
K-1		4		1	1			7
K-2	2	1		1		2	1	7
K-3		1			2			3
K-4		1		1				2
K-5		1	1					2
Total Knives	2	8	1	2	2	2	1	22
Total	3	23	20	5	6	10	2	71

Table 1 Icehouse Bottom site (Chapman 1973, 89)

Table 5. Distribution of projectile point and knife types by excavation levels, Unit B.

Type or Provisional Type	Excavation Levels							Total
	Pre-John	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	
Projectile Points								
Cornered Triangular	1	6	8	10	3	3		31
Flint River			2	2				4
Knifing Spine	1		1	2				4
Point Lute	1			2				3
Notched					1			1
Point Corner			1					1
Point Corner Notched				1				1
Point Lute				1				1
Whitewater Triangular				1				1
Point Lute Triangular				1				1
Whitewater Notched								1
Total Projectile Points	3	6	11	18	5	4		47
Provisional Projectile Points								
P1-a	1	1			1			3
P1-p						1		1
P1-u						2		2
P1-v					1			1
P1-w						1		1
P1-x						1		1
P1-y							1	1
P2-a								1
Total Provisional Points	1	1			2	4	1	12
Knives								
K-1				1	1			2
K-2						1		1
K-3							1	1
K-4								1
Total Knives				1	1	1	1	4
Total	4	7	11	19	6	5	1	54

Table 2 Icehouse Bottom site (Chapman 1973, 90)

Table 6. Distribution of chipped stone artifacts by excavation levels, Unit A.

Category	Excavation Levels								Total
	Pre-John	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	
Projectile Points	2	10	12	2	1	6	1		34
Knives	4	1	1	1	1	1	1		10
Flint River Spine and Blade	1	1	1	1	1	1	1		7
Whitewater Spine and Blade	1	1	1	1	1	1	1		7
Point Lute	1	1	1	1	1	1	1		7
Notched	1	1	1	1	1	1	1		7
Point Corner	1	1	1	1	1	1	1		7
Point Corner Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Triangular	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7
Whitewater Notched	1	1	1	1	1	1	1		7
Point Lute Triangular	1	1	1	1	1	1	1		7

Category	Feature Number					TOTAL
	1	2	3	4	5	
Projectile points:						
Sevenside River Stemmed			1			1
Delta Notched		1				1
Garden Creek Triangular	1			1		2
Polished stone:						
Gorget					1	1
Pipe	1					1
TOTALS	2	1	1	1	1	6

Table 5 Tuckasegee site (Keel 1976, 39)

Category	Flint Shards (100)	Shards (100)	Flint Shards (100)	TOTAL
Projectile points				
Pigeon Side Notched	1			1
Delta Notched	1			1
Garden Creek Triangular	1			1
Delta Notched			1	1
Sevenside Stemmed			1	1
Garden Creek Triangular			1	1
Delta Notched			1	1
Unclassified			1	1
Total	4	0	4	8
Non-projectile points				
Flake scrapers	1	1		2
Unclassified				
Total	1	1		2
Other stone				
Gorget			1	1
Pipe			1	1
Total			2	2
Polished stone				
Hammerstone		1	1	2
Unclassified			1	1
Total			2	2
Other stone				
Hammerstone		1	1	2
Unclassified			1	1
Total			2	2
Non-projectile stone tools				
Flake scrapers		1	1	2
Unclassified			1	1
Total			2	2
TOTAL	4	0	10	14

Table 6 Tuckasegee site (Keel 1976, 42)

Category	Secondary Wood Features	Primary Wood Features	Remnant Wood Features	Other
Shaped Stone				
Projectile points				
Sevenside River Stemmed	1			1
Pigeon Side Notched				
Garden Creek Triangular		1	1	2
Delta Notched		1	1	2
Unclassified				
Total	1	1	2	4
Flake scrapers		1	1	2
Hammerstone		1	1	2
Polished stone				
Gorget			1	1
Pipe			1	1
Total			2	2
Other stone				
Hammerstone		1	1	2
Unclassified				
Total			2	2
Other stone				
Hammerstone		1	1	2
Unclassified				
Total			2	2
TOTAL	1	2	4	8

Table 7 Garden Creek Mound No. 2 site (Keel 1976, 84)

Category	Burial				TOTAL
	2	5	6	7	
Projectile points					
Pigeon Side Notched			1		1
Conestoga Triangular				1	1
Haywood Triangular				1	1
Unclassified	1				1
Prismatic blade			2		2
Flake scraper		1			1
Hammerstone			1		1
Total	1	1	4	2	8

Table 8 Garden Creek Mound No. 2 site (Keel 1976, 94)

Category	Flint Shards	Flint Shards	Flint Shards	Flint Shards	Flint Shards and Bottles	TOTAL
Unfinished						
Chillicothe Arrow Stamped, plate	1	4		5		10
Chillicothe Arrow Stamped, arrow point		1	9	10		20
Pipe		2	1	3		6
Tulsa Single Stamped			1	1		2
Flint fragments				1	4	5
Prismatic blades	10	6	34	50		100
Other				1		1
Triangular preforms (Jacks blades)	1	1		2		4
TOTAL	11	11	44	58	4	128
Percent of total	8.6	8.6	34.4	45.3	3.1	100.0
Percent of total	8.6	8.6	34.4	45.3	3.1	100.0

Table 9 Garden Creek Mound No. 2 site (Keel 1976, 141)

Category	Flint Shards	Flint Shards	Flint Shards	Flint Shards	Flint Shards and Bottles	TOTAL
Unfinished						
Chillicothe Arrow Stamped, plate	1	4		5		10
Chillicothe Arrow Stamped, arrow point		1	9	10		20
Pipe		2	1	3		6
Tulsa Single Stamped			1	1		2
Flint fragments				1	4	5
Prismatic blades	10	6	34	50		100
Other				1		1
Triangular preforms (Jacks blades)	1	1		2		4
TOTAL	11	11	44	58	4	128
Percent of total	8.6	8.6	34.4	45.3	3.1	100.0
Percent of total	8.6	8.6	34.4	45.3	3.1	100.0

Table 10 Warren Wilson site (Keel 1976, 171)

Artifact Description	Block			Total
	D	E	I	
Biface	1		1	2
Utilized Flake	1		3	4
Secondary Flake	3	2	3	8
Tertiary Flake	23	10	34	67
Flake Fragment	204	89	691	984
Shatter	28	11	187	226
Tooth	0	1	0	1
Bone	11	2	1	14
Charcoal			1	1
Total	271	115	921	1,307

Table 17 Cultural Levels #1 and #2 (Block D, E, and I), Game Creek site (Eckerle et al. 2017, 208)

Artifact Description	Oolite	Chert	Older	O-QTZ	M-QTZ	Basalt	Sil. Wood	Total
Projectile Point	3							3
Biface	10	2						12
Drill	1	1						2
Graver	1	1						2
Retouched Flake	17	1						18
Utilized Flake	44	2		1		44	2	93
Hammerstone								
Core	2	2				1		5
Primary Flake	4	1		2				7
Secondary Flake	43	13			2	1		59
Tertiary Flake	791	64		44	1	3	4	907
Blade	10							10
BF Thin. Flake	20							20
Flake Fragment	7,032	390	4	207	10	24	16	7,683
Shatter	1,399	139	1	3		16	5	1,563
Total	9,377	616	5	257	13	89	27	10,384

Faunal Remains		count	Isolated
L. Artiodactyl		3	
M. Artiodactyl		3	
UD Artiodactyl		7	
Beaver		1	
Unidentified		49	
Total		63	

Macrofloral (point plotted)		count
Charcoal		91
Carbonized Seed		3
Total		94

Table 18 Cultural Level # 2 (Block A), Game Creek site (Eckerle et al. 2017, 192)

Description	Block				Total
	A	D	E	I	
Projectile Point	1				1
Biface	1			1	2
Drill	1			1	2
End Scraper				1	1
Retouched Flake	9				9
Utilized Flake	20	1	1	8	30
Core	1				1
Primary Flake		1	1	1	3
Secondary Flake	5	1	2	2	10
Tertiary Flake	172	24	24	104	324
BF Thinning Flake	4			2	6
Flake Fragment	1,199	167	314	1,405	3,085
Shatter	193	23	41	454	711
L. Artiodactyl bone	4				4
unidentified bone	2		3		5
Charcoal	31	4		1	36
Total	1,649	221	386	1,980	4,236

Table 19 Cultural level #3, Game Creek site (Eckerle et al. 2017, 213)

Description	Block					N436 E503	N440 E504	N440 E520	Total
	A	D	E	I	H				
Projectile Point	6	1	1		1				9
Biface	9	2	1	2					14
Drill	1								1
End Scraper	1								1
Side Scraper	1								1
Graver	2								2
Retouched Flake	12		3	2			2	1	20
Utilized Flake	38	4	6	3			3	3	77
Mono								1	1
Motat Frag	1								1
Core	1		1	1					3
Primary Flake	4		3	1	1			2	11
Secondary Flake	23	18	13	9	2				71
Tertiary Flake	377	133	107	44	39		36	117	883
BF Thinning Flake	10	1	1	1			1		14
Flake Fragment	3,341	1,047	1,155	449	540		178	150	7,089
Shatter	551	151	146	118	26		41	52	1,308
Tooth	2		1						3
Tooth Enamel	9						4		13
Bone	49	4	65	1	8		6	3	136
Charcoal	14	7	1	2	1		1		26
Total	4,472	1,348	1,504	633	618		262	247	9,484

Table 20 Cultural Level #4, Game Creek site (Eckerle et al. 2017, 218)

Artifact Description	Block				N436 E503	N440 E504	Total
	A	D	E	I			
Projectile Point	2	1				1	4
Biface	2						2
Drill	1	1	1				3
Retouched Flake	8			1		2	11
Utilized Flake	29	1	5	1		3	39
Hammerstone	1						1
Core	2						2
Primary Flake	4		2				6
Secondary Flake	20	2	11	1	1	1	36
Tertiary Flake	170	22	92	25	29	36	374
BF Thinning Flake	7	1	1		1		10
Flake Fragment	1,336	255	999	195	176	150	3,111
Shatter	224	30	144	36	41	51	526
Tooth Enamel	7	1	2		1	2	13
Bone	16	6	26	1	1	1	51
Charcoal	6						7
Total	1,835	320	1,283	260	250	247	4,196

Table 21 Cultural Level #5, Game Creek site (Eckerle et al. 2017, 231)

Artifact Description	Block				Total
	A	D	E	I	
Projectile Point	2				2
Biface	5	1			6
End Scraper	1				1
Spokeshave	1				1
Retouched Flake	4				4
Utilized Flake	15	1			16
Primary Flake	1				1
Secondary Flake	4		3		7
Tertiary Flake	68	5	20	4	97
Flake Fragment	648	69	147	54	918
Shatter	116	27	23	7	173
Bone	14	2	1	1	18
Tooth Enamel	8				8
Total	887	105	194	66	1,252

Table 22 Cultural Level #6, Game Creek site (Eckerle et al. 2017, 242)

Catalogue Number	Artifact	Obsidian Source	Figure
41218	Lanceolate point base	Beaver Creek	1.9.10
41219	Shoulder base groove	OCF	
41220	Shoulder base groove	OCF	
41221	Cody heads	OCF	1.9.11
41222	Side notched	Beaver Creek	1.9.12
41223	Point	Coastal Creek Tuff	
41224	Lanceolate straight base	Travis Pass	1.9.13
41225	Cody heads	OCF	
41226	Bif-thin	OCF	1.9.14
41227	Shoulder	OCF	
41228	Lanceolate straight base	Travis Pass	1.9.15
41229	Cody heads	Rockhouse Ridge	
41230	Base piece	OCF	1.9.16
41231	Base piece base	Beaver Creek	1.9.17
41232	Cody heads	OCF	1.9.18
41233	Notched	OCF	
41234	Notched	Coastal Creek	
41235	Cody heads	OCF	1.9.19
41236	Shoulder	OCF	1.9.20
41237	Shoulder	OCF	1.9.21
41238	Shoulder	OCF	1.9.22
41239	Shoulder	OCF	1.9.23
41240	Shoulder	OCF	1.9.24
41241	Shoulder	OCF	1.9.25
41242	Shoulder	OCF	1.9.26
41243	Shoulder	OCF	1.9.27
41244	Shoulder	OCF	1.9.28
41245	Shoulder	OCF	1.9.29
41246	Shoulder	OCF	1.9.30
41247	Shoulder	OCF	1.9.31
41248	Shoulder	OCF	1.9.32
41249	Shoulder	OCF	1.9.33
41250	Shoulder	OCF	1.9.34
41251	Shoulder	OCF	1.9.35
41252	Shoulder	OCF	1.9.36
41253	Shoulder	OCF	1.9.37
41254	Shoulder	OCF	1.9.38
41255	Shoulder	OCF	1.9.39
41256	Shoulder	OCF	1.9.40
41257	Shoulder	OCF	1.9.41
41258	Shoulder	OCF	1.9.42
41259	Shoulder	OCF	1.9.43
41260	Shoulder	OCF	1.9.44
41261	Shoulder	OCF	1.9.45
41262	Shoulder	OCF	1.9.46
41263	Shoulder	OCF	1.9.47
41264	Shoulder	OCF	1.9.48
41265	Shoulder	OCF	1.9.49
41266	Shoulder	OCF	1.9.50
41267	Shoulder	OCF	1.9.51
41268	Shoulder	OCF	1.9.52
41269	Shoulder	OCF	1.9.53
41270	Shoulder	OCF	1.9.54
41271	Shoulder	OCF	1.9.55
41272	Shoulder	OCF	1.9.56
41273	Shoulder	OCF	1.9.57
41274	Shoulder	OCF	1.9.58
41275	Shoulder	OCF	1.9.59
41276	Shoulder	OCF	1.9.60
41277	Shoulder	OCF	1.9.61
41278	Shoulder	OCF	1.9.62
41279	Shoulder	OCF	1.9.63
41280	Shoulder	OCF	1.9.64
41281	Shoulder	OCF	1.9.65
41282	Shoulder	OCF	1.9.66
41283	Shoulder	OCF	1.9.67
41284	Shoulder	OCF	1.9.68
41285	Shoulder	OCF	1.9.69
41286	Shoulder	OCF	1.9.70
41287	Shoulder	OCF	1.9.71
41288	Shoulder	OCF	1.9.72
41289	Shoulder	OCF	1.9.73
41290	Shoulder	OCF	1.9.74
41291	Shoulder	OCF	1.9.75
41292	Shoulder	OCF	1.9.76
41293	Shoulder	OCF	1.9.77
41294	Shoulder	OCF	1.9.78
41295	Shoulder	OCF	1.9.79
41296	Shoulder	OCF	1.9.80
41297	Shoulder	OCF	1.9.81
41298	Shoulder	OCF	1.9.82
41299	Shoulder	OCF	1.9.83
41300	Shoulder	OCF	1.9.84
41301	Shoulder	OCF	1.9.85
41302	Shoulder	OCF	1.9.86
41303	Shoulder	OCF	1.9.87
41304	Shoulder	OCF	1.9.88
41305	Shoulder	OCF	1.9.89
41306	Shoulder	OCF	1.9.90
41307	Shoulder	OCF	1.9.91
41308	Shoulder	OCF	1.9.92
41309	Shoulder	OCF	1.9.93
41310	Shoulder	OCF	1.9.94
41311	Shoulder	OCF	1.9.95
41312	Shoulder	OCF	1.9.96
41313	Shoulder	OCF	1.9.97
41314	Shoulder	OCF	1.9.98
41315	Shoulder	OCF	1.9.99
41316	Shoulder	OCF	1.9.100

Table 23 Osprey Beach site (Johnson and Reeves 2013, 62)

Catalogue Number	Artifact	Obsidian Source	Figure
149417	Cody heads	OCF	1.10.1
149420	Cascade point	Beaver Creek	1.10.2
149423	Cody heads	OCF	
149424	Shoulder point	OCF	1.10.3
149426	Cody heads	Packhouse Creek	
149430	Edged wedge	Beaver Creek	4.4.1
149433	Shoulder point	Beaver Creek	1.10.4
149440	Shoulder base groove	OCF	
149443	Retouched flake	OCF	4.4.2
149446	Gravel	OCF	
149449	Intermittent lanceolate point	OCF	
149450	Intermittent lanceolate point	Coastal Creek Tuff	1.10.5
149451	Intermittent lanceolate point	OCF	1.10.6
149452	Intermittent lanceolate point	OCF	1.10.7
149453	Intermittent lanceolate point	OCF	1.10.8
149454	Intermittent lanceolate point	OCF	1.10.9
149455	Intermittent lanceolate point	OCF	1.10.10
149456	Intermittent lanceolate point	OCF	1.10.11
149457	Intermittent lanceolate point	OCF	1.10.12
149458	Intermittent lanceolate point	OCF	1.10.13
149459	Intermittent lanceolate point	OCF	1.10.14
149460	Intermittent lanceolate point	OCF	1.10.15
149461	Intermittent lanceolate point	OCF	1.10.16
149462	Intermittent lanceolate point	OCF	1.10.17
149463	Intermittent lanceolate point	OCF	1.10.18
149464	Intermittent lanceolate point	OCF	1.10.19
149465	Intermittent lanceolate point	OCF	1.10.20
149466	Intermittent lanceolate point	OCF	1.10.21
149467	Intermittent lanceolate point	OCF	1.10.22
149468	Intermittent lanceolate point	OCF	1.10.23
149469	Intermittent lanceolate point	OCF	1.10.24
149470	Intermittent lanceolate point	OCF	1.10.25
149471	Intermittent lanceolate point	OCF	1.10.26
149472	Intermittent lanceolate point	OCF	1.10.27
149473	Intermittent lanceolate point	OCF	1.10.28
149474	Intermittent lanceolate point	OCF	1.10.29
149475	Intermittent lanceolate point	OCF	1.10.30
149476	Intermittent lanceolate point	OCF	1.10.31
149477	Intermittent lanceolate point	OCF	1.10.32
149478	Intermittent lanceolate point	OCF	1.10.33
149479	Intermittent lanceolate point	OCF	1.10.34
149480	Intermittent lanceolate point	OCF	1.10.35
149481	Intermittent lanceolate point	OCF	1.10.36
149482	Intermittent lanceolate point	OCF	1.10.37
149483	Intermittent lanceolate point	OCF	1.10.38
149484	Intermittent lanceolate point	OCF	1.10.39
149485	Intermittent lanceolate point	OCF	1.10.40
149486	Intermittent lanceolate point	OCF	1.10.41
149487	Intermittent lanceolate point	OCF	1.10.42
149488	Intermittent lanceolate point	OCF	1.10.43
149489	Intermittent lanceolate point	OCF	1.10.44
149490	Intermittent lanceolate point	OCF	1.10.45
149491	Intermittent lanceolate point	OCF	1.10.46
149492	Intermittent lanceolate point	OCF	1.10.47
149493	Intermittent lanceolate point	OCF	1.10.48
149494	Intermittent lanceolate point	OCF	1.10.49
149495	Intermittent lanceolate point	OCF	1.10.50
149496	Intermittent lanceolate point	OCF	1.10.51
149497	Intermittent lanceolate point	OCF	1.10.52
149498	Intermittent lanceolate point	OCF	1.10.53
149499	Intermittent lanceolate point	OCF	1.10.54
149500	Intermittent lanceolate point	OCF	1.10.55
149501	Intermittent lanceolate point	OCF	1.10.56
149502	Intermittent lanceolate point	OCF	1.10.57
149503	Intermittent lanceolate point	OCF	1.10.58
149504	Intermittent lanceolate point	OCF	1.10.59
149505	Intermittent lanceolate point	OCF	1.10.60
149506	Intermittent lanceolate point	OCF	1.10.61
149507	Intermittent lanceolate point	OCF	1.10.62
149508	Intermittent lanceolate point	OCF	1.10.63
149509	Intermittent lanceolate point	OCF	1.10.64
149510	Intermittent lanceolate point	OCF	1.10.65
149511	Intermittent lanceolate point	OCF	1.10.66
149512	Intermittent lanceolate point	OCF	1.10.67
149513	Intermittent lanceolate point	OCF	1.10.68
149514	Intermittent lanceolate point	OCF	1.10.69
149515	Intermittent lanceolate point	OCF	1.10.70
149516	Intermittent lanceolate point	OCF	1.10.71
149517	Intermittent lanceolate point	OCF	1.10.72
149518	Intermittent lanceolate point	OCF	1.10.73
149519	Intermittent lanceolate point	OCF	1.10.74
149520	Intermittent lanceolate point	OCF	1.10.75
149521	Intermittent lanceolate point	OCF	1.10.76
149522	Intermittent lanceolate point	OCF	1.10.77
149523	Intermittent lanceolate point	OCF	1.10.78
149524	Intermittent lanceolate point	OCF	1.10.79
149525	Intermittent lanceolate point	OCF	1.10.80
149526	Intermittent lanceolate point	OCF	1.10.81
149527	Intermittent lanceolate point	OCF	1.10.82
149528	Intermittent lanceolate point	OCF	1.10.83
149529	Intermittent lanceolate point	OCF	1.10.84
149530	Intermittent lanceolate point	OCF	1.10.85
149531	Intermittent lanceolate point	OCF	1.10.86
149532	Intermittent lanceolate point	OCF	1.10.87
149533	Intermittent lanceolate point	OCF	1.10.88
149534	Intermittent lanceolate point	OCF	1.10.89
149535	Intermittent lanceolate point	OCF	1.10.90
149536	Intermittent lanceolate point	OCF	1.10.91
149537	Intermittent lanceolate point	OCF	1.10.92
149538	Intermittent lanceolate point	OCF	1.10.93
149539	Intermittent lanceolate point	OCF	1.10.94
149540	Intermittent lanceolate point	OCF	1.10.95
149541	Intermittent lanceolate point	OCF	1.10.96
149542	Intermittent lanceolate point	OCF	1.10.97
149543	Intermittent lanceolate point	OCF	1.10.98
149544	Intermittent lanceolate point	OCF	1.10.99
149545	Intermittent lanceolate point	OCF	1.10.100

Table 24 Osprey Beach (Johnson and Reeves 2013, 63)

Type	Butter glass	Crescent	slate	obsidian	qtz/ quartz	chert/wk/ orth.	Total	%
early red flk	0	0	0	1	0	0	1	6.9
ear mid flk	0	5	0	13	0	1	19	12.0
biface flk	0	2	1	17	1	9	24	21.6
shaping flake	0	2	0	3	0	0	5	4.5
flake frag.	0	7	0	32	2	2	43	38.4
indet. flk	0	0	0	2	0	1	3	2.7
Late-stage bif	0	0	0	0	0	2	2	1.8
mid-stage bif	0	0	0	4	1	1	6	5.4
Prey Pl.	0	0	0	2	0	1	3	2.7
Freehand core	0	0	0	0	2	0	2	1.8
Sidescraper	0	0	0	1	0	0	1	0.9
Endscraper	0	0	0	0	0	1	1	0.9
Retouched flake	1	0	0	0	0	1	2	1.8
Total	1	16	1	75	6	13	112	100.0
%	0.9	14.3	0.9	67.0	5.4	11.6	100.0	—

Table 25 Surface Collected, Fishing Bridge Point site (MacDonald and Livers 2011, 226)

Type Code	C.Hill	obsidian	Welded tuff	Pet. Wood	chert	Total
Decorat.Flake	0	0	0	0	1	1
Early-Red. Flake	1	1	0	0	0	2
Early-Mid Flake	0	1	0	0	1	2
Bif-thin flake	0	1	0	0	0	1
Shaping flake	0	4	0	0	0	4
Flake Frag.	1	19	0	0	0	20
Indet. Flake	0	3	0	1	0	4
Hammerstone	0	0	1	0	0	1
Total	2	29	1	1	2	35
%	5.7	82.9	2.9	2.9	5.7	100.0

Table 26 Late Archaic (Feature 4), Fishing Bridge Point site (MacDonald and Livers 2011, 244)

Type	C.Hill	obsidian	Pet. Wood	chert	Total
Block shutter	0	1	0	1	2
Decorat.Flake	0	0	0	1	1
Early-Mid Flake	1	3	0	0	4
Bif-thin flake	1	3	0	0	4
Shaping flake	0	4	0	0	4
Flake Frag.	0	19	1	1	21
Indet. Flake	0	3	0	0	3
Late-stage biface	0	1	0	0	1
Utilized flake	0	0	1	0	1
Total	2	34	2	3	41
%	4.9	82.9	4.9	7.3	100.0

Table 27 Middle Archaic (Feature 5.0), Fishing Bridge Point site (MacDonald and Livers 2011, 251)

Type	C.Hill	obsidian	orthoqtz	Pet. Wood	Qtz	chert	Total
Decorat.Flake	0	0	0	0	1	0	1
early-red flake	0	1	0	0	0	0	1
Early-Mid Flake	3	9	1	0	0	1	14
Bif-thin flake	1	16	1	0	0	0	18
Shaping flake	0	9	1	0	0	2	12
Flake Frag.	2	47	2	1	0	1	53
Indet. Flake	1	8	0	0	1	0	10
Radial flake tool	0	1	0	0	0	0	1
McKean Point	0	1	0	0	0	0	1</

Type Code	C.Hill	hematite	obsidian	Pet. Wood	chert	Total
Block shatter	0	0	1	0	0	1
Decort.Flake	1	0	0	0	0	1
Early-Mid Flake	1	0	6		1	8
Bif-thin flake	0	0	2	0	0	2
Shaping flake	0	0	6	1	1	8
Flake Frag.	0	0	14	0	0	14
Indet. Flake	0	0	1	0	0	1
Late-stage biface	0	0	1	0	0	1
Red Ochre	0	1	0	0	0	1
Total	2	1	31	1	2	37
%	5.4	2.7	83.8	2.7	5.4	100

Table 29 Middle Archaic (Feature 7.1), Fishing Bridge Point site MacDonald and Livers 2011, 247)

Type Code	C.Hill	dacite	obsidian	orthoqtz	Pet. Wood	chert	Total
Early-Mid Flake	1	0	2	0	0	0	3
Bif-thin flake	1	0	7	0	0	0	8
Shaping flake	0	1	11	0	0	1	13
Flake Frag.	0	0	48	1	0	2	51
Indet. Flake	0	0	3	0	0	0	3
Retouched flake	1	0	0	0	0	0	1
Endscraper	0	0	1	0	0	0	1
Total, flaked stone	3	1	72	1	0	3	80
%	3.8	1.3	90.0	1.3	0.0	3.8	100.0

Table 30 Early Archaic (Feature 12), Fishing Bridge Point (MacDonald and Livers 2011, 257)

Major Part(s) of Trafficon	Phon	Point Type	General Symbol	Particular Symbol
Navigation	Owl	Marion	△	Chert
	Plaque	Plaque Triangular		Chert
Late Woodland	Converse	Revised Triangular	△	Chert
		Golden Cross Triangular		Chert, quartz
Middle Woodland	Converse	Revised Triangular	△	Chert, quartz
		Plaque Triangular		Chert, quartz
Early Woodland	Pigskin	Pigskin Side Notched Bevelled Spine Cross Notched		Chert, quartz
		Triangular		Quartz
		Domesmen Diamond		Quartz
		Flint Round Flamed		Quartz
Late Archaic		Circle Stamped		Quartz, quartzite
		Recessed Ribbed Flamed Quadrilateral Flamed		Quartzite
Middle Archaic		Golfball Scattered Shank Flamed		Quartzite
Early Archaic		Kirk Cross Notched Kirk Flamed		Chert, quartz
		Plaque Cross Notched Serpent Inflated Flamed		Chert, quartz
		Rebway		Chert, quartz
Falcon-Diamond		Clevis		

Based on the stratigraphically derived projectile point sequences

Table 31 Lithic Material, Appalachian Summit sites
(Miller et al. 1977, 20)

Material Type	Cultural Level	
	1	2
Obsidian	85.3%	91.1%
Chert	9.5%	5.7%
Orthoquartzite	1.2%	2.3%
Other (AN-O)	3.7%	.0%
Metaquartzite	.3%	.2%
Basalt	.1%	.4%
Silicified Wood	.0%	.3%

Table 32 Geological Material Percentages, Game Creek site (Eckerle et al. 2017, 200)

Figures



Figure 1: a. Palmer Corner Notched, b. Decatur, c. Bakers Creek, d. Plott Short Stemmed, e. Swan Lake, f. Cotaco Creek, g. Bradley Spike, h. Flint River Spike. The Icehouse



Figure 2: a. Haywood Triangular, b. Connestee triangular, c. Garden Creek Triangular, d. Hamilton, e. Late Mississippian Triangular. The Icehouse Bottom



Figure 3: a. P-1u, b. P-1v, c. P-1w, d. P-1x, e. P-1y, f. P-1z. The Icehouse Bottom site. (Chapman 1973, 99 – 100)



Figure 4: a. P-2x, b. P-2y, c. P-2z, d. P-4y, e. P-4z, f. P-13. The Icehouse Bottom site. (Chapman 1973, 102 – 103)

Bottom site. (Chapman, 1973, 92 – 93)



Figure 5: a. K-1, b. K-2, c. K-3, d. K-4, e. K-6. The Icehouse Bottom site. (Chapman 1973, 105 – 106)

site. (Chapman, 1973, 96 – 97)



Figure 6: a. Local prismatic blades and a core fragment on the bottom right, b. Prismatic blades and blade fragments from Flint Ridge. The Icehouse Bottom site. (Chapman 1973, 108 – 109)



Figure 7: a. End Scrapers, b. Spokeshaves, c. Gravers, d. Drills, e. Side Scrapers, f. Chisels. The Icehouse Bottom site. (Chapman 1973, 115 – 116)



Figure 8: a. “Net Sinkers”, b. Pottery Polishing Stone, c. Hammerstones, d. Anvil Stones. The Icehouse Bottom site. (Chapman 1973, 123 – 124)



Figure 9: a. Gorget Fragments, b. Atlatl Weight Fragment, c. Pipe Fragment, d. Celt and Bit Fragment, e. Grooved Ax Fragment, f. Worked Hematite and Schist, g. Worked Hematite. The Icehouse Bottom site. (Chapman 1973, 126 – 127)



Figure 10: a. Digging Implements, b. Stalactite Fragment, c. Grooved Limonitic Sandstone Fragments. The Icehouse Bottom site. (Chapman 1973, 128 – 129)



Figure 11: a. Palmer Corner Notched, b. Kirk Corner Notched, c. Coosa Notched, d. Swannanoa Stemmed, e. Pigeon Side Notched, f. Savannah River Stemmed, g. Garden Creek Triangular, h. Madison, i. perforator, j. flake scrapers, k. gunflint. The Tuckasegee site. (Keel 1976, 52)

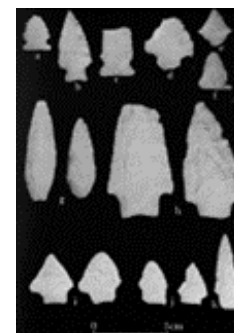


Figure 12: a. Palmer Corner Notched, b. Kirk Stemmed, c. Kirk Notched, d. Stanly Stemmed, e. Morrow Mountain I, f. Morrow Mountain II, g. Guilford Lanceolate, h. Savannah River Stemmed, i. Otter Stemmed, j. Plott Short Stemmed, k. Bradley Spike. Garden Creek Mound No. 2. (Keel 1976, 125)

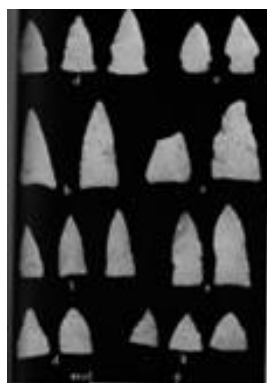


Figure 13: a. Swannanoa Stemmed, b. Pigeon Side Notched, c. Transylvania Triangular, d. Garden Creek Triangular, e. Copena Triangular, f. Connetsee Triangular, g. Haywood Triangular, h. South Appalachian Pentagonal. Garden Creek No. 2. (Keel 1976, 128)

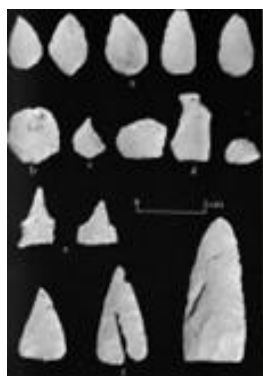


Figure 14: a. small oval knives, b. disc, c. graver, d. scrapers, e. drills, f. triangular knives. Garden Creek No. 2 (Keel 1976, 135)

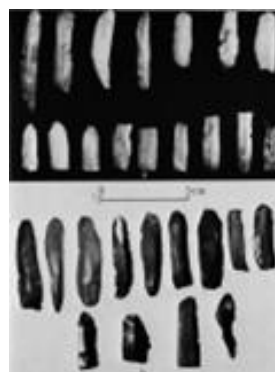


Figure 15: Prismatic blades from Garden Creek Mound No. 2. (Keel 1976, 137)

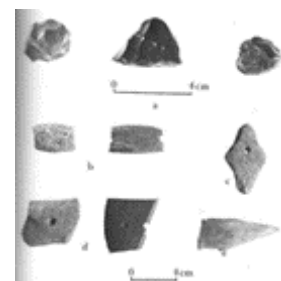


Figure 16: a. polyhedral cores, b. expanded-center gorgets, c. pendant gorget, d. tabular contracting-center gorgets, e. tabular pointed-end gorget. Garden Creek Mound No. 2. (Keel 1976, 143)

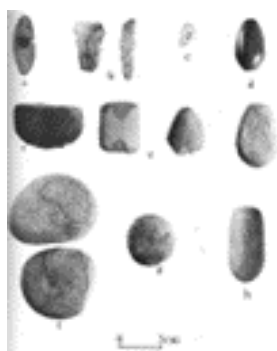
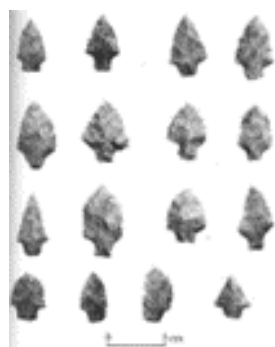


Figure 17: a. platform pipe, b. pipe fragment, c. tale pendant, d. plummet, e. celt fragments, f. pitted hammerstones, g. pebble hammerstone, h. cylindrical hammerstones. Garden Creek Mound No. 2. (Keel 1976, 147)



Figure 18: a. Lecroy Bifurcated Stem, b. Morrow Mountain I Stemmed, c. Guilford Lanceolate, d. Savannah River Stemmed. The Warren Wilson site. (Keel 1976, 192)



Figures 19: Otarre Stemmed projectile points from the Warren Wilson site. The Warren Wilson site. (Keel 1976, 195)

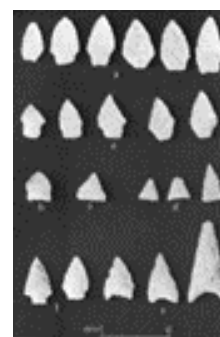


Figure 20: a. Swannanoa Stemmed, b. Pisgah Triangular, c. Haywood Triangular, d. Pigeon Side Notched, e. Garden Triangular, f. Plott Short Stemmed. The Warren Wilson site. (Keel 1976, 197)

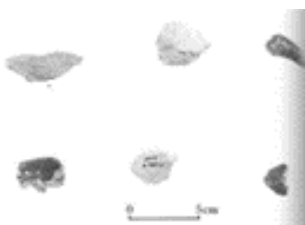


Figure 21: Flake scrappers. The Warren Wilson site. (Keel 1976, 200)

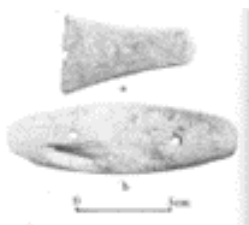


Figure 22: a. expanded-center bar gorget, b. boat-shaped gorget. The Warren Wilson site. (Keel 1976, 200)



Figure 23: a. pitted hammerstones, b. pebble hammerstones, c. and d. grooved axes, e. abrading stone, f. pestle. The Warren Wilson site. (Keel 1976, 202)



Figure 24: Projectile points. The Warren Wilson site. (Dickens 1976, 136)



Figure 25: a. cutting tools, b. scrapers, c. boring and graving tools. The Warren Wilson site. (Dickens 1976, 137)



Figure 26: a. and b. Ground celt from burial 25 at Garden Creek Mound No. 1, c. small celt with beveled bit from Warren Wilson site. (Dickens 1976, 139)



Figure 27: ground stone discs. The Warren Wilson site. (Dickens 1976, 141)

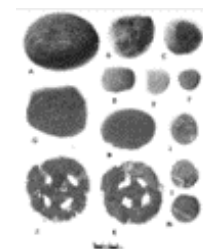


Figure 28: a.-c. large hammerstones, d.-f. small hammerstones, g.-i. polishing stones, j.-m. cut mica discs. The Warren Wilson site. (Dickens 1976, 142)



Figure 29: Knox Chert Bradley Spike point. The North River Survey Site #1. (Jones 2016a, 3)



Figure 30: South Appalachian Pentagonal point. The North River Survey Site #2. (Jones 2016b, 3)



Figure 31: Hamilton Triangular point. The North River Survey Site #2. (Jones 2016b, 4)



Figure 32: Projectile points. The North River Survey site #1. (Jones 2016c, 24)

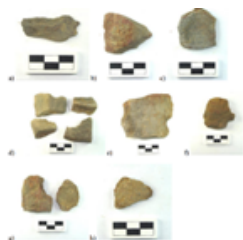


Figure 33: Lithic artifacts. The North River Survey site #1. (Jones 2016c, 25)



Figure 34: Lithic artifacts and projectile points. The North River Survey site #1. (Jones 2016c, 26)



Figure 35: Projectile points. The North River Survey site #2. (Jones 2016c, 28)



Figure 36: Lithic artifacts and quartz and Knox chert debitage. (Jones 2016c, 29)



Figure 37: Quartz debitage. The North River Survey site #2. (Jones 2016c, 30)



Figure 38: Morrow Mountain point. The North River Survey Site #3. (Jones 2017, 3)

Figure 39: Morrow Mountain point: The North River Survey Site #3. (Jones 2017, 4)

Figure 40: Otarr/Swannanoa point. The North River Survey Site #3. (Jones 2017, 4)



Figure 41: Connestee point. The North River Survey Site #3. (Jones 2017, 4)



Figure 42: Hamilton Triangular point. The North River Survey Site #3. (Jones 2017, 5)



Figure 43: Pilgrim site projectile points. (Davis 1983, 247)

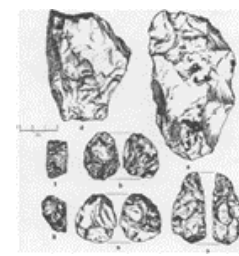


Figure 44: Pilgrim site bifaces. (Davis 1983, 248)



Figure 45: Pilgrim site edge-retouched flakes. (Davis 1983)



Figure 46: Pilgrim site end scrapers. (Davis 1983, 250)

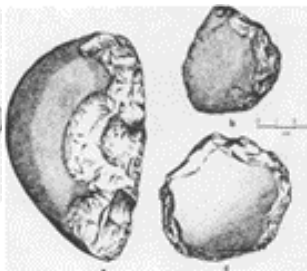


Figure 47: Pilgrim site cobble side scrapers. (Davis 1983, 250)



Figure 48: Diagnostic Lithics from the Game Creek site Cultural Level #2. (Eckerle et al. 2017, 206)



Figure 49: Projectile Point and Drill from Game Creek Site Cultural level #3. (Eckerle et al. 2017, 216)



Figure 50: Projectile Points and Knives from the Game Creek site Cultural Level #4. (Eckerle et al. 2017)

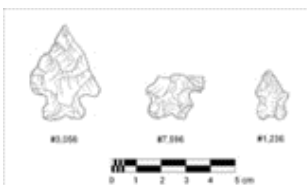


Figure 51: Projectile Points from the Game Creek site Cultural level #5. (Eckerle et al. 2017, 239)

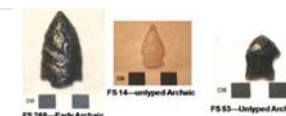


Figure 52: Archaic Projectile Points from the Fishing Bridge Point site. (MacDonald and Livers 2011, 225)



Figure 53: Projectile Points from the Fishing Bridge Point site Cultural level #6. (MacDonald and Livers 2011, 252)



Figure 54: End Scraper from the Fishing Bridge Point site. (MacDonald and Livers 2011, 256)



Figure 55: Diagnostic Projectile Points from the Fishing Bridge Point site. (MacDonald and Livers 2011, 263)



Figure 56: Early Archaic Artifacts from the Fishing Bridge Point site. (MacDonald and Livers 2011, 285)

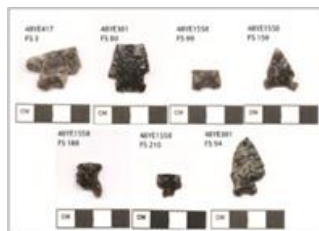
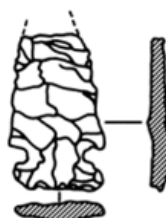


Figure 57: Middle Archaic Projectile Points from the Fishing Bridge Point site. (MacDonald and Livers 2011, 286)



Figure 58: Late Archaic Projectile Points from the Fishing Bridge Point site. (MacDonald and Livers 2011, 288)



48SW2302.4

Figure 59: Projectile Point from site 48SW2302. (Tucker 1985, 317)

Bibliography

- Anderson, David G., and Kenneth E. Sassaman, eds. 2009 “The Paleoindian and Early Archaic Southeast.” Tuscaloosa, AL: University of Alabama Press.
- . 2002 “The Woodland Southeast.” Tuscaloosa, AL: University of Alabama Press.
- I. Andrefsky, William. 2009 “The Analysis of Stone Tool Procurement, Production, and Maintenance.” *Journal of Archaeological Research* 17 (1): 65–103.
<https://doi.org/10.1007/s10814-008-9026-2>.
- Buck, Bruce A. 1982 “Ancient Technology in Contemporary Surgery.” *Western Journal of Medicine* 136 (3): 265–69.
- Chapman, Jefferson. 1973 “Icehouse Bottom Site – 40 MR 23.” Report of Investigations 13, Department of Anthropology, University of Tennessee, Knoxville.
- . 1985 “Tellico Archaeology: 12,000 Years of Native American History.” Report of Investigations 43, Department of Anthropology, University of Tennessee, Knoxville. Published by Tennessee Valley Authority.
- Church, Tim. 1996 “Lithic Resources of the Bearlodge Mountains, Wyoming: Description, Distribution, and Implications.” *Plains Anthropologist* 41 (156): 135–64.
<https://doi.org/10.1080/2052546.1996.11931804>.
- Daniel, Jr., I. Randolph. 2001 “Stone Raw Material Availability and Early Archaic Settlement in the Southeastern United States.” *American Antiquity*, Vol. 66, No. 2 (Apr. 2001), pp. 237–265.
- Davis, Leslie B. 1983 “Stone Circles in the Montana Rockies: Relict Households and Transitory Communities.” *Plains Anthropologist* 28 (102): 235–78.
<https://doi.org/10.1080/2052546.1983.11909186>.
- Dickens, Roy S. Jr. 1976. “Artifacts.” In *Cherokee Prehistory: The Pisgah Phase in the Appalachian Summit Region*, 133–70. Knoxville, Tennessee.
- Eckerle, William, Sasha Taddie, James Mayer, Michael K. Page, and Orion Rogers. 2017 “The Game Creek Site and the Prehistory of Jackson Hole.” Edited by Michael K. Page. The Office of the Wyoming State Archaeologist, Wyoming Department of State Parks and Cultural Resources, Laramie, Wyoming, 466.
- Gardner, A. Dudley. August 06, 2022a Personal Communication.
- Gardner, A. Dudley. August 10, 2022b Personal Communication.
- Gardner, A. Dudley. 2019 Eagle Rock Shelter Collection. BLM Archaeological Archives and Collections 5DT813, Fort Bridger State Historic Site, Fort Bridger, WY.
- Gardner, A. Dudley, Gabrielle Elliott, and Melissa Pola. 2005 “Granaries in the Eastern Green River Drainage Basin.” Rocky Mountain Anthropological Conference.

- Haun, John D., and Harry C. Kent. 1965 "Geologic History of Rocky Mountain Region." Abstract. *Bulletin of the American Association of Petroleum Geologists* 49 (11): 1781–1800. <https://doi.org/10.1306/A6633866-16C0-11D7-8645000102C1865D>.
- Harshberger, John William. 1911 "Phytogeographic Survey of North America: A Consideration of the Phytogeography of the North American Continent, Including Mexico, Central America and the West Indies, together with the Evolution of North American Plant Distribution." Vol. 13. New York: G. E. Stechert & Co.
- Johnson, Ann M., and Brian O.K. Reeves. 2013 "Summer on Yellowstone Lake 9,300 Years Ago: The Osprey Beach Site." *Plains Anthropologist* 58 (227–228): 1–194. <https://doi.org/10.1080/00320447.2013.11735767>.
- Jones, Richard R. 2016a "Site #1: Long Branch." Archaeological Site Survey Record 40MR756. North River Survey. Cole Building #3, 1216 Foster Avenue, Nashville, TN 37243: Tennessee Department of Environment and Conservation Division of Archaeology.
- . 2016b "Site #2: Long Branch." Archaeological Site Survey Record 40MR757. North River Survey. Cole Building #3, 1216 Foster Avenue, Nashville, TN 37243: Tennessee Department of Environment and Conservation Division of Archaeology.
- . 2016c "Cultural Resources Survey of Long Branch Creek, North River Watershed, Monroe Country, Tennessee Field Season 2016," July, 34.
- . 2017 "Site #3: Long Branch." Archaeological Site Survey Record 40MR758. North River Survey. Cole Building #3, 1216 Foster Avenue, Nashville, TN 37243: Tennessee Department of Environment and Conservation Division of Archaeology.
- . 2021 "North River Survey Results" North River Survey. Mayfield Annex 104, 1301 Magnolia Ave NE, Cleveland, TN 37311.
- . June 13, 2022a Personal Communication.
- . August 15, 2022b Personal Communication.
- Keel, Bennie C. 1976 "Appalachian Summit Archaeology." In *Cherokee Archaeology*, 213–46. Knoxville, Tennessee: The University of Tennessee Press.
- Lammers, Martin J. August 13, 2022 Personal Communication.
- MacDonald, Douglas H., Jannifer W. Gish, Steven D. Sheriff, and Michael Livers. 2012 "Fishing Bridge Point (48YE381): A Stratified Prehistoric Site at Yellowstone Lake, Wyoming." *Plains Anthropologist* 57 (223): 261–73. <https://doi.org/10.1179/pan.2012.020>.
- MacDonald, Douglas H., and Michael C. Livers. 2011 "2009-2010 Montana Yellowstone Archaeology Project Survey & Evaluation of Sites along Yellowstone Lake's Northwest Shore." J1580090409 & J1580100301. Yellowstone Center for Resources PO Box 168

- Yellowstone National Park, WY 82190: Department of Anthropology, the University of Montana. Anderson, David G., and Robert C. Mainfort, Jr., eds.
- Miller, Jim. 2010 "Obsidian Is Hot Stuff." *Volcano World*. April 15, 2010.
<https://volcano.oregonstate.edu/volcanic-minerals/obsidian>.
- Miller, Peter S., Martha Eblen, and Kenneth Hollingsworth. 1977 "Cultural Resource Evaluation of the Brown Site (31 JK 129), Jackson County, North Carolina." *North Carolina Archeological Council and the Archeology Branch, Division of Archives and History, North Carolina Department of Cultural Resources*, no. 5: 54–110.
- Odell, George H. 2003 *Lithic Analysis. Manuals in Archaeological Method, Theory and Technique 2*. Tulsa, Oklahoma: Department of Anthropology, University of Tulsa.
- Reed, Charles A., Jenn Mueller, Jeremy Omvig, Rand A. Greubel, Jaclyn Mullen, and Michael J. Prouty. 2018 "Prehistoric Technology." In *Archaeological Data Recovery in the Piceance and Wyoming Basins of Northwestern Colorado and Southwestern Wyoming*, edited by Matthew J. Landt. Archaeopress Publishing Ltd. <https://doi.org/10.2307/j.ctvndv67r>.
- "UNC Research Laboratories of Archaeology | Archaeology." 2022
<https://Archaeology.Sites.Unc.Edu/Home/Rla/>. 2022.
<https://archaeology.sites.unc.edu/home/rla/>.
- Schaefer, Jerry. 1994 "The Challenge of Archaeological Research in the Colorado Desert: Recent Approaches and Discoveries," 22.
- Steponaitis, Vincas P. 1986 "Prehistoric Archaeology in the Southeastern United States, 1970-1985." *Annual Review of Anthropology*, Vol. 15 (1986), pp. 363-404.
- Stiger, Mark. 2001 "Current Perspectives in Colorado High-Country Archaeology," 21.
- Taylor, Dee C. 1993 "Contributions to Anthropology, Number 3: Archaeological Investigations in the Libby Reservoir Area, Northwestern Montana," 159.
- Tucker, Gordon C. 1985 "Archaeological Investigations at 48SW2302, a Sand Dune Site in Southwestern Wyoming." *Plains Anthropologist* 30 (110): 305–24.
<https://doi.org/10.1080/2052546.1985.11909293>.
- Wetmore, Ruth Y., Kenneth W. Robinson, and David G. Moore. 2000 "Woodland Adaptations in the Appalachian Summit of Western North Carolina: Exploring the Influence of Climatic Change." In *The Years Without Summer: Tracing A.D. 536 and Its Aftermath*. Joel D. Gunn, ed. Pp. 139-149. BAR International Series 872. Oxford, England: Archaeopress.
- Wetmore, Ruth. 2002 "The Woodland Period in the Appalachian Summit of Western North Carolina and the Ridge and Valley Province of Eastern Tennessee." In *The Woodland Southeast*. David G. Anderson and Robert C. Mainfort, Jr., eds. Pp. 249-269. Tuscaloosa, AL: University of Alabama Press.

Volume 5

Article 5

Summer 2022

Mind and Memory

Valerie Emmert

Lee University

Under the guidance of Ashley Mulligan

Mind and Memory

My research this summer began with an interest in Romantic Poetry, specifically the themes of imagination, metaphysics, and creativity. Keats and Coleridge first grabbed my attention with their use of syntax and diction to convey ideas connected to nature. I began to question very early while reading poetry where the sense of inspiration came from. I know nature is the easy answer, but it has not satisfied me. While reading *Natural Supernaturalism* by M.H. Abrams, my sentiments were affirmed when he explained that Romantic ideas and forms of imagination were secularized versions of traditional theological concepts. His book opened up an entirely new way of viewing ideas that at first had seemed to me to be without any connection to God.

The first book of scholarship I began to read was *The Mirror and The Lamp* by M.H. Abrams; he gave me an excellent foundation for understanding the influence of Plato and his view on art and its effect on Romanticism. It also gave me insight into the origins of Romanticism and made it seem like a movement that was not so disjointed from history as it had seemed to me in the beginning. Abrams connected Romanticism to Plato, transcendental theory, and the Enlightenment. Abrams also marked the radical shift of the artist in the alignment of aesthetic thinking. His chapter on Wordsworth and Coleridge caused me to appreciate Wordsworth's sensationalism and understanding of the writing of poetry as connected to actual events and passion expressed through the use of daring and figurative language. Wordsworth's description of poetry as the expression or overflow of feeling encompasses what I feel poetry is meant to do to both the writer and the reader.

For a season, I focused on Keats early works in my reading; he fed me imagery of what I imagined romantic writing/inspiration to be like. For example, in his poem "On leaving some

Friends at an early Hour,” Keats writes, “Give me a golden pen, and let me lean, /On Heaped up flowers, in regions clear, and far; /Bring me a tablet whiter than a star” (1-3). When I imagined the great Romantic poets, I always imagine them writing somewhere in nature; Keats fed me the image I wanted to believe was real, so I read his poetry for a while, content with poetry that felt relatable to me. My curiosity spiked as I read his poetry, so I began to read Anahid Nersessian’s Book Keats’s Odes A Lover’s Discourse, which I loved. I did not love what she said but rather how she said it. Nersessian made scholarship seem exciting, daring, and radical. I read through her book quickly, but her ideas about Keats’s writing caused me to view Keats’s poetry and his purpose in writing differently in a way that seemed morally skewed. Specifically, in Keats’ poem “Ode on a Grecian Urn,” he admits to deriving pleasure from art, whose prerequisite is human suffering. This suffering is part of a cultural tradition that takes sexual violence as a rich source of inspiration for art.

Accordingly, I shifted my focus solely to Wordsworth. I started with his Poems in Two Volumes which held a world of imagery in them that stretched far and wide connected to reality, but also to ideas that seemed just out of complete comprehension, almost as if shrouded by mystery. Interestingly I began to Read Myself and Some Other Being before I started reading The Prelude; while reading, I developed an appreciation and a love for something which I had not even begun to read yet. The ideas of the two consciousness gripped me because I feel as if humans constantly live in the tension of who they were, who they are, and who they want to be. So I began to read *The Prelude*, and I was immediately sucked in. There was something about it that felt natural. I think the reason for that now is that it begins with a river flowing and follows the progression of early childhood.

The specific moment in which I became so interested was when Wordsworth, around the age of ten, stole a shepherd's boat in part 1 of *The Two-Part Prelude* of 1799. As I anticipate a larger project next summer, I imagine engaging in a line-by-line analysis of the entire scene and then connecting its significance back to the Romanticism movement as a whole. I am interested in this scene because of the picturesque imagery that connects to themes of pleasure, thoughts, darkness, and solitude. The section begins with him being led by spirits, which invited a whole queue of questions for me, such as where does Wordsworth perceive the spirits to come from, what would he say the purpose is of the spirits communing with him, and why would they lead him to steal a boat alone in the first place? In analyzing this section, I would want to know which part should be looked at closely. This is a memory that Wordsworth is pondering on years later: which things are symbolic and what things are just what they are, and how can we know based on his language which things are meant to be analyzed or thought more deeply about?

I also would like to study his word choice, specifically regarding the descriptions he uses to set the scene and to describe what happens. I want to know which words push the action forward and which words are used to slow time down. There is almost an eerie feel to this scene; why? There is a heavy contrast between the light, water, and cliffs, which proclaim the feelings and appearance of sublimity and beauty. Nevertheless, in the end, Wordsworth leaves as a child troubled in his mind and dreams; what is he trying to express about the weightiness of nature and truth throughout this scene? My central starting research question would be this: In what way did this event, as recorded by Wordsworth years later, shape his mind, what did he learn from it, what is he trying to get his reader to understand, and what metaphysical ideas or traditional truths is Wordsworth conveying in the boat scene that connects to Romanticism as a whole?

Annotated Bibliography

Abrams, M. H. *Natural Supernaturalism Tradition and Revolution in Romantic Literature*.

Norton, 1971. Abrams in *Natural Supernaturalism* differentiates between what was tradition versus what was revolutionary in the Romantic age. Tradition is steeped in religion, so Abrams proves that central Romantic ideas and forms of imagination were secularized versions of traditional theological concepts. The process of moving away from religious ideas was not just getting rid of them but rather an assimilation and reinterpretation of religious ideas as constitutive elements in a worldview founded on secular premises. Romantic writers undertook the responsibility of saving traditional concepts; they additionally took on the purpose of saving the overview of human history and destiny, the experiential paradigms, and the cardinal values of their religious heritage by reconstituting them in a way that would be intellectually acceptable and emotionally pertinent for the time being. Wordsworth envisaged all his poems as one immense work and considered himself divinely taught. Abrams also describes Wordsworth as one who called upon the prophetic spirit and desired to unite his mind to the outer universe in holy marriage, believing that the mind and nature together create a new world.

The Mirror and the Lamp: Romantic Theory and the Critical Tradition. Oxford University Press,

1953. The analogy of the mirror which Plato uses clarifies the inner relations of all things in the universe. Plato's mirror encouraged a strict dichotomy between the real world and imaginative elements, which were regarded as only for pleasure. The transcendental theory associated with Plato maintains that proper objects of art or forms maintain an independent existence in their ideal space available only to the eye of the mind. In transcendental theory, we can retain the idea of Plato's cosmos while avoiding his

degradation of the arts by allowing the artist to bypass the sensible world to imitate the ideal more accurately rather than nature itself. This transcendental ideology was a push to elevate the art from the realm of faux and shadows to instead lift it to an eminence over all human pursuits in close connection to the Ideal and God himself. Renaissance Platonism guaranteed the metaphysical provision for linking this idea of an individual's mind to the universal and unchanging ideas of the world pattern. The content of art having an internal origin connected either to the divine or ideal shifts to instead focus more on the forces found inherently in the emotions, desires, and the evolving imaginative process of the artist himself. Poetry is seen as the spontaneous overflow of powerful feelings. This overflow is no longer external but rather internal, coming from the artist; because of this, the poetry can now be more affected directly by the artist's mental state. Romantic predictions of poetry are based on expression. Tradition holds that poetry departs from fact because its primary purpose is to bring delight to the reader. A Romantic critic might say that although poetry may be focused on the ideal, it is connected to objects that have already been acted on and transformed by the poet's feelings. Wordsworth backed this idea, marking the greatness of poetry as the accuracy with which one can describe objects without being modified by passion.

Gravil, Richard. "'Some Other Being': Wordsworth in 'The Prelude.'" *The Yearbook of English Studies*, vol. 19, 1989, pp. 127–43. *JSTOR*, <https://doi.org/10.2307/3508046>.

Accessed 8 Sep. 2022. Richard Gravil's primary concern is to explain what created the rhetorical structure of *The Prelude*. He also explores its critique of the ardor of undisciplined benevolence, a more powerful argument against those who were not, at the time, capable of such 'indiscipline' (128). Gravil compares Wordsworth's youthful

revolutionary imaginary self to his editorial self. He expounds on the idea that the imagination is geared towards the sublime. Gravit also explains the transformation of Wordsworth from a man who was overconfident and enchanted by revolution and had no guide to good and evil to become instead a man who looked back on his life with understanding, hence *The Prelude*.

Owen, W. J. B. "The Sublime and the Beautiful in The Prelude." *The Wordsworth Circle*, vol. 4, no. 2, 1973, pp. 67–86. *JSTOR*, <http://www.jstor.org/stable/24039116>. Accessed 8 Sep. 2022. This article explores how Wordsworth habitually sees his environment in terms of the sublime and beautiful. The environment Wordsworth knew best, The Lake District, is peculiarly susceptible to being described by poetic language. Wordsworth described his environment acutely while being sensitive to the scene's qualities; he also used language suited to the description; from this convergence emerged Wordsworth's poetry. The conclusion Owen reaches is that "the most important episodes in The Prelude, in the growth of this poet's mind, are of, or are connected with, the sublime as Wordsworth and his eighteenth-century predecessors understood that concept" (85). The sublime is connected with fear, but it is delightful. The beautiful is connected with pleasure, and its appropriate feeling is love. According to Wordsworth, the sublime is determined by individual form, duration, and power. He believes the sublimity and beauty of nature should everlastingly affect the mind. He wrote The Prelude to communicate nature's impact on himself presently and in the past.

Robinson, Daniel. *Myself and Some Other Being: Wordsworth and the Life Writing*. U of Iowa Press, 2014. Robinson proposes that Wordsworth, in writing The Prelude, was trying to convince himself that what he has to say is necessary. Wordsworth's writing explores

memory in cooperation with imagination. Wordsworth, as a writer, is free to adapt his personal history (memory) and his poetic identity to convey who he was then and who he is now while writing. Robinson states that Wordsworth “wants to teach you how to have a poetic experience of life, how to make memories ... into an ever-present source of spiritual – and moral – restoration” (8). Wordsworth’s primary interest is how he can translate the benevolent moral influence nature had on him in the past into poetry that can do the same for his readers. In *The Prelude*, Wordsworth conveys a sense of his past self as “some other being.” *The Prelude* is not a chronological narrative of the poet’s years, but rather is the history of the poet’s mind, specifically Wordsworth’s recollections/impressions of the first twenty years of his life. When Wordsworth describes his past self, his perspective is permanently colored by the present one. Wordsworth wrote the poem in frustration and self-rebuke; his insecurity and diffidence thwarted his ambitions. However, *The Prelude* represented how his experiences shaped his mind and how he perceived his past self.

Wordsworth, William, et al. *The Prelude: 1799, 1805, 1850*. W.W. Norton, 1979. Wordsworth’s feelings associated with childhood brought him back into reminiscences. While writing down his memories, he pondered the link between experience and his adult creativity. *The Prelude* is focused on the growth of the poet’s mind. Wordsworth is sharing his memories in a way that marks that he is looking back on them. He also infused within the lines concepts of the metaphysical, pleasure, modes of being, nature, virtue, eternal beauty, knowledge, and feeling. Wordsworth shares his childhood and the ideas that are important to him simultaneously. Once he catches you up in the imagery of the

memories, it is impossible not to be swept away by the radical ideas and philosophies that seem so natural within the landscape of Wordsworth's early childhood.

Volume 5

Article 6

Summer 2022

Music Therapy and Reduction of Test Anxiety in Nursing School Students

Kylie Estrada

Lee University

Under the guidance of Matthew Adams and Samantha Spinks, Ph.D.

Abstract

Test anxiety is a common amongst nursing school students and has an impact of overall testing scores. Music therapy is a nonpharmacologic treatment that reduces anxiety. Research has shown that it has a calming effect which reduces anxiety thus increasing test scores. The purpose of this study was to examine the effects of music therapy on test anxiety in college students. This was a quasi-experimental study with a pre-test/post-test design. The study took place in the School of Nursing at Lee University. The sample consisted of seven students who were all Caucasian, and predominantly female (86%). All participants were senior nursing students.

The participants were given the Westside Anxiety scale to fill out prior to the intervention. A piece of classical music by the composer Mozart was played in the classroom prior to an exam. Following the intervention, students were asked to complete the Westside Anxiety Scale again as a post-test. The results of the pre-test and post-test were then entered into SPSS for statistical analysis.

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between anxiety levels when participants listened to a 15-minute piece of classical music compared to no musical intervention. Participants ranked higher anxiety levels prior to the musical intervention ($M = 2.886$, $SD = 0.5610$) compared to the posttest scores after the classical musical intervention ($M = 2.657$, $SD = 0.5884$), a statistically significant mean decrease of 0.229, 95% CI [-0.0085, 0.4657], $t(6) = 2.359$, $p < .001$. The results of this research show that classical music therapy was effective in reducing test anxiety in this sample. More research should be conducted on a larger sample size and multiple setting to determine if this is reproducible and effective at reducing test anxiety.

Introduction

Test anxiety is something that has been an issue for students in nursing school for decades. More than 40 years ago, Hill and Sarason (1966) showed that test avoidance or test failure delayed study progression and led to lower grades than those achieved by students with normal or low-test anxiety. (Røykenes, 2014). Since nursing students have been reported to have higher test anxiety than other students, test anxiety should receive more attention in the context of nursing education (Driscoll et al., 2009). The high bar for success and the rigor of the nursing profession puts a significant strain on students. Studies have been conducted to test the effectiveness of music therapy on students before exams and some have proven to be beneficial. Similarly, research has been done to determine the efficacy of Mozart's classical music, as well as its capacity to reduce stress and enhance intelligence (Pauwels 2018).

PICOT Question

Does listening to classical music, Mozart specifically, prior to an exam reduce test anxiety in nursing school students over the summer semester?

Purpose Statement

Nursing students frequently experience test anxiety, which has a negative impact on their test results. According to research, music therapy helps reduce test anxiety. This study aims to determine if there is a correlation between music therapy and lowering test anxiety.

Significance and Background

The American Psychological Association defines *anxiety* as "an emotion characterized by feelings of tension, worried thoughts and physical a change such as increased blood pressure" (American Psychological Association, 2020). Pedrelli (2014) found that anxiety disorders are the most prevalent psychiatric problem among college students. Approximately 11.9 % of college

students suffer from an anxiety disorder, which is an increase from previous research suggesting that 10-35% of students experience functionally impairing anxiety, causing a negative association with academic performance. Fernandes et al. (2018) state, "The prevalence of depression was 30.2% and anxiety 62.9%. The prevalence of anxiety and depression symptoms was quite expressive, lacking, thus, more attention to promoting the mental health of nursing students." Sakin Ozen et al. (2009) performed a study at a Turkish University to gain insight into the prevalence of anxiety among 4850 students. They found that several factors contributed to anxiety, especially exam periods ($p < .001$). In addition, they found that men had higher anxiety ($p < .001$). These studies show that anxiety is an issue amongst college students, with exams being a precipitating factor, increasing anxiety levels. It has been hypothesized that classical music, specifically Mozart, can increase intelligence, anxiety, creativity, productivity, and focus. Risa Yupitasari et al. (2020) performed a study. They found that Mozart's music affects the slowing and balancing of the brain, and it can modify brain waves and can have meditative effects.

Review of Literature

Effects of Anxiety on Nursing Students

A scoping review of the literature was performed using databases Cumulated Index to Nursing and Allied Health Literature and Journal Storage to find academic journals and research that had been previously conducted in the past five to seven years.

Test anxiety is a global phenomenon that most students face during the examination, resulting in low achievement in such examinations (Ugwuanyi, 2020). State *anxiety* causes an individual to experience significant psychological distress only under specific situations (Rajiah, 2014). Astres (2018) has observed that single females in the university's nursing program were experiencing two conditions, anxiety and depression. Along with this, it was found that students with anxiety were also irritable, had ingestion issues, and experienced feelings of fear (Astres, 2018). According to Driscoll (2009) et al., when compared to high school students and the public (17%), nursing students are shown to have over double (55-60%) the rate of moderately high to high test anxiety (Moore, 2013). Astres (2018) states that the academic environment in which students are placed in "a problematic of unquestionable relevance in the medical field, given that the academic environment is permeated by stressor situations that can influence the appearance of anxiety and depression."

In addition, it was found that "Overall, these data suggest that comorbidities of anxiety and depression might be expected to be present in roughly one in three university students, and thus warrants attention during intake procedures for mental health professionals who work with this population" (Bitsika, 2012). Hadi (2018) writes, "Test anxiety can potentially lead to underperformance by students, especially in practical examinations. It is a widespread problem among students and is positively correlated with demotivation and physiological stress."

Research has consistently demonstrated that academic-related anxiety is one of the biggest threats to students' educational performance at the primary and secondary school levels (Onwuegbuzie, 2004). When comparing students without test anxiety to those with test anxiety, it was found that performance on each type of question was significantly poorer for high test-anxious students than other students (Naveh-Benjamin, 2016).

Prevalence of Test Anxiety in Nursing Students

Nursing school can be stressful at times due to the rigor of the program. In nursing education, test anxiety should receive more attention because nursing students have been found to experience more test anxiety than other students (Driscoll et al., 2009). Data examining the health and stress levels of nursing students is lacking (Augner, 2015).

In the study conducted by Augner (2015), the author states, "Although chronic stress and burnout are mostly discussed in the context of nurses during their professional career and related to workplace characteristics, recent evidence supports our results indicating that nurses have high-stress levels, even before they begin their professional career." This is indicative of the intensity that occurs at the undergraduate level. This study solidifies the idea that test anxiety is a prevalent issue among nursing students.

The Effectiveness of Music Therapy

Research regarding the effects of music therapy is not new to the world of psychology and medicine. In a secondary school in Nigeria, researchers examined the effectiveness of cognitive-behavioral therapy and music therapy in reducing test anxiety. The results showed that the participants who were exposed to Cognitive Behavioral Therapy (CBT) program significantly had lower test anxiety scores the post-treatment than the participants in the control group of secondary school students in a physics course (Ugwuani, 2020). The results showed a

significant effect of CBT with music in reducing physics test anxiety among secondary school students (Ugwuani, 2020). At the post-treatment and follow-up measures, the effect of CBT with music in reducing physics test anxiety among secondary school students was significant, $p = .000$ (Ugwauni, 2020).

Methodology

Design

This is a quasi-experimental study utilizing convenience sampling of students enrolled in a summer course in the School of Nursing. A pretest/posttest design was used.

Instruments

The Westside Anxiety Scale was used to evaluate students' anxiety level before and after the intervention. This consisted of ten question Likert scale that ranked anxiety from a (1) not at all or never true up to a (5) extremely or always true. The sum was calculated and divided by ten which provided a rank for the participants anxiety level. Each participant was given this instrument before and after the intervention for a pretest/posttest design comparison.

Procedure

Informed consent was obtained. Demographic data were obtained from the participant to include gender, ethnicity, major, and class ranking. Each participant completed the Westside Anxiety Scale prior to the intervention. The intervention consisted of a 15-minute piece of classical music by Mozart, Piano Sonata 4 No. 4 in E flat. Following the intervention, the participants completed the same Westside Anxiety Scale for a comparative analysis.

Results

The study sample consisted of seven students who were all Caucasian, and predominantly female (86%). All participants were senior nursing students. A paired-samples t-test was used to determine whether there was a statistically significant mean difference between anxiety levels when participants listened to a 15-minute piece of classical music compared to no musical intervention. Participants ranked higher anxiety levels prior to the musical intervention ($M = 2.886$, $SD = 0.5610$) compared to the posttest scores after the classical musical intervention ($M =$

2.657, $SD = 0.5884$), a statistically significant mean decrease in the anxiety score of 0.229, 95% CI [-0.0085, 0.4657], $t(6) = 2.359$, $p < .001$.

Discussion

This study specifically addressed senior nursing students enrolled in a summer session. This research showed that nursing students must be equipped with exam anxiety management strategies. The 12 individuals who did not participate in this experiment used the 15 minutes prior to the exam to cram as much material as possible. This revealed to the investigator that students are not successfully managing their study time, that they lack preparation before an exam, that urgency and intensity are heightened during summer courses, and that students lack information regarding test anxiety reduction approaches. Except for two participants, the intervention was beneficial and reduced the anxiety by 0.1 or more. This shows that more research should be conducted to determine if music therapy effectively reduces test anxiety.

Limitations

This is a relatively small sample size conducted in a single setting. In addition, the intervention was given prior to only one exam. Further research should include a larger sample size as well as different settings to determine if the findings are reproducible and if music therapy is an effective measure to reduce test anxiety.

References

- Astrês Fernandes, M., Rocha Vieira, F. E., Silva, J. S., Silva Dantas Avelino, F. V., & Marques Santos, J. D.(2018). Prevalence of anxious and depressive symptoms in college students of a public institution.
- Augner, C. (2015). Depressive Symptoms and Perceived Chronic Stress Predict Test Anxiety in Nursing Students. *Central European Journal of Nursing & Midwifery*, 6(3), 291–297.
<https://doi.org/10.15452/CEJNM.2015.06.0018>
- Bitsika, V., & Sharpley, C. F. (2012). Comorbidity of anxiety-depression among Australian university students: implications for student counsellors. *British Journal of Guidance & Counselling*
- Driscoll, R. (2009). High Test Anxiety among Nursing Students . *Westside Psychology* .
<https://doi.org/https://files.eric.ed.gov/fulltext/ED506526.pdf>
- Hadi, M. A., Ali, M., Haseeb, A., Mohamed, M. M. A., Elrggal, M. E., & Cheema, E. (2018). Impact of test anxiety on pharmacy students' performance in Objective Structured Clinical Examination: a cross-sectional survey. *International Journal of Pharmacy Practice*
- Røykenes, K., Smith, K., & Larsen, T. M. B. (2014). 'it is the situation that makes it difficult': Experiences of nursing students faced with a high-stakes drug calculation test. *Nurse Education in Practice*, 14(4), 350–356. <https://doi.org/10.1016/j.nepr.2014.01.004>
- Pauwels, E. K., Volterrani, D., Mariani, G., & Kostkiewics, M. (2014). Mozart, music and medicine. *Medical principles and practice : international journal of the Kuwait University, Health Science Centre*, 23(5), 403–412. <https://doi.org/10.1159/000364873>
- Naveh-Benjamin, M., McKeachie, W. J., Lin, Y., & Holinger, D. P. (1981). Test anxiety:

- Deficits in information processing. *Journal of Educational Psychology*, 73(6), 816–824.
- Moore, B. (2013). Test Anxiety and Nursing Students. . *Digital Commons @ East Tennessee State University*. <https://doi.org/https://dc.etsu.edu/cgi/viewcontent.cgi?article=1173&context=honors>
- Onwuegbuzie, A. J., & Jiao, Q. G. (2004). Information Search Performance and Research Achievement: An Empirical Test of the Anxiety-Expectation Mediation Model of Library Anxiety. *Journal of the American Society for Information Science & Technology*, 55(1), 41–54. <https://doi.org/10.1002/asi.10342>
- Ozen NS, Ercan I, Irgil E, & Sigirli D. (2010). Anxiety prevalence and affecting factors among university students. *Asia-Pacific Journal of Public Health*, 22(1), 127–133. <https://doi.org/10.1177/1010539509352803>
- Pedrelli, P., Nyer, M., Yeung, A., Zulauf, C., & Wilens, T. (2015). College Students: Mental Health Problems and Treatment Considerations. *Academic psychiatry : the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*, 39(5), 503–511. <https://doi.org/10.1007/s40596-014-0205-9>
- Røykenes, K., Smith, K., & Larsen, T. M. B. (2014). ‘it is the situation that makes it difficult’: Experiences of nursing students faced with a high-stakes drug calculation test. *Nurse Education in Practice*, 14(4), 350–356. <https://doi.org/10.1016/j.nepr.2014.01.004>
- Saravanan, C., & Kingston, R. (2014). A randomized control study of psychological intervention to reduce anxiety, amotivation and psychological distress among medical students. *Journal of Research in Medical Sciences*, 19(5), 391–397.
- Ugwuanyi, C. S., Ede, M. O., Onyishi, C. N., Ossai, O. V., Nwokenna, E. N., Obikwelu, L. C.,

Ikechukwu-Ilomuanya, A., Amoke, C. V., Okeke, A. O., Ene, C. U., Offordile, E. E., Ozoemena, L. C., & Nweke, M. L. (2020). Effect of cognitive-behavioral therapy with music therapy in reducing physics test anxiety among students as measured by generalized test anxiety scale. *Medicine*, 99(17).

<https://doi.org/10.1097/md.00000000000016406>

Yuspitasari, R., Rahmawati, & Dalimunthe, R. Z. (2020). The effect of using Music classic (mozart) towards student anxiety before the exams. *Journal of Family Sciences*, 5(1), 47–56. <https://doi.org/10.29244/jfs.5.1.47-56>

Appendix A: Westside Test Anxiety Scale

Westside Test Anxiety Scale

Rate how true each of the following is of you, from extremely or always true, to not at all or never true. Use the following 5 point scale.

5 extremely or always true

4 highly or usually true

3 moderately or sometimes true

2 slightly or seldom true

1 not at all or never true

- ___ 1) The closer I am to a major exam, the harder it is for me to concentrate on the material.
- ___ 2) When I study, I worry that I will not remember the material on the exam.
- ___ 3) During important exams, I think that I am doing awful or that I may fail.
- ___ 4) I lose focus on important exams, and I cannot remember material that I knew before the exam.
- ___ 5) I finally remember the answer to exam questions after the exam is already over.
- ___ 6) I worry so much before a major exam that I am too worn out to do my best on the exam.
- ___ 7) I feel out of sorts or not really myself when I take important exams.
- ___ 8) I find that my mind sometimes wanders when I am taking important exams.
- ___ 9) After an exam, I worry about whether I did well enough.
- ___ 10) I struggle with writing assignments, or avoid them as long as I can. I feel that whatever I do will not be good enough.

_____ Sum of the 10 questions

_____ Divide the sum by 10. This is your Test Anxiety score.

What does your test anxiety score mean?

1.0—1.9 Comfortably low test anxiety

2.0—2.5 Normal or average test anxiety

2.5—2.9 High normal test anxiety

3.0—3.4 Moderately high (some items rated 4=high)

3.5—3.9 High test anxiety (half or more of the items rated 4=high) 4.0—5.0 Extremely high anxiety (items rated 4=high and 5=extreme)

© 2004 by Richard Driscoll, Ph.D. You have permission to copy this scale for personal use and for institutional uses (but not for resale).

Appendix B: SPSS Data Tables

Paired Samples Test

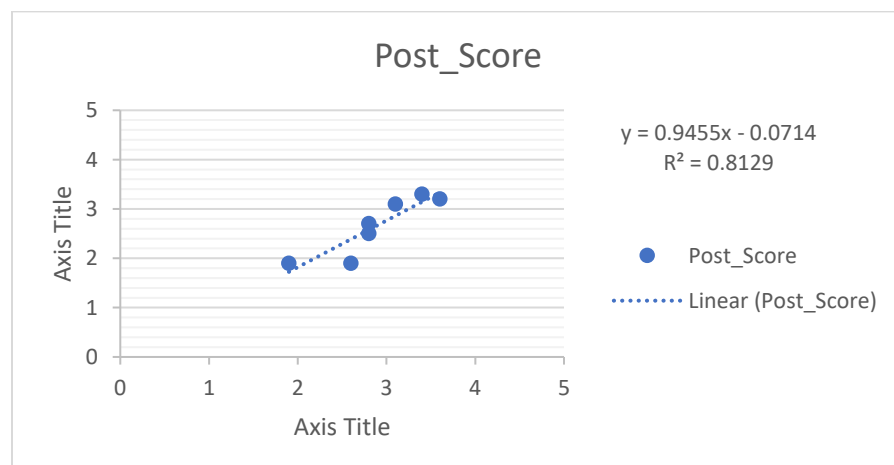
		Paired Differences							Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	
Pair					Lower	Upper			
1	Pre_Score - Post_Score	.2286	.2563	.0969	-.0085	.4657	2.359	6	.056

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair					
1	Pre_Score	2.886	7	.5610	.2121
	Post_Score	2.657	7	.5884	.2224

Paired Samples Correlations

		N	Correlation	Sig.
Pair				
1	Pre_Score & Post_Score	7	.902	.006



Appendix C: Informed Consent

INFORMED CONSENT FORM

Lee University

Project Title: Music Therapy to Reduce Test Anxiety

You have been asked to take part in a research project described below. The following instructions will explain the project to you in detail. If you have questions after completing the following surveys, please contact Kylie Estrada at kestra00@leeu.edu.

Description of the project:

This project aims to explore interventions that can reduce test anxiety in nursing school students. Many of the students at Lee University have voiced that they struggle with test anxiety, which negatively impacts their testing scores. This project will determine whether there is a significant relationship between playing classical music prior to the test and reducing anxiety in nursing school students.

First an anxiety baseline will be determined by utilizing a Likert scale and questionnaire. Before an exam, Mozart's classical music will be played from the computer on the overhead speakers in the room. This will be repeated four times as four exams are given over the summer semester.

After the final exam, the students will be asked to fill out a post-anxiety score. The pre-intervention results will be compared to the post-intervention results using statistical analysis to see if there is a statistically significant correlation. After the study results have been concluded, the findings will be disseminated to the nursing faculty.

Risks or discomfort:

There are no risks to this study and there should be no discomfort as well, this study aims to

soothe and comfort those participating.

Benefits of this study:

It is hoped that results of this study will be presented or published in a scientific setting that will allow for better understanding of how music affects nursing students and their test anxiety. Specifically, if classical music has any positive or reducing properties on test anxiety when played before an exam.

Compensation:

There is no compensation for participating in this study.

Confidentiality:

Your part in this study is confidential within legal limits. The researchers and Lee University will protect your privacy, unless they are required by law to report information to city, state, or federal authorities, or to give information to a court of law. Your data will be matched by code to your identity so your results can be tracked over time. However, all reported, presented, and published data will have all identifying information removed. All data will be collected on paper or on password-protected computers, to which only members of the research team have access. After completion of the research, all paper data will be securely stored in the locked lab rooms, and all computer data will be stored on password-protected computers.

Voluntary participation and withdrawal:

All participation is voluntary. Refusal to participate in any or all aspects of this project will be immediately honored. If you decide to be in the study and change your mind, you have the right to drop out at any time. If you drop out during this study, please contact the researcher to obtain credit for participating.

Questions, Rights and Complaints:

If you have questions after completing the following surveys, please contact Kylie Estrada at kestra00@leeu.edu. If you have any questions or concerns about your rights as a research participant in this study, please contact the Office of Undergraduate Research and Scholarship at Lee University (ours@leeuniversity.edu).

Consent statement

By reading and moving to the next screen you consent to participating (or having your child participate) in this project being given by the School of Nursing Department at Lee University.

This statement certifies the following: that you are 18 years of age or older and you have read the consent and all your questions have been answered. You understand that you may withdraw from the study at any time. All the answers you provide will be kept private. You have the right to see the results of this study if you wish. A copy of the informed consent will be given to you if requested.

Signature: _____

Date: _____

Volume 5

Article 7

Summer 2022

The Role of School Based-Speech Language Pathologists in Supporting At-Risk Students with Communication Disorders

Jenna Franklin

Lee University

Under the guidance of La-Juan Bradford, Ed.D.

Abstract

Communication disorders can be difficult to properly diagnose especially in a public-school setting. Teachers, counselors, and administrators may unknowingly focus on the resulting behaviors or manifestations of the disorder and miss the root of the issue: communication. Students who have pre-existing qualifications to be labelled “At-Risk” can have their school and life outcomes detrimentally affected by an undiagnosed or misdiagnosed communication disorder. This study defines the role of a school-based speech-language pathologist (SLP), communication disorders, the students they serve, and what qualifies a student as “at-risk.” Additionally, this study reports on current supports and intervention strategies SLP’s use with students, and specific struggles of the students they serve. The research methods include analyzing previous research and reports applying to the study and surveys of SLPs both locally and nationally through the Chattanooga Speech and Hearing Center, the American Speech-Language-Hearing Association, and the National Student Speech Language Hearing Association. This study investigates the potentially significant positive impacts as well as the necessity of SLPs working with “at-risk” students in public schools. Through school based SLPs expertise in identifying and responding to communication disorders, their services could impact student’s lives far beyond their experience at school.

Keywords: At-risk, adverse childhood experiences, communication, communication disorder, speech-language pathologist, school-to-prison-pipeline

The Role of School Based-Speech Language Pathologists in Supporting “At-Risk” Students with Communication Disorders:

Studying the potentially significant impacts school-based SLPs could on “at-risk” students is relevant to educational, social, public, and political interests. Since the introduction of the term “at-risk,” students labelled “at-risk” have been a consistent concern of educators, sociologists, the public, and the government with interventions at all levels. A major concern about “at-risk” students is that they will fail school and be trapped in poverty or constantly involved in the justice system. The phenomenon of “at-risk” students being funneled out of the school system and into the prison system has been titled the “School-to-prison-pipeline” (Bedley, 2019, 10:23). A point of interest leading to this study was if there is a significant presence of people with communication disorders in both the juvenile and adult justice systems and the correlation with students who have communication disorders as well as other criteria identifying them as “at-risk.” Then, the potentially significant positive impact of SLPs, who are the professional experts in diagnosing and treating communication disorders, in public school became the main point of interest for this research.

Literature Review:

Overview of the Term “At-Risk:”

The label “at-risk” when applied to students in an educational setting is generally accepted to refer to a “student in jeopardy of failing school” or dropping out and, by extension, not fulfilling their potential as a productive member of society (At-Risk Definition, 2013). The precise definition and implications of the label “at-risk” are debatable and vary widely depending on the context of when it is used and the field in which it used. Coined in 1983 in the report *A Nation At-Risk*, the term “at-risk” has been a high evolution term that adapts its definition and

implications with society and has become a buzzword in education (United States National Commission on Excellence in Education, 1983). In 1983, the demographic labelled “at-risk” was any student who was not a white, able-bodied, upper-to-middle class male, such as all non-Caucasian ethnicities, females, and lower middle class (Allen, 2014). Today, the label “at-risk” hinges on the likelihood of a student’s failure or success in school considering their specific life circumstances which may include Socio-Economic Status (SES), number of Adverse Childhood Experiences, disabilities or impairments, and health struggles.

The “At-Risk” Label

Despite the label of “at-risk” constantly evolving, it can still be used as a vague blanket term for struggling students, and one size does not fit all. Interventions that work for one specific “at-risk” students may not be beneficial for other “at-risk” students (At-Risk Definition, 2013). The most commonly cited risk that students are “at-risk” of is school failure, which is why “at-risk students” are sometimes defined as students who require extra support to succeed in school (At-Risk, 2013). The Department of Education’s official mission, “to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access,” (2015) and school failure being linked with students having “reduce[d] opportunities for success in adult life” (Edwards et al., 2007, p.31) are, respectively, two main reasons for political and public concern about students failing school. Although school failure is the overarching concern for “at-risk” students, it is somewhat of an umbrella under which many other struggles and phenomena of which students are “at-risk.” Before students begin failing school, they begin struggling in school. Adverse school experiences such as bullying, frustration and shame from struggling with academics, increased discipline, and higher likelihood of being

caught in the school-to-prison-pipeline can all exacerbate and increase the likelihood of school failure.

Who are School-Based SLPs:

Speech-language pathologists, abbreviated as SLPs, are highly “educated in human communication, development, and disorders” (Nemours Foundation, 2022). Possessing at minimum a master’s degree in their field, SLPs are experts in recognizing speech, language, and hearing issues, broadly referred to as communication issues, as well as developing and implementing effective interventions and treatment plans (Nemours Foundation, 2022). School-based SLPs are employed by an educational institution and function as the language, hearing, and communication expert. They collaborate with regular and special education teachers, school counselors, social workers, families, and others to provide care for students who qualify for their services (American Speech and Hearing Association, 2010). A duty of SLPs is to assist in developing student’s IEP’s and intervention plans to assure they comply with state and national legal guidelines. In addition, SLPs monitor diagnoses and referrals to and by special education within the school to ensure “proper, equitable diagnosis and no misdiagnosis, underdiagnosis, or overdiagnosis or referrals” (ASHA, 2010, p. 10).

School-based SLPs fulfill many roles and responsibility within an institution. Essentially, they strive to “contribute significantly to the well-being and success of children and adolescents,” (ASHA, 2010, p. 6) by acting as aids, activists, and advocates (Donaldson et. al, 2017). In schools, SLPs aid students by actively providing diagnoses and therapies that assist them in growing their academic and personal success, potential, and abilities to reach their goals. SLPs are activists when they work towards higher equity and justice for students by intervening at an administrative level for students to receive the care necessary for efficient and effective

intervention and the full array of services they are legally due. As an advocate, a main goal of SLPs is to empower the voices of students and families that receive SLP or special education services (Donaldson et. al, 2017).

What do School Based SLPs Do:

The logistics of the services SLPs provide in schools vary depending on the school, district, student needs, and funding. SLPs may pull students from their main classroom to do intervention work, or serve student in their main classroom in compliance with the least restrictive environment. Due to the variation of needs they address, the therapy and intervention for each student can be widely different because “the best model for SLP will be determined on a case-by-case basis” (Elenko, 2020, 8). SLP services can include a variety of different types of therapy and activities. Language Intervention Activities focus on stimulating language development and are often preformed through play-based therapy with correct modelling by the SLP. Articulation therapy targets how a student produces sounds and is preformed through explicit instruction and modelling. Finally, oral-motor skills, feeding, or swallowing therapies are centered around strengthening and training specific muscles that will allow the student to perform a desired action more easily and independently (Nemours Foundation, 2022). SLPs oftentimes are not the only professional providing intervention or care for students, which is why an essential part of SLPs practice is collaboration. No matter what services or combination of services SLP’s are providing a student, they can work with the student’s teachers, counselors, social workers or families. Collaboration helps SLPs provide students with effective, consistent, and wholistic care (Elenko, 2020).

Who do School Based SLPs Serve:

SLPs provide services to students with communication disorders and struggles which refer to anything that affects a student's ability to effectively understand and be understood by others. The four main categories school-based SLPs' patients fall under are students with language disorders, speech disorders, hearing impairments, or being medically fragile students (ASHA, 2010). Language disorders can be likened to an issue in software while speech disorders are more similar to an issue with hardware. (Nemours Foundation, 2022). Typically, language disorders refer to issues with receptive or expressive language or cognitive communication resulting in "a problem understanding or putting words together to communicate ideas" (Nemours Foundation, 2022). A language disorder is not physical but cognitive such as a student who can hear and articulate back spoken instructions but struggles to process and sequence them. Conversely, speech disorders, such as articulation, fluency, or voice resonance, are a physical issue. It is the shape of the mouth, movement of the tongue, or similar physical reasons rather than cognitive where the root of the issue lies. Hearing impairments can be "permanent or fluctuating" (IDEA) and be in the ears and/or brain. Finally, medically fragile students generally refer to students with physical impairments or injuries that interfere with everyday life such as swallowing or feeding disorders, traumatic brain injuries, muscle weaknesses, or cleft palates (ASHA, 2010). The demographic of students who would benefit from SLP services is not affected by the student's race, gender, ethnicity, or socioeconomic status because the factors causing a child to need SLP services are often indiscriminate and uncontrollable. Many students receiving SLP services qualify for special education; however, not all students who benefit from SLP services qualify for special education, such as students who have a minor stutter or speech impediment (Nemours Foundation, 2022). Conversely, all students who work with school SLPs

qualify as “at-risk” because they require support services to succeed in school; however, not all “at-risk” students need SLP’ services.

Defining Communication Disorders and Struggles:

The Merriam Webster Dictionary (2022) defines communication as “a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior.” There are many methods of communication, but the most common methods in American public schools used by staff and students are verbal, non-verbal, and written American English (“Types of Classroom Communication,” 2022). Verbal communication refers to when people express or receive information through the use of audible sounds and languages while non-verbal communication refers to information implied through gestures, body language, facial expression or similar messages expressed without the use of sounds. Finally, written communication refers to people relaying and receiving information through written symbols, which in school will typically be in a specific language (“Types of Classroom Communication,” 2022). There are many efficient and valuable methods of communication; however, for the purposes of this paper, “communication” will refer to the three mainstream methods used in schools: verbal, non-verbal, and written. In addition, the terms communication difficulties and communication disorders will refer to students who experience difficulty effectively expressing or receiving messages, resulting in high likelihoods of misinterpretation or miscommunication. In this study, communication disorders and difficulties will not refer to the use of alternative or non-mainstream methods of communication such as sign language, symbol systems, communication boards or any other non-mainstream methods of communication. Alternative methods of communication are not issues or disorders simply because they are not mainstream (Family Connect, 2021).

Communication Disorders and Struggles Effects:

Communication disorders and difficulties often go undiagnosed or misdiagnosed in students because the issue with communication and resulting difficulties can manifest as frustration, low-motivation, hostility, or anxiety. These manifestations can appear, and are often cited, as behavioral issues when the root of the problem may lie with the student's communication struggles (Stanford, 2020). Due to its negative affect on a student's abilities to "problem-solve, regulate and express emotions, engage in positive peer interaction, and actively utilize compensatory strategies and coping techniques," communication disorders make a significant impact on student's school experiences and increase the likelihood of negative school experiences (Stanford, 2020, p. 3).

The Risk of Bullying in Students with Communication Disorder

Another risk for students with communication disorders that can contribute to and intensify behavioral and disciplinary issues is both being victimized by and perpetuating bullying. Bullying is defined as "unwanted aggressive behavior among school aged children that involves a real or perceived power imbalance and is repeated or has the potential to be" (Hughes, 2014, p. 3). Humans have a natural "us versus them tendency" to recognize differences in others (Kinzler, 2020, p. 101) which makes it unsurprising that "Children appear to recognize communication disorders and respond negatively to them while still in preschool" (Hughes, 2014, p. 6). Even in preschool, students with communication disorders are less preferred by other children (Øksendal et. al, 2021) which can result in isolation, frustration, and less positive peer interaction, and lead students to "continue to have difficulties with peer relationships as they mature" (Hughes, 2014, p. 6). Bullying can be physical, social, relational, or cyber bullying, but despite the type, all bullying is peer victimization which is a form of peer abuse and involves the student being a

regular target of aggression; it is not a result of a conflict between students. Unfortunately, students with communication disorders and difficulties are “provocative victims” which means they “exhibit behaviors and features that escalates bullying” from peers (Hughes, 2014, p. 5). Bullies can be attracted to the opportunity of a student’s nontypical behavior such as “inappropriate responses to social cues...or limited ability to understand humor, including sarcasm,” difficulty following verbal instructions, consequential thinking, making inferences, using semantics, and expressing themselves (Hughes, 2014, p. 5). Although students with communication disorders are at three times the risk of bullying as typically developing peers, the same reasons they are bullied may inhibit them from receiving adequate support and assistance (Hughes, 2014). Students may have trouble expressing or conveying the seriousness of their situation with bullying to an adult. Despite being at-risk for being bullied by peers, students with communication disorders are also at-risk for perpetuating bullying. Since bullying hinges on a “real or perceived power imbalance,” (Hughes, 2014, p. 1) students may engage in bullying others for status, feelings of power, or as a maladaptive coping method because all students who bully peers “believe they are achieving social dominance and peer approval through bullying” (Hughes, 2014, p. 4). Peer bullying increases real or perceived power in one student by creating or highlighting a weakness in the victim. In addition, “Children with language difficulties may therefore participate in bully perpetration to obtain a more favorable position in their peer group,” (Øksendal et. al, 2021, 2699) or to prevent their own weaknesses or struggles from being capitalized on. Studies found that students who exhibit poor self-control and are generally disliked are most closely linked with bully perpetration, and the effects of poor semantic skills, gender, and age seem to impact bullying perpetration but require more research (Øksendal et. al, 2021). Bullying and peer victimization are harmful and adverse school experiences. Whether a

student is being bullied, bullying others, or both, the behaviors act as “academic disablers” stopping students from receiving the full benefits of their education (Gresham, 2014, 102). It is important to acknowledge that students with communication difficulties and disorders can be both victims and perpetrators, which can coincide, and both are negative experiences that are harmful to the students physical, mental, and emotional health and development.

Communication Disorders, Discipline, and the School-to-Prison-Pipeline:

Because of how communication disorders can manifest and affect students’ behaviors, it can be challenging for school authorities to recognize and separate evidence of a communication disorder from behavior qualifying for a school offense charge (Stanford, 2020). This contributes to why “over 45% of youth with communication disorders are involved with the justice system” (Stanford, 2020, p. 2). The potentially significant negative impacts, such as receiving increased discipline and potential involvement with the justice system, that communication disorders have on a student’s school experience compounds dramatically when that student is already labelled as “at-risk.” In her research, Dr. Pamela Snow (2019) narrows in on the students who have the highest risk factors of being involved in the juvenile justice system. She explains that “young people in youth justice systems around the world are characterized by disproportionate levels of psychosocial and economic disadvantage and markers of risk for adverse life outcomes” (Snow, 2019, p. 329). Markers of risk for adverse life outcomes include multiple Adverse Childhood Experiences, referred to as ACEs, which include trauma such as childhood abuse, neglect, and coming from a low-socioeconomic background (Snow, 2019). Young people with high numbers of ACEs are over-represented in the justice system. Multiple ACEs negatively influence young people’s development of language skills, empathy, and emotional regulation, and “the influence of low-SES on expressive and receptive language skills persists into adult years” (Snow, 2019, p.

328). Traumatic and high stress situations trigger people's nervous systems to switch into fight or flight mode which is related to the pre-frontal cortex and affects language and communication (Grandbois & Wonkka, 2021). When children, whose pre-frontal cortexes are not fully developed, are consistently in fight or flight mode, it can have a direct effect on their language and communication development (Grandbois & Wonkka, 2021). Not all students with communication disorders come from a low-SES background or have multiple ACEs. However, the notable overlap of communication disorders with psychosocial and economic disadvantage puts students at heightened risk to struggle in school, become involved in the juvenile justice system and enter the school-to-prison-pipeline.

The Disparities Between Students Needing Help and Receiving it:

It can be difficult for students with communication disorders to receive adequate, appropriate, or effective help. However the responsibility to seek needed support and accommodations cannot rest solely on the student. Johnson and Muhammad (2018, p. 16) report that "students, with learning and language disabilities, are not entirely capable of speaking and advocating for themselves, which makes them more susceptible to harsh disciplinary rules." A student being flagged as struggling academically and being referred to special education or receiving intervention does not mean that the student receiving the adequate care and support, they specifically need to succeed. When the manifestations of communication disorders result in "juvenile delinquent behaviors" for school personnel, "the default response is to refer the struggling student to special education or expel them without addressing the underlying issue" (Johnson & Muhammad, 2018, p. 14). As previously mentioned, communication difficulties and disorders can manifest as and exacerbate other struggles which are often misunderstood by authorities, resulting in an unjust lack of consideration of the student's communication disorder

in disciplinary matters. Because of this and similar issues, “When language and learning disorders are misdiagnosed, undiagnosed, or improper services are provided, academic and vocational impacts may persist throughout the child’s life into adulthood” (Johnson & Muhammad, 2018, p. 3). Communication disorders can be difficult and complicated to recognize because the underlying communication disorder is often masked by the noticeable symptoms of behavioral, emotional, social, and academic struggles which can be easily attributed to some other factor. Teachers, school psychologists, and other school personnel are trained to recognize and intervene when a student is struggling, and they may do that to the best of their ability. However, educators and school personnel are likely to attribute the symptoms of a communication disorder to something with which they are more familiar, such as a learning disorder, mental disorders, or even home life situations, before a communication disorder (Snow, 2019). Teachers, administrators, and school psychologists are not trained experts in communication-language development and disorders (Nemours Foundation, 2022) which may be why “in a sample of students with emotional-behavior difficulties, 74% had a language disorder; however, fewer than half of these were identified as such by their teachers or health professionals.” Teachers, caretakers, social workers, and other school personnel may fulfill their responsibilities to the best of their abilities, but they do not have the training and expertise to recognize, properly diagnose, and effectively respond to student’s communication disorders.

Methods:

Both quantitative and qualitative methods were used in this mixed method research to test the hypothesis that the expertise and services of school based SLPs has the potential to significantly reduce adverse school experiences and promote empowerment among at-risk students with

communication disorders. In addition, the research aimed to better understand the experiences of SLPs and youth with communication disorders.

Quantitative Data:

The quantitative method included two surveys and one report on trends over several years. The research developed and completed by the American Speech and Hearing Association, ASHA, as well as an original survey developed for the specific research project for a total of three surveys and one report. The “2020 Schools Survey: SLP Caseload and Workload Characteristics” and the “2020 Schools Survey: Numbers and Types of Responses, SLPs” surveys conducted by ASHA in 2020 were sent through mail to a random sampling of ASHA-certified SLPs and audiologists who worked in an education setting in the United States (American Speech and Hearing Association, 2020a) (American Speech and Hearing Association, 2020b) (American Speech and Hearing Association, 2020c). The random sample was stratified by state and 4,500 of the recipients were SLPs while 500 were audiologists. All three included “SLPs in special day/residential schools, preschools, elementary schools, secondary schools, and combined school settings” (ASHA, 2020 p. 9). The ASHA report, “The School Survey Report: SLP Caseload Characteristics Trends, 2004-2020,” compiled, analyzed, and summarized the data from all the ASHA Schools Surveys taken every even year between 2004 and 2020. The “2020 Schools Survey: SLP Caseload and Workload Characteristics” and “The School Survey Report: SLP Caseload Characteristics Trends, 2004-2020,” included data from unlisted questions detailing participants’ “caseload or workload approach, caseload size, areas of intervention, weekly activities, and missed sessions with students” (ASHA, 2020b, p. 3). The “2020 Schools Survey: Numbers and Types of Responses, SLPs” listed the questions along with responses by types of schools or in population percentiles.

The survey created for this research project titled “Speech-Language Pathologists Empowering At-Risk Students” was developed on the platform Survey Monkey and consisted of five questions. Four questions were multiple choice in which participants could select all responses that applied, and the last question an optional open-ended for a typed response. The recipients of the survey were chosen based on their status as a certified SLP who works within an educational setting or directly support students in an educational setting. The survey was sent through email to a pool of five SLPs at the Chattanooga Speech Language and Hearing center with permission and assistance from the director Ms. Pamela Hosterman SLP-CCC on May 12, 2022. In addition, through email correspondence with the senior director of the special interest groups for ASHA, Ms. Michelle Ferketic CCC-SLP-CAE, the survey was reviewed and posted in the ASHA Special Interest Group 16, school-based issues, by their leadership on approximately May 13, 2022. The surveys sent locally and nationally were identical, anonymous, and provided no incentive to participate in them. There was no documentation on the number of recipients or participants of the survey in the ASHA Special Interest Group 16. The surveys closed on June 22nd. The questions and all possible responses were as follows:

Table 1: “Speech-Language Pathologists Empowering At-Risk Students” Questions and Answers

Question		Answer	
1. The most common services I offer address:		a)	Speech Disorders
		b)	Language Disorders
		c)	Social Communication Disorders
		d)	Limited English Proficiency
		e)	Other (Please Specify)
2. The Students I serve are:		a)	Minority
		b)	Special Needs
		c)	Low Socio-Economic Status

		d) English Language Learners
		e) Other (Please Specify)
3. The expressive communication abilities of my students are generally:		a) Above age-appropriate
		b) Age-appropriate
		c) Below age-appropriate
		d) Severely below age-appropriate
		e) Other (Please Specify)
4. How qualified do you feel to work on pragmatic communication skills with students		a) Highly qualified
		b) Moderately qualified
		c) Under qualified
		d) Desire to be better qualified
5. The most pressing need of at-risk students that I could address is:		a) Open-ended answer

Qualitative Data:

The qualitative data included the open-ended question on the survey as well as a systematic review on the significance of SLPs in at-risk students' empowerment. The open-ended question, which was "The most pressing need of at-risk students that I could address is," was included in the previously described survey "Speech-Language Pathologists Empowering At-Risk Students." Due to its potential to take more time and consideration than the multiple-choice answers, the open-ended question was the only optional question in the survey. The systematic review included analyzing peer reviewed articles and reports, books, website articles, and podcasts on the roles of School based SLPs, "at-risk" students, the potential adverse school experiences of youth with communication difficulties, and student support and intervention.

Results:

Responses to surveys and reports

Both 2020 ASHA school surveys included the following data of their response pools: “Of the original 4,500 SLPs in the sample plus one other SLP who returned the survey without any identifying number, eight had incorrect mailing addresses, 17 had retired, 21 were employed in other types of facilities, 16 were not employed in the profession, and two were ineligible for other reasons, which left 4,437 possible respondents” (ASHA, 2020a, p. 9) (ASHA, 2020c, p. 1). The same number of respondents was assigned to the years 2004-2018 to compensate for the lack of data on the actual participants verses the anticipated participants. The percentages of respondents in all three ASHA related surveys and reports can be viewed by year below in Table Two, which includes what percentage of respondents were SLPs in the years that data was provided. The “2020 Schools Survey: Numbers and Types of Responses, SLPs” only used responses from SLPs as that is who their questions applied to.

Table 2: *Responses to ASHA surveys from 2004 through 2018 with overall and SLP response percentages (ASHA, 2020b, p. 8).*

Year:	Overall Response Percentage:	SLP Response Percentage:
		(<i>n</i> = ~3,937)
	(<i>n</i> = ~4,437)	
2004	69.7%	-
2006	64.9%	-
2008	64.0%	-
2010	64.8%	65.5%
2012	63.6%	64.7%

2014	46.0%	47.0%
2016	47.4%	47.9%
2018	48.0%	48.8%
2018	40.1%	-

The survey “Speech-Language Pathologists Empowering At-Risk Students” received a total of 27 responses from the five SLPs a Chattanooga Speech and Hearing combined with the unknown number of recipients in the ASHA Special Interest Group 16. Due to the anonymous nature of the survey, there is no data on the areas the participants lived in or the relationship between how many received versus responded to the survey. Of the 27 respondents, 24 answered all five questions including the open-ended optional question, and three skipped the optional open-ended question.

Workload:

The ASHA 2020 School Survey which reported on the workload of SLPs, which includes all of their responsibilities on a weekly basis, showed that they spent the majority of their weekly hours on pullout services and 36.6 hours on the following activities: “ 5.4 hours in classroom-based integrated services, 4.0 hours on diagnostic evaluations, 1.9 hours on collaborative consultation, 1.4 hours on Multi-Tiered System of Support/Response to Intervention (MTSS/RTI) activities, 0.9 hours on technological support, 0.9 hours on supervision, 0.2 hours on services to Section 504 students, 0.1 hours on tele-practice, and 3.1 hours on other duties, as assigned” (ASHA, 2020c, p. 27). Pullout services where a SLP pulls a student out of their main

classroom sessions, accounted for an average of 18.7 weekly hours in the 2020 Survey and 21 weekly hours in the 2004-2020 report (ASHA, 2020a) (ASHA, 2020b).

The caseloads of school based SLPs, which are factored into the total workload, ranged widely based on areas and school types. The average caseload in both the 2020 survey and 2004-2020 report was 47; however, the range of the 2020 survey was a caseload of 5-214 students (ASHA, 2020a). There was not a listed range for the 2004-2020 report (ASHA, 2020b). The largest caseloads belonged to SLPs in elementary schools who averaged 50 students while secondary school SLPs averaged 48, and preschool SLPs averaged 40 students (ASHA, 2020c). By area in 2020, the median caseloads of SLPs in preschools, elementary, secondary, combined, and day schools ranged from 34 in the “Mid-Atlantic” states to 60 in the “East South Central” States, see Figure One below (ASHA, 2020b, p. 5).

Figure 1: “Median monthly caseload size of school-based SLPs, by geographic region and year” (ASHA, 2020b, p. 5).

Geographic region	#		
	2016 (n = 1,328)	2018 (n = 1,539)	2020 (n = 1,279)
Northeast	38	36	35
New England	40	40	40
Mid-Atlantic	37	35	34
Midwest	48	49	46
East North Central	50	50	48
West North Central	41	43	45
South	50	50	52
South Atlantic	50	50	50
East South Central	55	57	60
West South Central	50	50	55
West	52	54	54
Mountain	52	55	59
Pacific	48	52	53

Note: These data are from the 2016, 2018, and 2020 ASHA Schools Surveys. Analysis was limited to clinicians who were employed full time.

Demographic of students and types of services

The demographics of the students making up school based SLPs caseloads, as measured by the three surveys and report, provide data on the qualities and characteristics of students.

Question 17 in the “2020 Schools Survey: Numbers and Types of Responses, SLPs” asks: “How many students do you serve monthly in each of the following areas. Students who have overlapping areas of intervention may be counted more than once” (ASHA 2020c, p. 22). The answers can be viewed below in Figure Two and continued in Figure Three.

Figure 2: *Area of Intervention Survey Summary (ASHA, 2020a, p. 5)*

Area of Intervention	All Responses	
	Percentage who regularly serve clients with this disorder	Number served (mean)*
	<i>n</i> = 1,279	<i>n</i> varies
Acquired brain injury (ABI)	13.2	2.3
Auditory processing disorder (APD)	30.5	4.7
Autism spectrum disorder (ASD)	91.7	10.9
Childhood apraxia of speech (CAS)	57.6	2.7
Cognitive communication disorders	51.5	10.2
Dysphagia (swallowing/feeding)	10.0	4.2
Fluency disorders	67.5	2.5
Hearing loss	45.4	1.0
Language disorders: pragmatics/social communication	86.5	12.5

Figure 3: *Area of Intervention Survey Summery continued (ASHA, 2020a, p. 5)*

Area of Intervention	All Responses	
	Percentage who regularly serve clients with this disorder	Number served (mean)*
	<i>n</i> = 1,279	<i>n</i> varies
Language disorders: semantics, morphology, syntax	89.9	21.7
Nonverbal, augmentative and alternative communication (AAC)	63.1	6.5
Reading and writing (literacy)	35.8	12.6
Selective mutism	22.8	1.3
Speech sound disorders	88.9	18.5
Voice or resonance disorders	15.1	2.2

The 2004-2020 report noted that “From 2014 to 2020, about 90% of SLPs treated students with autism spectrum disorder, language disorders, and speech sound disorders,” and “From 2014 to 2020, SLPs’ caseloads included a higher number of students with language disorders, reading and writing difficulties, and speech sound disorders than with other disorders” (ASHA, 2020b, p. 6).

In the survey “SLPs Empowering At-Risk Students,” question one shows the breakdown of what the services each SLP provides commonly addresses which can be viewed in Table 3 below.

Table 3: *“SLPs Empowering At-Risk Students” Question One*

Service addresses:	Percentage and number of SLPs:
	(n = 27)
Speech disorders	62.96% (17)
Language disorders	92.59% (25)
Social Communication disorders	55.56% (15)
Limited English proficiency	3.70% (1)

Question Two of the same survey asked about the at-risk qualifying characteristics of the students on the SLPs case load which were as follows in Table 4

Table 4: *“SLPs Empowering At-Risk Students” Question Two*

“The students I serve are:”	Percentage and number of SLPs
	(n = 27)
Special Needs	92.59% (25)
Low socio-economic status	77.78% (21)
English Language Learners	44.44% (12)
Other (Please Specify)	7.41% (2)

The written responses to the “Other (Please Specify)” option were “Hearing impaired and autistic” and “All of the above.”

Question three and four addressed students' expressive communication skills and how qualified the SLPs felt to work on pragmatic communication skills with their students. The answers showed that 18.52% of student's had age-appropriate expressive communication skills, 81.48% had below average skills, and 62.96% had severely below average skills. Additionally, 44.44% of SLPs felt highly qualified to address pragmatic communication issues, 51.85% felt moderately qualified, 3.70% felt underqualified, and 11.11% desired to be better qualified in working on pragmatic communication with students.

SLPs Comments on "At-Risk" Student's Pressing Needs:

The open-ended final question, which prompted "The most pressing need of at-risk students that I could address is," received 24 responses that were summarized by theme. The most emphasized answer was increasing self-advocacy, which was mentioned in 20.8% of answers. The next most frequent answers, at 16.66% of responses, were making and maintaining friendships, and growing student's communication skills. Literacy, independent living skills, social emotional learning, were all mentioned by 12.50% of respondents. Positive self-talk and access to consistent and early intervention were cited by 8.3% of SLPs, and finally, job coaching, mental health awareness, decreasing illegal activities, and reducing screen time were mentioned by 4.16% of respondents.

Discussion:

SLPs Are Essential in Schools:

School-based SLPs provide valuable and needed expertise, viewpoints, and abilities to respond to students with communication disorders. Their professional, thorough education and training in the field of Speech Language Pathology allows them to recognize and diagnose

communication disorders where students may have been misunderstood, misdiagnosed, and unintentionally mistreated by the education system without the proper communication disorder diagnosis. Furthermore, it is reasonable to conclude that students who do not have access to a speech pathologist for, at minimum, a consultation and assessment are not receiving adequate care from their school district's special education department. Furthermore, students labeled "at-risk" who have high numbers of ACES, come from a low SES background, or have been suspended multiple times, and are vulnerable to entering the school-to-prison-pipeline, are done a disservice by lacking an SLP at school. Considering how many youth and adults in the justice system had undiagnosed communication disorders and potential positive effects of if they had been diagnosed earlier while still in school, it is a significant issue if schools with high numbers of "at-risk" students lack an SLP. More than a valuable asset in schools, SLPs could be viewed as a necessity that must be provided in all schools or at minimum all school districts especially those with the highest numbers of students "at-risk" of entering the school-to-prison-pipeline (Stanford, 2019).

The Work of SLPs Cannot Be Done By Another Professional:

Results from the survey conducted for this study showed that 86.5% and 89.9% of SLPs regularly serve students with pragmatic and social communication disorders and semantic, morphological, and syntax struggles respectively (ASHA 2020c) as well as 55.56% of SLPs reporting frequently addressing social communication skills with their students. The most frequently mentioned skill that SLPs reported as a pressing need amongst at-risk students, which they could address, were self-advocacy then friendships, and better communication. Considering that "45% of youth with communication disorders being involved in the justice system," (Stanford, 2020, p. 2) and the high risk of these youth to be involved in bullying, the services

SLPs provide are directly beneficial to many at-risk students struggles. Pragmatics, semantic, syntax, and social communication skills are all very relevant to students abilities to self-advocate, make and maintain friendships, address bullying, and avoid discipline problems that can lead to them entering the youth justice system. SLPs can provide valuable interventions and diagnoses that directly influence student needs and that another professional would not be qualified or trained to provide. This is not to say that school-based SLP services are more valuable than other school faculties service or that school faculty are inadequate to fulfill their responsibilities, but rather that SLPs fill a niche need that is unique and cannot be filled by other school faculty due to the nature of the field.

Limitations of the Study

The limitations of the study included limited access to participants in the “SLPs Empowering At-Risk Students” as well as the survey being completely anonymous resulting in no information on where the participants were from nor type of educational institution they worked in. Additionally, the survey was developed and sent out before the literature review had been completed due to time constraints. Unfortunately, that resulted in the survey questions being less specific than if they had been developed further in the researching process. If the research were to be continued, it would ideally include specific student case-studies and interviews, as this research did not have the resources to conduct those types of data collection methods.

Conclusions:

SLPs are necessary in schools especially because some students who need SLP services have limited financial resources, transportation, or similar factors inhibiting them from receiving

needed services. If continued, this research could analyze the statistics of SLPs in schools with the high numbers of at-risk students. Additionally, research could be conducted on the documented effectiveness and positive impacts of SLP intervention in specific demographics of students particularly those involved in bullying, the youth justice system, or school-to-prison-pipeline. The purposes of this study were to evaluate if SLPs services and expertise had the potential to make significant positive impacts on “at-risk” students specifically with communication disorders and several factors placing them at risk. Through analyzing the negative school outcomes to which students with communication disorders are susceptible and whether SLPs services could mitigate those risks, this study has shown there is high potential for SLPs to positively impact “at-risk” students’ school experiences and lives. The impacts, needs of, and barriers to effective intervention from school based SLPs still requires research; however, this study provides evidence of the value of such research.

References

- At-Risk Definition. (2013, August 29). *The Glossary of Education Reform*. 1-3.
<https://www.edglossary.org/at-risk/>.
- Allen, K. C. (2014). Breaking the “At Risk” Code: Deconstructing the Myth and the Label.
 [Doctoral Dissertation, Loyola Marymount University].
<https://digitalcommons.lmu.edu/etd/196>.
- American Speech-Language-Hearing Association. (2010). Roles and responsibilities of speech-language pathologists in schools [Professional Issues Statement]. 6-12.
www.asha.org/policy/.
- American Speech-Language-Hearing Association. (2020a). 2020 Schools survey: Survey summary report. 1-9. www.asha.org.
- American Speech-Language-Hearing Association. (2020b). Schools survey report: Caseload characteristics trends, 2004–2020. 3-8. www.asha.org
- American Speech-Language-Hearing Association. (2020c). 2020 Schools survey. Survey summary report: Numbers and types of responses, SLPs. 1-32. www.asha.org
- Bedley, S. & Bedley, T. (Hosts). (2019, April). The School to Prison Pipeline with Kelisa Wing [Audio Podcast Episode]. Bedley Bros. Podcast.
- Boser, U., Wilhelm, M., & R.H. (2014, October). The Power of the Pygmalion Effect: Teachers Expectations Strongly Predict College Completion. Center for American Progress.
<https://files.eric.ed.gov/fulltext/ED564606.pdf>.

- Cromwell, R., Baird, D., Gordon, T., & Baird, B. (2016). "The Power of Language to Make a Difference." In A. E. Quin, & B. J. Scileppi (Eds) *Empowering Students*. (pp. 57-79). New Academia Publishing.
- Donaldson, A. L., Chabon, S., Lee, W. D., & Kapantzoglou, M. (2017). Mirror, mirror on the wall: Reflections on speech-language pathologists' image as advocates, activists, and aides. *Psychology in the Schools*, 54(10), pp.1285–1293.
- Edwards, O. W., Mumford, V. E., & Serra-Roldan, R. (2007). A Positive Youth Development Model for Students Considered At-Risk. *Sage Journals: School Psychology International*, 28(1), 29–45. <https://doi.org/10.1177/0143034307075673>
- Elenko, Kaija R., "School-Based Speech-Language Pathologist Collaborative Practice: A Literature Review"(2020). Undergraduate Theses and Professional Papers. 277. <https://scholarworks.umt.edu/utpp/277>
- Family Connect. (2021, August 13). Alternative Methods of Communication: An Overview. American Printing House for the Blind. <https://familyconnect.org/multiple-disabilities/communication/alternative-methods-of-communication/>.
- Geri, M. (2016). "Personal and Social Empowerment in a Globalized World." In A. E. Quin, & B. J. Scileppi (Eds) *Empowering Students*. (pp. 7-31). New Academia Publishing.
- Grandbois, K. & Wonkka, A. (Hosts). (2021, March). Language Ideology and Linguistic Diversity in Speech-Language Pathology [Audio Podcast Episode]. In SLP Nerdcast.
- Grandbois, K. & Wonkka, A. (Hosts). (2021, November). Trauma and Communication [Audio Podcast Episode]. In SLP Nerdcast.

- Green, T. L. (Host). (2022, March 4). Disrupting the School-to-Prison pipeline and Nexus (No. 12) [Audio Podcast]. In *Racially Just Schools*.
- Gresham, F. (2014). Evidence-Based Social Skills Interventions for Students at Risk for EBD. Hammill Institute on Disabilities. *Sage Journals: Remedial and Special Education*, 36(2), 100–104. <https://doi.org/10.1177/0741932514556183>
- Guarducci, F. (2016). "The Role of Language of Empowerment." In A. E. Quin, & B. J. Scileppi (Eds) *Empowering Students*. (pp. 33-57). New Academia Publishing.
- Hughes, S. (2014). Bullying: What Speech-Language Pathologists Should Know. *Language, Speech, and Hearing Services in Schools*, 45(1), 3–13. https://doi.org/10.1044/2013_lshss-13-0013
- Johnson, S. N., & Muhammad, B. (2018). The Confluence of Language and Learning Disorders and the School-to-Prison Pipeline Among Minority Students of Color: A Critical Race Theory. *American University Journal of Gender, Social Policy & the Law*, 26(2). <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1708&context=jgspl>
- Kinzler, K. D. (2020). *How You Say It*. Houghton Mifflin Harcourt. Pp. 101-124.
- Labaree, R. L. (n.d.). Research Guides: Organizing Academic Research Papers: Purpose of Guide. Sacred Heart University: Library. Retrieved July 10, 2022, from <https://library.sacredheart.edu/c.php?g=29803&p=185901>

- Lawrence C. Stedman. (1994.) The Sandia Report and U.S. Achievement: An Assessment. *The Journal of Educational Research*, Jan. - Feb., 1994, Vol. 87, No. 3 (Jan. -Feb., 1994), pp. 133-146 Taylor & Francis, Ltd. <https://www.jstor.org/stable/27541911>
- Merriam-Webster. (n.d.). (2022). Communication. In Merriam-Webster.com dictionary. Retrieved July 17, 2022, from <https://www.merriam-webster.com/dictionary/communication>
- Nemours Foundation. (2022, March). Speech-Language Therapy (for Parents). Nemours Foundation: Kid's Health. Retrieved May 20, 2022, from <https://kidshealth.org/en/parents/speech-therapy.html>
- Øksendal, E., Brandlistuen, R. E., Wolke, D., Helland, S. S., Holte, A., & Wang, M. V. (2021). Associations Between Language Difficulties, Peer Victimization, and Bully Perpetration From 3 Through 8 Years of Age: Results From a Population-Based Study. *Journal of Speech, Language, and Hearing Research*, 64(7), Pp. 2698–2714. https://doi.org/10.1044/2021_jslhr-20-00406
- Quinn, E. (2016). "Self-Management of Behavior." In A. E. Quin, & B. J. Scileppi (Eds) Empowering Students. (pp. 153-171). New Academia Publishing.
- Ruggiero, B. & Dixon-Dziedzic, L. (2016). "Case Studies of Empowerment in Primary and Middle School." In A. E. Quin, & B. J. Scileppi (Eds) Empowering Students. (pp. 193-221). New Academia Publishing.
- Scileppi, J. (2016). "Humanistic Education." In A. E. Quin, & B. J. Scileppi (Eds) Empowering Students. (pp. 95-125). New Academia Publishing.

- Snow, C. P. (February 1, 2019). Speech-Language Pathology and the Youth Offender: Epidemiological Overview and Roadmap for Future Speech-Language Pathology Research and Scope of Practice. ASHA. *Language, Speech, and Hearing Services in Schools*, April 2019, Vol. 50(2), Pp. 324–339. https://doi.org/10.1044/2018_LSHSS-CCJS-18-0027
- Stanford, S., (May 31, 2019). Casualties of Misunderstanding: Communication Disorders and Juvenile Injustice. ASHA. *The ASHA Leader*, June, 2019, Vol. 24(6), Pp. 44-54. <https://doi.org/10.1044/leader.FTR1.24062019.44>
- Stanford, S., (August 11, 2020). The School-Based Speech-Language Pathologist's Role in Diverting the School-to-Confinement Pipeline for Youth With Communication Disorders. ASHA. *Perspectives of the ASHA Special Interest Groups*. August 2020, Vol. 5(4), Pp. 1057-1066. https://doi.org/10.1044/2020_PERSP-20-0002
- Types of Classroom Communication. (2022). Alison: Empower Yourself. Retrieved July 17, 2022, from <https://alison.com/learning/courses/245/topic-types-of-classroom-communication>
- U.S. Department of Education. (2015). The Federal Role in Education. <https://www2.ed.gov/about/overview/fed/role.html>
- United States National Commission on Excellence in Education. (1983). A nation at risk: The imperative for educational reform: a report to the Nation and the Secretary of Education, United States Department of Education. https://edreform.com/wpcontent/uploads/2013/02/A_Nation_At_Risk_1983.pdf

Volume 5

Article 8

Summer 2022

Impact of Integration: Analysis on the Impact of Decision-Making Skills when Integrating Literacy with Robotics in Grades 3-5

Ashley Gross

Lee University

Under the guidance of Deborah Rosenow, Ed.D.

Abstract

This study investigated how intentional integrated literacy instruction impacted depth of knowledge and decision-making skills in 3rd-5th grade students during a week-long Reading, Writing, and Robotics camp experience. The instructional experience utilized the collaboration of reading, writing, research, and critical thinking skills needed to design robots using materials provided. Students applied newly acquired information gained through reading to the designing and programming of their robot. Data for this study was collected from a comprehension pretest, observations of students, student writing, and student surveys.

Keywords: robotics, literacy, integration, engagement

Introduction

Within each unique learning experience, students come with individual accomplishments, weaknesses, strengths, struggles, and motivations meaning that engagement and interest can vary for each student (Hervey, 2021). Keeping students engaged in learning can have a critical impact on growth (Hervey, 2021). Essie Sutton (2022) points out the multidimensional nature of student engagement, noting behavior engagement, emotional engagement, and cognitive engagement all exist within the complexities of a classroom. Behavioral engagement includes academic involvement, persistence, the tendency to ask questions, and participation; emotional engagement is the attitude students have towards the school, the subject, each other and towards teachers; and cognitive engagement is referred to as the strategic investment in learning on the part of the student (Sutton, 2022).

The way various forms of engagement are linked creates an interesting learning dynamic (Sutton, 2022). If a student has a sense of belonging and feels wanted by their peers and teachers, or emotional engagement, this will lead to heightened behavior engagement where students want to ask questions, participate during group discussions, and share their thoughts with the class (Sutton). If students have increased behavior engagement, cognitive engagement will be sparked as questions are posed and students want to deepen their knowledge and discover new understandings (Sutton, 2022). Research has shown that keeping students engaged can increase their focus and motivate students to practice higher level critical thinking skills.

The integration of technology into current classrooms has, in many cases, led to increased engagement (Venere, 2000). Technology can support student learning in a creative and useful way when aligned with the course content and the instructors' learning objective (Venere, 2000). It can also improve student engagement because instead of students being passive in the process,

they can interact through opportunities with personal devices or applications utilized by the teacher (Venere, 2000). Vawn Himmelsbach (2022) provides practical examples of technology usage such as math games, virtual labs, and virtual field trips.

Technology encourages self-paced learning and often increases engagement, allowing those who want to move ahead or tackle more challenging work to do so (Himmelsbach, 2022). Additionally, technology can assist with differentiating the development of skills for students who are not working at grade level and alleviate the pressure to rush progress while. Protecting privacy (Himmelsbach, 2022). If a teacher can find creative and instructional opportunities to integrate technology into the classroom, students can engage simultaneously due to the many different avenues provided (Himmelsbach, 2022).

Literature Review

Robotics

Robotics is a branch of technology engineering that requires a dedicated person to come up with a plan and design to accomplish a specific type of manufacturing or operation (Venere, 2000). One must be able to apply coding for a robot to assist humans in various ways or complete assigned tasks (Venere, 2000). Slowly, robots have been incorporated into our everyday lives at home and within schools. They were originally created to help handle tedious tasks such as working on cars but have since expanded beyond that arena (Venere, 2000). The population of service robots such as cleaning houses and assisting with surgeries has nearly doubled in the last decade (Venere, 2000). Robotics has become an easily accessible piece of assistive technology and with robotics growing over the past few years, and all the variety of abilities it has to offer, it has become a very popular piece of technology for teachers and

students to explore within the classroom (Venere, 2000). Additionally, the ever-developing innovations in technology and benefits robotics have to offer to future generations justify the exploration of robotics with young students.

Matthew Lynch (2022) highlights a humanoid robot used for companionship that can sense principle human emotions, adapt its behavior to accommodate these emotions of the student, and remember personality traits of the students with whom it interacts (Lynch, 2022). During the innovation of this robot, it was emphasized that while these robots cannot take the place of teachers, they are able to enhance the human impact on teaching (Lynch, 2022). It was shown that classrooms who used this robot reported noticeable improvements in their students' creativity and interactions with one another along with their social skills in general (Lynch, 2022).

Robots have been found especially useful in special education classrooms. “Robot-Assisted Instruction for Children with Autism: How Can Robots Be Used in Special Education?” from *Autism Spectrum News* explains when a child is struggling with communication skills or lacking certain social cues, they need a judgment-free atmosphere to practice without fear (Minot, 2021). A robot can be programmed to handle these challenges (Minot, 2021). By using cameras to read facial expressions of students and microphones to amplify conversation, students who have autism can relax, learn social skills, and communicate more easily (Minot, 2021). Additionally, students who have been known to have development issues or even attention disorders are able to learn how to focus better with student centered technology (Minot, 2021). Those who may have more severe physical disabilities are benefiting from robotics through constant health monitoring systems or companions (Minot, 2021).

Robots have been used as reading companions in the classroom. Joan Bergstrom (2021) states that direct attention from an adult plays an important role in long-term language development for children and robots are sometimes able to fill the role in absence of an adult (Bergstrom, 2021). When a child has individualized adult attention it “helps children learn to read and remember what they read” (Bergstrom, 2021). The robotic reading companion can mimic an adult's behaviors that encourage and support children in building early literacy skills. The robots are trained to mimic positive co-reading behaviors. The behaviors will be based on observations between the child and adult reading together and advice from literacy experts. Students are known to have been able to understand concepts better when reading with a companion rather than reading alone (Bergstrom, 2021).

Social robots have also been shown to help English Language Learners (Louie, 2021). They are able to provide social interactions in language learning, increasing motivation and on task engagement while also helping decrease students’ anxiety (Louie, 2021). Belinda Louie (2021) shares that “young students demonstrate increased language development and academic engagement after working with an educational social robot”. Social robots have been able to be used as tutors in both first and second language learning (Louie, 2021). Education robots have also been built to support customizable instruction for English Language Learners while assisting the teachers in the classroom (Louie, 2021).

Robotics education – instruction in design, coding, and innovating – can be provided in the school setting. This instruction provides students with knowledge and understanding of how robots work and develops critical skills that extend to other academic areas. Author, Marques Coleman, defines critical thinking as the ability to “present evidence for our ideas, analyzing the way we think instead of simply learning facts without ever questioning them.” Additionally, he

mentions educational benefits such as helping students develop critical thinking and problem-solving skills (Coleman, 2021). Coleman implies that when a student designs a robot while making many mistakes, it creates room for more learning and more problem solving. This creates an atmosphere where students can explore different possibilities until a solution is found.

Reading and Writing

Teaching a student how to read or write has many different approaches with no one method working for every student. Literacy instruction is described as effective if it can positively impact a single student's learning (Hervey, 2021). When teachers are able to use many different methods, skills, resources, and approaches to meet the different learning needs of their classroom, they prove to be effective (Hervey, 2021). Further, past studies have shown that engagement is a huge factor when it comes to initiating growth (Hervey, 2021).

Sheena Hervey (2021) describes an effective teacher as knowing their students as learners, knowing the standards, engaging their students throughout a lesson, and having a range of instructional strategies. Hervey states that if a teacher wants to be effective, they need to first know the curriculum and understand literacy learning. When a teacher understands literacy learning they implement many instructional strategies, resources, and instructional methods to meet students' needs (Hervey, 2021). Hervey suggests that as teachers practice various instructional methods, students are able to demonstrate understanding through multiple avenues. Teaching students how strategies can be used to process text in small groups better allows for individualization and meeting each child's individual needs (Hervey, 2021).

Integration of Literacy and Robotics

Robotics instruction is typically partnered with science or mathematics instruction, but what potential impact could happen in literacy growth? Integrating literacy with robotics has shown to be beneficial in multiple classrooms with a variety of students (Schwartz, 2016). Teachers have used robotics in many useful ways such as improving comprehension when engaging in technical reading, providing more clarity when writing, and increasing understanding of how to navigate visually. print. Robotics education programs are also proving to be a great interdisciplinary tool that builds intentional listening and speaking skills through collaboration (Schwartz, 2016).

Katrina Schwartz, a classroom teacher explains that robotics and programming brings relevance to her class and heightens engagement (Schwartz, 2016). She mentions that when she teaches literature written by “lots of dead, white guys” her students get bored, so she came up with an idea to integrate robotics into her lessons (Schwartz, 2016). She first introduced robotics into literacy with a lesson over settlers by pushing all the desks to the side. She then drew a maze on the floor with tape that represented the journey from Europe to the New World. The students had a graphic organizer to map out their ideas and coding. Afterwards, she gave her students an iPad and allowed them to guide their robots through the maze (Schwartz, 2016).

After the students were finished, they reflected on how their programming process modeled the writing process (Schwartz, 2016). “When they could make that connection between writing and programming, it really changed their approach to writing. It made them more open to that process” (Schwartz, 2016). Many of her students had struggled in literacy class, but when she allowed them to show their thoughts in a different way through coding and discussing with their peers before writing she noticed their “ideas flowed on paper more easily” (Schwartz,

2016). Similarly, Lauren Eutsler (2019) discusses the use of coding which allows students to construct an interactive, 3-D diorama representing their favorite scene from the book. Students start with a prototype paper then transitions to designing and coding (Eutsler, 2019). She noticed that this allowed her students to stay more engaged and focused during their readings and attend to more specific details from the book, knowing it would help them when it came to designing their favorite scene (Eutsler, 2019).

Using robotics for English Language Learners has been shown to help build a student's oral and academic language skills. According to Griffin Drew (2019), it is possible to support English Language Learners without being boring, and he found a solution using robotics. Through the integration of robotics, students went immediately from using nonspecific language like "how do we get the tire to move" to "we need to program 20 rotations and make it turn 90 degrees" (Drew, 2019). The teacher elaborates on how language began to emerge during the process of students' coding their robots. Robotics was able to reinforce communication skills that students needed to succeed academically and socially (Drew, 2019). The students were able to acquire specific scientific and technical language due to coding and improve their overall literacy acquisition (Drew, 2019).

Methods

The purpose of this study is to investigate the impact that integrating literacy with robotics has on a student's critical thinking skills and decision making in third through fifth grades. The following research question was examined through this research process: How does the integration of literacy, art, and robotics impact a 3rd, 4th, or 5th grade student's decision-making process and critical thinking skills?

Research Design

An action research approach was used to conduct this study at a weeklong summer camp hosted by a university in the southeastern parts of the United States. According to Burns (2009), action research is a means to bridge the gap between the most effective way of doing things and the actual ways of implementing things. Action research provides systematic ways for data to be collected for a researcher to make informed decisions about improving teaching and learning. In addition, Mills (2014) states that, when the main goal is to improve instructional practice, action research helps guide the decision-making process as observations are made about students' actions and interactions.

A convergent mixed method approach in which both quantitative and qualitative data was collected in a parallel, but separate, manner was used (Fetter, Curry, & Creswell, 2013) to address the question for this study. A convergent parallel design ensured that the researcher concurrently, analyzed and interpreted the quantitative and qualitative data gathered from the study (Fetter, Curry, & Creswell, 2013). Students completed a comprehension pretest to determine prior knowledge related to space exploration, engaged in a survey to gather students' perceptions about reading and decision-making in robotics, and contributed their learning to a visual display tracking new learnings.

Setting and Participants

Students voluntarily attended a week-long summer camp in which they were immersed in a rich robotics and literacy experience provided through collaboration with the College of Education at a local university and Tennessee Valley Robotics. Instruction in reading, writing, and research related to space and the provided robotics missions were provided to students daily, and engagement in critical thinking and problem-solving skills needed to design, build, code, and

program robots using materials from the *Into Orbit* First Lego League challenge to accomplish specific missions related to space exploration took place.

The target population consisted of students entering 3rd, 4th, and 5th grades in the Fall of 2022. Elementary-aged participants included males and females who attend school during the regular academic year in a variety of settings (public, homeschool, and private). Convenience sampling was utilized to collect data from the intended participants.

Data Collection

This sample consisted of eighteen 3rd, 4th, and 5th grade students who attended a reading, writing, and robotics camp. All participants in this study were voluntary and selected based on those who gave oral consent to have their data used in research along with a parent/guardian's consent. Prior to collecting data, approval from all relevant participants and institutional boards were obtained. The week before camp started, parents were emailed permission forms, an overview of the study, and contact information regarding further questions. The invitation to the students included a brief overview of the research study and request for oral approval.

Data was collected through the comprehension pretest, oral responses from the students during small group interactions, and a survey that was given midweek. On the first day, students were asked to complete two readings with content knowledge questions related to space and the use of robotics in space exploration. The responses from this comprehension pretest were used to measure baseline knowledge on space.

The survey consisted of five questions, and students were able to answer with strongly agree, agree, neither agree or disagree, disagree, and strongly disagree. The questions addressed how integrating literacy with robotics had personally impacted each student who participated.

The oral conversations and nonverbal responses from the students were used to understand the decision-making skills from the students.

RESULTS

Quantitative data was collected from the comprehension pretest. When the students first arrived, they each were asked to complete a short assessment to collect information regarding reading comprehension and knowledge. The comprehension pretest consisted of two articles and a couple of questions at the end of the article. To answer the questions students were to use the article to find the correct answer.

Figure 1 shows the students' responses from the reading comprehension pretest. The questions were grouped into topics. Topic 1 addressed who travels to space, Topic 2 addressed assumptions about space travel, Topic 3 addressed expenses of traveling to space, and Topic 4 addressed basic knowledge about the genre of nonfiction.

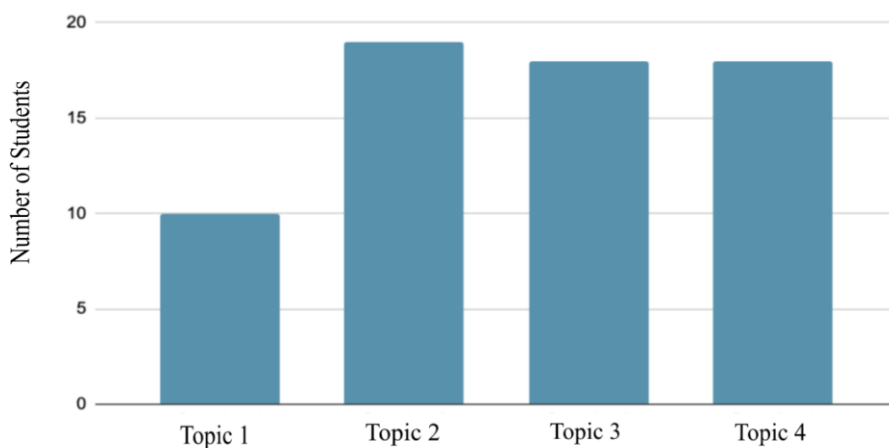


Figure 1. Responses from Comprehension Pretest on Space and Space Exploration

Of the four topics, students were most successful with reading and comprehending information about assumptions, expenses, and the genre with 19 out of 19 answering Topic 2

questions correctly and 18 out of 19 answering Topic 3 and Topic 4 questions correctly. Only 10 out of the 19 students were able to accurately identify who travels to space.

Halfway through the week, students were administered a perception survey. The survey was designed to measure students' perceptions of how information gained from literacy activities about space influenced decisions made when designing and programming their robots. 17 out of 18 students selected strongly agree with the statement "reading information about space has helped me decide how to code my robot" (Figure 2) while 1 out of 18 selected "agree". While not all the students selected strongly agree, insights were provided through some qualitative data made in the comments. For example, one student who did not strongly agree commented, "it helped me use space vocabulary in the robotics room."

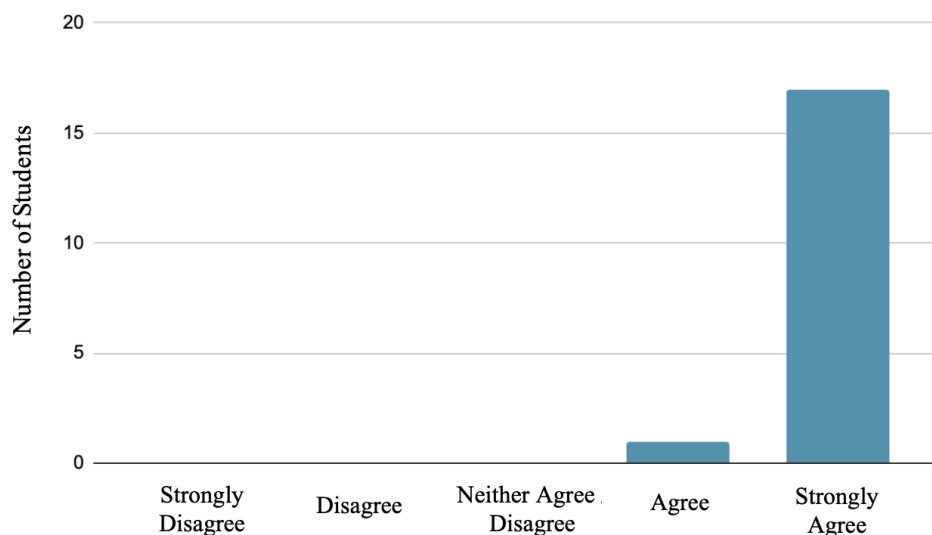


Figure 2. How reading influenced robot design and programming.

Students were asked if writing about the robot design process influenced their decisions when designing and programming. Figure 3 shows that 12 out of 18 students strongly agreed, 3 out of 18 agreed, and 3 out of 18 disagreed with the statement. Among this group, one

commented, “Does coding count as writing? It’s words I put together...that's sort of like forming sentences.”

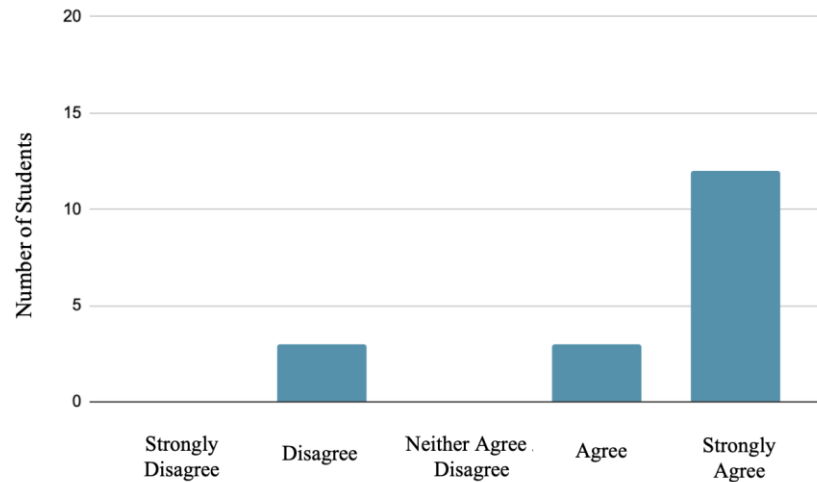


Figure 3. How writing influenced robotics decision making.

Most students responded with “strongly agree” to the statement, “word study activities I have done this week helped me make decisions about my robot design”. Figure 4 shows 12 out of 18 students strongly agreeing with the statement, 2 out of 18 agreeing, 2 out of 18 neither agreeing or disagreeing, and 2 out of 18 strongly disagreeing.

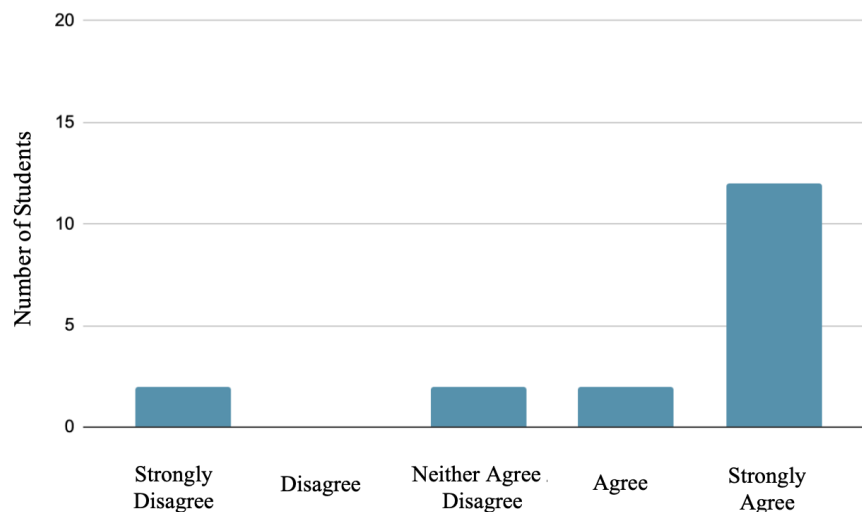


Figure 4. How word study activities influenced robotics decision making.

Student responses were the most varied on the question addressing the use of a design notebook in robotics. When asked if keeping a design notebook helped them organize their thinking to help them make decisions in robotics, of 18 students 2 strongly agreed, 4 agreed, 3 neither agreed or disagreed, 4 disagreed, and 5 strongly disagreed (Figure 5).

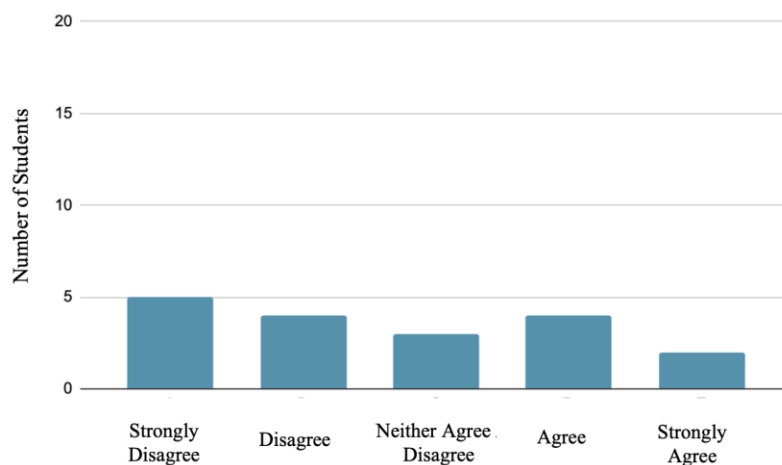


Figure 5. How design notebooks influenced robotics decision making.

DISCUSSION

Students' responses to the survey questions on the integration of robotics and literacy as related to decision making skills mostly fell within the strongly agreed category. The exception was the question inquiring about the use of the design notebooks where responses were spread across all five choices. The data indicates that intentionally integrating literacy information about space influenced how students approached the designing and coding process while engaging in the robotics sessions.

Reading about space helped students decide how to code and design their robots as well as influencing how to accomplish the various space missions. The texts read also opened new

interest for some of the students, creating a desire to read more about space. Expanding students' vocabulary related to space through reading enhanced understanding and communication needed to be successful with robotics missions. Instead of students pointing at something on the robotics table and calling it a “thing” students were able to use words like “crater”, “velocity”, “extraction”, or “deflection” learned from reading texts on space. One student’s comments provided insight into the reciprocity of the process stating, “coding my robot to do missions made me want to read more books about space.”

Students made some connections between writing and designing, coding, and building their robot. They indicated that without the codes being complete, the robot will not complete its mission in the way an incomplete sentence makes it difficult to successfully communicate. Sentences have to be complete in order to make sense. The greatest disconnect appears to happen between the design notebook and robotics design. One of the most critical tasks an engineer does is to carefully document each step when engaging in the design process. This ensures progress moves forward rather than remaining stagnant or repetitive. Responses regarding the purpose and influence of the design notebooks were much more varied. Looking back at the notebooks and time allotment during the robotics session helped conclude the design notebooks were not utilized daily, thus reducing the influence on decision making.

On the last day, students were given a poster and asked to write down what they learned throughout the week. This served as an informal and additional resource for extracting qualitative data. Statements consisted of “I love coding” or “I love space.” However, students included space facts such as “galaxies expand” and “there is no sound in space.” Statements were completely anonymous, and students were not limited to how much they could write or draw.

While the data from this study indicates the intentional use of literacy can influence decision making within robotics design for elementary students, there are limitations that should be addressed. These limitations include the small sample size from which data was collected, the one-week time available to conduct the study, the wide variety of background knowledge that participants entered the experience with, and the tools from which the data was collected.

Additional considerations are necessary for interpreting the results from this study. Lack of a control group, the small sample size, and greater standardized instruments are needed to draw solid conclusions and provide a case for generalizability. However, the initial data from this study is encouraging and further research has the potential to influence future pedagogy in literacy, robotics, and integration.

References

- Bergstrom, J. (2021). *Can robots help children learn to read?* Can robots help children learn to read? | Museum of Science, Boston. <https://www.mos.org/living-laboratory/explore-our-research/reading-dragons>
- Burns, A. (2009). Action research in second language teacher education. *The Cambridge Guide to Second Language Teacher Education*. New York: Cambridge.
- Coleman, M. (2021, November 11). *Why are critical thinking and problem solving essential in today's education?* Acer for Education. <https://acerforeducation.acer.com/education-trends/education-technology/why-are-critical-thinking-and-problem-solving-essential-in-todays-education/>
- Coleman, M. (2022). *Welcome to Robolink: STEM and coding with Robotics Kits*. How Robotics Makes a Positive Impact on Students and Education. <https://www.robolink.com/blogs/roblog-link/how-robotics-makes-a-positive-impa>
- Drew, G. (2019, January 24). *Robotics and literacy: A means of teaching students academic language*. University of Nevada, Reno. <https://www.unr.edu/nevada-today/news/2019/robotics-and-literacy>
- Eutsler, L. (2019, August 28). *Elevating Engagement: Bringing Literacy Alive with Robotics*. International Literacy Association. <https://www.literacyworldwide.org/blog/literacy-now/2019/08/28/elevating-engagement-bringing-literacy-alive-with-robotics>
- Fetters, M., Curry, L., & Creswell, J. (2013). Achieving Integration in Mixed Methods Designs—Principles and Practices. *Health Services Research* 48(6 Pt. 2), 2134-2156. <https://doi.org/10.1111/1475-6773.12117>.
- Hervey, S. (2021, April 8). *What is effective teaching of literacy?* Generation Ready, from <https://www.generationready.com/white-papers/what-is-effective-teaching-of-literacy/>
- Himmelsbach, V. (2022, May 10). *How technology in the classroom can impact student learning*. Top Hat, from <https://tophat.com/blog/how-does-technology-impact-student-learning/>
- Louie, B., Björling, E. A., & Kuo, A. C. (1AD, January 1). *The desire for social robots to support English language learners: Exploring robot perceptions of teachers, parents, and students*. Frontiers. Retrieved August 11, 2022, from <https://www.frontiersin.org/articles/10.3389/feduc.2021.566909/full>
- Lynch, M. (2020, November 13). *Are classroom robots the nextgen of learning?* Math=. Are Classroom Robots the Nextgen of Learning. Are Classroom Robots the NextGen of Learning? - The Tech Edvocate

- Mills, G. E. (2014). *Action research: A guide for the teacher researcher* (5th ed.). Boston, MA: Pearson
- Minot, D. (2021, November 10). *Robot-assisted instruction for children with autism: How can robots be used in special education?* Autism Spectrum News. <https://autismspectrumnews.org/robot-assisted-instruction-for-children-with-autism-how-can-robots-be-used-in-special-education/#:~:text=Roboticists%20aim%20to%20create%20robotic,autism%20receive%20in%20other%20environment>
- Ogilvie, E., & McCrudden, M. T. (2017). Evaluating the social validity of the early start Denver model: A convergent mixed methods study. *Journal of Autism and Developmental Disorders*, 47, 2899-2910.
- Schwartz, K. (2016, July 28). *How robots in English class can spark empathy and improve writing*. How Robots in English Class Can Spark Empathy and Improve Writing. <https://www.kqed.org/mindshift/45834/how-robots-in-english-class-can-spark-empathy-and-improve-writing>
- Sutton, E. (n.d.). *Student engagement: Why it's important and how to promote it*E. Branching Minds, Inc. <https://www.branchingminds.com/blog/student-engagement-remote-in-person>
- Venere, E. (2000). *Robots are evolving, population is booming worldwide*. <https://www.purdue.edu/uns/html4ever/000114.Nof.robots.html>

Summer 2022

Research and Design of a Quartz Tuning Fork Based Atomic Force Microscope Utilizing 3D Printing and Linked Raspberry Pi Controllers

D.W. Hall

Lee University

Under the guidance of David Harkins, Ph.D.

Abstract

Atomic Force Microscopes (AFM) allow for surface imaging far beyond any other contemporary imaging devices in terms of resolution and the diversity of surfaces that can be scanned and. Optical microscopes can image a variety of surfaces, including biological samples, but are very limited in terms of their resolution, which generally cannot exceed 1000 times magnification. Scanning Tunneling Microscopes (STM) can see beyond the abilities of AFM but can only image conductive surfaces and generally require extremely high vacuum. The AFM strikes a fine balance between both the optical microscope and the STM: it can image surfaces down to the atom and is not limited to the type of sample it can scan. AFMs are a relatively new development, with the first paper concerning their development being published in 1986¹. Commercially available AFMs are much more costly than the typical optical microscopes and entry level STMs. The goal of this project is to determine if it is possible to build an AFM that has comparable imaging qualities to a commercially available unit for a fraction of the cost.

Introduction

Atomic Force Microscopes rely on detection of electrostatic forces and interactions between the surface of a sample and the detection device. The methods of detecting these interactions are diverse, including change in the resonant frequency of a vibrating probe, or deflection of a very sensitive cantilever. The approach utilized for this AFM relies on dampening of an oscillating of a quartz tuning fork as it interacts with surface features. A quartz tuning fork (QTF) has a resonant frequency, and this is where the two tines of the fork oscillate in unison, resulting in the QTF producing a small current. When the QTF interacts electrostatically with objects around it, the oscillation is dampened and results in a drop in current. It is important to

note that the only forces and interactions considered are electrostatic. This drop in current can be related to the distance between surface features and the QTF. This current value can then be processed by software and stored as a z position coordinate along with the relevant x and y coordinate values.

Figure 1 illustrates the mechanics of how the QTF can be implemented to produce an instrument capable of imaging a surface. 5 small piezoelectric transducers discs, 2 each for the x and y axis and one for the z axis, provide the motion for their respective axis. The piezo electric transducers provide incremental steps that allow precise movement along the axes. Software is then able to move each axis independently to scan or move in a raster pattern along the x and y axis across the sample's surface.

Software

Software serves three purposes in the AFM. XYZ motion from the piezo discs is driven by the software supplying different voltage values to a disc or group of discs. For example, if the piezo actuator needs to move in the X axis, a voltage is applied to each piezo disc corresponding to X axis motion. Software also monitors the status of the QTF and its position relative to the sample's surface, which is vital for ensuring the QTF does not directly strike the sample's surface. The final function of the software is to store positional data and export it as a comma separated variable (CSV) file to be used for construction of the composite surface image.

Hardware

The AFM outlined in this paper consists of three separate stages to minimize vibrations. Stage one consists of two 12 inches by 12 inches machined aluminum plates with #1/4-20 threaded holes spaced every inch. The corner of each plate has 4 rubber feet. One plate is placed on top of the other, resulting in a flexible-rigid-flexible-rigid stack designed to reduce vibrations.

Stage 2 consists of the body of an old Wetzlar optical microscope. A 3D printed adapter plate is necessary to connect stage one and stage two as they do not have the same bolt pattern. All the irrelevant parts of stage two, such as the base, optics, and light were removed to reduce mass and subsequently a vibration reduction. The platform on the Wetzlar microscope provides repeatable, precise gross motion that allows preliminary alignment of a sample with the QTF. Stage three contains the circuitry, tuning fork positioner, piezo actuator, and optical microscope. Figures 2 and 3 show the design of stages 2 and 3 respectively. Figure 4 shows the construction of the piezo actuator utilized in stage 3.

Figure 2

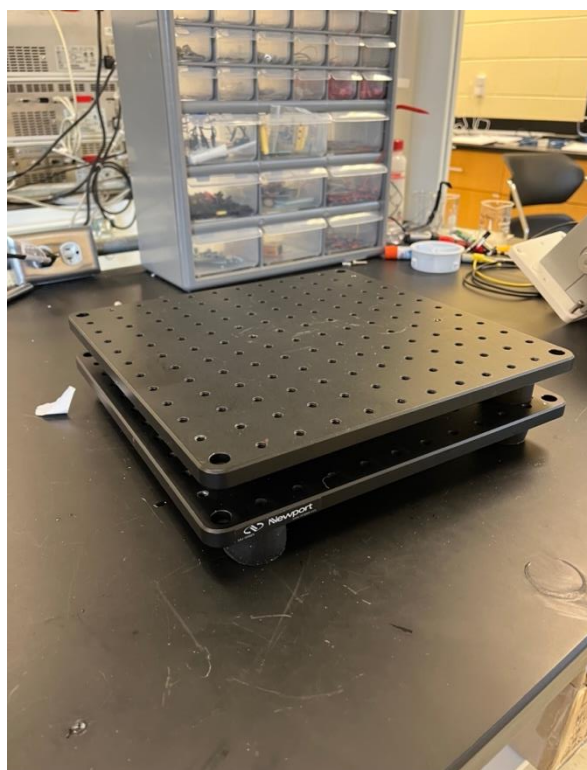


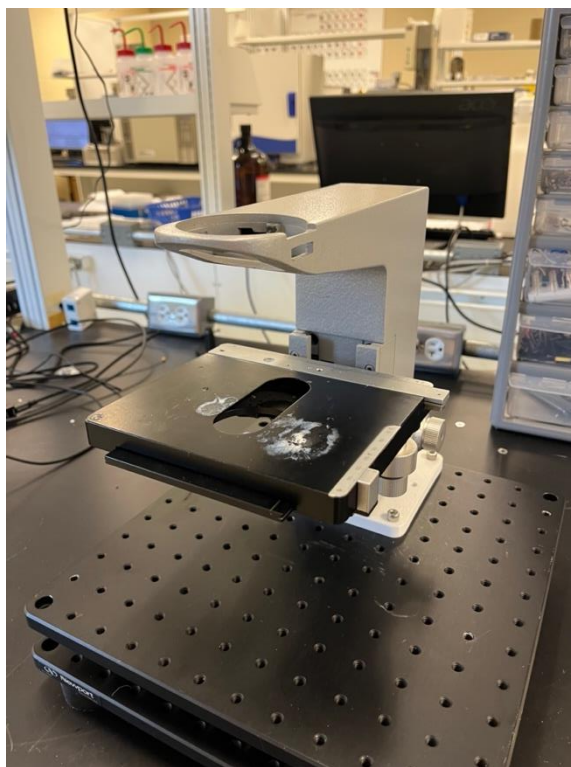
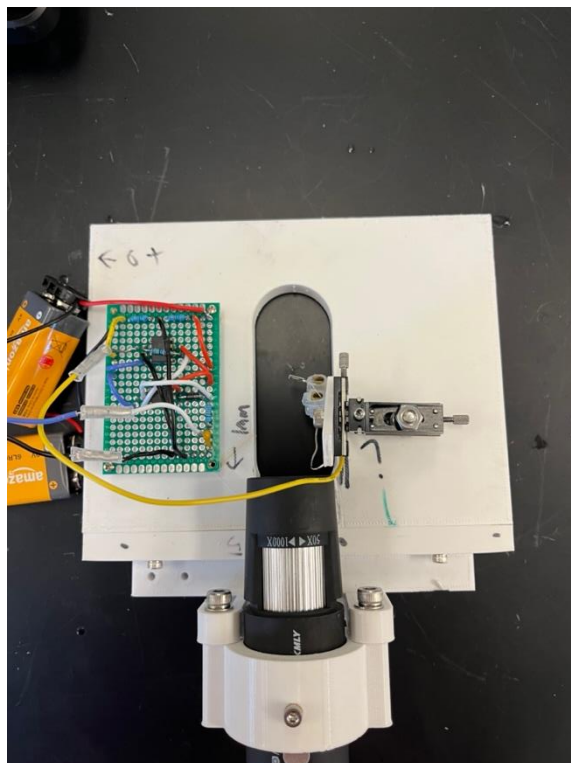
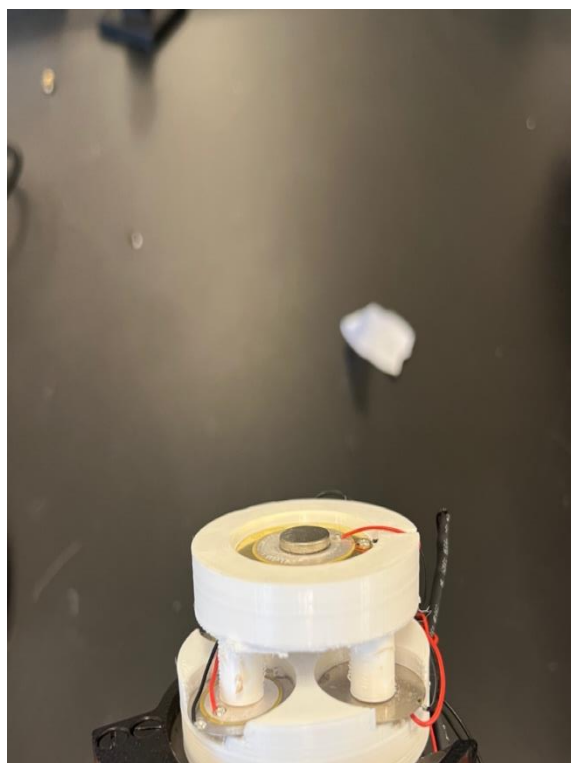
Figure 3

Figure 4**Figure 5**

To keep the overall production cost low, additive manufacturing in the form of a 3D printer was utilized for the construction of the custom hardware used extensively in stage three. The parts were intentionally designed to feature simple geometries to expedite the 3D printing production process. Parts were also designed to be constructed from several smaller parts and fastened together using threaded inserts and machine screws. All Computer Aided Design (CAD) work was done using Shapr3D. The printer utilized is a Raised3D E2 and the filament used throughout is Overture white PETG (polyethyleneterephthalate-g). PETG represents a compromise between rigidity and ease of use compared to other filament options².

Circuitry

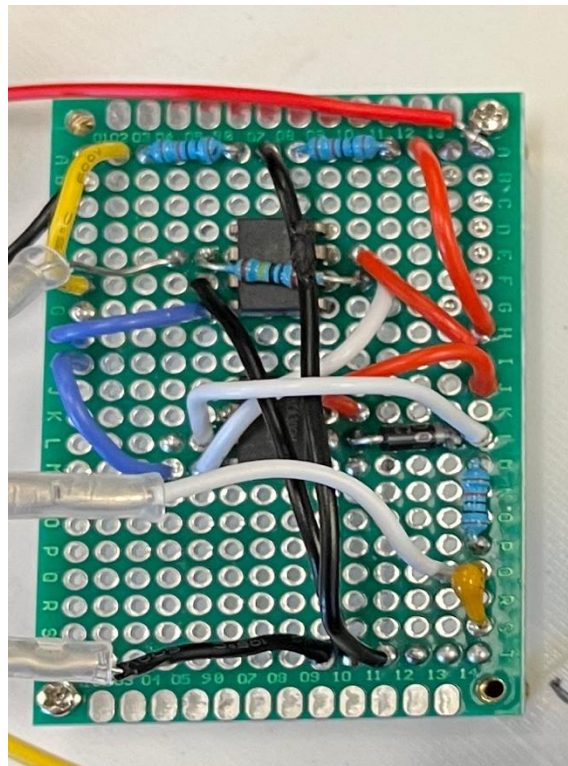
Given the small scales and precision required to construct an accurate composite image of a surface, several components of the circuitry must be prepared carefully. The circuitry must accomplish two goals for the AFM to function properly. The first is reduction of ambient signal noise, such as 60 Hertz signals that is commonly used in home and business wiring. Since the QTF must be driven at a specific frequency to achieve resonance, the input frequency applied needs to be as free of noise as possible. Noise reduction is accomplished using a notch filter, which combines a high-pass and low-pass filter into one. By varying the resistors and capacitors utilized, only the relevant frequencies around 32,000 Hertz can pass into the QTF.

The current produced by the QTF at resonance is extremely small and difficult for the oscilloscope, a tool that monitors the change in electrical signal, to detect effectively.

Operational amplifiers are used to create circuits that will convert the small current to a voltage and amplify it for easy detection. The operational amplifiers are powered by positive and negative voltages, so a voltage divider is needed, with ground tied to its center. The voltage

divider takes the cumulative voltage supplied by the power supply and produces a positive and negative voltage value that are each half of the cumulative voltage. After passing through the operational amplifiers, the voltage still varies at approximately the resonant frequency, and must be rectified so that a steady voltage value is available to monitor. Figure 6 shows the completed circuit board housing the voltage divider, operational amplifier, and voltage rectifier.

Figure 6



Results

This project has allowed the opportunity to learn a new set of skills relevant to constructing a microscope. By creating custom parts using 3D printing, a new sample holder design that is more repeatable and higher precision than prior iterations is now in use. The software allows for the piezo actuator to perform a raster scan under the control of one microcomputer while the other controls the gap between the sample and the tuning fork. At the

time of the project completion, the only scanned object is the bolthead of a M5 screw. Figure 7 is a photo from an optical microscope of the QTF approaching the screw head. Figure 8 shows a graph of the XYZ coordinates scanned by the AFM. In the future, a composite image of the surface will be constructed using Gwyddion, an AFM imaging software, using position values exported from the software.

Figure 7

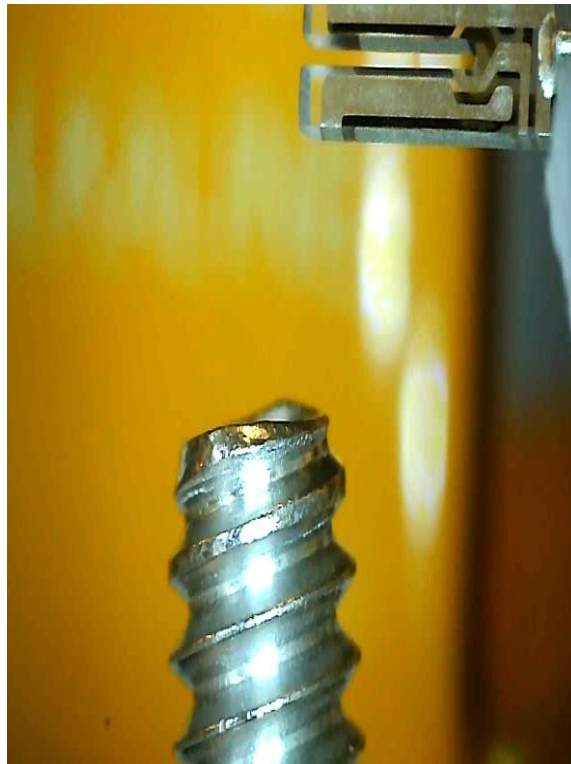
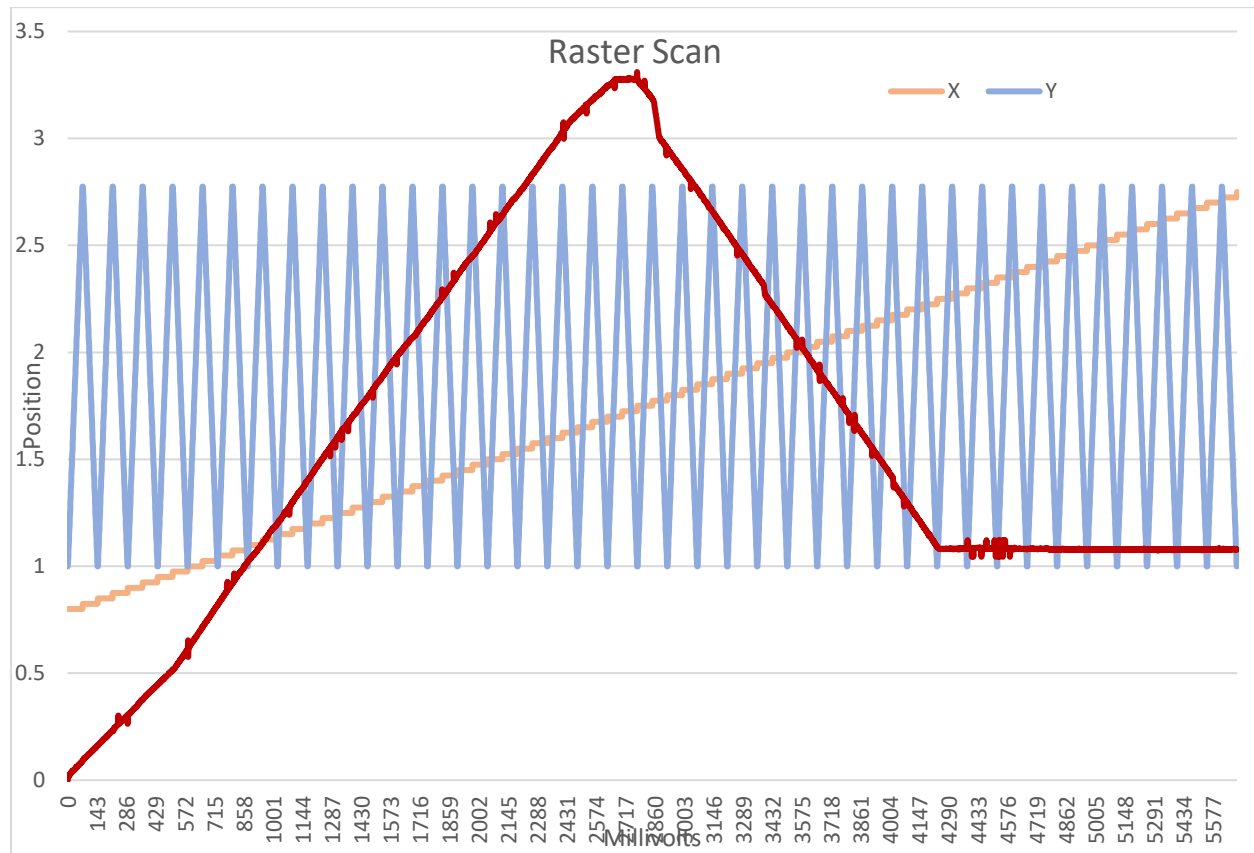


Figure 8

Limitations

While the current design iteration shows that surface features can be detected and mapped, the results are far from optimal. The AFM is extremely sensitive to vibrations from the base and turbulence in the air; both can result in an incorrect scan of a sample's surface. The QTF also needs to be oriented with both QTF tines directly above the sample surface. A configuration where the tines of the QTF do not lie directly in line with the z axis can result in lost accuracy.

Future Considerations

While there has been substantial progress since the beginning of the project, several areas of this project will need further work before completion. The primary focus for the remaining duration of the project will be producing an image of a standard sample. By comparing the image produced by this AFM to what it should look like, further refinements and optimizations can be made. Implementing Proportional Integral Differential (PID) feedback is vital for ensuring the QTFs do not make physical contact with the surface. Additionally, reduction of vibrations from outside sources is an area for further optimization. An enclosure may be constructed to further isolate the system from vibrations and air turbulence.

Bibliography

1. Algarni, M., & Ghazali, S. (2021). Comparative study of the sensitivity of PLA, ABS, Peek, and PETG's mechanical properties to FDM printing process parameters. *Crystals*, 11(8), 995. <https://doi.org/10.3390/cryst11080995>
2. Binnig, G., Quate, C. F., & Gerber, C. (1986). Atomic Force Microscope. *Physical Review Letters*, 56(9), 930–933. <https://doi.org/10.1103/physrevlett.56.930>

Volume 5

Article 10

Summer 2022

Anomaly Detection of Extrusion-Based Additive Manufacturing

Blake Harris

Lee University

Under the guidance of Monique McClain, Ph.D. (Purdue University)

Abstract— Additive Manufacturing is a rapidly growing field of research that enables cheap and easy manufacturing of geometrically complex parts. However, if a printer is operating unwatched and an error occurs, the print will continue uncorrected which causes the formation of defects that negatively impact part quality and performance. Such defects can make a part unusable, wasting time, materials, and money. The goal of this research is to collect position and image data from a fused deposition modeling (FDM) printer to identify when a defect occurs without operator supervision. Three linear encoders were used to track the nozzle position, a rotary encoder was used to track the feed and retraction rates of polylactic acid (PLA) print filament, and a web camera was used to observe the print quality. Multiple 10mm-by-10mm cubes were printed at various speeds and bed temperatures to produce samples with and without induced defects. The position and image data from these prints were collected via a python script. To improve the data collection speed, image labels were appended to the corresponding position data located in a .csv file. Then, calibration data from a baseline print were used to train a principal component analysis (PCA) to create a model for anomaly detection. The model was used to implement statistical process control (SPC), which was then used to determine which prints exhibited normal (good print) or abnormal (bad print) quality. The methodology developed in this study can be used to detect errors in 3D-printed parts to improve part qualification.

I. INTRODUCTION

Additive manufacturing, also known as 3D printing, is an area of research that has been growing incredibly quickly. This layer-by-layer manufacturing process allows one to quickly build prototypes and create geometrically complex shapes from 3D models [1]. The models are built in a computer-aided design (CAD) software where one can create, modify, and optimize a design [2]. One of the most accessible kinds of 3D printing process is fused deposition modeling (FDM). In this process, a heated thermoplastic filament, such as polylactic acid (PLA), is fed through a nozzle. The melted plastic sticks to the previously deposited layer and cools to form a rigid shape layer-by-layer [3]. However, FDM 3D printers have numerous unsolved issues. Print errors occur when there is a misalignment between the print bed and nozzle, clogging of the nozzle, loss of adhesion to the bed, and a disruption of the flow of the printing materials [4]. It can take hours for the machine to complete a print and errors occur frequently, which cause print failure and waste time and resources.

While errors can be detected by operators watching the printing process, autonomous error detection shows potential to detect errors earlier and with greater accuracy, as well as reduce the need for human quality monitoring. Automation could potentially remove any bias of an operator or be used to augment the productivity of experienced operators who may still miss errors. Kadam et al. recorded their printer using HD cameras to see each printed layer remotely [5]. They then trained five different AI models to effectively identify anomalies in a print. These included K-Nearest Neighbor, Naive Basis, Decision Tree, Random Forest, and Support Vector Machine (SVM) which was found to be the most effective. However, they specifically took images when a layer finished printing [5]. That is, they did not train the models to identify errors during other parts of the print process. An advantageous next step in this research would be to train models on data collected from a continuous print. Narayanan

et al. used both SVM and Convolutional Neural Network (CNN) to create their model from multiple videos of their printer manufacturing a large rectangular pyramid [6]. They then randomly split their data into a calibration set containing 70% of the data and a validation set containing 30%. They found the CNN method outperforms the SVM learning approach, but it takes three times as long to train [6].

Another method of process control uses Principal Component Analysis (PCA) and Statistical Process Control (SPC). While SVM helps greatly in solving big data problems, it is mathematically complex [7]. CNN is useful in examining image data, but it can be computationally exhaustive as well [8]. PCA is a similar method of machine learning that is used to dimensionally reduce data [9]. PCA can be used with SPC where statistical methods are utilized to monitor process behavior and find anomalies [10]. These methods may be less advanced than an SVM or CNN, but the use of PCA and SPC instead will greatly reduce computational time.

PCA and SPC have been used in industrial engineering and chemometrics studies such as Villez et al. to monitor the stress in tomato plants [11]. It is common to use both a Q statistic (to determine the squared residual error) and Hotelling's T^2 statistic (which measures the distance between the reconstructed data and the origin) to determine if an anomaly is present [11]. Both statistics are necessary for process monitoring because the Q statistic could potentially see the PCA model as invalid if the residual error is not seen as random. Under the assumed null hypothesis of a study, the residual error is said to be random; this is not the case when the Q statistic surpasses its expected upper control limit. Thus, the model would be invalid for that given statistic. Hotelling's T^2 statistic is not based on measuring the residual error but rather the distance between the reconstructed data and the origin. Assuming the scores are normally distributed and when all the calibration samples are from the same multivariate distribution, the calibrated samples fall under a β -distribution. The F-distribution is followed for the samples not included in the calibration set but belong to the same distribution [11]. In phase I of this statistic, data is used for calibration and checked for anomalies at the same time. This phase is where the β -distribution is used. Once a model is calibrated for monitoring is accepted, new data is only monitored and not used for calibration. This is phase II of the statistic where the F-distribution is applied to the monitored data [11].

The objective of this research is to improve detection of anomalies in FDM using data collected from position encoders and cameras rather than only image data. PCA was used to model these data and SPC was used to test the model's ability to determine if a certain print had a defect. These machine learning methods were chosen in order to reduce computational time in constructing a model. Continued research in this field will be incredibly useful to the future of FDM printers since the ability to accurately predict and prevent error formation will save materials, costs, and time.

I. METHODS

In this project, sensors were attached to a Prusa i3 MK3S FDM printer as seen in Fig. 1. Three Phidgets Linear encoders with a 300mm range recorded the nozzle's position in a 3D space and an ATM102-V rotary encoder recorded the feed rate and retraction rate of the print material, PLA. A Logitech HD web camera collected image data of the prints.

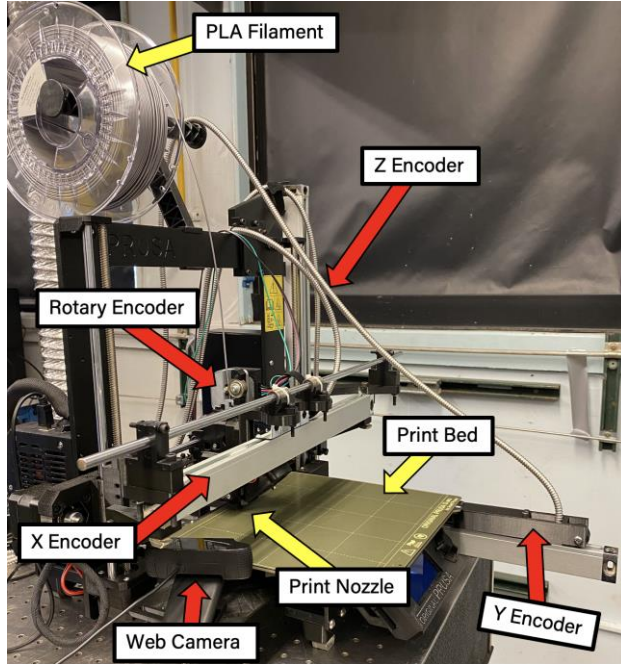


Figure 1. Prusa i3 MK3S printer with labeled parts and sensors.

In order to attach the sensors to the printer, mounts were first designed in a CAD software. Each sensor had a 3D printed mount that would attach to the printer. These mounts needed to keep the sensors stable for the data to be collected consistently. The X encoder moved across a metal bar to reinforce its path. The top of the Y encoder is encased by a printed part to ensure it did not wobble as the print bed moved back and forth. The Z encoder had mounts that attached to the top and bottom to ensure it stayed parallel with the printer as the nozzle moved up and down. If sensors were not consistent in recording data, the model built with PCA could be less accurate as there would be more noise in the data.

A 10mm-by-10mm cube, as seen in Fig. 2, was chosen as the test geometry as it has a fast print time of eight minutes. The print speed was set to 60 mm/s and the bed temperature 60°C for a reference control print. Cube A, as seen in Fig. 3, had dimensions of 9.95 x 9.91 x 10.09 mm so it was chosen as the control print. In order to induce anomalies in the prints, the print speed, bed temperature, and bed height were altered from baseline settings as seen in Fig. 3. In total, 12 different cubes were printed and the conditions under which they were printed can be seen in Table 1.

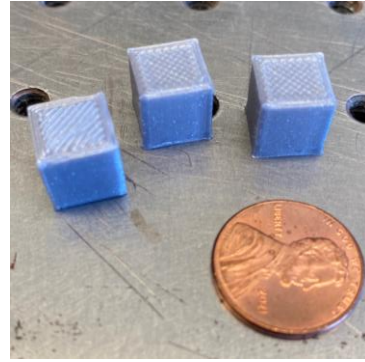


Figure 2. Three 10mm-by-10mm cubes with a penny for scale

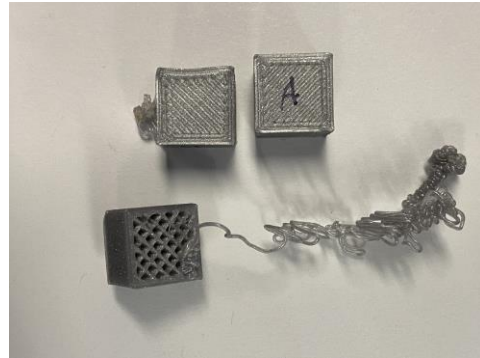


Figure 3. Cube H (Upper Left) with side blobbing, Cube A (Upper Right) with no anomalies, and Cube C (Lower) with stringing.

Next, a python script collected each print's position and rotary data and plotted it in real-time. These data were stored in a .csv file. This program also collected images that corresponded to each position entry in this file. Then, the data were post-processed to concatenate the image data to the position data by unwrapping the image matrix data into a row vector.

Print Trial	Anomaly?	Print Speed (mm/s)	Bed Temp (°C)	Bed Height (mm)
A	No	60	60	1.200
B	No	60	60	1.200
C	Yes	60	60	1.140
D	Yes	60	60	1.237
E	Yes	60	60	1.237
F	Yes	60	90	1.200
G	No	300	60	1.200
H	Yes	60	90	1.200
I	No	150	90	1.200
J	Yes	150	90	1.200
K	Yes	300	90	1.200
L	No	60	120	1.200

Table 1. Print settings for all 12 Cubes.

With each print, around 1300 images were taken all with size 640 x 480. Unwrapping this many images of this size created a .csv file of size 1300x307200. 12 of these files were created (one for every corresponding Cube), each around 10 gigabytes in size. Files of this size led to difficulties in combining the position and image data. To remedy this, the images were cropped and resized to a resolution of 36 x 27. Unwrapping these images created a .csv file of size 1300x972. Now, the image data files only took 30 megabytes of space, making them much easier to apply PCA to. A python script then concatenated the position data with the image data into a single .csv file.

After the data had been collected and post-processed, a PCA model was trained using the controlled print as calibration data, Cube A. Cube B, the print with the same settings as Cube A, was used as validation data. PCA was performed in python and a model with 30 principal components was chosen. This model contained 92.22% of the total variance of the data.

Once the model was trained, SPC was used to test the model's ability to identify anomalous cubes. To do this, both the Q statistic and Hotelling's T^2 statistic were calculated with their relative upper control limits. If anything is below an upper control limit, it is considered non-anomalous by the model. If it is above the line, it is considered to be anomalous [12].

I. RESULTS

Specific anomalies were induced by altering the print parameters. By increasing the bed temperature and print speed, blobbing on the first layers of the printed cubes formed. Changing the bed height also induced anomalies, but it often led to stringing of the filament (Cube C had a defect of stringing as seen in Fig. 3). For this research, blobbing anomalies are more desirable since they should be easier to identify in the recorded encoder data than stringing. If a print begins to string, the printer will still operate as normal, the filament will just not build up layer-by-layer. Blobbing has potential to cause anomalies not only on the cube, but in the data as well. If extra filament is extruded or the nozzle is not as precise because of the increased print speed, the encoder data should show this.

The Q statistic and Hotelling's T^2 statistic of Cubes A, B, H, and J, were plotted as seen in Fig. 4 and Fig. 5. Cube A is the reference cube, Cube B is another reference cube used for validation, and Cubes H and J have blobbing anomalies (Cube H can be seen in Fig. 3 with blobbing on its side). The Q statistic shows that there are similarities in the two control cubes, Cubes A and B, as they overlap each other on the plot. This can be seen between the anomalous cubes, cubes H and J, as well. This plot also shows that the model will recognize the difference between the control and anomalous cubes as there is space between the two groups. However, all the cubes are below the upper control limit. Because of this, the model identifies all the cubes as non-anomalous.

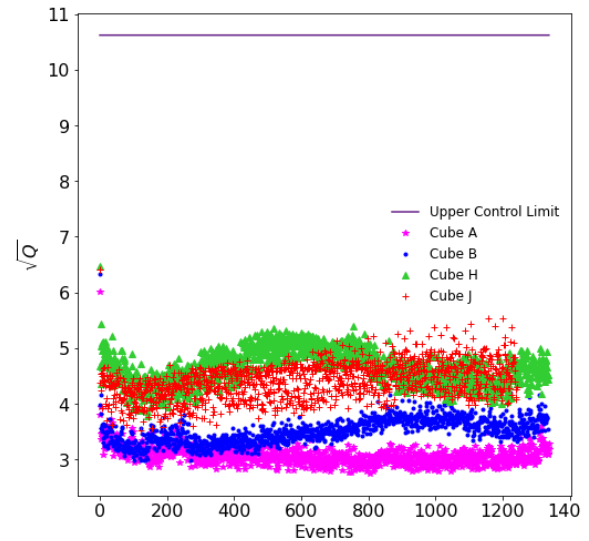


Figure 4. Q statistic control chart.

The Hotelling's T^2 statistic plot in Fig. 5 is less interpretable. All of the data overlaps and most of the points are below the upper control limit.

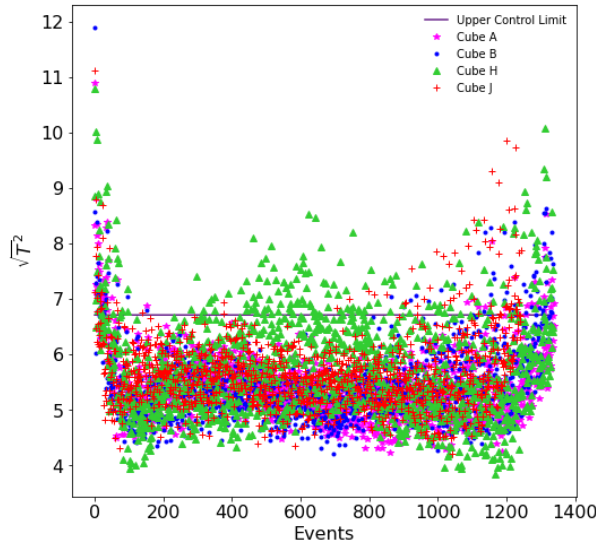


Figure 5. Hotelling's T^2 statistic control chart.

I. DISCUSSION

While this research did successfully collect data and preform machine learning techniques, there are still limitations. Data collection can still be improved in a few different ways. While position and rotary data are important, more sensors could be used to monitor the printer. Thermocouples could monitor the bed temperature of the printer. If print bed is not at a stable temperature, more defects could occur in the first layers of the print.

Research on the best camera position needs to be done as well. The images of this study collected images from the side of the cube as it prints. However, recording from the top and observing every layer print may give more useful data. If this is done, the PCA model could potentially be trained with the different layers of one cube rather than different cubes. This would hopefully allow for the identification of specific layers as anomalous rather than a whole cube.

More work can be done on controlling the environment of the printer during data collection. Data collected for this research was done in a lab with fluorescent lights. Because light was not controlled while the image data was recorded, there is potential for more noise to appear in the data. Unwanted shadows and outside light may have been recorded in these images. In order to control the light, the printer should be enclosed in a box or in a separate, small room. This would reduce the amount of unwanted light and shadows as well as keep the image data collection consistent across all the prints.

The effects of post-processing this data need to be studied as well. As the images were resized, data loss potentially occurred. The amount of lost data is currently unknown and needs to be investigated. While it was not ideal for the images to undergo this process, the significantly smaller file

sizes made image and position data concatenation much easier to perform.

Research also needs to be done to improve the machine learning techniques. 30 principal components were chosen to reduce computational time as this was the first model trained using this data. More work can be done to establish a better model with an ideal number of principal components.

More computational work needs to be done with the upper control limits from the Q and Hotelling's T^2 statistics. Right now, most of the plotted data is below this value. Ways to improve these plots need to be researched in order to establish better results. These plots could potentially be improved by better data collection techniques, more variation in between anomalous and non-anomalous prints, and choosing a PCA model.

II. CONCLUSIONS

Additive Manufacturing is a widely growing field. Being able to monitor and control the quality of the constructed objects is extremely important if the end goal is to produce objects with high functionality. This research successfully established a method to collect and post-process encoder and image data from a FDM printer. A PCA model combined with SPC control charts were able to show differences between two normal cubes and two anomalous cubes.

There are still many areas of this project to be explored, but the initial results are promising for assessing the quality of 3D printed structures. The established methods developed from this research provide the foundation for more data collection, post-processing, and machine learning techniques to be leveraged to qualify the performance of 3D printed structures.

ACKNOWLEDGMENT

Thank you to Dr. Monique McClain, Mitch Donoughue, Jim Plotzke, Nick Torgerson, Adin Dove, and Jaylen Young for their continued support and help with this research.

Also, thank you to the Purdue University Summer Undergraduate Research Fellowship (SURF) and Purdue Pathways Program for this research opportunity and mentorship.

REFERENCES

- [1] American Society for Testing and Materials. (2019). "Standard Terminology for Additive Manufacturing Technologies" (ASTM F2792 – 12a)
- [2] Sarcar, M. M. M., K. Mallikarjuna Rao, and K. Lalit Narayan. *Computer aided design and manufacturing*. PHI Learning Pvt. Ltd., 2008.
- [3] "Fused Deposition Modeling: FDM 3D Printing Simply Explained." *All3DP*, 14 July 2022, <https://all3dp.com/2/fused-deposition-modeling-fdm-3d-printing-simply-explained/>.
- [4] Gunaydin, Kadir, and Halit S. Türkmen. "Common FDM 3D Printing Defects." *Proceedings of the International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry, April 2018*. pp. 1-8.

- [1] https://www.researchgate.net/publication/326146283_Common_FDM_3D_Printing_Defects.
- [2] Kadam, Vaibhav, et al. "Enhancing Surface Fault Detection Using Machine Learning for 3D Printed Products." *Applied System Innovation*, vol. 4, no. 2, 2021, p. 34., <https://doi.org/10.3390/asi4020034>.
- [3] Narayanan, Barath Narayanan, et al. "Support Vector Machine and Convolutional Neural Network Based Approaches for Defect Detection in Fused Filament Fabrication." *Applications of Machine Learning*, 6 Sept. 2019, <https://doi.org/10.1117/12.2524915>.
- [4] Suthaharan, Shan. "Support vector machine." *Machine learning models and algorithms for big data classification*. Springer, Boston, MA, 2016. 207-235.
- [5] Albawi, Saad, et al. "Understanding of a Convolutional Neural Network." *2017 International Conference on Engineering and Technology (ICET)*, 2017, <https://doi.org/10.1109/icengtechnol.2017.8308186>.
- [6] Tipping, Michael E, and Christopher M Bishop. "Probabilistic Principal Component Analysis." *Journal of the Royal Statistical Society*, vol. 61, 1999, pp. 611–622.
- [7] "What Is Statistical Process Control?" *ASQ*, <https://asq.org/quality-resources/statistical-process-control>.
- [8] Villez, Kris, et al. "Use of Unfold PCA for on-Line Plant Stress Monitoring and Sensor Failure Detection." *Biosystems Engineering*, vol. 103, no. 1, 14 Mar. 2009, pp. 23–34., <https://doi.org/10.1016/j.biosystemseng.2009.01.014>.
- [9] "What Are Control Charts?" 6.3.1. *What Are Control Charts?*, National Institute of Standards and Technology, <https://www.itl.nist.gov/div898/handbook/pmc/section3/pmc31.htm>.

Volume 5

Article 11

Summer 2022

Du Bois, Double-consciousness, and the Hate U Give

Maia Hines

Lee University

Under the guidance of Donna Summerlin, Ph.D.

African American literature (AAL) is the most natural, undisturbed form of African American thought and expression. It is a medium through which they communicate and inspire one another. Through AAL, African Americans are provided a space where they are not alone, where they do not have to be afraid to be fully themselves, and can explore their pain and joy uninhibited. In a world that is constantly telling African Americans to be quiet, fit into a stereotype, or stay in a box, AAL says, “no”. AAL feeds and inspires the souls of African Americans allowing them to rest, reminding them of their worth, and encouraging them to stand when and where necessary.

There is healing power in reading words one’s soul agrees with, but mouth cannot find the words to say: in knowing you are not the only one feeling a certain way or being treated a certain way. This paper discusses how AAL can be used as a therapeutic tool in helping African Americans process double-consciousness (D-C).

This paper analyzes how AAL discusses double-consciousness (D-C), more specifically, how today’s African American writers are exploring a new way to process D-C. This paper uses Angie Thomas’s, *The Hate U Give* as an example of how this is being done.

AAL is the only genre of literature that constantly aims to deconstruct D-C and its subtle yet pervasive effects on the mind. This makes it the ideal body of literature to serve as a form of bibliotherapy for African Americans. AAL can help adult readers feel less isolated because it expresses thoughts that are difficult to put into words. AAL helps younger generations process their own D-C. This paper explores how new African American writers are encouraging African Americans to take a new approach to D-C. This demonstrates a shift of thought within the African American community. There is a renaissance of African American art that is approaching the African American experience with the wisdom and power derived from pain,

tapping into that power, and exploring joy. This new approach to the African American experience sees the value in the past, honors its predecessors, and carries its legacy forward into a space of joy and peace. This new wave of thought sees history and pain as the foundation on which the next generation will powerfully impact the future. This new approach is a more complete approach to D-C as it is more in line with what the founder, W.E.B. Du Bois envisioned.

Double-consciousness (D-C) is an aspect of being African American that is often overlooked. It is so intrinsic to the African American way of life that it tends to go unattended. African American scholar, W.E.B. DuBois originally coined the term in a collection of essays entitled, *The Souls of Black Folk*. It is within these essays the term “double-consciousness” first appears. Du Bois describes the Antebellum and Post-Antebellum African American life really diving into the African American psyche. He attempts to record the thoughts and feelings of the African American, explaining how centuries of enslavement and discrimination can affect the soul of a person. Within these essays, the concept that has never lost its relevance is double-consciousness. Du Bois defines the term as, “a peculiar sensation...this sense of always looking a one’s self through the eyes of others, of measuring one’s soul by the tape of a world that looks on in amused contempt and pity” (Du Bois 3). D-C is a remnant, a psychological side-effect, of slavery. It has been tailored and developed by the centuries of less-than-human depictions of African Americans shown in media and Eurocentric art. D-C creates an awareness within the African American of the outside perception, the perception held by the majority. It is a form of psychological bondage that works in tandem with American culture and society. Du Bois writes that for African Americans, D-C is a “second-sight in this American world, — a world which yields him [the African American] no true self-consciousness, but only lets him see himself

through the revelation of the other world” (Du Bois 3). D-C is akin to a living organism in the way that it dies if it is not fed. American culture continually feeds D-C because America can not yet admit to itself the source of its race problem.

Du Bois writes about an unasked question that white people want to ask and Black people inevitably have to answer. The question is, “How does it feel to be a problem?” (Du Bois 1). It is this question that forms the foundation of double-consciousness and is essential in uncovering the root of America’s race problem. This is the tension between the dominant white culture and African Americans. African Americans are not the problem, but rather the *subject* of the problem. The real problem is not the presence of African Americans, but the white majority’s inability to accept African Americans as equal in every way.

All African Americans, at some point in their lives, come to the realization that the world around them sees them as something different, *something*, not quite human. This is a sort of second birth. It is different from the epiphany most experience in adolescence, where they discover there is an entire world outside of their own. This second-birth doesn’t broaden one’s horizons but shrinks them. It is the birth of the second self where D-C abides. Du Bois writes of his own second-birth as it happened when he was a schoolboy. “Then it dawned upon me with a certain suddenness that I was different from the others; or like, mayhap, in heart and life and longing, but shut out from their world by a vast veil” (Du Bois 2). This is the moment D-C sets in for Du Bois, becoming a part of his mindset. Du Bois had a fairly healthy response. He did not let the majority’s perception of him affect his perception of himself. It did however cause him to lower the standards for his potential. Knowing that the Other saw him as different than themselves, he knew he would be able to achieve less because they had the power and would prevent him from doing so.

Du Bois goes on to describe different forms D-C can take within a person. For him, being separated from the world of the majority by this “vast veil” was not an issue. He had no interest in being a part of the other world. He writes, “I had thereafter no desire to tear down that veil, to creep through; I held all beyond in common contempt and lived above it in a region of blue sky and great wandering shadows” (Du Bois 2). This rejection did not affect how he saw himself and knew himself. He describes he would even feel better at himself when he could show the white people how talented he was. Du Bois writes, “That sky was bluest when I could beat my mates at examination-time, or beat them at a foot-race, or even beat their stringy heads” (2) Du Bois finds joy exceeding his white peers as an outsider. He is not proving his worth to the dominant culture, but rather reminding himself that he is just as good as and can even be better than those discriminating against him.

Most African Americans (who have not fallen victim to self-loathing) are in all actuality content with being separated from the other world. That “world” cannot offer any ability, talent, or an intellectual capacity that African Americans do not already possess. Most African Americans do not want to be like those of the other world. The problem is all the privileges granted by citizenship. These privileges are privy only to those on the other side of the veil, inhabitants the other world. No one questions the humanness of those belonging to the majority White culture. Members of the White majority are not constantly having to prove that they are in fact human, that they feel every emotion, and have unlimited intellectual potential. Most of the time, when the rest of the world sees a member of the dominant culture, that member is looked at favorably. The world usually thinks well of them and often expects good things from them. More often than not, they do not represent their race each of them belongs to themselves. One White

person acting immorally usually does not stain the entire race. The converse is true for African Americans.

Most of the time, African Americans are not given the luxury of being seen as human and are rarely if ever given the benefit of the doubt. If an African American acts immorally or commits some awful crime, the consensus is they did so because they are African American, and it is in their nature. Many people expect negative behavior from them and are shocked when an African American does something a “human” (White person) would naturally do like go to college or raise a family. The African Americans that manage to do these things are lifted onto a pedestal by the White majority and put on display as an example, a model that every other African American should aspire to be.

African Americans would not want anything from the other world, nor would they feel the need to be accepted by it if not for the single privilege. The privilege of being seen as human is why African Americans desire to tear the veil and cross over into the other world. Not to live there, but to bring back this privilege. All humans know they are entitled, deserving of having this privilege. Each person born is born with it. African American however, are stripped of it. It is the awareness of the absence of this privilege that Du Bois called double-consciousness.

Du Bois notes that holding the other world in contempt while still being content with oneself does not last. He writes, “...the years of all this fine contempt began to fade; for the worlds I longed for, and all their dazzling opportunities, were theirs, not mine” (Du Bois 2). There comes a point in an African American’s life when they realize they can only go so far without the permission of those outside the veil. The best opportunities, the most comfortable lifestyles, and the worry-free security are hoarded up like treasure reserved for only those beyond the veil, members of the White majority. One is suddenly struck with the injustice and creates a

plan to retrieve what is rightfully theirs. Unfortunately, African Americans take it upon themselves to prove to the White majority they are worthy. Du Bois ironically contemplates how he will do this, "...by reading law, by healing sick, by telling the wonderful tales that swam in my head—some way" (Du Bois 3). The irony is in the fact that he should need to prove his worthiness of human treatment, as he was in fact born human. But this is what America has done to itself. There lies in all human beings the desire to be the best. This desire coupled with the power to oppress leaves cultures plundered and a people decimated, and if there are survivors those few, in attempt to make sure that never happens again, submit to those in power and become whatever the majority wants with the hope that if pleased, the majority will let some of their privilege slip through their fingers.

Despite all the problems and inner conflict D-C causes, Du Bois saw it as a gift. Without it, one would be forced to believe the White majority's perception to be reality. The most desirable manifestation of D-C is as follows: "to merge his double self into a better and truer self...to make it possible for a man to be both a Negro and an American" (Du Bois 4). The goal being (as in the soul can finally rest when the African American is), "...a co-worker in the kingdom of culture, to escape both death and isolation, to husband and use his best powers and his latent genius" (Du Bois 4). When this does not happen, the side effects are negative. Self-hatred is inevitable unless there is a means of salvation, self-preservation, or restoration. AA lit can provide these things. This is why AAL is so important to the African American reader. It's an escape from the majority culture's attempts to persuade the African American that they are inferior and inhuman; that they are something else—an animal to be worked, a tool to be used, a commodity to be exploited—anything but human. AAL shines a light on these attempts. It points

out different strategies that are used, expresses a visceral response to them, then provides examples of how to proceed—how to process these attempts, and how to address them.

Du Bois describes D-C as being a “two-ness...two souls, two thoughts, two unreconciled strivings; two warring ideals...” (Du Bois 3). Du Bois believes this striving is found in the African American’s desire to “merge his double self into a better and truer self” (Du Bois 3). Du Bois acknowledges this sensation of two-ness is a toxic one, and yet sees value in it. The end goal is to seamlessly, simultaneously, and shamelessly embody both the American self and the “Negro” self, because both have much to teach the world (Du Bois 4). In the meantime, D-C is a more of a burden than a blessing as it simultaneously protects and condemns. Until one can converge both consciousnesses, D-C functions as a defense mechanism. It prevents African Americans from believing the outside perception to be true. It constantly whispers to the soul, warning it not to believe the image in the mirror held by white hands because the glass has been manipulated and the image is distorted as Ralph Ellison describes in his novel, *Invisible Man* (.

African American literature is a specific literary genre that directly addresses D-C as it is written by people who understand and have experienced D-C firsthand. Therefore, AA can be used as a therapeutic tool to help African Americans process and cope with D-C and feel less isolated in the internal struggle caused by D-C. Bibliotherapy is a form of therapeutic treatment where the medication is the reading of books specifically selected to address the reader and their needs. African American literature is the only genre of literature to discuss this psychological sensation and the confusion and self-loathing it can cause. It is the only genre where African Americans are represented by themselves, where the image in the mirror is held up by Black hands. Therefore, African American literature is the primary antidote for African Americans, regarding the processing of D-C. Fueling the part of the African American soul that contradicts

the outside perception arms it with the truth: a reminder that you are fully human and deserving of the respect to which all human beings are entitled.

Bibliotherapy is not a new form of therapy, nor is it a substitute for professional help. Bibliotherapy is a self-care tool that can be used to help process one's own thoughts and feelings. AA lit is the only genre to explore the African American psyche with such depth and it is the only genre with enough credibility making it an appropriate bibliotherapeutic tool for African Americans to help them process their thoughts and the world around them, cope with everything from everyday microaggressions to gross injustice, and restore within them a sense of pride and/or self-worth. Terry Shepherd and Lynn B. Iles discuss bibliotherapy for school-aged children in an article published by the National Council of Teacher of English, (Shepherd and Iles). Their research primarily focusses on its uses and benefits for children but bibliotherapy has been used to help people of all ages since the birth of the practice. The concept of bibliotherapy dates to ancient Greece. This is evidenced by the phrase "Medicine for the Soul" inscribed on some of the great Grecian libraries (Shepherd and Iles 569). In the 19th century, American physicians Benjamin Rush and John Galt were among the first to suggest bibliotherapy as a part of treatment in hospitals (Shepherd and Iles 569).

The important thing to note about bibliotherapy is that its purpose is not to replace professional help. "The main premise on which this process is based is that books are dynamic and have potential to change the attitudes, habits, and skills of the people who read them" write Shepherd and Iles (569). They consider books to be problem-solving tools explaining that a reader can observe a character solves their problems and decide whether they want to solve their problem the same way. The close, yet dissociative quality of books allows the reader to vicariously experience events in the book without having to live through them themselves.

Bibliotherapy can be a coping mechanism. It is not an attempt to fix oneself but a way to help cope and ease the tension make personal problems seem less abstract and more concrete. Books have the power to do this they are proof someone knows enough about what that someone like you experienced. Davis affirms that students are in need of “healthy coping skills” (76) and bibliotherapy can help build those skills.

Bibliotherapy has been used to serve the African American community in the past. In the early 1920s, chief librarian of the United States Veterans Administration Hospital in Tuskegee, Alabama Sadie Peterson Delaney and a team of social workers used bibliotherapy to help African American war veterans. In an article published in the *American Libraries* journal, Sadie Peterson Delaney was called a, “beacon of hope in the segregated South” for bringing, “books and pride to recuperating black veterans” (Gubert 124). There is a restorative power in literature. In Delaney’s words, bibliotherapy is, “the treatment of a patient thought selected reading” (Gubert 125). Delaney wrote the purpose of her library in Tuskegee, Alabama, as “aiding him (the African American veteran) in his upward struggle to lay aside prejudice, all sense of defeat, and to take in that which is helpful and inspiring by the means of books” (Gubert 127). Delaney noted that the veterans not only read but requested literary classics as well. Displaying how representation and learning about oneself opens one up to appreciate the work and culture of others. Once one can appreciate oneself one can see the value in others. Gubert writes, the aim of bibliotherapy, “is to enable patients to connect—or reconnect—themselves with a broad community of ideas and add significance to their experience, with the emphasis always on individual attention” (Gubert 127). To Gubert the goal of practitioners of bibliotherapy is to “decrease loneliness by stimulating a sense of shared fate with others...and promoting socialization and group identity” (Gubert 127).

The Hate U Give is a moving book dedicated to teenagers. Inspiring them to see the real-world influence they have, and the power of their voice is a prevailing message in the novel. The book shows young readers they are the future and that they have the power to make change. This book is about how to handle injustice not telling people what is right and wrong but presenting the various ways of handling/processing things. The focus of the book is not merely an unjust shooting. If it were Thomas would have written more about that night, Khalil, and the officer who killed him. She would have further explored the emotional condition of Khalil's family and how they were affected by his death. If police brutality was what Thomas really wanted her readers to walk away talking about, she would have delved more into the justice system and policies that allow police officers to hurt people without consequence and even receive protection. Instead, *The Hate U Give* is about finding your voice and how to fight through D-C to ensure that it is heard. This book is a survivor's story. It is about everything that leads up to the shooting, everything wrong with it, and everything that happens afterwards. This book helps teens process the world around them and learn how to use their voices to change it.

The Hate U Give encourages African American youth to be unapologetic about their race and culture. It encourages them to stand up for themselves and shed the need to change and/or hide who they are depending on their environment. This is an attempt to reverse D-C. DuBois's definition of D-C is the thought that AAs are the problem. Thomas in *The Hate U Give* tells African American youth, they are not the problem. The problem is how the world treats them. Half the time the book feels like Thomas is trying to raise/nurture the next generation of African Americans and the other half she's trying to empower them. At times her tone is parental. Using the voices of other adults or a wiser protagonist reflecting on lessons learned, Thomas departs wisdom to her readers about navigating the world as a young, African American person. If no

one else is there to have these conversations with her audience, they will get the necessary information by reading her work. Thomas humanizes all the right things without romanticizing the wrong ones. She doesn't shy away from the devastating violence and psychological trauma that comes hand in hand with gang affiliation and membership. Nor does she romanticize or turn a blind eye to the destructive power of drug dealing, use, and addiction. She shows the pain caused by those who are addicted and shows how ugly addiction looks. She doesn't make recreational drugs look glamorous. She depicts drugs as a tool or rather a double-edged sword. One side allows the characters to provide for themselves and their families. She also realistically depicts how it give teenagers the power to buy whatever luxuries they want. She also shows the devastation they cause. How they take family members away from their families, and the users away from themselves. The main message in the book is not the issues with police brutality. This book is a call to arms, and Thomas teaches that her readers' voices are their most powerful weapon. She teaches them how to wield it and inspires them to do so. She does so even more in her follow up book *Find Your Voice: A Guided Journal for Writing Your Truth*. It's clear that Thomas's goal as a writer is to encourage young readers to speak up and make a difference and realize the power, they have to make change in the world. She also encourages her readers to be proud of their Blackness.

Angie Thomas instructs and encourages her young readers, the next generation of African Americans, to use D-C as a tool to get what they want and or need. Towards the end she writes about the value of making both selves one (Du Bois 3). However, throughout the book, Thomas demonstrates how the characters, specifically Starr and her parents, use D-C when communicating with authority figures or white people. Usually this means acting and speaking in a way that ensures white people aren't uncomfortable and can be comfortable in your presence.

After Starr witnesses her friend, Khalil, killed by a police officer. She has to go to school. She goes to a predominantly white private school, Williamson Prep, where she is one of two African Americans in her grade, and the only African American female. No one knows she was with Khalil the night he was murdered and talking about it would make the white people around her uncomfortable, so she suppresses her thoughts and emotions about what happened that night and silences herself. She says,

I just have to be normal Starr at normal Williamson and have a normal day.

That means flipping the switch in my brain so I'm Williamson Starr.

Williamson Star doesn't use slang—if a rapper would say it, she doesn't say it, even if her white friends do. Slang makes them cool. Slang makes her “hood”.

Williamson Starr is approachable. No stank-eyes, side-eyes, none of that.

Williamson Starr is nonconfrontational. Basically, Williamson Starr doesn't give anyone a reason to call her ghetto. I can't stand myself for doing it, but I do it anyway (Thomas 71).

D-C is the awareness of a desired appearance. D-C makes African Americans aware of what white people want from them, they then use this awareness to inform their speech and actions according to the white person's desire and/or expectation. The logic behind this is that if one can adapt and embody what the white people want, regardless of the personal mental and emotional tole, they will be able to navigate the world with as little resistance from white people as possible. In order for the white majority to feel comfortable with African Americans, the African American would have to strip themselves of every obvious aspect of their culture. This goes back to what Du Bois calls “the unasked question” poised to African Americans, which is “how does it feel to be the problem” (1).

When America's race problem is boiled down and looked at honestly, it becomes clear that the problem is the mindset of superiority most members of the white majority have. African Americans did not choose to come to the United States, nor did they choose slavery to be their fate. If African Americans do not speak out about inequality and injustice, nothing will change. There is a fine line as to how African Americans can acceptably fight for change. "Acceptably" meaning a way that the people with the power to make change (white people) will not feel responsible but want to make the change. Starr has to walk this line while giving her testimony during the trial of the officer who killed Khalil. During this moment in the book, Thomas writes what Starr says in the trial and Starr's inner dialogue (what she really wanted to say). Thomas perfectly exhibits Starr's two-ness. Starr's self-control displays her awareness of what is expected of her, what the white majority wants to hear, and how she can conform to that while still telling the truth about what happened on the night of Khalil's death. In this scene, the district attorney asks,

"You understand you're not the focus of any criminal charges, correct?"

Bullshit. Khalil and I have been on trial since he died [is what Starr thinks]. Though she says, "Yes, ma'am." (Thomas 333)

Thomas also explores the tension between the older and the younger generations regarding how they each experience D-C. Starr's mother is living in her D-C. D-C will tell a person to be quiet and not bring attention to oneself, to not upset the white people to not give white people an excuse to see African Americans as unequal. Starr's mother is subservient to D-C. Her mother has yet to make D-C a tool so by default it becomes her master bending her to its will. Starr on the other hand is aware of the voice of D-C,

but she is finally choosing to ignore it. She acts as a human moved by emotion, knowing how her actions may be perceived, but not caring. This is the agency Thomas is trying to teach to her readers. This is the agency Du Bois wanted his fellow African Americans to embody. The ability to hear what D-C has to say and the freedom to *choose* whether to take its advice or not.

In doing this, Thomas shows how D-C works and can be used to one's advantage.

African American literature is rich, ever evolving. Just like the African tradition of basket weaving, it is an art form with a purpose. AA literature is an outpouring of the soul. This outpouring is cathartic for the author and the reader. Both learn to understand themselves and make sense of the world around them with this ornate instrument of healing. AA lit restores, reminding the soul of its worth. It creates community, where the reader can know they are not alone. It teaches new ways to navigate the world. All these aspects combined give it the power to heal. Using African American lit as a bibliotherapeutic tool has been proven to be effective. Bibliotherapy should not be reserved for veterans trying to reacclimate to society nor should it only be used to help adolescents better understand themselves. African American literature should be used as bibliotherapy for African Americans of all ages and in all stages of life. When it is used to help adolescents, it is beneficial in helping them healthily process D-C early on preventing them from becoming a victim of it later. This is seen in Angie Thomas's, *The Hate U Give*. This new generation of African American writers are motivated to help the next generation of African American youth. These writers are producing work that teaches their readers how to navigate a, at times, hostile world.

Works Cited

- Davis, C G. ““Why Bibliotherapy?’ A Content Analysis of its Uses, Impediments and Potential Applications for School Libraries.” (2019).
- Du Bois, W.E.B. *The Souls of Black Folk: Essays and Sketches*. UMass Amherst Libraries, 2018.
- Gubert, Betty K. “Sadie Peterson Delaney: Pioneer Bibliotherapist.” *American Libraries*, vol. 24, no. 2, 1993, pp. 124–30. *JSTOR*, <http://www.jstor.org/stable/25632815>. Accessed 25 Jul. 2022.
<https://www.jstor.org/stable/25632815>
- Shepherd, Terry, and Lynn B. Iles. “What Is Bibliotherapy?” *Language Arts*, vol. 53, no. 5, 1976, pp. 569–71. *JSTOR*, <http://www.jstor.org/stable/41404208>. Accessed 18 Jul. 2022.

Volume 5

Article 12

Summer 2022

Victims and Survivors: Framing of Human Trafficking in Popular Culture

Ava LaBoy

Lee University

Under the guidance of Ruthie Wienk, Ph.D.

Abstract

The research question for the proposed project focuses on Survivor Stories, looking at how sex trafficking victims are portrayed in the media and whether or not they have a voice. I am asking the question “Are those who have experienced sex trafficking represented as victims or survivors and how are they being represented?” In this project, I conducted a qualitative content analysis of articles about survivors and how they are portrayed in the media and in campaigns to end sex trafficking. I also analyzed how they are portrayed on TV shows such as *Law and Order: SVU*, which has brought a lot of light to the world of sex trafficking and sex crimes in general, and how they changed the narrative of them being “victims” to “survivors.” In the completion of this project, I conducted a review of the academic literature on the topic, collect data from various anti-trafficking websites and episodes on television, and qualitatively analyze it with computer-assisted qualitative data analysis software. This data was analyzed through a feminist reading of the agency of survivors in their stories and representations in anti-trafficking campaigns and popular media sources. Through this research, I found that many victims represented were teenage girls and that the majority of them came from Asian countries. They were also talked about more as survivors than victims, pushing the notion that they are more than what they have gone through, and that they are overcomers.

Victims and Survivors: Framing of Human Trafficking in Popular Culture

The words “human trafficking” when put together carry such a specific and terrible notion. It also brings up a lot of imagery as well, children huddling together on old mattresses waiting to be sold to the highest bidder, a teenage girl being kidnapped off of the streets by a strange man and forced into prostitution for a pimp three times her age, men working laboriously in the fields for little to no pay. Slavery has been around since the beginning of time, and while it has taken many different forms, it is still the same as it was from the start. Human trafficking is defined as “The recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery” (Human Trafficking, 2022). In this study, I wanted to highlight the survivors of trafficking, and show that they are more than just statistics on a page.

Review of Literature

Human trafficking, especially sex trafficking, has gained momentum recently in news articles and media, with hundreds of articles being published every year about the subject. With these articles, however, the authors decide what narrative they want to push. In *Moving Beyond “Slaves, Sinners, and Saviors”: An Intersectional Feminist Analysis of US Sex-Trafficking Discourses*, the authors found that very specific narratives were being perpetuated in our society, with women being seen as very vulnerable, in danger of losing their sexual purity to an “evil brown man across the world or even black men in their own city” and that they should be rescued by a strong, hypermasculine white man (Baker, 2013). This is one reason that when people think of human trafficking, their first thought goes to movies like *Taken*, or stories of girls being abducted from their homes and flown across the world for the pleasure of some perpetrator

in another country. This process of constructing victims as just being females continues to drown out male victims' voices, where their platform is already limited and representation is abysmal at best. This is further emphasized in another article, stating that there is an overrepresentation of women in statistics of sex trafficking or trafficking in general and that men are seen more often as the perpetrators, while women can be just as much perpetrators (O'Brien, 2013). This can also be attributed to the fact that many victim services that are offered are catered to women, and men do not have the same kind of resources as women (O'Brien, 2013). Most articles talked about this idea of a "typical victim," one that is single, white non-Hispanic, and middle class. This pattern is very prevalent in episodes of *Law and Order: SVU* as done by another study where they found these rape myths to be very present in most of the episodes that they watched (Boehnke, 2014). This idea of a "typical victim" was represented in the majority of articles, which highlights that it is a problem and an area that is lacking in human trafficking literature.

In the article that discussed *Law and Order: SVU*, the authors focused more on rape myths rather than trafficking as a whole, which represents a hole in the literature about trafficking that this research seeks to fill. I wanted to see how one of the most influential shows on television today represents the victims it is trying to reach and to see what type of information they were giving about what trafficking was and who was falling victim to it (Boehnke, 2014).

The main theory that I used to look at our articles through is the Framing Theory. The Framing Theory is when someone reacts to a choice or concept based on how it is framed or presented to them (Barnett, 2016; Framing Psychology, 2022; Gulati, 2011; Johnston, Friedman, & Sobel, 2015; Johnston, Friedman, & Shafer, 2014). Based on how the author of these news articles or how the nonprofits have viewed victims is how they will represent them in their respective mediums. If a nonprofit only works with female victims or they only deal with people

in Africa they are going to frame their websites around those specific kinds of people. With the news articles, sex trafficking is the bigger issue because of its popularity in lawmaking currently. Politicians have been making it a main focus, and as a result, there is more concentration in articles about it. If labor trafficking was a bigger focus, there would be just as many articles written on that as there are for sex trafficking.

The main question I wanted to answer was, who is being represented and how are they being represented? I felt it was important to see who was being represented to open up the opportunity for more to be done for those who are underrepresented or stuck with no help and resources. The language of victim and survivor is also important because victim language makes them seem helpless, and diminishes the representation of their personal agency. Survivor portrays them as strong, powerful, and overcomers, and that is why most people who endured trafficking prefer to be called survivors over victims.

Methods

Data Selection

For this project, I chose to look at different episodes of the hit television series *Law and Order: Special Victims Unit* because of its impact on how society views sex crimes and the victims. This show delved into the world of human trafficking, showing people the reality and horrors of an underground crime that many would not have otherwise known about. In order to choose which episodes I wanted to analyze, I looked on the website IMDb, or Internet Movie Database, and watched each episode and read the plot to determine if that episode was about human trafficking. Once I made a preliminary list of episodes, I watched them and from there I decided if I wanted to keep the episode or if it did not meet the requirements. Only eight episodes met the criteria to be included in this research project. This small number of episodes

centering on trafficking was not for lack of looking or representation on *Law and Order*'s part, they just focus more on rape specifically rather than solely trafficking. Then I watched each episode again and coded them.

Along with looking at television episodes, another source of data were different nonprofit human trafficking awareness websites. Once again I gathered a preliminary list of websites by searching "human trafficking" and seeing what websites resulted in the search, I looked for any mention of trafficking, victims, survivors, or anything related to those things. After going through websites, I chose the ones that mentioned victims and showed either pictures of victims or art representing victims, and wanted to highlight their stories rather than just talking about trafficking. I ended up with a total of eleven websites in total. The purpose was to identify how various agencies humanized those who are trafficked rather than merely describing trafficking.

Coding Process

During the literature review part of this research, I found an article (Boehnke, 2014) that conducted a research project on the rape myths in *Law and Order: SVU*, and within the article, they presented a coding chart that they used. From there I took that template and modified it to fit our research needs, for example, any mention of rape myths was taken out and I focused more on the physical traits of the victims and perpetrators (Boehnke, 2014). While watching the episodes I had the coding chart open and on separate google documents, to guide how we analyzed and input the coding. Once all the coding was finished, I compiled the data on a Google form with each question of the template and one by one entered each episode. This gave us visible data and charts of what each episode was comprised of and gave us an idea of how each episode framed human trafficking, who the victims and perpetrators were, and other valuable information.

For the different websites, I used the Computer Assisted Qualitative Data Analysis Software program Dedoose. Going through every website I took a screenshot of different parts of the website where it talked about victims in specifics, especially showing pictures of victims and perpetrators to see who they represented in each category. In total, I gathered 158 screenshots from the websites. I captured both images and text, so I had a wide range of data collected and a variety of information gathered. I went through each image one by one and added coding to it, adding these codes to gather information on different patterns within the websites to see what kind of codes went together. For example, I wanted to see how many victims were teenagers, specifically females, and I wanted to see where those teenagers were from and if they were seen as vulnerable or resilient. I ended with a total of one thousand one hundred and sixty-nine codes applied to the screenshots.



It was another cold and rainy day in late 2020. Jenny was at home for another day of virtual school. Prior to the school shutdowns, due to the COVID-19 pandemic, Jenny was the type of girl that would light up the room with her contagious laugh and bright smile. She had a big personality and easily made friends. After months of being isolated at home, this 16-year-old was feeling lonely and depressed more often than not.

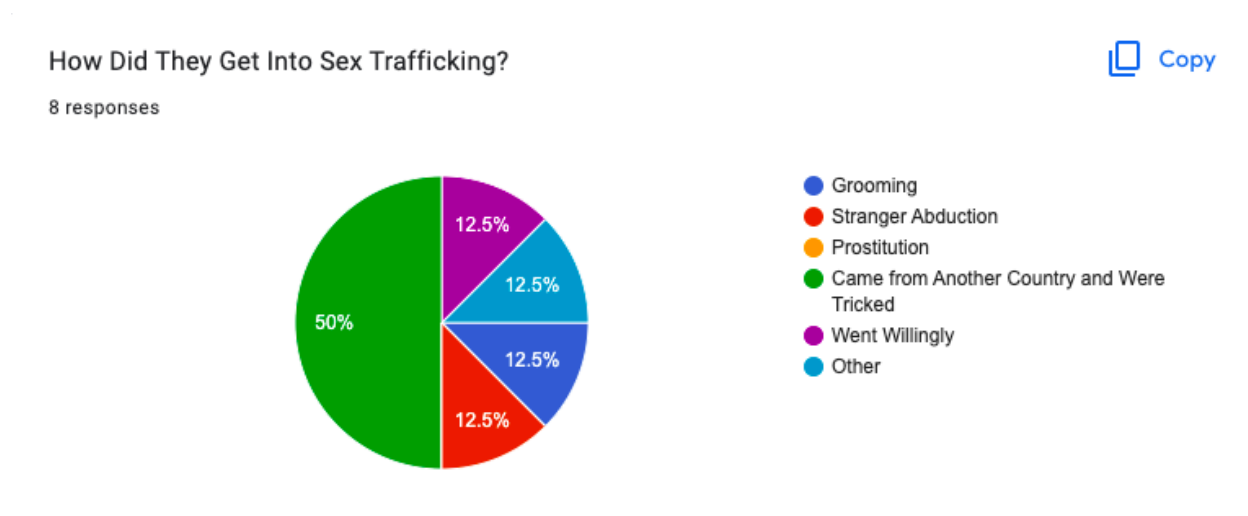
She struggled to engage in conversation when her mom, a nurse, returned home from work. In her loneliness she spent countless hours scrolling social media sites. Watching her friends posting about what their siblings did that day or the sourdough they made with their mom made her envious. She spent all day home alone, without any siblings, while her single mom worked long exhausting shifts at the hospital. Her whole world had changed, and she was miserable.

In this photo, the victim was a teenage girl, and she is shown crying and looking away from the camera, which paints the picture of teenage girls being the victims and that they need

someone to come to rescue them. This appeals to the emotional sense, even though this is a story of rescue and success. The coding on this picture was: crying woman, vulnerability, social change, social impact, COVID impact, trafficking--sex, stories, survivor, teenage girls, and location--USA. After the coding was done, I went through each screenshot again and updated the coding, as a lot of codes were added towards the end or updated because some codes were vague at the beginning. I went back and refined the coding in order to better reflect the data that I had to get a better idea of our results.

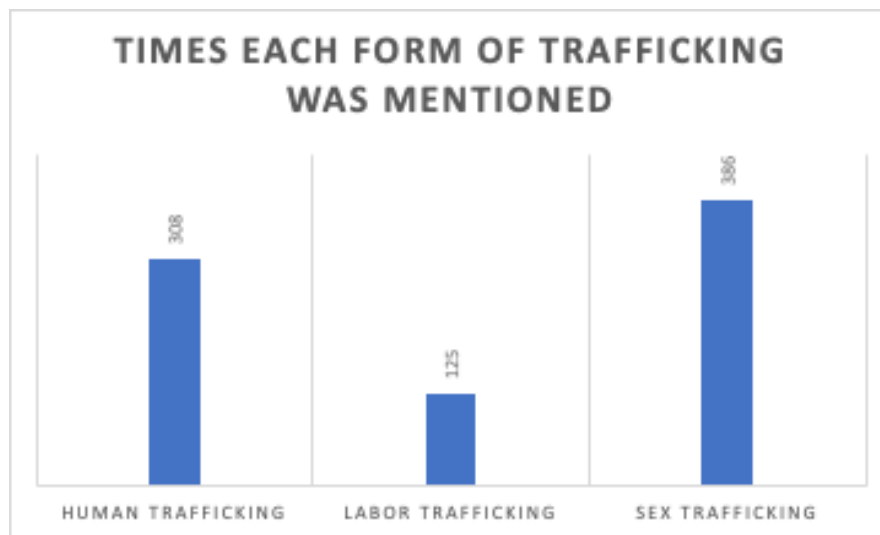
Analysis

For the episodes of Law and Order: SVU, just coding the episodes based on the template was not enough. After the initial coding, I created a google form with each question typed out and then I went through each episode and input the code categories, which allowed us to get charts and results more easily. An example below is the chart of the method of trafficking that I got after entering all the data. Looking at the charts like this gave us a better overall picture of the episodes rather than just looking at each episode's representation individually.



With the coding of the websites, the Dedoose software allowed an analysis of what codes were applied more frequently as well as which code categories were applied together. This is called code co-occurrence. Because this research question focused on type and manner of representation of survivors, I focused on age, gender, and ethnicity/race to see who was represented and how their stories were being told. For example, I looked at each age group (ex. Teenage females) and looked at the different ethnicities/races that were coded and saw how many of them occurred together and who was represented more over the other.

I also wanted to see what forms of trafficking were represented more. Our findings were consistent with the research that shows the overrepresentation of sex trafficking. That is represented in the graph below as well. In the chart I have it divided by labor trafficking, sex trafficking, and human trafficking with human trafficking being used when a specific kind of trafficking was not mentioned in the article or on the website.



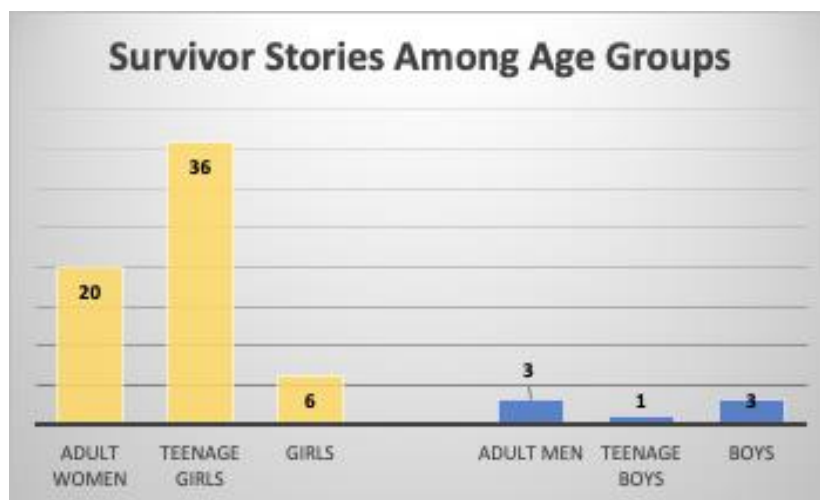
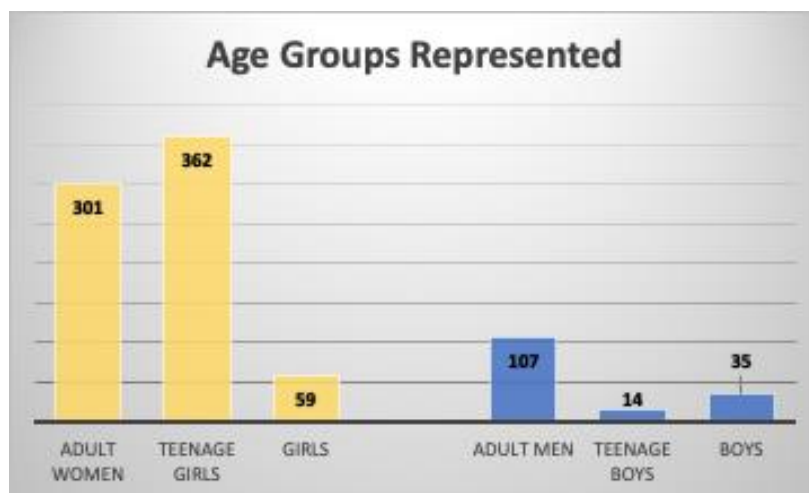
Findings

With this data, I found a strong overrepresentation of teenage female victims, specifically Asian, and trafficking. I looked at each gender split up into three age groups, adult women/men, teenage girls/boys, and girls/boys. As I suspected, women far outnumbered the men in every area and the only one that was closely represented together were girls and boys because when children victims are discussed they tend to group them and talk about them as one unit.

Men were extremely underrepresented in news, media, and in *Law and Order: SVU*. Looking at the code co-occurrence chart, only one of the survivor stories was about a teenage boy, however, upon further inspection of the story that is told he recognized signs of his grandmother almost falling for labor trafficking, and he was not a victim himself (A21 Home, 2022). This just continues to push the narrative of men, or in this case, a teenage boy, being the “hero” of a helpless woman and that this could not happen to a man, only women, and children. When men were represented, they were also victims as children (All Actions, 2022) and shared their stories much later in life, however, they are represented well this way, as they are framed by their successes that they have accomplished after being in this type of bondage and slavery when they were younger. The representation was limited to white men specifically and did not highlight areas of labor trafficking but it is a step in the right direction for male victim representation. In total there were 107 men represented, 14 teenage boys, and 35 boys represented.

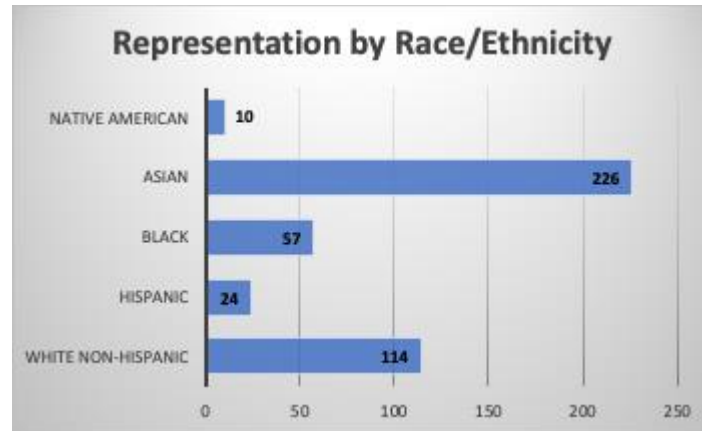
Women had much better representation than men, as I expected the numbers to be more in their favor based on the current literature surrounding trafficking and victims as a whole. There were more women represented on each website, with most stories that were told being about victims being teenage girls and how they were rescued from trafficking and what they are

doing, and how they are recovering now. Teenage girls took the spotlight, with thirty-six stories told about teenage girls, followed by women with twenty, and six for girls, while men had three, teenage boys had one, and boys had three as well. This once again shows the disparity in gender representation of survivors. The women were also painted with wording such as strength, and survivor, they were labeled as vulnerable, and they were more susceptible to more victim language than survivor language when their stories were told.

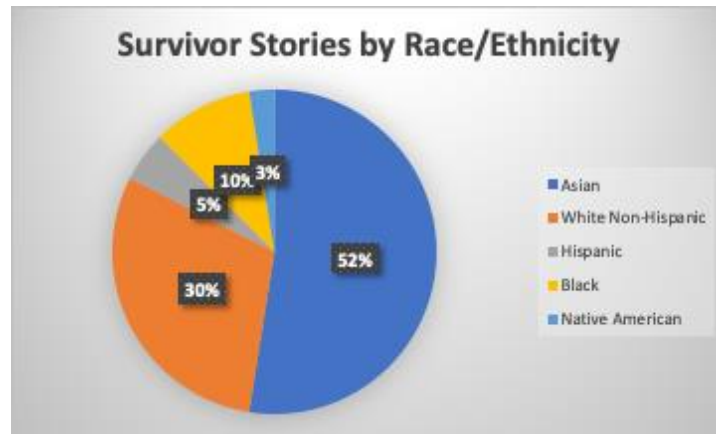


With race/ethnicity representation of victims, most victims were Asian, as trafficking of all kinds is most prevalent in Asian countries such as Thailand, Burma, Nepal, and India. In total, two hundred and twenty-six victims were Asian, with white victims following behind with one

hundred and fourteen, fifty-seven Black, twenty-four Hispanic, and ten Native Americans. These numbers were very intriguing because Native American women are more likely to be trafficked and have crimes committed against them because of their policing system, and Hispanic people are more often to be caught in the labor trafficking/debt bondage sector, so to not see very many if any stories were really interesting to look into (Bouché, Farrell, & Wittmer-Wolfe, 2018).



Many of the success stories or stories shown with the actual survivors were also more geared to white women or white people in general, where eight stories were told by white survivors compared to one or two of other races/ethnicities. The underrepresentation of survivors of color is so important because more often than not they are more likely to be victims of trafficking. This is most likely because of the resources that are more easily given out in the United States where most of those victims were from, and in poorer countries like those in Asia, they are not as able to give out resources to those that have been caught in trafficking. The oversexualization of minorities, especially Asian women, has become very normalized in the media and possibly because of the preponderance of agencies operating in southeast Asia.

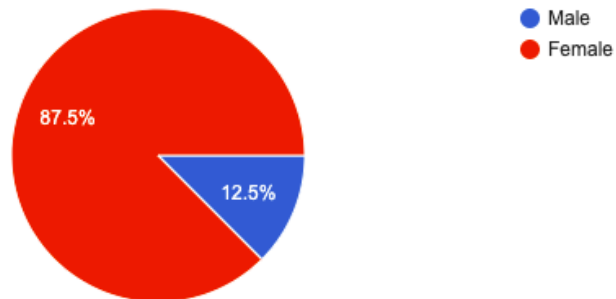


In *Law and Order: SVU*, female victims had the majority as they do in most of the articles and media that I looked at, with 87.5% of victims being women, and 12.5% being men. For race, there was a variety that was much like I expected it to be, with 50% of the victims being white, 37.5% being Hispanic (which was very surprising considering the lack of representation elsewhere), and 12.5% Asian/Pacific Islander. This show, however, is more focused on the United States, specifically in New York, where there is a heavy Hispanic population, and many of the victims on the show, in general, lean more towards Hispanic or white. Of those victims, 50% were considered to be undocumented immigrants, which is very accurate considering the immigration debate going on in our country and the number of immigrants that I have in New York especially. The majority of victims were also younger, with 12.5% being under 10, 50% being between the ages of 10-15, 25% being 21-29, and 12.5% being 30-39. This widely reflected the other data that I collected, showing teenage girls being the more “desirable” victim to portray.

Victim Gender

8 responses

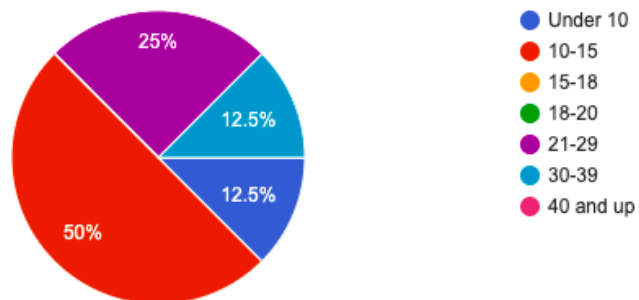
 Copy



Victim's Age

8 responses

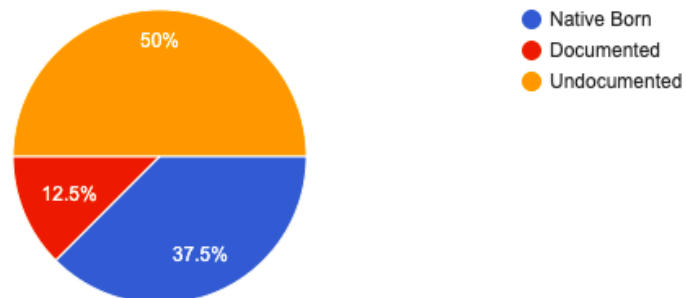
 Copy



Victim's Documentation Status

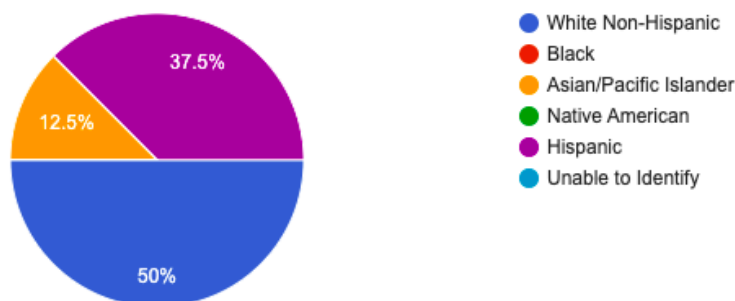
8 responses

 Copy



Victim's Race

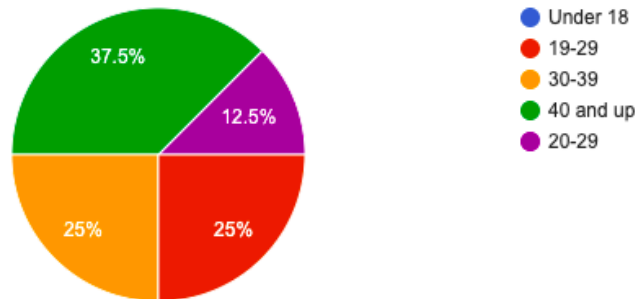
8 responses



When it comes to the traffickers represented in the show, 75% of the traffickers were men, with 25% being female. This continues to push the narrative that men are evil and women are the real victims, and if women are traffickers they are not as common as male traffickers. There was a great distribution among the ages of the traffickers, with 37.5% being 40 and older, 25% 30-39, 25% 19-29, and 12.5% 20-29. This shows that older people are more likely to be “in charge” of the trafficking and those that take the most responsibility in this show. This does not mean that younger people cannot be traffickers as well, as one of the most common forms of forcing people into trafficking is the “Romeo” type or the boyfriend type. There was also as much diversity among the races/ethnicities as well, with 50% being white. 25% of the traffickers were black, which was the most representation that I saw of black people in any area. The overrepresentation as perpetrators with underrepresentation of Black women as survivors/victims continues to perpetuate racist stereotypes of Black men as dangerous. Then following there were 12.5% Asian/Pacific Islander and 12.5% Hispanic. The strength in this show is that it continues to represent a variety of people, age groups, and ethnicities, but of course it can always do better in its representation. It also continues to perpetuate the stereotype of who a trafficking victim is with majority white victims and them being much younger.

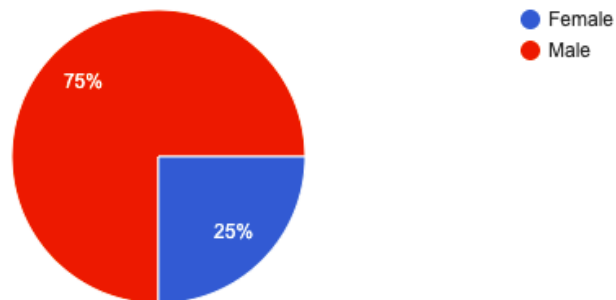
Trafficker's Age

8 responses

 Copy

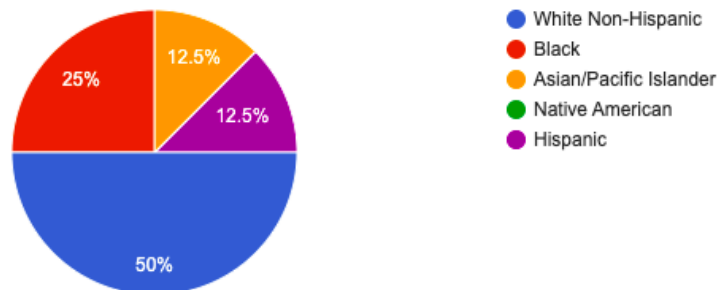
Trafficker's Gender

8 responses

 Copy

Trafficker's Race

8 responses

 Copy

Discussion

This research is important because it helps shine a light and open the door for more research projects in the future about how trafficking survivors are represented and how we can change the idea of there being a “typical victim.” It also shows that there is so much more that can be done for survivors in general. In order to better grow in our understanding and help those who are currently trapped we need to look at what is being done to represent them and help them currently in order to improve. Overall, the websites overrepresented teenage girls, Asian women, and white women, and underrepresented males in general and other minorities. Looking deeper into the how these groups were represented, white women were more likely to be discussed with strength and resilience frames while Asian women were more likely to be seen as victims. This plays into stereotypes that victims are solely women or children and that more vulnerable population rather than men, teenage boys, and boys. As well as underrepresentation with men and boys, while LGBTQ+ people are at a higher risk of trafficking because of outside influences and socioeconomic factors, I had little to no representation in the nonprofit websites and there was not much room to talk about them in a specific sense or enough data to represent them accurately. This was found to be the same for Native American representation, as they are also a minority group that has large numbers in trafficking in the United States, yet there was not enough representation for us to present it accurately.

Ultimately, sensationalizing the phenomenon and misrepresenting it does not as effectively combat trafficking as public misunderstandings of the topic mean that those who are at risk are not as easily identified and the many pathways to healing and survivorship are missed. SVU’s portrayal was more representative of the research of actual population at risk of trafficking.

Limitations

Some limitations to this literature included a lack of articles talking specifically about representation in general, while most just talked about a specific group of people affected by trafficking. One possible avenue for future research into this topic could be to compare the representation between organizations that are operating in the USA versus other countries. Furthermore, of those that are operating internationally, how many of them are run by locals of that place versus outsiders doing the work in those locations? Future research could identify if victims/survivors be represented differently in these organizations.

Appendix

Below is the coding used for the *Law and Order: SVU* episodes.

SVU Coding

1. Name of the Episode
2. Date Originally Aired
3. Plot (found on Hulu)
4. Victim Gender
 - a. Male
 - b. Female
 - c. Transgender Male
 - d. Transgender Female
 - e. Nonbinary
5. Victim's Race
 - a. White Non-Hispanic
 - b. Black
 - c. Asian
 - d. Pacific Islander
 - e. Native American
 - f. Hispanic
 - g. Unable to Identify
6. Victim's Documentation Status
 - a. Native Born
 - b. Documented
 - c. Undocumented
7. Victim's Age (estimated unless stated in the episode)
 - a. Under 10
 - b. 10-15
 - c. 15-18
 - d. 18-20
 - e. 21-29
 - f. 30-39
 - g. 40 and up
8. Victim's Socio-Economic Status (estimated unless stated in the episode)
 - a. Lower
 - b. Lower-Middle
 - c. Middle
 - d. Middle-Upper
 - e. Upper

9. How Did They Get Into Sex Trafficking?
 - a. Grooming
 - b. Stranger abduction
 - c. Prostitution
 - d. Came from another country and were tricked
 - e. Went willingly
10. Status Post Sex Trafficking
 - a. Alive
 - b. Deceased
11. Attire
 - a. Normal (jeans, t-shirt)
 - b. Dressy (professional, dress pants, etc.)
 - c. Provocative (low cut top, short skirt)
 - d. Unknown
12. Risk Level
 - a. High-Risk Victim
 - b. Medium-Risk Victim
 - c. Low-Risk Victim
13. Trafficker's Gender
 - a. Male
 - b. Female
 - c. Transgender Male
 - d. Transgender Female
 - e. Nonbinary
14. Sex Trafficker's Race
 - a. White Non-Hispanic
 - b. Black
 - c. Asian/Pacific Islander
 - d. Native American
 - e. Hispanic
 - f. Other
15. Sex Trafficker's Age (estimated unless stated in the episode)
 - a. 19 or under
 - b. 20-29
 - c. 30-39
 - d. 40 and up
16. Victim Typology
 - a. Innocent
 - b. Innocent with Character Flaws
 - c. Unlikable but Not Culpable

- d. Manipulative
17. What happened to the trafficker at the end?
- a. Arrested
 - b. Dead
 - c. Let go
 - d. Unknown
18. If arrested, what was the verdict?
- a. Guilty
 - b. Not Guilty
 - c. N/A
 - d. Unknown

References

A21. (n.d.). Retrieved August 16, 2022, from <https://www.a21.org/>

Aaron Gregg and Elizabeth Dwoskin / September 27, 2021, & Tangi Salaiin and Ingrid Melander / October 6, 2021. (2022, March 28). *End csa & trafficking: Statute of limitations reform*. CHILD USA. Retrieved August 16, 2022, from https://childusa.org/child-sex-abuse/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAcn79AejpBKsW2Z-YRFgiBlZ_lux9NIECavrm6uRRCZQTH9CyTP7HwaAg-REALw_wcB

All actions. Polaris Actions. (n.d.). Retrieved August 16, 2022, from https://polarisproject.org/actions/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAelt_AYyTKHS0JiNHdgXLqZQ9UBUzEcvoPm_H0eBsvc2vAQidk9kqYaAk53EALw_wcB

Austin, R. (2016). *Human trafficking in the media: a content analysis on human trafficking frames in documentaries, movies, and Television episodes*. Northeastern University.

Baker, C. N. (2013). Moving Beyond "Slaves, Sinners, and Saviors": An Intersectional Feminist Analysis of US Sex-Trafficking Discourses, Law and Policy. *The Journal of Feminist Scholarship*, (4).

Barnett, B. (2016). Dividing women: the framing of trafficking for sexual exploitation in magazines. *Feminist Media Studies*, 16(2), 205-222.

Blum, S. N. (2020). *Human Trafficking and the Media*.

Boehnke, J. (2014). *Law and Order: SVU applying rape myths to victim representation* (Doctoral dissertation).

Borer, M. (2015). *Human Trafficking in the Media: Who, What, Where, and Why?*.

Bouché, V., Farrell, A., & Wittmer-Wolfe, D. E. (2018). Challenging the dominant frame: The moderating impact of exposure and knowledge on perceptions of sex trafficking victimization. *Social Science Quarterly*, 99(4), 1283-1302.

Brunovskis, A., & Surtees, R. (2010). Untold stories: biases and selection effects in research with victims of trafficking for sexual exploitation. *International Migration*, 48(4), 1-37.

Countryman-Roswurm, K., & Patton Brackin, B. (2017). Awareness without re-exploitation: Empowering approaches to sharing the message about human trafficking. *Journal of Human Trafficking*, 3(4), 327-334.

Department, O. P. (2022, July 12). *Home*. Guardian Group. Retrieved August 16, 2022, from <https://guardiangroup.org/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAerIfSAqrmvHAar542M7HqNDuvkcHRI5E-q->

WJ6tsJd7v_WtUyWAwaAkMDEALw_wcB

Destiny Rescue, ending child trafficking & sexual exploitation. Destiny Rescue. (2022, July 20). Retrieved August 16, 2022, from <https://www.destinyrescue.org/>

Empower. Children of the Night. (n.d.). Retrieved August 16, 2022, from https://www.childrenofthenight.org/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAfZD8_FTdhzdZZny7oR8yhOaievIE9FzTlvIhUmCwCLT845Vb7jXi0aAjP9EALw_wcB

Eradicating exploitation throughout southeast Wisconsin. Fight To End Exploitation. (n.d.). Retrieved August 16, 2022, from https://fighttoendexploitation.org/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAfF5U7PB2_qv5zBJeQP8nP3nH9iGDxtksY1npZITMkdOA-TvTTURRIaAq_2EALw_wcB

Gulati, G. J. (2011). News frames and story triggers in the media's coverage of human trafficking. *Human Rights Review*, 12(3), 363-379.

Haynes, D. F. (2014). The celebritization of human trafficking. *The ANNALS of the American Academy of Political and Social Science*, 653(1), 25-45.

Hebert, L. A. (2016). Always victimizers, never victims: Engaging men and boys in human trafficking scholarship. *Journal of Human Trafficking*, 2(4), 281-296.

Human trafficking. The United States Department of Justice. (2022, February 1). Retrieved August 16, 2022, from <https://www.justice.gov/humantrafficking>

Home. Hagar International. (2022, June 3). Retrieved August 16, 2022, from <https://hagarinternational.org/>

Home. Love146. (2022, July 19). Retrieved August 16, 2022, from https://love146.org/?gclid=Cj0KCQjw-pCVBhCFARIsAGMxhAcIOxglQG0yqr9ZZP2Eei79ZGF8ZeX8UVvW7_EH2Eg3yLOxDEn1AdUaAhz-EALw_wcB

Johnston, A., Friedman, B., & Shafer, A. (2014). Framing the problem of sex trafficking: Whose problem? What remedy?. *Feminist Media Studies*, 14(3), 419-436.

Johnston, A., Friedman, B., & Sobel, M. (2015). Framing an emerging issue: How US print and broadcast news media covered sex trafficking, 2008–2012. *Journal of Human Trafficking*, 1(3), 235-254.

Love Justice. Love Justice. (n.d.). Retrieved August 16, 2022, from <https://www.lovejustice.ngo/>

Marchionni, D. M. (2012). International human trafficking: An agenda-building analysis of the US and British press. *International Communication Gazette*, 74(2), 145-158.

National Human Trafficking Hotline. (n.d.). Retrieved August 16, 2022, from

<https://humantraffickinghotline.org/>

O'Brien, E. (2013). Ideal victims in trafficking awareness campaigns. In *Crime, Justice and Social Democracy* (pp. 315-326). Palgrave Macmillan, London.

Sanford, R., Martínez, D. E., & Weitzer, R. (2016). Framing human trafficking: A content analysis of recent US newspaper articles. *Journal of Human trafficking*, 2(2), 139-155.

Small, J. L. (2012). Trafficking in truth: Media, sexuality, and human rights evidence. *Feminist Studies*, 38(2), 415-443.

Virkus, B. L. (2014). Human trafficking and the media: Comparing newspapers' portrayal of victims and offenders.

Youell, J. (2022, April 11). *Framing Psychology*. BetterHelp. Retrieved August 16, 2022, from <https://www.betterhelp.com/advice/psychologists/what-is-framing-psychology-by-definition/>

Zimmerman, Y. C. (2011). Christianity and human trafficking. *Religion Compass*, 5(10), 567-578.

Volume 5

Article 13

Summer 2022

Pluviophilia, and Other Foundational Childhood Experiences

Elliott Lay

Lee University

Under the guidance of Will Woolfitt, Ph.D.

Pluviophile

Nicholas and Justin both sat on Nicholas's porch on the eve of his fourteenth birthday. They felt the swollen summer air clog their lungs, sensing the impending downpour. Nicholas hated the rain. He hated wet clothes and mud and spontaneity. But on that June night Justin had dragged Nicholas as close to the rain as he could. Nicholas could tell Justin was giddy. "You're such a pluviophile, Justin," he said.

"That's a new one. Did you hear it on TV or did you read it in the dictionary?"

"The latter. Well—I learned pluvial—which means rainy—from my Webster's Student Dictionary but I had to find pluviophile in the unabridged version at the library."

"Just so you could call me it?"

"Yes."

"I'm touched. It feels right. But it means I love the rain, right? Not that I have some weird fetish?"

"Ugh stop!"

"Sorry," Justin chuckled. They were both sweating because of the sticky air, but Justin grinned. Grinned wide enough to scrunch his nose and make his glasses sit crooked. Nicholas knew how much Justin loved the rain. Every chance they got, Justin would run in the rain and get drenched to the bone and spin in slow circles and run his hands dramatically through his sopping hair. He once told Nicholas that whenever he was in the rain he always imagined himself kissing a girl just as drenched as him. Whenever Justin ran in the rain, Nicholas would watch from some covered, puddly location, torn, wishing to be more like Justin and fearing everything that came with it.

“We have to go out in it!” Justin begged.

“Never,” Nicholas said.

“Nicholas! C’mon. We’re about to start high school. I don’t know if that means the good times are about to end or begin. But whatever it means, it means that we must seize this moment. *Carpe diem*, oh captain my captain! We have to run in the rain and do something wild before we’re too old to! And anyways—we don’t know if it will even rain.”

Justin’s promises of adventure and wonder gnawed at Nicholas. “But my mom won’t let us inside if we’re drenched,” Nicholas said.

“Your mom loves me. Of course she will. This is a battle you have to win, Nick. Not your mom. You’re fighting your inner demons.”

“The demons of liking to be dry?”

“Of everything being perfect. Of your breaking rules and conventions. Let go for a night, Nick. I believe in you.”

He wanted to trust Justin. He wanted someone to drag him into adventures and make him do new things. And he sensed best friends should trust each other fully, and he thought he and Justin were becoming best friends.

“You know, it might not even rain,” Nicholas said with a tentative smile. Justin smiled too and his glasses went all askew again.

They left the porch for the sidewalk. Nicholas trudged and Justin skipped through the muggy twilight. Justin’s long hair blew in the hot wind and the lenses of his glasses fogged up near his nose. Sweat matted Nicholas’s bangs to his forehead.

And the rain came. The rain thundered and the thunder roared. The clouds threw lightning at each other. Puddles overtook the uneven sidewalk. Nicholas and Justin waded

through the watery black. Nicholas ran his hand through his clammy hair, slicking it back. Rivulets streamed down his neck, his eyelids, his nose. He blinked the water away. He tried to use the back of his hand but that made things worse.

“Don’t you feel better?” Justin teased.

“No.”

Justin began to run and Nicholas reluctantly followed. He slipped every other step and spray from his kicks coated the backs of his legs. Justin stopped on top of a grassy hill Nicholas and his sisters sledged down in the snow. Now water rushed down it and made ruts in the mud.

Nicholas refused to enter the field because of the mud. “It’ll ruin my Converse!” he yelled at Justin.

“You have to embrace the risk Nicholas!” Justin yelled back through the roar of the rain. His hair stuck to his cheeks and water dripped down his nose. He smiled broadly.

“I can’t!”

“Fine! Don’t try it! I have the high ground!”

“That quote doesn’t fit here! We both know I’m Kenobi!”

“Does that mean I’ll turn to the dark side?”

“Running in the rain is turning to the dark side!”

“Only a Sith Lord deals in absolutes!”

Nicholas stayed on the sidewalk and shivered. The water turned everything cold. He felt frozen. He hated being wet. He wanted to be angry but he knew it was his own fault and then he saw Justin spinning in circles, wrapping himself in the night sky, humid and soaking and moonbright.

Justin stopped his pluviophilic ritual and picked up a stick near his feet.

“What’re you doing?” Nicholas asked. Justin jabbed the stick into the ground and let it stand like a monument.

“Nicholas, this is you!” Justin yelled at him. “A stick in the mud!”

“That stick is the exact opposite of me!” Nicholas ran his hands through his hair again, attempting to stop the droplets running into his eyes. “It likes the mud, and the rain that makes it! It’s essential being is tied to being in mud! My essential being is dependent on me being out of the mud!”

“You’re just proving me right!” Justin rebutted. He began to walk towards Nicholas and slipped. He started rolling down the hill and Nicholas thought he looked like Anakin Skywalker. He tumbled and sputtered and Nicholas ran to the bottom to check if he was okay.

“Justin! Are you hurt?”

Justin’s cackles cut through the rain. His clothes were covered in mud and he’d lost his glasses. “See what you’re missing?”

“Now my mom really won’t let us back inside.”

“It’ll be okay.”

The two searched around for Justin’s glasses on the hill. Nicholas even got on his hands and knees, compromising his deepest boundaries. But he felt okay. The rain washed him clean—even his precious Converse. Nothing could resist the rain.

Justin’s glasses were mucky and broken, but he still put them on his face. They sat crooked like when he smiled, and Nicholas couldn’t help but chortle, and then laugh until they both cackled at a volume that competed with the rain, a kind of laugh that swirls like a cyclone and hates vacuums and fills every empty space. Nicholas’s abs ached and he choked on the water streaming down his face. Nicholas knew he would never have stooped in the mud to look for

someone's glasses like he just had, so he knew that Justin really was his best friend. So he knew he could trust him.

They spent two more hours in the rain. They circled Nicholas's neighborhood over and over and explored side streets and new directions and everything just to make it last longer. They told stories about middle school crushes and blunders and the annoying things their siblings did. They asked questions about girls and fears and God, questions they'd never asked before. And they shared secrets they'd never shared before. Secrets about porn and guilt and voices in their heads and sometimes wanting to die. And they cried. They held each other and mingled their salt tears with the tears of the sky. Nicholas wished he could have kept a piece of that night forever with him. Some relic whose sacredness matched the sacredness of that night. He would have kept mud on his Converse forever if it meant never forgetting, forever feeling whatever feeling he felt, that rain feeling of trust and safety and absolute freedom. He decided he hated it ever so slightly less.

The Girl in Yellow, etc., etc.

There are no corn mazes in Havensboro, so you must travel half an hour away to Curley's Corn Maze if you want fall to finally be real.

I had gone to Curley's every fall with Bray and his family for the last three years. But this year was different. Sadder (though Bray never really gets sad). We were suddenly teenagers and too big for everything except disappointment. After the giant trampoline and the tire roll turned us away, I reverted to the hope that I carried with me everywhere I went in Havensboro—that I'd see The Girl in Yellow.

I quietly traced the cracked concrete of the game pavilion, the place we knew wouldn't turn us away, when I recognized those dusty, faded, yellow Vans. Bray grabbed my arm and I knew that I knew that I knew that I knew

“BRAY! AJ! Oh my word! We're here at the same time!”

that the Tyrant and The Girl in Yellow were at Curley's.

I had memorized (though I hadn't told anyone) the way she was shaped, the constants of her I could embed in my memory. I knew exactly where her hair fell on her shoulders, where her bangs fell on her eyebrows, how she always kept it behind her ears. And I always knew those yellow shoes, shoes that had once certainly been bright but hadn't been for a while. And there she stood. Hair and bangs and Vans and yellow and sparkle and beauty and realness. She was real. She raised her hand to scratch her nose, pink from the sting of the wind. Her flannel matched her shoes and flapped in the same stinging breeze. She smiled and waved and said, “hey guys” and I suddenly couldn't breathe.

“Hey!” Bray said. I was grateful he was there (I always was) because he managed enough composure to treat Reese and Penny (yes they had real names) like normal humans. I was also grateful for Bray because he was the only person in the whole world who knew the truth about me and The Girl in Yellow, though we hadn’t talked about it in months.

We started calling Reese and Penny by codenames after I had confessed my crush to Bray on that night last summer when we pulled our first all-nighter. Doritos and Sour Patch Kids had made me delirious and loose-tongued and I told Bray the thing, the feeling (the obsession, really) that had been burning in my brain for two years since the first month of sixth grade. He told me to give him a week and he’d have us set up, but then he realized my nervousness about the whole thing and adjusted his timetable. He promised to stay quiet, but said he’d always be watching the situation to see when the right moment was for me to make my move. His vigilance is what demanded that we make codenames. We called Penny “Tyrant” (for obvious reasons) and Reese “The Girl in Yellow” because of those infamous, tattered shoes.

But Bray didn’t know (though he might have suspected) that I tracked every possible encounter with her. I always saw her in the hallway and in reading class, and I looked for her everywhere else I went. Maybe her yellow Vans would whisper at me from around the hall corner. Maybe she’d be at Tyler’s Pizzeria on the every-other-Thursday nights that I go with Bray and his family. Maybe she’d be at Walmart when I volunteer to go grocery shopping with my mom. And maybe she’d be at Curley’s, thirty minutes away from Havensboro at a corn maze. And she was. My buzzing nerves and The Girl in Yellow’s presence and actual reality coexisted. And I found myself completely unprepared.

The Tyrant and Bray small talked while TGiY and I stood quietly. I tried to watch her without feeling like a creep. I bet Bray could’ve done it. He’s always smooth.

I felt my chest begin to tighten and sweat because I realized I hadn't said hi yet. Tangled words and quarter notes fought and flailed on my tied-up tongue. Coldplay lyrics and melodies flitted across my mind as I tried to find some way to greet her. *For you I'd bleed myself dry*, I thought, but reasoned silence would be better than that.

The Tyrant asked if we wanted to play ping-pong, and Bray volunteered, enduring the never-ending dribble of words from her lips to buy me time with The Girl in Yellow.

I sat on a bench with her and watched them play. I tried to sit a reasonable distance away, but my chest still throbbed. Her nearness stole my words more than before. Her feet dangled off the bench, and the toes of her Vans scuffed the concrete rhythmically. I found myself keeping beat in my head, mesmerized by her musicality. Then I realized that I was staring. I turned my eyes to her face. She shined like a kind fall sun—a star, like those that shine in that Coldplay song where I thought about bleeding myself dry. The strumming of Coldplay's guitar played somewhere in the back of my mind, and Chris Martin's vaguely British *Yeah, they were all yellow*. I could think of a hundred lyrics to tell her but no real words. I felt hopeless.

I didn't know what to say because her mom had died in May. She had cancer. Leukemia, I think. Havensboro really rallies around things like that, for children at least. Businesses display ribbons and signs and sell t-shirts and have donation boxes, and football games are dedicated to the kids, and churches have nights of prayer and love offerings. But nobody did that for Mrs. Evie Anderson. Bray's dad is friends with Reese's dad, so he told us about Mrs. Evie. Bray and I both had grown somber. I think we both felt kind of guilty about giggling and plotting and all that crushes involve when the girl's mom is sick. The somberness faded with time, but it came back and stayed when Mrs. Evie passed. That's why I hadn't said anything to Bray about The Girl in Yellow in a while.

Bray hadn't said anything either. He was always the buzzy one, the one eager to be my wingman. But I think we both felt disrespectful about having a crush on a girl whose mom just died. Like preying on the innocent. But a part of me thought it was even more right, right because I wanted to give, not to take. I wanted to be her hero, to swoop in, hold her and comfort her in the tidal waves of grief. It felt more right because maybe that's the moment when she needed someone to have a crush on her most. But I hadn't told anyone that.

I looked down at her shoes again because staring at her shoes isn't as weird as staring at her face. I noticed her fingers quietly thrumming the bench and I knew I needed to say something, to just talk so my one chance encounter wasn't so awkward.

But how do you tell someone that you've mourned for them? Cried for them. How do you tell someone that you have a playlist of acoustic love songs that you made just so you can think about them? That you call it "Yellow" to keep it a secret from your dad so he won't learn about it and think you're soft and a sissy. For months I had gone to sleep listening to "Can't Break Her Fall" by Mat Kearney. All I wished was to hold her when she cried. To be there at the perfect moment when she needed someone most. To give her *just one reason, one to believe in, that's not that far gone*. But no normal person would tell her that now.

I thought about her mom, and I thought about saying something about her. I imagined that I could actually tell her how much I cared. That losing a mom, especially a good mom, must be devastating. Probably the hardest thing in the whole world. I imagined her frown shifting just a bit—not too much, because that would be unrealistic—but enough to move her eyes to glimmer. Then I imagined us talking all evening, her giggling at me and me comforting her. I imagined her happiness would increase ever so steadily throughout the evening until we went to the corn maze. And then I envisioned her kissing me in its secret twists. Then the story collapsed

because the final detail was the ultimate unreality. It was the detail that took the believable too far, and I ran into the truer, starker possibility of us just saying a few awkward words to each other and going our separate ways. But no! I couldn't let that be so. I couldn't leave this moment—this splendid, sweet, crazy impossible fever hope of a dream that was actually finally truly real. It was real! And I had to do something about it.

“Hey, so you don't like ping-pong?” I asked. I realized I sounded like Barry from *Bee Movie* and all that hope and kissing stuff began unraveling and *oh crap oh crap oh crap*

“Not really. I really suck at it. And then you didn't play and I was like ‘oh great I don't have to make a fool of myself.’”

She offered a shy smile. My silly question had worked. I let out a nervous laugh. “Hey! Like, great! Like, yeah...um...like I'm not all that good either. I'm really not all that great at any sports. I prefer: *the arts*,” I said with the raise of my eyebrows. She snorted and let out one of those really real laughs you can't fake. I scooted closer to her. It felt like my inner Bray charisma was surging.

“You know, they used to call Penny ‘Ping-Pong’ in sixth grade, but not because she was good at it, but because she knew all the rules,” she smiled and snort-giggled. I laughed with her.

I fettered my impulse to say something mean about The Tyrant. Their friendship always felt inexplicable to me. I scrambled for a convo topic and remembered the Coldplay lyrics running through my brain.

“So you like Twenty-One Pilots? I mean—I'm guessing you do, because you're wearing their t-shirt. I guess, I mean...tell me about them.”

Her grin broke into an unfakeable smile. Her cheek bones raised higher than humanly possible, and the skin between her nose and eyes scrunched up. I felt giddy. “I really love them. I

mean I really love music but they do something with music I've never heard before. Like—they give me words. Things I don't think I could ever express. And each song always sounds so different. So meticulous. I love it. And *Vessel* is like my favorite album of all time. And their unreleased stuff is pretty gnarly—”

“Ha! I use that word too!” I interjected. “Sorry. Please continue.”

That smile persisted. “They have a bunch of unreleased stuff on YouTube and SoundCloud and stuff. My mom and I saw them at a music festival in Ohio like two years ago and I heard a bunch of their old stuff from before they got signed. My mom bought me *Vessel* and this t-shirt and they're like my favorite things *ever*.” She sharply inhaled, all her breath spent on her giddy words, on her love, on the things she said to *me*.

But I felt myself deflate. I tried to smile back at her but *my mom and I* replaced the lyrics and echoed in my ears. My stomach gurgled. My tongue froze. I didn't know if her talking about happy memories meant that I should be happy about those memories or sad that her mom can't make any more happy memories. I wanted to cry. I wanted so much to comfort her but couldn't, knotted into inaction by the fear that I'd say the wrong thing.

Reese turned her head away from me after a few seconds. Her smile had faded as the silence had dragged on. I realized I was staring and turned my head away, too. I zoned in on the plastic ball *back and bounce and forth and bounce and back and bounce and forth...*

“I'm sorry,” I blurted, unsure really what I was doing.

“You don't have to be sorry, it's not your fault.”

“But I'm sorry that you have to live with a person who loves you being gone.”

I had said this to myself in the mirror before. I'd rehearsed it, trying to find the thing I'd tell Reese if I ever got the chance, how I'd express how truly sad I was for her. But this time I hadn't thought. The words just spilled over.

"Oh," she said. Our words dangled in the air, on the fence about whether they wanted to crystallize into something beautiful or scary. Both my hands squeezed the wooden, splintery edge of the bench. I eyed the cracks in the concrete, but they got blurry because I focused too hard. My chest sweated and ached, tight with the fear that I had ruined everything.

"Thank you," she finally said. "Really." She turned her head back to me. I could tell her eyes were dewy. I'd made her cry. But I didn't know whether to think that I was the hero or the villain.

"Twenty-one! Victory!" The Tyrant cried. "Good game, Bray."

"You too, T—, Penny." Bray said half-gallantly. They shook hands. I couldn't tell if Bray was being sarcastic. I didn't really care.

"To the corn maze?" The Tyrant squealed.

"To the corn maze, sis," Reese replied. I listened closely, trying to hear tears in her voice. I couldn't tell.

We reached the maze entrance and The Tyrant proclaimed herself our leader. We walked in pairs. I slowed my pace so I could put distance between the girls and me and Bray. "Can you make conversation with The Tyrant?" I asked him.

"What? 'Make conversation'?"

"I want to talk to Reese."

Bray grinned widely. "Gladly," he said.

We closed the gap between our pairs. “Penny, can I look at the map with you?” Bray asked.

Reese fell back, the heels of her Vans striking the dust of the maze with each step. She ended right next to me and gave me that same shy smile as when I talked like Barry the Bee. Her *thank you, really* crescendoed in my mind, helping me feel like I had been a hero, not a villain. My pulse picked up and the nerves in my chest became electricity. I felt Reese wanted to talk to me, and I had never felt braver.

“I’d love to listen to Twenty-One Pilots sometime. I really like music, too. I’ve just never listened to them,” I said. My tongue no longer felt so tied.

“Yeah, I’d love to swap music. Who do you listen to?”

Somehow Reese unlocked a torrent of words I never knew I had. I talked for fifteen full minutes, spurred on by the double giddiness of Reese and music. I never mentioned the “Yellow” playlist, but I told her about all the songs on it. How I like to test how well I can capture an emotion with the playlists I make. That music gives me words, too. That I think music is also perfect for the things you don’t know how to say. Like when you feel exhilarated. Or in love. Or know that you need to cry but you try so hard and you just can’t.

“Do you ever make playlists for how certain people make you feel?” she asked. “Because certainly a person would make you feel more than just one emotion?”

I collapsed into that panic I felt when I had first seen her. My palms sweated, and broken sentences formed and died on my tongue. I turned to look at her. Her head was tilted slightly forward. I could only see the lower semi-circles of her eyes. They glimmered in the setting sunlight. Her hair wasn’t behind her ears anymore and it was dark and frizzy and framed her

freckled face. I realized this was the longest I'd ever looked at her straight on. And she was beautiful.

"Once," I trembled, "for I friend I never really talked to but cared a lot about, cared even more because she—they'd—had to suffer more than anyone ever deserves to."

She smiled and her glimmering eyes became glossy with tears. I began to fear that I had become the villain again because I kept bringing up her dead mom. But she didn't look angry. She looked the happiest she had looked all evening. And with that look, she lit up the world around us.

Reese confirmed my suspicion that she was a star because she turned everything more golden than the setting sun. I found myself wrapped all around with yellow, with hay and corn and sunset and Reese, a star, The Girl in Yellow. All of it made me feel the bravest and belongingest I'd ever felt before. I wondered if Reese felt the same. I toyed with the idea of holding her hand, toyed more seriously than I had ever about anything before. But then she held mine.

First her hand collided with mine, breaking the swinging pattern it followed. It felt cold. I thought maybe she was anemic. Then our hands collided again but didn't separate because she held on. I turned my head to face her, my eyes wide. But she had that giddy, wide, unfakeable smile with the high cheeks and scrunched nose and I knew this was real. She moved her fingers to interlock with mine. Her hands were soft and icy. They were smaller than mine but still fit perfectly—a slot for each one of her fingers, like our hands were meant to be together all along. Our arms developed a new swinging pattern, perfectly in sync. I squeezed her hand to warm them up. She squeezed back, and I finally succumbed and turned golden like everything else. I felt like we would light up the hazy purple of the night because we were doubly golden as sunset.

I would have called her Midas, but she was so much better than that. Somehow we'd become living-breathing gold—the ultimate unreality.

“Hold up, guys!” The Tyrant said. “We need to redirect!”

Reese grabbed her hand away as we stopped in our place. I couldn't see her face in the new darkness. She hurried in front of us to where The Tyrant and Bray stood. The fake light of The Tyrant's iPhone flashlight revealed Reese's smile, just as real and golden as before. I felt confused. When we started moving again, Reese stayed in front with The Tyrant, holding her phone as a flashlight as The Tyrant scrutinized the map. Bray rejoined me.

“So...what happened?” Bray asked.

“I...I don't know. Well, I thought things went well. She, she held my hand—”

“What? I knew you were charming, but man, that worked fast.”

“But then she let go and went to be with Penny.”

“Curiouser and curiouser,” he said. “Maybe she got nervous. Or got cold feet.”

“I mean, she did have cold hands.”

Bray started to cackle and I smiled back at him. He pulled some candied pecans from his hoodie pocket and offered them to me. I rubbed my fingers on my palm, imagining Reese's hand was still there. My fingers stung with the cold of the breeze, but I wished they stung with the coldness of Reese's grasp. My giddiness faded, and I ate some pecans. I wanted to go and talk to her again but I felt paralyzed, so I stayed near Bray.

I squinted ahead of us to watch Reese and The Tyrant. They were holding hands. Their fingers loosely held on to one another and swung lazily. I felt wired and messy and sad. I felt replaced, but not in any jealous way. Maybe because I wasn't being Reese's hero. But I thought about holding Bray's hand, about how comforting that'd be if it wasn't so sissy. I felt a thaw

towards The Tyrant, that maybe she was just Penny Queen. I understand what it's like to have a best friend. I didn't quite know what it felt like to have someone you love die, but I know that I would need Bray in a way deeper than the way I need him when my dad yells at me and makes me cry. I think I understood that Penny was Reese's Bray, and because of that, I thought she must be a good person.

"When we get home, do you wanna rent Guardians of the Galaxy? I think it's finally on Redbox," Bray asked.

I smiled. "You know me so well."

I rubbed my palm again, feeling the space where Reese's hand had been, but more just feeling the vacuum where her hand was not. The pecans were making my hands syrupy with candied cinnamon sugar. I reached for more. The bag was warm from being in Bray's hand. I knew that later my hands would be filled with popcorn and laughter and Bray and I would have another night of delirium and maybe we'd talk about The Girl in Yellow or maybe not but I'd still have Bray. And that felt like gold in its own kind of way.

How Bad Does It Hurt?

I try to get up but I scream. I shouldn't have. It feels like my left wrist snapped when I leaned on it. I lay back down on the ground. I'm afraid a soccer ball will fly at me while I lay here. It's the middle of the game. But lightning crackles in my wrist. I want to scream again. The sun is so bright. I clench my eyes tight and my jaw tighter. My molars might crack. The grass scratches everything. My ears and elbows the most. But I can't scratch them, can't move my arms, can't move anything. My wrist is tight, like it's wrapped in something. Blood pulses through it like a heartbeat, regular intervals of throbbing scream-worthy pain. My breath is the opposite. Ragged. It hurts. My cheeks are wet with tears. I need to wipe them but can't.

I fight to catch my breath, maybe so I can scream again but mostly so I can try to get up again. I'm still afraid of a wayward soccer ball. Wiping my tears and scratching my ears have to come second. I roll onto my right side so I can get up. Right in front of my face are the toes of Dad's boots. I didn't hear him come because my breathing is so loud. Maybe I'm hyperventilating.

Maybe I'll pass out. Maybe that's a good thing. Maybe then I can quit soccer.

Dad and my coach help me up. My feet should work because I only hurt my wrist but a leaning stumble is the best I can manage. I lean on Dad instead of coach though I don't really want to lean on anyone. "Come on son, dry it up. Everybody's looking," Dad whispers in my ear. My ear itches again and I notice it's wet. I don't know if it's dew or Dad's spit. I look down at the ground as we stumble to the bench. I have to hide my tears until I can make them stop. I bite my lip but my wrist screams louder.

I'm catching my breath when Mom gets to us. I smile at her, but smiling feels hard. The throb in my wrist pulses harder and I really need to cry. I don't like Mom hugging me in public but I wouldn't mind now. I wish I could cry. It really hurts so bad.

Mom stoops in front of me and smiles. She combs my sweaty hair to the right side. "AJ, how bad does it hurt?" she asks.

I sniffle, determined to obey Dad and not let any more tears fall. People are watching for heaven's sake. "Not too too bad, but kinda bad," I say. I hope she gets the coded message. I don't want to stay at this game any longer. I don't want soccer to hurt me anymore. I don't want anything else for my dad to be disappointed in.

Mom takes my glasses off and uses her thumbs to wipe the tears from my eyes. My eyes burn from the sweat dripping off my bangs. "I gotcha," she says. She smiles wider and the lines at the edge of her eyes scrunch up. "I can't take you to the doctor today, but Daddy will, okay?"

"Okay," I say, though it's more of a whimper. I breathe in deeply. I won't whimper any more. Dad doesn't want me to cry.

We get my sister Chloe from the bleachers and walk to the car. Mom's hand is at my back and I hold my swollen wrist in my good hand. I swallow hard and sniff again to keep the tears away. I glance at Dad to see if he notices I'm not crying. He always wears dark sunglasses and only smiles when we're at the lake or he's watching TV. He's not smiling but that's okay. That's normal. I don't think he's embarrassed.

"I don't want to go home!" Chloe cries. She kicks the back of Mom's seat. She has good rhythm. "I wanted frozen yogurt!" she squalls louder. Her voice is so shrill, like the far right keys of my piano. My ears hurt. Her face is red beneath her blonde curls. She's yellow and red like

those snakes from science class where one pattern is poisonous and one pattern is not. Chloe's red on yellow. She's the poisonous one. We're all dead fellows.

"AJ's such a crybaby!" she continues. Her voice cracks and reaches higher than my piano's last key. "He ruins EVERYTHING!"

I try not to cry. I can't prove her right. My lip quivers. I bite it. She always says this, and so does Dad. That's why I can't cry today. I have to be tough.

"Chloe Peller shut your mouth!" Dad screeches. His voice is somehow louder. His face is all red too. I don't know what kind of snake has brown and orange like Dad's hair and ball cap, though. "If you don't quit whining I will stop this car and give you something to cry about!"

Chloe is obnoxious but she's smart. She shuts up.

Dad drops Mom and Chloe off at home and then we head to Knoxville to go to the ER. We ride in silence except for the radio. Dad only ever listens to country and classic rock. I don't really like either of those because they don't have the piano. But Dad hates the piano, or at least he's never interested when I play. Maybe my hand will be broken and I'll have to quit soccer but I'll also have to quit piano. I want to cry about that, but crying over music and music lost is even wimpier than crying when you're hurt. I bite my lip again, but I'm careful so I don't break the skin.

Dad didn't go to college but he almost played football for UT in Knoxville. He's told me that his favorite hat is the orange one he got when he agreed to play for them. Playing for UT is a pretty big deal because we watch them on TV every Saturday in the fall and that means Dad would have been a movie star. But Dad broke or tore something in high school before college so he didn't go. He says he wanted to be Peyton Manning but he was really just Cooper Manning. I don't really know either of them, except I know Cooper got hurt and couldn't play. I'm hoping

that Dad will think that I'm Cooper too and will see that I can't play but rather than being disappointed he'll be proud. I want him to be proud but I want to quit soccer. I'm pretty bad so I figured I'd get hurt sooner or later. It sucks but maybe it's my deliverance.

The waiting room of Children's Hospital is so cold. And so white. I'm sweaty and in my uniform shorts and I can't stop shivering. The chairs are black with no cushion and shaped in weird ways that don't go with your body. The air is cold too and smells like rubbing alcohol. All the doctors and nurses look like they're dressed in pajama bottoms because they have bright colors and cartoon characters on them. Everything is so clean except the patients. The kid in front of me plays with a block and wire maze, but he keeps sniffing hard and coughing harder. He wipes his nose with his palm and then goes on playing with the maze. I look at Dad. He taps the heavy toes of his boots. Neither of us speak.

"AJ Peller?" someone says. I look and see a really tall guy standing in the big doorway next to the receptionist's desk. His pants are bright green and covered with the characters from the Fruity Pebbles boxes. It's weird that he's a nurse and he's a boy. I know Dad thinks so, too.

He leads us to a room and takes my temperature and blood pressure and something else where he put some weird thing on my middle finger. The blood pressure cuff tightens around my arm like the pulsating in my wrist. All of his tools are cold like the rest of the ER. So are his tacky blue gloves.

"So buddy how'd you hurt your wrist?" he asks. I watch Dad. He stares at the tile, tapping his boot. His taps are so loud. They throb in my mind like the pulse in my wrist, but more intense, more painful. I wonder if what I say will make Dad think I wasn't so bad. At soccer and everything else.

“I fell backwards while I was running backwards in my championship game,” I say. I’m hoping Dad has forgotten that I just tripped rather than doing something impressive like trying to shoot a goal.

“What sport, bud?”

“Oh, uh, soccer.”

“So you tried to catch yourself when you fell?”

“I think so.” Dad still taps. Taps. Louder and louder. He doesn’t look at me.

“Yeah, that happens a lot. We see this a lot when people fall, even adults. They instinctively try to break their fall, like this,” the guy nurse says as he places his left arm beside him with his left hand flat and facing backwards. “Can you tell me your pain level, AJ? You can use this chart,” he says as he points to a poster on the wall with a bunch of smiley faces. The faces turn from smiley to frowny as the chart progresses. But only the face with the 10 underneath it has tears in its eyes. But I can’t say ten. I’ll seem like such a crybaby. I’ll prove Chloe right, and maybe even Dad too.

“I think it’s a three. Maybe even a two. Not too too bad,” I say, trying to send the guy nurse a coded message like Mom. But I want Dad to hear me. Hear that I can take pain. Hear that I’m not weak.

But he doesn’t even look up. Keeps tapping.

The nurse looks at me sideways. “Let me take a look at your wrist,” he says. He rolls it gently in his cold gloves. It’s swollen and turned dark purple like Chloe’s toy eyeshadow. Near my thumb is a green spot like a grass stain. My wrist is still tight like the blood-pressure cuff. Every touch throws the throbbing rhythm off and makes it start again, start harder. I sniff

forcefully, determined not to cry, not to be a crybaby, not to be a son who makes my dad frowny like the faces on the pain poster.

“AJ, bud, are you sure it doesn’t hurt worse? I can’t say for sure, but it looks broken and most kids your age who have broken bones have a pain level that’s a six or higher. Buddy, you can tell me if it hurts worse.” I look at the nurse and see a bit of a sideways smile, a secret message he’s sending me like when Mom half-smiled at me when she said we could leave the game. I think the nurse is a man who wouldn’t think crying is bad like Mom doesn’t think crying is bad, though that maybe means this guy is a crybaby and not really a man.

“AJ?” the guy nurse says again.

“C’mon son,” Dad says. He’s been quiet but his presence has been loud. He taps his toe louder and I look and see his jaw tighten under his beard. “Stop wasting this boy’s time and tell him how much it hurts!”

All the attention has been on me but now I feel like it presses down on my shoulders, two glares from two men, both heavy like a backpack full of books, both crushing me, both making me want to run out and cry and deal with the pain and tell no one how bad it hurt. I sniff again, more forceful than before. So hard I choke. My choke morphs into one of those throat-catches I feel before I cry. I try to speak but my voice cracks, comes out like a scratch. Only broken shards of words that hurt my throat. “It’s—it’s—it’s, a six,” I muster with my broken crybaby syllables.

“AJ, buddy, don’t cry!” the nurse says. Tears roll down from my cheeks. They warm my chilly face. Some pool in the bottoms of my glasses. I keep sniffing to stop but my bottom lip quivers and tears keep rolling.

“It hurts really bad,” I whimper whisper. I shiver in the coldness of the room. The water on my face chills it and I want to cry more. I don’t look at Dad, I don’t dare. I’ve proven Chloe right and disobeyed the first thing he told me when I got hurt—“dry it up.”

The guy nurse hands me a Kleenex and wraps me in a hug. It feels strange because men don’t hug like this but I keep crying on his shoulder and don’t care how wet I make it because his hug feels like a hug from Mom. He leans away from me and tells me that the doctor will be in the room soon, and that he can bring me some medicine to help with the pain.

After we’ve seen the doctor and she says my arm’s broken and makes me an appointment to get a cast, and gives me a Pikachu sticker, Dad takes me home. Orange lights brighten the parking garage against the black night. The stoplights cast multicolored shadows of my dad onto the passenger seat. He’s quiet like he is in every car ride. And country music plays like it always does.

We get out of Knoxville and onto the interstate home when Dad speaks. “AJ,” he says, “how come you didn’t want to tell the nurse how bad your wrist hurt?”

That question has haunted the evening. I haven’t looked straight at Dad since then because I feared making eye contact would suddenly make him conversational and I knew he’d ask about that weird moment because I lied and cried, two criminal acts.

“I don’t know,” I say. Maybe I can be curt like him. Maybe I can dodge it.

“AJ,” he replies, his voice tighter and raised.

“I—I,” I begin. I sigh loudly. “I wanted to tough it out through the pain. Like you.”

Dad sighs too. But not quite like me, almost like a laugh is hiding behind his sigh. I look in the rearview mirror to try and see his face. I see a smile. And he only smiles when we’re at the lake or when watching TV.

“That ain’t a bad thing,” he says. “Men should be tough. Especially through pain. It’s important to be strong. But when you’ve broke a bone, I think it’s okay to say it hurts. Alright?”

“Alright,” I say.

He looks into the rearview and I can tell he’s trying to lock eyes with me. “I’m proud of you for trying to be tough, AJ.”

Dad turns the dial on the radio to make it louder. I think it’s Hank Williams, Jr. I think Dad likes him. Dad begins to sing along, off key like a misplaced finger on a piano chord. He only sings at the lake when he has beer. I see his smile grow. He’s proud I’ve been tough, even if I have to stop playing soccer. Maybe I’m like him and Cooper Manning. Maybe I’m a real man. I sing with Dad but stay on key. But I don’t care he’s bad at singing. I know he’s happy, and I know I’ve made him that way.

Text Message Drafts

~~Hey Jada! I saw you at the coffee shop today. I just wanted to see how you were doing~~

~~Hey Jada! I saw you today at the coffee shop! How are you? Do you want to catch up soon?~~

~~Hey Jada saw you today and was wondering if you want to hang out soon~~

Hey Jada I saw you at the coffee shop today and it reminded me of all the times you would come to see me at work after school and all the free smoothies I made you because you didn't like coffee and you waiting until I got off (not minding how I smelled of stale espresso and disinfectant) so we could eat dinner and cookies and take walks and I remembered those walks in that park next to the coffee shop and holding your hand frozen from the icy smoothies and your iron deficiency and it raining and us squealing and slipping into the pavilion and my Converse getting covered in mud and grass clippings and your hair dripping and your teeth chattering and then chattering again that winter break when you drove us to the park again to watch the Christmas lights as a surprise because you knew it put me in stupid awe like a child and you holding my hand again, your hands still cold but your lips warm and tart and syrupy like the smoothies and that kiss put me in more stupid awe but less childlike and I told you it was my first kiss and you said "you're so innocent" and I felt giddy and held you in the backseat as we listened to that Pentatonix album you love and we fell asleep and woke up at 1am with a thousand missed calls and we got grounded but were innocent (in a way) and sometimes when I'm lonely I think of how I held you in the spastic dance of those lights and it makes me miss smoothies and your hand and being innocent but it makes me feel happier for a moment. Just wanted to know if you wanted to catch up.

Maybe you remember?

Do you remember our last conversation?

You called me suspicious and surveilling and sanctimonious, the final verbal jab hurled until we boiled to a cold quiet fury. We haven't spoken sense. But what do you remember?

Do you remember archery camp? When you were better than me but didn't make friends with anyone else because you were scared and we decided we needed each other?

Or maybe youth camp? With you helping me pick out outfits to impress Millie and you telling me she liked me though you knew she didn't just to help my ego?

Or maybe you're thirteenth birthday party? With your pool and jumping off the roof and your brother peeing in the yard and me feeling scared by the lawlessness of your house because of the tight rules that had kept me wound all my life?

Perhaps you remember the rain? That giddy nose-scrunching glasses-crookeding smile you got with the thunderclouds hanging in the air and pleading to walk in it despite me hating the rain and you tumbling down the muddy hill and losing your glasses and talking and talking and talking until we cried and laughed and had to take off our muddy drenched jeans before my mom let us back in the house?

What about that weekend at the waterpark with my family? When I wore those gaudy salmon shorts and your hair dripped oil because you forgot to wash it and at night we watched inappropriate Japanese gameshows but swore we wouldn't tell my mom and I called you a week later and said I couldn't handle it and had confessed everything?

Maybe taking the ACT? With us studying for only a week though I'd said we needed more and then you staying over that night before and us eating buffalo chicken pizza and us calling Penny and Reese and talking in my room and me saying we should go to bed?

I'm sure you remember moving to public school? Remember me asking you to write superhero anthologies with me and you telling me no and you hanging out with the emo kids in chemistry and me getting scared they were bad influences but you buying us matching Star Wars sweaters and signing us up for the field trip to Dollywood to prove to me that everything was okay with us?

What about studying for AP Chemistry together? With you staying at my house every Tuesday and Thursday and writing a song for solubility rules and loving my mom's taco soup and eating chili peppers and crying and chugging milk and stuffing our mouths with sliced bread and despite the pain me feeling okay because this kind of fun felt safe, felt in my control, within my rules?

Surely you didn't forget your graduation? With me buying us tickets to a Cubs game and me forgetting to pay back your dad and him taking us anyways and you taking a sip of your

grandpa's beer and me getting angry because we'd tried so hard not to party in school and you telling me one day I'd understand and me feeling small and like I couldn't trust you because you didn't see the betrayal and us also spending too much money on hotdogs but them tasting sad because I felt us slipping away?

What about that final conversation? With your piercing words telling me my rules and fears and God were too much for you. But maybe you couldn't see they were too much for me, too. That you were my safe space that turned into another judge. We played chess in my bedroom like we have since middle school, the refuge of refuges crumbling like castles, our rooks bashed to pieces by our words.

Do you remember these things when you ignore my calls, my texts? When you see me across the produce section and decide not to buy any fruit because that means you'd have to speak to me? Do you think maybe I have new rules, new fears, new things I know that I want to explain just to you? I'm afraid I will never have the chance to explain, that our shared memories will only rot until the only thing we remember is pain.

Volume 5

Article 14

Summer 2022

Self-Efficacy & The Role of Paternal Involvement

Jada Ledgister

Lee University

Under the guidance of Bryan Poole, Ph.D.

Abstract

This research project explores the relationship between paternal involvement and its effects on development of general self-efficacy, emotional self-efficacy, and empathy. Research to date has primarily focused on paternal involvement in terms of behavioral and successfulness in school. However, limited research is on paternal involvement alone. Participants from the United States and United Kingdom were analyzed using Prolific. The rise of paternal involvement indicated emotional and general self-efficacy and empathy. The findings of this study are important because it adds knowledge to the differences and importance of paternal involvement as well as emotional control.

Self Efficacy & The Role of Paternal Involvement

Paternal Involvement

It is well known that parents have a significant role in the development of their children's social, emotional, and overall development. However, most research to date has focused on the maternal role in the life of a child. Although there has been a shift in focus to the study of the role of fathers in the family systems, the focus is still greatly on mothers (Volker & Gibson, 2014). This naturally makes sense as society is shifting to include fathers in the role of parents (Tan, 2016). Society before had placed less of an emphasis on the expectation of a man within the family role (Latshaw, 2011). There was an overall idea of men's lack of equal participation in housework and childcare (Latshaw, 2011). However, society has created a shift in that understanding due to the declining influence of traditional gender order and more women in higher education and the workforce. This created a challenge in the roles of men and women in the private home. Although most stay-at-home parents are mothers, stay-at-home fathers have a small but growing percentage of households in the United States (Chesley & Flood, 2016), so much so, some are referring to this shift as the domestic handoff. Yet still, with this transition and changing the view of the roles, there is limited research on how much paternal involvement directly impacts certain parts of development. The current research described in this paper aims at studying this shift and emphasizing the role of paternal involvement in the development of a child on their self-efficacy and empathy.

Past research has defined paternal involvement as one's involvement in 20 different areas. Those areas were intellectual, emotional, social, ethical/moral, spiritual, physical development, career development, and helping to develop responsibility, independence, competence. Also included is helping to develop the importance of leisure, fun, play, providing

income, sharing activities/interest, mentoring/teaching, caregiving, being protective, advising, discipline, school/homework, and companionship. Easily summarized, it is one who participates in the nurturing tasks of taking care of children (Norman & Elliot, 2015). Paternal involvement can be analyzed from two different lenses: the desired paternal involvement from the child and the perceived paternal involvement determined by the child. Desired paternal involvement is the wished or hoped amount of involvement by the child. For example, a child wishes their father attended more of their games or concerts is an example of their desired paternal involvement. Perceived paternal involvement is the involvement the child felt he or she was given by their father. These differences of desired and perceived paternal involvement are important because it impacts how the child may see their childhood and overall development. Thus far, research has not examined the difference between desired involvement and perceived involvement (Cripps & Zyromski, 2009). Most research done on paternal involvement involves excelling in school, academic behavior, and other general school related environments (Jeynes, 2014), but has not yet explored the impact on self-efficacy.

Self-Efficacy: General & Emotional

General self-efficacy, which is defined as a person's belief in their ability to execute the required steps to achieve goals (Gardner & Pierce, 1998), is a stronger predictor of how people will perform when given a task than self-confidence or self-esteem (Chen et al., 2004). A high degree of self-efficacy encourages individuals to continue working even when facing frustrating setbacks. A lower degree of self-efficacy in an individual allows for the person to confirm the incompetence already believed about themselves. This makes it harder for the person to continue working in the face of frustrating setbacks.

Under the umbrella of self-efficacy is emotional self-efficacy. It is based on Bandura's concept of self-efficacy and Emotional Intelligence theory. Emotional self-efficacy is best explained as a person's capacity to process emotional information accurately as well as their self-regulation and ability to manage their emotions intelligently (Goroshit & Hen, 2014). Those who are able to regulate their own and others feelings score high on their emotional self-efficacy skills. These individuals tend to be sensitive to others emotions and are more open to being adaptable in the face of negative emotional experiences. Emotional self-efficacy is important in development as it helps with development of self-confidence, setting goals, and attaining those set goals. In previous research, self-efficacy was studied with locus of control, childhood trauma, and the role of teachers, and empathy. A study found that emotional self-efficacy relates to the empathy of teachers (Goroshit & Hen, 2014). Other studies have studied self-efficacy and its relationship to parenting styles (Coleman & Karraker, 2003), but there is limited research on using paternal involvement to predict general or emotional self efficacy.

Empathy

Although there is limited research on paternal involvement to predict general or emotional self-efficacy, there is an abundance of research on the relationship between empathy and parenting styles (Avcı & Sak, 2018). Most of these studies do not focus on whether empathy can be predicted by perceived or desired involvement. In each of these studies, empathy is defined differently, which creates confusion around the overall definition of empathy. For example, one study found 43 distinct definitions and conceptual summaries for empathy (Cuff et al., 2017). However, broadly described, empathy is the understanding and sharing of another person's negative or positive emotional experiences (Tam, 2013). Within this definition, there are two components: cognitive and affective. Cognitive is the understanding of another person's

emotions through perspective taking. Affective empathy is the joining and sharing the emotional response of another person. Although these two components are different, they are seen as intermingled and cannot be separated (Tam, 2013). There has been limited research suggesting the ability for self-efficacy to predict empathy in an individual (Goroshit & Hen, 2014).

Most research on paternal involvement focuses on the impact it has on peer relationships, the building of social skills, and the overall avoidance of risky behaviors (Volker & Gibson, 2014). There is limited research on self-efficacy, empathy, and its relation to paternal involvement. For this study, self-efficacy, empathy, and emotional self-efficacy of those who had a father present during childhood versus those who did not have a present father during childhood will be compared. The current research described in this paper will further analyze results to see if there is a relationship between self-efficacy of the individuals and their empathy by asking two main questions. First, is there a significant relationship between paternal involvement and self-efficacy? Second, is paternal involvement related to empathy? Thirdly, does general self-efficacy predict empathy?

I predict that paternal involvement will predict higher self-efficacy, whereas desired involvement will not. Although there has been limited research that suggests the ability for self-efficacy to predict empathy in an individual (Goroshit & Hen, 2014), I also predict that general self-efficacy will predict empathy.

Method

Participants

In this study, 105 participants were recruited using Prolific. Prolific gathered participants that ranged from ages 18-25 who live in the United States and in the United Kingdom. Among these participants, 47% were female, 50% were male, and 4% were non-binary. Most of the

participants were from the United Kingdom (87%) and the other 13% were located in the United States. These participants were paid \$4 through Prolific for their time. Out of 105 participants, four participants had to be removed due to incomplete answers or not following instructions.

Procedure and Measures

After logging onto Prolific, participants provided informed consent to begin the study. They completed a series of surveys (described below) designed to measure interpersonal reactivity, general self-efficacy, emotional self-efficacy, and father involvement. After completing the study, they were paid through Prolific's system.

The Interpersonal Reactivity Index (IRI) includes 28 questions that are answered on a 5-point Likert scale ranging from "does not describe me well" to "describes me very well". The IRI was used to measure dispositional empathy of the participants. To do so, the IRI measures individuals' empathy through four subscales. These subscales are perspective taking, fantasy, empathetic concern, and personal distress. Perspective taking is described as the tendency to adopt the psychological point of view of others. Fantasy is the tendency to imagine and transpose the feelings/actions of fictitious characters in books, movies, and plays. Empathic concern assesses the feeling of sympathy and concern for others. Lastly, personal distress deals with feelings of personal anxiety. Each of these subscales creates predictable patterns to analyze empathy.

The General Self-Efficacy Scale (GSE) is a 10-item scale that uses a 5-point Likert scale ranging from "Not at all true" to "Exactly true". This scale was found to be correlated to emotion, optimism, and work satisfaction. To calculate the general self-efficacy score, a sum of the items were taken. The higher the score indicated a higher amount of self-efficacy.

The Emotional Self-Efficacy Scale (ESES) is a 27-item scale answered on a five- point Likert scale ranging from 1(completely disagree) to 5(completely agree). This scale assesses emotional self-efficacy by asking questions such as, “When I am sad, I can tell what has caused it.” or “I know how to use positive feelings to be creative in an area.

Lastly, the Father Involvement scale is a 20 item scale that is answered on a 5-point Likert scale. This scale goes over various developments such as intellectual, social, spiritual, etc. This scale assesses father involvement from the desired involvement of the child and the actual involvement.

Results

The first hypothesis to be tested was that paternal involvement will predict self-efficacy. To test this hypothesis, a multiple regression model was run to predict father involvement (desired involvement vs. actual involvement) on general self efficacy. The results of this regression model indicates this model was a good fit, $F(2, 101) = 5.04$, $p = .008$, $R^2 = .0907$. The model revealed that wanting more father involvement was not significantly predictive of general self efficacy, $B = 0.0443$, $p = 0.244$. However, having father involvement was predictive of general self-efficacy, $B = 0.0588$, $p = .0026$. To further investigate the relationship between self-efficacy and paternal involvement, a multiple regression model was run to predict father involvement (desired involvement vs. actual involvement) on emotional self-efficacy. This model was a good fit, $F(2, 101) = 6.44$, $p = .002$, $R^2 = .0113$. Like general self-efficacy, specifically wanting more father involvement was not significantly predictive of general self efficacy, $B = 0.192$, $p = 0.108$. However, having father involvement was predictive of emotional self-efficacy, $B = 0.0588$, $p = .0023$.

The next hypothesis to be tested was that paternal involvement will predict empathy. To test this hypothesis, a multiple regression model was run to predict father involvement (desired involvement vs. actual involvement) on interpersonal reactivity. This model was a good fit, $F(2, 101) = 6.40$, $p = .002$, $R^2 = .113$. Specifically, wanting more father involvement was significantly predictive of interpersonal reactivity, $B = 0.350$, $p < .001$. However, having father involvement was not predictive of interpersonal reactivity, $B = -0.112$, $p = .101$. Within the IRI, there are four subcategories which are perspective taking, fantasy, empathic concern, and personal distress. To further investigate the relationship between empathy and paternal involvement, the subcategory relating to empathic concern was analyzed. The results of a multiple regression model shows this model was a good fit, $F(2, 101) = 3.62$, $p = .030$, $R^2 = .0670$. Specifically, wanting more father involvement was significantly predictive of empathetic concern, $B = 0.0912$, $p = 0.010$. However, having father involvement was not predictive of perspective taking, $B = -0.0121$, $p = .0614$.

Lastly, to analyze if self-efficacy will predict empathy, a multiple regression model was run. The results of this model indicated this model was not a good fit, $F(2, 101) = 2.10$, $p = 0.150$, $R^2 = .0202$. However, a multiple regression model was also run to predict emotional self-efficacy and empathy. The results of this regression indicated this model was a good fit, $F(2, 101) = 5.04$, $p = .029$, $R^2 = .0460$. Specifically, emotional self-efficacy was significantly predictive of empathy, $B = 0.177$, $p = 0.029$.

Discussion

For this study, the following three questions were asked. First, is there a significant relationship between paternal involvement and self-efficacy? Second, is paternal involvement related to empathy? Third, is general self-efficacy related to empathy?

Findings indicate a relationship between parental involvement, general self-efficacy, emotional self-efficacy, and empathy. In the current sample, as paternal involvement increased, so did general self-efficacy, emotional self-efficacy, empathetic concern, and interpersonal reactivity. These results were supportive of the hypothesis. It was expected that each variable would increase along with paternal involvement. Also investigated was the relationship between general self-efficacy and empathy. The findings indicated there was not a significant relationship between general self-efficacy which was contrary to the hypothesis. However, emotional self-efficacy and empathy did have a positive relationship between the two.

As paternal involvement increased, general self-efficacy, emotional self-efficacy, and empathy also increased. When desired paternal involvement and perceived paternal involvement were analyzed closely, there were differences in the results. For general self-efficacy and emotional self-efficacy, desired paternal involvement was not significant. However, actual paternal involvement was significant and resulted in a positive relationship. As paternal involvement increased, interpersonal reactivity and empathetic concern also increased. It was also dependent on the desired paternal involvement versus actual paternal involvement. However, for interpersonal reactivity and empathetic concern, desired paternal involvement was significant and resulted in a positive relationship. Results then showed general self-efficacy was not related to empathy. Although these results were contrary to the hypothesis, an analysis of emotional self-efficacy and empathy were significantly related.

The results of the analysis between desired and perceived paternal involvement is fascinating as it shows the value of perceived involvement. Paternal involvement is often associated with lack of paternal involvement and it is through the lens of childhood trauma and abandonment. The analysis of the desired and perceived involvement shows the same outcome

could occur in both the love/caring and the trauma-filled household because of perceived involvement.

The results of this study support and extend past research on self-efficacy and empathy. In a study that researched teacher's emotional self-efficacy and empathy within a classroom, it was found that emotional self-efficacy significantly predicted empathy (Goroshit & Hen, 2014). The current findings also coincided with a study that examined the relationship between the development of emotional self-efficacy and parental involvement (Yap & Baharudin, 2015). However, none of these studies focused specifically on paternal involvement and the development of general and emotional self-efficacy. Furthermore, none of these studies separated paternal involvement into perceived and desired involvement. There are a few questions future research should explore that were not answered in this present study. For example, what is the relationship between maternal involvement and self-efficacy? Does paternal or maternal involvement impact academic self-efficacy? Do individuals with high general self-efficacy also have high emotional and academic self-efficacy? Finally, is there a difference in parental involvement impact on dispositional empathy versus situational empathy?

For this study, there is one main limitation, which is the diversity of ethnicities as well as the age groups. Of the sample size, 83.7% identified themselves as white. Those who identified as Asian were under 10% of the sample size, and those who identified as black, black british, hispanic, or mixed were individually under 4%. To gain a broader understanding of each topic within various ethnicities, a larger and more diverse sample size is needed. Future studies should attempt to include a larger sample more representative of the population in the discussion and analysis of paternal involvement.

Despite these limitations, this current study extends insight and knowledge on paternal involvement and childhood development. This study shows the importance of understanding childhood development and meeting the needs of both physiological, safety, and esteem needs.

References

- Assari, S. (2016). General self-Efficacy and mortality in the USA; Racial Differences. *Journal of Racial and Ethnic Health Disparities*, 4(4), 746–757. <https://doi.org/10.1007/s40615-016-0278-0>
- Chen, G., Gully, S. M., & Eden, D. (2004). General self-efficacy and self-esteem: Toward theoretical and empirical distinction between correlated self-evaluations. *Journal of Organizational Behavior*, 25(3), 375–395. <https://doi.org/10.1002/job.251>
- Chesley, N., & Flood, S. (2016). Signs of change? at-home and breadwinner parents' housework and child-care time. *Journal of Marriage and Family*, 79(2), 511–534. <https://doi.org/10.1111/jomf.12376>
- Cripps, K., & Zyromski, B. (2009). Adolescents' psychological well-being and perceived parental involvement: Implications for parental Involvement in middle schools. *RMLE Online*, 33(4), 1–13. <https://doi.org/10.1080/19404476.2009.11462067>
- Cuff, B., Brown, S., Taylor, L., & Howat, D. (2017). Empathy: A review of the concept onset and recidivism in adult child-sex offenders. University students perception of sexual assault: Perceived factors increasing or decreasing likelihood of intervening <https://doi.org/10.1177/1754073914558466>
- Gardner, D. G., & Pierce, J. L. (1998). Self-Esteem and self-efficacy within the organizational context. *Group & Organization Management*, 23(1), 48–70. <https://doi.org/10.1177/1059601198231004>

- Goroshit, M., & Hen, M. (2014). Does emotional self-efficacy predict teachers' self-efficacy and empathy? *Journal of Education and Training Studies*, 2(3).
<https://doi.org/10.11114/jets.v2i3.359>
- Jeynes, W. H. (2014). A meta-analysis. *Urban Education*, 50(4), 387–423.
<https://doi.org/10.1177/0042085914525789>
- Latshaw, B. A. (2011). Is fatherhood a full-time job? mixed methods insights into measuring stay-at-home fatherhood. *Fathering: A Journal of Theory, Research, and Practice about Men as Fathers*, 9(2), 125–149. <https://doi.org/10.3149/fth.0902.125>
- Norman, H., & Elliot, M. (2015). Measuring paternal involvement in childcare and housework. *Sociological Research Online*, 20(2), 40–57. <https://doi.org/10.5153/sro.3590>
- Qualter, P., Dacre Pool, L., Gardner, K., & Wols, A. (2015). The emotional self-efficacy scale emotional intelligence and attentional processing of emotion. Article in *Journal of Psychoeducational Assessment*. <https://doi.org/10.1177/0734282914550383>
- Tam, K.-P. (2013). Dispositional empathy with nature. *Journal of Environmental Psychology*, 35, 92–104. <https://doi.org/10.1016/j.jenvp.2013.05.004>
- Tan, T. (2016). Literature review on shifting fatherhood. *Journal of Identity and Culture*, 6, 53–78. <https://dergipark.org.tr/en/download/article-file/332055>
- Volker, J., & Gibson, C. (2014). Paternal involvement: A review of the factors influencing father involvement and outcomes. <https://joss.tcnj.edu/wp-content/uploads/sites/176/2014/04/2014-Volker.pdf>

Volume 5

Article 15

Summer 2022

Wives Who Stay: A Grounded Theory Study on Infidelity

Gillian Little and Nichole Sandell

Lee University

Under the guidance of Julie Gardenhire, Ph.D., and Kirstee Williams, Ph.D.

Abstract

For many years, research has focused on the detrimental impact of infidelity on spousal relationships; however, minimal research has focused specifically on wives who choose to reconcile with their spouses post-discovery of the betrayal. The purpose of this study was to examine the wounded wife's experience of infidelity as well as the process of reconciliation in order to facilitate a better understanding of the post-infidelity experience as a whole. Answers to a series of open-ended questions, collected over Zoom interviews or open-ended surveys were analyzed using grounded theory methodology to form a process model of the wife's discovery of an affair. Researchers quested to uncover the experiences associated with infidelity, the process of reconciliation, and the post-infidelity experience. The findings are illustrated in the process model and include the following experiences and emotional themes: discovering that their husbands have engaged in online affairs, having symptoms of PTSD, anxiety, depression, and developing a new sense of identity post-infidelity. The findings are divided into two main themes - the discovery of the affair and post-infidelity experiences for the betrayed wives. The discovery of the affair was characterized by the following: 1) the wife's feelings, both positive and negative emotions; 2) the husband's behavior, both positive and negative; and 3) the wife's loss of meaning. The post-infidelity experience included both positive and negative changes, the loss of trust, the wife forming a new identity, and the keys to marriage reconciliation.

Keywords: infidelity, wife, reconciliation, post-infidelity experience, grounded theory

Wives Who Stay: A Grounded Theory Study on Infidelity

Introduction

Infidelity is a serious issue that may have significant repercussions for couples. Numerous definitions of infidelity can make it difficult to have a clear, concise understanding of what infidelity entails; however, much previous literature describes this phenomenon as a breach of expectations surrounding sexual exclusivity (Blow and Hartnett, 2005). According to the General Social Survey (GSS), approximately 20% of men and 13% of women reported having sexual intercourse with someone other than their spouse while married (National Opinion Research Center, 2016). However, other research suggests that infidelity expands beyond sexual intercourse to include a variety of sexual behaviors, emotional affairs, and internet infidelity (Blow and Hartnett, 2005; Glass, 1985). This expanded view on infidelity is important to note, especially for betrayed women. Research suggests that women commonly consider any acute, emotional involvement with a third party outside of a monogamous relationship to be a commitment breach (Scheeren et al., 2018). Furthermore, in some cases, emotional infidelity may be more distressing than sexual infidelity for women (Cann et al., 2010). Additionally, extramarital involvement occurring online may be just as detrimental to marriages as those occurring offline (Cravens et al., 2013). Since distress may follow various types of relationship betrayal, it is not surprising that infidelity may be the most common reason for divorce (Coop et al., 2020; Fincham & May, 2017). Due to the prevalence of infidelity and its detrimental effects on relationships, there is a need for research to better understand experiences surrounding infidelity and reconciliation.

Causes and Predictors of Infidelity

Previous research identifies factors that may contribute to infidelity. For example, relationship dynamics may play an important role. Previous research suggests that relationships perceived by spouses to be low in quality, happiness, and satisfaction may be associated with a greater risk for extramarital affairs (Mark et al., 2011). Furthermore, lower perceived relationship quality may be linked with less frequent, meaningful intercourse, which in turn may lead partners to seek, or fantasize about opportunities for extramarital sex (Thompson, 1983).

Factors beyond romantic relationship dynamics may contribute to infidelity as well. For

example, lower moral principles may also be a contributing factor. Furthermore, poor mental health, depression, anxiety, PTSD, low self-confidence, financial struggles, or poor communication/life skills may be linked with infidelity (Khorramabadi et al., 2019; Tajbakhsh, 2021). Some research aims to identify a profile or specific traits associated with engagement in extramarital relations, such as a lack of capacity for goal-setting, self-confidence, spousal support, self-control, and emotional maturity (Bashirpour et al., 2020).

The Internet may play an important role in relationship betrayal for many couples. Previous research suggests that Internet infidelity may be distressing and harmful to the couple's relationship. Nguyen (2022) found that pornography use may correlate with betrayed partners' experience of lower levels of commitment and higher levels of depressive symptoms. Cravens et al. (2014) found that betrayed partners may experience a loss of trust in their relationship, shock, jealousy, embarrassment, and anger following the discovery of Facebook infidelity. Internet infidelity is a relatively new phenomenon and previous research seeks to identify online behaviors linked with betrayal. The opportunity to fabricate illusion may be associated with Internet infidelity. Stewart and Clayton (2022) found photo manipulation on Instagram to be linked with infidelity and relationship dissolution. Furthermore, virtual interactions, a shadow of traditional interactions, may not be as fulfilling. Social media platforms may facilitate superficial friendships, leading to poor mental and emotional health (Amedie, 2015). Additionally, traversing a fantasy world where members present their ideal selves may lead to a lower perceived quality of life. The relationship between social media, both poor mental health, and the overall perception of quality of life may be linked with unfaithful behaviors (Bashirpour et al., 2020). On a practical note, time spent online may detract from the time the couple may spend together (Amedie, 2015).

Impact and Effects of Infidelity

Infidelity can be incredibly distressing, especially for the betrayed partner. Research suggests that infidelity can be classified as a form of trauma, specifically referred to as betrayal trauma (Öztürk & Erdoğan, 2021; Warach & Josephs, 2021). Betrayal trauma is described in the literature as a form of trauma in which trusted individuals or institutions violate or cause harm (Freyd, 1996). Survivors of betrayal trauma often experience symptoms of Post-Traumatic Stress

Disorder (PTSD) following a traumatic event (Öztürk & Erdoğan, 2021; Warach & Josephs, 2021). Victims of infidelity may suffer from a variety of PTSD symptoms including obsessive rumination, hyper-arousal, elevated anxiety, flashbacks and/or intrusive images of the infidelity, emotional numbness, and depression, both immediately following and, in some cases, long after the infidelity (Warach & Josephs, 2021). Victims of infidelity may also experience a shift in perspective. For example, Öztürk & Erdoğan suggest that some survivors of infidelity develop a dyadic view of their life, categorizing life as before and after the betrayal trauma (2021).

Multiple studies suggest that infidelity may lead to a variety of negative outcomes, both psychological and physical (Seyed et al., 2022; Whisman, 2016; Yaghoobi Tourki et al., 2022). According to Whisman, the discovery of a partner's affair may be linked with a higher prevalence of Major Depressive Episode (MDE) (2016). Additionally, victims of infidelity may experience an array of psychological symptoms including frustration, shock and denial, anger and hatred, anxiety and rumination, cognitive errors, negative emotions, and sleep disorders. Victims of infidelity may experience negative physical symptoms as well (Yaghoobi Tourki et al., 2022). More specifically, the distress surrounding infidelity may influence the victim's sleep, exercise, diet, substance use, and healthcare utilization, which may contribute to disease, longevity, and quality of life (Shrout, 2021).

Reconciliation and Healing Process

Much research examining reconciliation following marital infidelity is lacking; however, limited research suggests that effort from both partners is crucial for successful reconciliation (Côté et al., 2021; Woodyatt et al., 2022). Additionally, forgiveness may be an important component of reconciliation; however, arriving at a place to offer forgiveness may require a complex journey. Forgiveness following infidelity may be a non-linear process requiring substantial effort from both partners. Furthermore, the capacity to tolerate stress may be crucial in the forgiveness process for both the injured partner and the transgressor (Côté et al., 2021).

Moral repair may play an important role in reconciliation following infidelity. Moral repair is described in the literature as a process that explores the ethical and moral psychology of responses to misconduct (Walker, 2006). Moral repair consists of three principles: 1) coengagement, which refers to the couple's need to engage with one another in the process of

reflection and emotional labor; 2) coevocation, which refers to the couple's need to evoke and respond to behaviors in one another; and 3) coconstruction, which refers to the need for both partners to be involved in the process of shaping their social environment (Woodyatt et al., 2022). Forgiveness may be an integral element of moral repair following interpersonal transgressions (Woodyatt et al., 2022).

Previous research also seeks to identify positive characteristics linked with relationships that remain faithful. Commitment, loyalty, forgiveness, and patience may be vital for the genesis of a healthy, lengthy marriage (Bashirpour et al., 2020).

Therapeutic treatment for couples following infidelity may provide support for reconciliation. Research highlights effective modalities for treating betrayal trauma including Emotionally Focused Therapy (EFT) and Eye Movement Desensitization and Reprocessing (EMDR) (Linder et al., 2021). Research also highlights the Relational Justice Approach (RJA), a method for treating infidelity by taking into account the couple's socio-emotional influences and examining power imbalances within the relationship (Williams, 2011). Although these therapeutic approaches may be effective in helping couples heal following a relationship breach, more research is needed to better understand the reconciliation process's experiences in order to better support clinicians working with this population.

Purpose of Study

While extensive research exists on romantic betrayals and therapeutic treatment for the wounded parties, limited research has specifically examined the experiences of betrayed women who choose to reconcile with their partners. The purpose of this study is to address this research gap by examining betrayed women's experiences surrounding infidelity and reconciliation, the effects of infidelity on women, as well as the process of reconciliation and healing for wounded, female partners. More specifically, this grounded theory study sought to elicit information surrounding emotional and psychological experiences common for women in the aftermath of infidelity as well as the post-infidelity reconciliation process.

Methods

Constructivist Grounded Theory

Constructivist grounded theory methodology was used in this study to better understand the impact of infidelity on women and their process of reconciliation. Grounded theory methodology is used to inductively build theories from the data through an iterative process in which the researchers weave back and forth through the data to develop a theory. This process allows researchers to develop theories grounded in the data as opposed to examining data using preexisting ideas (Charmaz, 2014). Our goal was to develop an explanatory theory describing the basic social process surrounding relationship reconciliation for women (Starks & Brown Trinidad, 2007). Constructivist grounded theory is an appropriate methodological approach since, to our knowledge, no current theory exists for understanding the specific phenomenon of betrayed women who choose to stay with their partner following a commitment breach (Charmaz, 2014; Corbin & Strauss, 2008; EchevarriaDoan & Tubbs, 2005).

Researcher Reflexivity

The constructivist grounded theory methodology recognizes the potential influence of the researcher on the research process (Charmaz, 2014). Researcher reflexivity necessitates researchers to recognize any relationships to the studied topic or biases that may influence the research process (Charmaz, 2014; D'Aniello & Fife, 2017). The first two authors in this study are undergraduate psychology students. One of the primary authors has a specific interest in studying infidelity due to her personal experience with her husband's infidelity and reconciliation. The other primary researcher, as well as her family, has also been directly impacted by infidelity. The other two authors are both university professors and licensed marriage and family therapists. Their understanding of the data is influenced by their training in systems theory, which provides a specific lens for understanding infidelity and reconciliation within the social context. The third author has close friends and family impacted by infidelity, and has worked with couples clinically who have experienced infidelity. The fourth author has published previous research on infidelity and has specialized in providing clinical services specifically to couples who have experienced infidelity. Throughout the research, the authors maintained awareness of personal interests, conflicts, and potential biases and upheld a commitment to a diligent process of analysis that aimed to remain true to the accounts and experiences of the research participants. The authors used memos during the analysis to

document thoughts and ideas about the data, and to record reflections, potential connections, their own experiences, and preconceived ideas about infidelity. The authors discussed their memos as a team to prevent inadvertently forcing the analysis to fit any preconceived ideas.

Sampling and Participants

The participants for this study were recruited from a variety of online support groups and forums. There were a total of 10 participants, all women who were wounded by infidelity and working toward reconciliation with their partners. Each participant completed an interview, either via email or with a researcher via the Zoom platform. Each participant was given an identification number for use in the analysis process, and each interview was transcribed. All participants were asked the same series of questions, which are included in Appendix A.

Ethical Considerations

This study was approved by a university institutional review board. It was considered an exempt study because the data was recorded in such a way that the participants could not be identified and the participant's responses did not place the participant at risk of criminal or civil liability, damaged financial standing, or damaged reputation. All participants participated voluntarily and were allowed to drop out of the study or choose not to answer an interview question at any given time. In addition, all participants signed a consent form and were provided details on how their responses would be handled and analyzed.

Analytical Process

For this study, we used the constructivist grounded theory methodology as detailed by Charmaz (2014). The analysis was executed through several stages: initial coding, focused coding, and categorization. We used a recursive process of continual comparison of all the stages throughout the analysis to develop a substantial grounded theory (Charmaz, 2014). We began our analysis with initial coding in which we each independently analyzed the participants' accounts using line-by-line coding. After our independent analyses, we met as a team to review and discuss codes as well as to determine which codes were central to the research questions. Following our consensus on initial coding, we began the process of focus coding in which we

compared our initial codes with our data and identified patterns in the participants' responses. We then determined which codes best accounted for the data, and considered prominent themes. Next, we started the process of categorizing our codes into groups and subgroups and discussed how the groups and subgroups were related. As previously mentioned, coding continued in a recursive process until all interviews and coding were complete. Based on our code groups, subgroups, and prevailing themes, we created a model to depict the experience of being wounded by infidelity and the process of reconciliation, which is presented below.

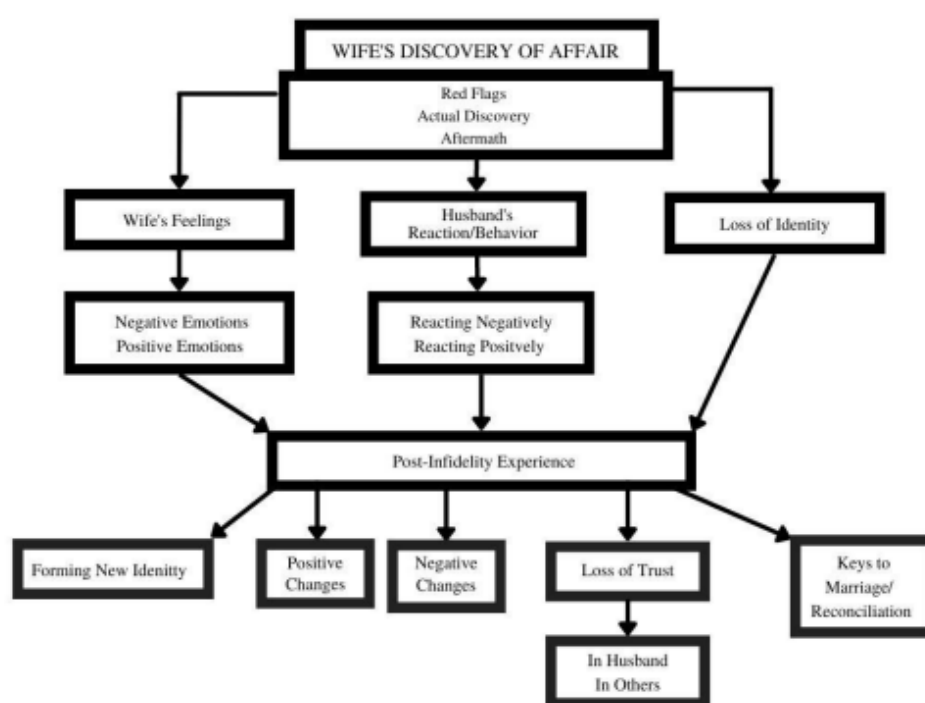


Figure 1: Experience Model

Results

The findings suggest that the wounded wives who experienced betrayal endured a series of emotions and experiences following the initial discovery of the affair. The wives' emotions and experiences, as well as their husbands' responses to being confronted, inevitably lead to a post-infidelity experience involving both changes to the marriage, as well as, the wife's sense of self. These experiences, shown in Fig. 1, are described below.

Wife's Discovery of Affair

The process of discovering the affair unfolded in a linear progression. Initially, there was a perceived change in the husband's personality or behavior, which served as a red flag indicating something was wrong. The wife's discovery of the affair typically followed the red flags and tended to occur either through the husband's confession or the wife's confrontation. Following the discovery of the affair, the participants experienced the initial aftermath. The initial aftermath included the wife's initial reactions, as well as, the initial reactions belonging to the husband, family, and friends. While these stages did not manifest precisely in the same manner, they were experienced by each participant and followed the same linear progression.

Red Flags

It is important to note that many of the participants did not recognize the red flags until retrospectively reflecting on changes in their husband's attitudes or behavior. The most commonly reported red flag was an increase in their husband's cell phone use. One wife reflected on her husband's increased cell phone use: "You know, in the moment, the only thing that I noticed was he was just on his phone all the time. And I never, I never suspected an affair." Another commonly reported red flag was changes in work schedule, especially an increase in hours worked. Additionally, there was often a decrease in quality, one-on-one time for the couple. One wife recollected her husband's increased workload:

"At the start of the year, January, he was picking up extra shifts with her all the time at work. I was feeling jealous, like every single weekend.... and he started canceling fun things that we had planned, like, we were supposed to go to a concert at the end of January."

Other red flags that participants mentioned included a lack of intimacy and catching their husband watching pornography.

Actual Discovery

The actual discovery of the affair occurred in a variety of ways for the participants. The most common experience was finding evidence of an affair on their partner's cellular device and/or smartwatch. One wife recalled the experience:

“I was standing in the kitchen with my husband and took his phone to look up directions to the cemetery. When I looked at the screen, I saw a thread of communication between him and another woman”.

Many of the wounded partners discovered that their husbands had engaged in an online affair, or had been seeking out affair partners through text and/or email. One wife shared that she “hacked his accounts” and found evidence of “calls and texts and snapchats”. The actual discovery also typically consisted of an eventual confession once the wife became suspicious of an affair and confronted the husband.

Aftermath

In the initial aftermath of the actual discovery, participants commonly reported receiving advice and support from their family and friends. Some participants reported receiving positive encouraging advice, while others reported receiving negative advice and pressure to leave their spouse. One woman described this experience:

“It was a mixed bag. A lot of friends were like, ‘Leave [him]. Take him for all he's worth!’ You know, all that really negative stuff. Then other friends and family were just concerned about me. And, ‘take the time you need, what can I do?’ Fortunately, I listened to the ones that felt more loving.”

Another commonly reported factor in the initial aftermath of the discovery was the effect that the infidelity had on the participant’s family and friends. One participant noted that her “kids got caught in the middle of it,” and other participants reported the effect it had on their parents’ and friends’ opinions of the marriage as a whole.

A less frequently reported factor in the initial aftermath was the separation of the couple. In a few cases, the couple initially separated before later deciding to work towards reconciliation. One participant outlines her reasons for choosing that path:

“Initially, he left. He packed his stuff and moved out...then I learned about the fourth and the fifth [affairs]...that's when I knew something was wrong...it wasn't my idea that he was in love with someone...I thought, ‘there's something really wrong, and I want to figure out what's wrong’...And it was my curiosity...that kept me going”

Wife's Feelings

The participants reported a variety of both negative and positive emotions surrounding the discovery of the affair and the journey towards reconciliation. Negative emotions accompanied the discovery of the affair; however, many of the participants described experiencing positive emotional experiences once they worked through their initial shock and heartache. The details of these emotional responses are discussed below.

Negative Emotions

Understandably, the women in this study reported feeling a variety of negative emotions throughout their experience with infidelity. The most prevalent emotions were depression and devastation. One participant discusses this:

“I was devastated, gut wrenchingly devastated as we were married for 22 years at the time, my soul was destroyed. Emotionally I was all over the place.”

While every participant reported feeling depression and devastation, a few participants also described a desire and a sense of desperation for closeness with their husbands. One participant chronicled her array of emotional experiences: “I went from sobbing, to having insomnia, poor concentration, feeling blocked emotionally, to begging him to stay and be with me.”

Additionally, many women reported blaming themselves. They went through periods of questioning themselves and wondering what they could have done differently to prevent the infidelity. One participant detailed her feelings of self-blame:

“[I felt] a lot of ‘what did I do to cause this? You know, ‘what, what did I do wrong?’ I always thought I was being the perfect wife. I always thought I was being the perfect mom. ‘What did I do? What did I do wrong? And why didn't you tell me I was doing something wrong?’”

Another commonly reported negative emotion was a feeling of being weak or lacking strength. Many of the women reported a struggle to recognize their strengths. One participant went so far as to say, “I feel like a weak woman now that all this has happened.” Participants also detailed feelings of disbelief that their husband was capable of having an affair. Additionally, they reported periods of overthinking and obsessing as well as feeling betrayed and violated. For instance, a participant stated:

“...I’m a lot more paranoid about whether he is doing something again behind my back. I find myself checking his things to see if there is evidence of more transgressions. During intimacy, it’s also different as I often think of him being with someone else...”

Most of the participants reported feeling all of the previously described negative emotions at some point following the discovery of the affair. However, several of the participants reported feeling many of these emotions at the same time. It was not unusual for the participants to feel a wide array of emotions at one time, especially during the actual discovery and initial aftermath.

Positive Emotions

Despite the difficulties the wounded partners reported following the affair discovery, many participants also expressed feeling hopeful for the future of their marriage. For instance, one participant reported that she “...remains hopeful that marriages can last with a lot of hard work by each partner”. Another participant stated she maintains the belief that her “marriage will be even stronger” in the coming years. Participants also reported feeling hopeful about their future ability to move forward. One participant described hope in how she perceives her future self:

“I see myself as an ever-improving superwoman. Still married to the man that broke my heart after working so hard to fix it... This future person has confidence and purpose”

Another common positive emotion that wounded partners described was a renewed, or newly developed, sense of empowerment within themselves and their marriage. Participants reported an improved ability to advocate for themselves and their emotional needs. For example, one participant described herself as having “the strength to express...feelings even if he doesn’t want to hear it”. Participants also describe positive development in their character as a result of infidelity. One participant detailed this newfound positive sense of self:

“I discovered a resilience that I didn't really know I had that much. I feel like I am a more real person, a more accepting person, a much more compassionate person...I don't judge...And I really appreciate that about myself...”

Husband’s Reaction/Behavior

Something that all of the participants disclosed was how their husband’s behavior impacted them throughout the reconciliation process. The husband’s reactions seemed to fall on

two opposite ends of the spectrum - either positive or negative. In other words, the participants reported actions and reactions from their husbands that were either drastically negative or drastically positive. The details of the spouse's negative and positive actions are discussed in depth below.

Reacting Negatively

Husbands' negative actions reported by their wives included gaslighting, trying to switch blame back onto the wife, refusing therapy, and continuing to act secretively. In these cases, the husband did not take responsibility for their actions or make an effort to heal the damage in the marriage, even though many of these husbands communicated they did not want to separate or divorce. A common reaction that many women reported, especially in the stage where they began to notice red flags, was gaslighting. Gaslighting is described in the literature as a form of manipulation that can cause the recipient to question and doubt themselves or their sanity (Psychology Today, 2022). One participant reported:

“I just had weird feelings and he also seemed to be on his phone a lot and go out to the garage to smoke and be gone a long time and he also would say I was spying on him by looking for when he was in the house.”

Even though the participant's suspicions and “weird feelings” were justified, her spouse made her feel as if she was spying too much or being too paranoid. Similar to gaslighting, another commonly reported negative reaction involved placing the blame on the wife. One wife described how she was blamed:

“He told me I was not pretty, nor was he attracted to me anymore. I have a history of Major Depressive Disorder, and he told me that if I were to ever try to commit suicide, he would not stop me.”

Other less commonly reported reactions included: refusing therapy or attempts at reconciliation, continuing to act secretively (e.g. locking and hiding their phone), lying about where they were going, and changing social media passwords and settings.

Reacting Positively

Positive reactions included taking responsibility, attending therapy, and changing

behavior. Many of the participants reported that their husbands were willing to go to marriage therapy, and were devoted to trying to change their behavior to facilitate healing within the marriage. One participant shared:

“He had to be willing to change, not me. He has attended individual therapy, SA group, couples therapy with a specialist in sex addiction, and taken a lie detector test.”

Participants reported that their husbands' positive actions and behavior changes were influential in experiencing healing and reconciliation.

Loss of Identity

Many of the wounded partners reported feeling a loss of their previous identity in the wake of the affair experience. Various perceived positive traits that they reportedly had prior to the infidelity were lost in the post-infidelity experience due to a growing desire to maintain their husband's interest. For instance, one participant stated she “tried to change” herself “to his liking”. Other participants noted a change in their overall demeanor after their distressing experience of betrayal. A participant noted:

“Before the infidelity, I was just very, very secure. Happy, confident, sure of myself, sure that I could make things right...just very trusting...After the infidelity, in the short run, I became pretty cynical...And then I thought ‘that is not who I am’. I am not a distrustful, cynical person”.

This dissociation from their pre-infidelity identity was shown to have been brought on by a loss of contentment in simply being “wife”. For example, one participant shared that after discovering her husband's affair she had “lost her identity for a second time” because she could no longer remain content with “having that identity of being his wife”.

Post-Infidelity Experience

While many aspects of the infidelity experience occurred immediately after the discovery, many of the participants also had long-term post-infidelity experiences. Throughout the process of reconciliation and healing, the participants' lives and senses of self seemed to change and evolve. During this process, most of them women began forming a new identity in place of the one they felt they had lost after the discovery of the infidelity. The new identity that the women

developed seemed to be more internally founded rather than reliant on their husbands.

Additionally, as the women shared their long-term changes following the infidelity, both positive and negative, there was an emphasis on the persistent theme of losing trust. Finally, many of the participants revealed what they believed to be the keys to reconciliation and healing with their spouses.

Forming a New Identity

Findings revealed that many of the participants experienced the formation of a new identity resulting from infidelity and the experiences associated with it. Participants noted a desire to develop a new sense of self apart from being a wife. Many described this formation in terms of taking more time to invest in their own well-being and themselves outside of their marriage relationship. One participant stated, “I learned that I need to put me first”. Another participant advises other victims of infidelity:

“Do the best you can and take your time. Realize that your life is much more than just that relationship. Even if the other person won’t get help, get it for yourself. Take care of yourself.”

Other participants engaged in the formation of a new identity by exploring new coping mechanisms and hobbies in order to move past the infidelity experience and become a new being. In other words, this exploration of a new identity apart from their marriage was heavily impacted by the work done introspectively. One shared commonality among the participants was a positive therapeutic experience that led to new insights and changes in their previous traits. For instance, one participant shared:

“...we saw a marriage therapist...Their influence was mostly to have me give myself grace, to give myself time to process this, to not rush making decisions, and just to take care of my nervous system.”

Another common aspect of this identity genesis was the sense of empowerment the wounded partners could find due to their new sense of self. One participant reported, “...it has become easier for me to express my feelings since all of it happened because I feel like I am entitled to saying what I need to say”. Some of the women were even able to regain an active role and participation in their marital responsibilities. A participant noted, “He let me take over all of our

finances”.

Positive Changes Post-Infidelity

Despite the devastation that infidelity can cause, the participants still reported many positive changes that occurred as a result of their experiences. The most common positive change that was reported was participants discovering their own strength and resilience. The ability to persist through such a difficult event revealed an inner strength that many of the women didn't realize they had prior to the infidelity. One participant stated:

“I discovered a resilience that I didn't really know I had that much. I feel like I am a more real person, a more accepting person, a much more compassionate person.”

Another positive change that was commonly reported was the ability to set and honor boundaries as well as wounded spouses being able to put themselves and their needs first rather than neglecting their needs for the sake of pleasing others. One participant reported:

“I have got a lot more boundaries around myself and what I need and what I want and what I deserve. So, I'm just more upfront, and I am less of a people pleaser, and less concerned about trying to make other people happy.”

Additional positive changes that were frequently reported include gaining a new understanding of infidelity, understanding more about their spouses through the reconciliation process, and developing an internally founded positive self-esteem as opposed to self-esteem that was reliant on the approval or acceptance of others.

Negative Changes Post-Infidelity

Results showed an onset of extensive, and potentially life-altering, negative changes, and losses following the infidelity experience. Participants reported experiencing symptoms of a variety of mental health disorders, including anxiety, depression, and post-traumatic stress. One participant shared “I worry a lot, and I overthink a lot. I am on antidepressants now”. Another reports “...I struggle daily with varied levels of severity...About 3 weeks ago I was suicidal but managed to fight”. Others even noted a decline in physical health as well as mental health. A participant describes this experience:

“...I've had to wear a heart monitor for extreme stress, I've had to increase medicines,

depression medicines, migraine medicine, I'm not sleeping, I'm definitely overeating. I wasn't eating in the beginning, I was throwing up...I have carotid aneurysms and dissections that have grown...because of the extreme stress.”

Further negative changes include a decline in self-esteem and an increase in upward comparison.

One participant revealed:

“I cannot stop following these women online...I'm more or less comparing myself to them. Why can't I be like them so he likes me instead of them? I lack confidence and have a low self esteem...”

Wounded partners also reported struggles with ruminating and intrusive thoughts about their husbands and the infidelity experience. Many participants described the inability to engage in day-to-day activities without negative thoughts or feelings despite already working towards reconciliation with the husband. One participant noted that one of her greatest struggles post-reconciliation is “not being able to ever stop thinking about it”. Another participant writes:

“...on the days when I am really struggling I get paranoid. I wonder if my husband is lying to me or cheating on me, and I can't stop thinking about the infidelity.”

Feelings of paranoia and suspicion about the husband's actions and/or whereabouts showed to be common among participants as well. One describes feeling intensely “uncomfortable when he is away” and “suspicious that something is going on”. Another participant even reported feeling that she has become less trustworthy since the infidelity due to the overwhelming urge to discreetly monitor her husband's actions. This participant noted:

“ ...I am not as trusting as I used to be. I am also not as trustworthy. I have had to learn how to be sneaky so that I can make sure he's not lying to me again, and I don't like that. It has made me sneaky...”

Wife Losing Trust

All of the participants reported a loss of trust. While still a negative post-infidelity experience, the pattern of the wounded spouse losing trust was such a prevalent theme that it needed to be addressed independently. In many cases, the loss of trust experienced by the wives was not just toward their spouses; it also extended to others in their life. The participants' loss of trust in their husbands was often accompanied by actions of supervision and surveillance of their

husbands as well as feelings of paranoia. The experiences surrounding the participants' loss of trust are detailed below.

In Others

Results suggest that the infidelity brought a new sense of distrust, not only in the husband but also in others. Participants reported feeling strongly that if the person closest to them could betray them, then others could certainly do the same. This led them to ultimately determine that others were no longer worthy of their trust. For instance, several of the women emphasized their distrust by stating, "you cannot trust others, even those that you think will never hurt you" and "you can't truly trust anyone". One participant further highlighted her distrust of others:

"...he was the perfect husband...So if I can't trust him, there's not another spouse in the world who could be trusted...and same thing with my best friend, if you can't trust those people...do you even trust another single person in the world?"

In Husband

Results indicated that the betrayal the participants felt from their spouse's infidelity led to a loss of trust in their husband. Every participant reported this loss of trust, with many also indicating they still struggle with feelings of paranoia and have installed tracking devices on their husbands' phones and computers. One participant reported:

"[The doctor] told me about a way that I could track my husband, which I have a lot of tracks on him right now. Some that he knows about, and some that he doesn't. But because in my mind, I'm thinking if he's willing to cheat and lie to me, then you know, if he knows that the track is there, then he can do something to change that, you know, turn off his phone or whatever."

In addition to the participants not trusting their husband's actions or whereabouts, they also reported feeling a loss of trust in their husbands' words and efforts to reconcile. Many of the wives reported they had trouble trusting when their husbands expressed "I love you."

Keys to Marriage/Reconciliation

The most commonly reported factor that was reported as vital to reconciliation was hard work from both partners. Both the participant and their spouse had to be willing to work towards reconciliation, and the adulterous spouse had to be willing to take accountability for their actions.

This was important in both personal lives and in marriage therapy.

Marriage therapy was another commonly reported necessary factor in reconciliation. In addition to the willingness of both spouses to work towards reconciliation, many women emphasized that therapy was imperative for guiding them in how to do the work and what that work entailed. One participant noted, “We needed our therapists. You know, we needed all of those people who would ask the right questions, and give us the right books.”

Other reported important factors for reconciliation included communication, honesty, the ability to listen, and the ability to be curious without pointing the finger or placing blame.

Discussion

This study explored women’s experiences of being wounded by infidelity as well as the process of reconciliation following this event. For the participants in this study, the experience of being wounded by infidelity was characterized by a rise in depressive symptoms, anxiety symptoms, PTSD symptoms, and, in some cases, substance use. These findings support previous research suggesting that negative emotional experiences, a rise in mental illness symptomatology, and declines in physical health are common in the aftermath of infidelity (Öztürk & Erdoğan, 2021; Shrout, 2021; Whisman, 2016; Yaghoobi Tourki et al., 2022). However, findings from this study differ from previous literature in that they highlight specific positive long-term post-infidelity experiences, including a new identity formation and the development of a sense of empowerment.

A common theme that frequently emerges in literature is the importance of a willingness from both partners to work towards a happy, healthy marriage (Côté et al., 2021; Woodyatt et al., 2022). Our findings support previous research by highlighting the importance of effort from both partners towards reconciliation. Additionally, our findings suggest that the unfaithful partner’s willingness to take accountability and willingness to change played an important role in the reconciliation process. Furthermore, participants in our study reported healthier relationship dynamics and more ease in healing and redeveloping trust in cases in which the spouse participated in therapy, was honest about his actions, and accepted his wife’s need for frequent reassurance.

Reflective of previous research on Internet infidelity (Boroon et al., 2021; Cravens et al.,

2013; Nessaibia et al., 2022), our sample experienced a high prevalence of online betrayals. Most of the participants found evidence of their husband's affairs online, or that their husbands had engaged in both in-person and online affairs. Participants described their partners as having online affairs via social media platforms, such as Instagram and Facebook, as well as using apps to covertly chat with affair partners without their spouses knowing. These findings propose questions about the impact of easy internet access on rates of infidelity and on the potential rise in opportunities to easily hide unfaithful behaviors.

Limitations

A limitation of this study is the relatively small sample size (N=10). While saturation was reached in this study, it is important to note that our sample lacked diversity, so our findings should not be generalized to the larger population. This is often the case for studies using grounded theory methodology (Charmaz, 2014). Due to the limitations of the sample size, our findings can be viewed as one representation of experiences for women surrounding infidelity and reconciliation, not as the only representation. This is congruent with the constructivist paradigm that guided this research. Despite these limitations, we believe the themes that emerged from this study may be beneficial in better understanding the experiences of women who have been wounded by infidelity and their experiences surrounding reconciliation.

Another limitation is that our biases and perspectives influenced the coding process. As researchers, we acknowledge that our individual paradigms influence our interpretation of the data to a certain extent. To address our biases, we followed several steps, discussed previously, to ensure that our findings were supported by the data and allowed the participants' voices to be heard (Charmaz, 2014).

Clinical Implications

Our research suggests that the women in our study experienced a variety of negative emotions and challenges as well as, in the long-term, some positive emotions, and outcomes. These findings outline the participants' emotions, outcomes, and challenges in detail. Clinicians working with individuals or couples wounded by infidelity can assess for themes represented in these research findings. This may help clinicians to better understand emotional experiences

surrounding infidelity and reconciliation, and to track clients' progress. Awareness of the themes represented in this research may help clinicians support clients in better understanding their own experiences and to consider what to expect moving forward. Furthermore, clinicians may be able to support clients in reaching positive long-term outcomes following betrayal including forming a new identity and developing a sense of empowerment within themselves.

Research Implications

Future research could benefit from examining the experience of infidelity and reconciliation in diverse populations, especially surrounding ethnicity, gender, gender identity, sexual orientation, and socio-economic status. Furthermore, quantitative research could examine themes that emerged in this study on a much larger scale so findings could be generalized to the larger population. Additionally, extensive research examines the negative aspects of the post-infidelity experience, including the development of PTSD and depression; however, future research could examine positive long-term aspects of the infidelity experience, including identity formation post-infidelity as well as the process of developing a sense of independence or empowerment.

Conclusion

The process of discovery, reconciliation, and post-infidelity are shown in the following five main sections depicted by the process model: Wife's discovery of the affair, wife's feelings, husband's reaction/behavior, loss of identity, and post-infidelity experience. Each of the five phases is integral in the experience of being wounded by infidelity and in the process of reconciliation. Although each participant's story and experience with infidelity are different, many of the stories share common experiences and emotional themes. Common themes include finding evidence on their spouse's phone, having residual symptoms of PTSD, and finding a new sense of personal identity. Our hope is that the results from this study will help clinicians to better understand a woman's experience of being wounded by infidelity and what the process of reconciliation following infidelity may entail.

References

- Amedie, J. (2015). The impact of social media on society.
https://scholarcommons.scu.edu/engl_176/2
- Bashirpour, M., Shafi'abadi, A., & Doukaneifard, F. (2020). Factors affecting the tendency to marital infidelity: A grounded theory study. *Journal of Qualitative Research in Health Sciences*, 8(4), 16-27.
- Blow, A. J., & Hartnett, K. (2005). Infidelity in committed relationships I: A methodological review. *Journal of marital and family therapy*, 31(2), 183-216.
<https://doi.org/10.1111/j.1752-0606.2005.tb01555.x>
- Boroon, L., Abedin, B., & Erfani, E. (2021). The Dark Side of Using Online Social Networks: A Review of Individuals' Negative Experiences. *Journal of Global Information Management (JGIM)*, 29(6), 1-21.
- Cann, A., Mangum, J. L., & Wells, M. (2001). Distress in response to relationship infidelity: The roles of gender and attitudes about relationships. *Journal of Sex Research*, 38(3), 185-190. <https://doi.org/10.1080/00224490109552087>
- Charmaz, K. (2014). *Constructing grounded theory: A practical guide through qualitative analysis* (2nd ed.). Thousand Oaks, CA: Sage.
- Coop Gordon, K., & Mitchell, E. A. (2020). Infidelity in the Time of COVID-19. *Family process*, 59(3), 956-966. <https://doi.org/10.1111/famp.12576>
- Corbin, J., & Strauss, A. (2008). *Strategies for qualitative data analysis. Basics of Qualitative Research. Techniques and procedures for developing grounded theory*, 3(10.4135), 9781452230153.
- Côté, M., Tremblay, J., & Dufour, M. (2021). What Is Known about the Forgiveness Process and Couple Therapy in Adults Having Experienced Serious Relational Transgression? A Scoping Review. *Journal of Couple & Relationship Therapy*, 1-26.
<https://doi.org/10.1080/15332691.2021.1939216>
- Cravens, J. D., Leckie, K. R., & Whiting, J. B. (2013). Facebook infidelity: When poking becomes problematic. *Contemporary Family Therapy*, 35(1), 74-90. DOI 10.1007/s10591-012-9231-5
- D'Aniello, C., & Fife, S. T. (2017). Common factors role in accredited MFT training programs.

- Journal of Marital and Family Therapy, 43, 591–604. doi:10.1111/jmft.12218
- Echevarria-Doan, S., & Tubbs, C. Y. (2005). Let's get grounded: Family therapy research and grounded theory. *Research methods in family therapy*, 2, 41-62. New York: Guilford Press.
- Fincham, F. D., & May, R. W. (2017). Infidelity in romantic relationships. *Current opinion in psychology*, 13, 70-74. <https://doi.org/10.1016/j.copsyc.2016.03.008>
- Freyd, J. J. (1996). *Betrayal trauma: The logic of forgetting childhood abuse*. Harvard University Press
- Glass, S. P., & Wright, T. L. (1985). Sex differences in type of extramarital involvement and marital dissatisfaction. *Sex Roles*, 12(9), 1101-1120.
- Glen, S. (2021, September 4). Grounded theory: Simple definition and examples. *Statistics How To*. Retrieved August 6, 2022, from <https://www.statisticshowto.com/grounded-theory/>
- Khorramabadi, R., Sepehri Shamloo, Z., Salehi Fadardi, J., & Bigdeli, I. (2019). Prediction of Extramarital Relationships Based on Executive Functions With the Mediatory Role of Marital Commitment. *Practice in Clinical Psychology*, 7(2), 147-157. doi10.32598/jpcp.7.2.147
- Linder, J. N., Niño, A., Negash, S., & Espinoza, S. (2021). Integrating EMDR and EFT to treat trauma in couple therapy: A literature review. *International Journal of Systemic Therapy*, 32(4), 251-272. <https://doi.org/10.1080/2692398X.2021.1954862>
- Mark, K. P., Janssen, E., & Milhausen, R. R. (2011). Infidelity in heterosexual couples: Demographic, interpersonal, and personality-related predictors of extradyadic sex. *Archives of sexual behavior*, 40(5), 971-982. DOI 10.1007/s10508-011-9771-z
- National Opinion Research Center. (2016). *General Social Survey, 2010*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. <https://doi.org/10.3886/ICPSR35331.v3>
- Nessaibia, I., Sage, R., Atwood, L., Bouslama, Z., Cocci, L., Merad, T., & Tahraoui, A. (2022). The way COVID-19 transforms our sexual lives. *International Journal of Impotence Research*, 34(2), 117-119.
- Nguyen, V. (2022). The Perception of Partner's Pornography Use as a Betrayal: The Role of Trust, Investment, Commitment, and Forgiveness.

- Odebode, A. A., & Adegunju, K. A. (2022). Causes of Infidelity as Expressed by Literate Working-Class Women in Lagos State, Nigeria. *Canadian Journal of Family and Youth/Le Journal Canadien de Famille et de la Jeunesse*, 14(3), 211-222.
<https://doi.org/10.29173/cjfy29799>
- Öztürk, E. R. D. İ. N. Ç., & Erdoğan, B. (2021). Betrayal trauma, dissociative experiences and dysfunctional family dynamics: Flashbacks, self-harming behaviors and suicide attempts in post-traumatic stress disorder and dissociative disorders. *Medicine Science*, 10(4). doi: 10.5455/medscience.2021.10.342
- Scheeren, P., Apellániz, I. D. A. M. D., & Wagner, A. (2018). Marital infidelity: The experience of men and women. *Trends in Psychology*, 26, 355-369. DOI: 10.9788/TP2018.1-14En
- Seyed Aghamiri, F., Luetz, J. M., & Hills, K. (2022). Impacts of Sexual Addiction on Intimate Female Partners—The State of the Art. *Sexual Health & Compulsivity*, 1-37.
<https://doi.org/10.1080/26929953.2022.2050862>
- Shrout, M. R. (2021). The health consequences of stress in couples: a review and new integrated Dyadic Biobehavioral Stress Model. *Brain, Behavior, & Immunity-Health*, 16, 100328.
<https://doi.org/10.1016/j.bbih.2021.100328>
- Stewart, V. T., & Clayton, R. B. (2021). Achieving the ideal-self while harming my relationship: Examining associations between self-discrepancy, instagram photo manipulation, and romantic relationship outcomes. *Psychology of Popular Media*.
<https://doi.org/10.1037/ppm0000344>
- Thompson, A. P. (1983). Extramarital sex: A review of the research literature. *Journal of sex research*, 19(1), 1-22. <https://doi.org/10.1080/00224498309551166>
- Walker, M. U. (2008). Moral Repair: Reconstructing moral relations after wrongdoing. *Researchgate.Net*. Retrieved August 12, 2022, from
https://www.researchgate.net/publication/290520878_Moral_repair_Reconstructing_moral_relations_after_wrongdoing doi.org10.1017/CBO9780511618024
- Warach, B., & Josephs, L. (2021). The aftershocks of infidelity: a review of infidelity-based attachment trauma. *Sexual and Relationship Therapy*, 36(1), 68-90.
<https://doi.org/10.1080/14681994.2019.1577961>
- Whisman, M. A. (2016). Discovery of a partner affair and major depressive episode in a

probability sample of married or cohabiting adults. *Family Process*, 55(4), 713-723. doi: 10.1111/famp.12185

Williams K. (2011). A socio-emotional relational framework for infidelity: the relational justice approach. *Family process*, 50(4), 516–528.

<https://doi.org/10.1111/j.1545-5300.2011.01374.x>

Woodyatt, L., Wenzel, M., Okimoto, T. G., & Thai, M. (2022). Interpersonal transgressions and psychological loss: Understanding moral repair as dyadic, reciprocal, and interactionist.

Current Opinion in Psychology, 44, 7-11. <https://doi.org/10.1016/j.copsyc.2021.08.018>

Yaghoobi Tourki, M., Khodabakhshi-koolaei, A., & Falsafinejad, M. R. (2022). Psychological Reactions and the Process of Coping with Marital Infidelity in Couples: A Grounded

Theory Research. *Journal of Qualitative Research in Health Sciences*.

10.22062/JQR.2021.195198.1012

Appendix A

Initial Open-ended Questions

1. Tell me how you came to learn about your partner's infidelity.
2. When, if at all, did you first notice signs of secretive behavior with your spouse/partner?
3. What was it like? If you recall, what were you thinking then? How did you happen to react to the secrecy or infidelity? Who, if anyone, influenced your actions? Tell me about how he/she/they influenced you.
4. Could you describe the events that led up to the infidelity?
5. What contributed to the infidelity?
6. What was going on in your life then? How would you describe how you viewed your marriage/relationship before the infidelity happened? How, if at all, has your view of marriage/relationships changed?
7. How would you describe the person you were then?

Intermediate Questions

1. What, if anything, did you know about infidelity?
2. Could you tell me about your thoughts and feelings when you learned that your spouse/partner had cheated?
3. What happened next?
4. Who, if anyone, was involved? When was that? How were they involved?
5. If you recall, could you tell me about how you learned to handle the infidelity/betrayal?
6. How, if at all, have your thoughts and feelings about relationships/marriage changed since your past relationship?
7. What positive changes have occurred in your life since the infidelity?
8. What negative changes, if any, have occurred in your life since the infidelity?
9. Tell me how you go about coping with the infidelity. What do you do?
10. Could you describe a typical day for you when you feel that you are coping well with the infidelity? Now tell me about a typical day when you feel you are struggling to cope with the infidelity.
11. Would you tell me how you would describe the person you are now? What most

contributed to this change [or continuity]?

12. As you look back on the state of your marriage/relationship before the infidelity, are there any other events that stand out in your mind? Could you describe [each one] it? How did this event affect what happened? How did you respond to _____ [the event; the resulting situations]?

13. Could I ask you to describe the most important lessons you learned through experiencing infidelity?

14. Where do you see yourself in five years? Describe the person you hope to be then. How would you compare the person you hope to be and the person you see yourself as now?

15. What helps you to manage your thoughts, feelings, and actions about the infidelity? What problems might you encounter? Could you tell me the sources of these problems?

16. Who has been the most helpful to you during this time? What did _____ help you with? How has it been helpful?

Ending Questions

1. What do you think are the most important ways to respond to infidelity? How did you discover [or create] them? How has your experience before the infidelity affected how you handled your partner cheating?

2. Could you tell me about how your views [and/or actions] may have changed since you have experienced disloyalty from a spouse/partner?

3. How have you grown as a person since the infidelity? Tell me about the strengths that you discovered or developed through the infidelity. [If appropriate] What do you most value about yourself now? What do others most value in you?

4. After having these experiences, what advice would you give to someone who has just discovered that he or she has been cheated on by a spouse/partner?

5. Is there something that you might not have thought about before that occurred to you during this interview?

6. Is there something else you think I should know to understand infidelity, and the experiences associated, better?

7. Is there anything you would like to ask me?

Summer 2022

Daughter Zion as Holy Space: A Pentecostal Reading of Lamentations 1 and 2

Blake Long

Lee University

Under the guidance of Justin Walker, Ph.D.

Daughter Zion as Holy Space: A Pentecostal Reading of Lamentations 1 and 2

Blake Long

I. Introduction

For many decades, Pentecostals have worked to articulate what it means to read the Bible as a Pentecostal. This work to describe Pentecostal hermeneutics has not come without challenges because it is often difficult to define what constitutes a “Pentecostal.”⁶ Nonetheless, work has continued within Pentecostal circles to distinguish their unique identity as it relates to scriptural interpretation, thereby creating the flourishing subdiscipline of “Pentecostal hermeneutics.”⁷ In this essay, I will offer a Pentecostal reading of Lamentations 1–2 with specific emphasis on the figure of Daughter Zion. I will begin by establishing three guiding principles of Pentecostal Hermeneutics: namely, reading as experience (with God), reading with and for the Spirit, and reading as “being read” by the text. After this, I will employ these guiding assumptions as a lens by which to read Lamentations 1 and 2, with specific attention to the figure of Daughter Zion. I will argue that this distinctively Pentecostal approach highlights Daughter Zion’s theological significance as holy space, Spirit testimony, and the image of Christ.

⁶ See, e.g., Cheryl Bridges Johns, *Pentecostal Formation: A Pedagogy among the Oppressed* (Eugene, OR: Wipf & Stock, 2010), 63: “Pentecostals represent many denominations and a variety of theological beliefs. Among the movement’s adherents one can find Trinitarians and non-Trinitarians, those who practice adult baptism only and those who utilize infant and adult baptism. Not all Pentecostals speak in tongues, but none would forbid the practice. There are Catholic Pentecostals, Anglican Pentecostals and a host of separate Pentecostal denominations. There exists no worldwide Pentecostal organization which serves to unify all its adherents. Clearly it is difficult to identify theologically or sociologically Pentecostalism.”

⁷ There have been many recent publications Pentecostal and Spirit-filled hermeneutics. See, e.g., Lee Roy Martin, ed., *Pentecostal Hermeneutics: A Reader* (Leiden: Brill, 2013); Kenneth J. Archer, *A Pentecostal Hermeneutic: Spirit, Scripture, and Community* (Cleveland, TN: CPT Press, 2009); Craig S. Keener, *Spirit Hermeneutics: Reading Scripture in Light of Pentecost* (Grand Rapids: Eerdmans, 2017); Daniel D. Isgrigg, Martin W. Mittelstadt, and Rick Wadholm Jr., *Receiving Scripture in the Pentecostal Tradition: A Reception History* (Cleveland, TN: CPT Press, 2021); Philemon Leulseged, *Pneumatic Hermeneutics: The Role of the Holy Spirit in Theological Interpretation of Scripture* (Cleveland, TN: CPT Press, 2019); Larry R. McQueen, *Joel and the Spirit: The Cry of a Prophetic Hermeneutic* (Cleveland, TN: CPT Press, 2009); L. William Oliverio, *Pentecostal Hermeneutics in the Late Modern World* (Eugene, OR: Wipf and Stock, 2022); Rickie D. Moore, “Altar Hermeneutics: Reflections on Pentecostal Hermeneutics,” *Pneuma* 38 (2016): 148–59.

Ultimately, I will show the importance of a Pentecostal reading of Lamentations 1 and 2 and the significance of Daughter Zion in hopes of further expanding the Pentecostal interpretation of Old Testament texts.

II. Three Guiding Principles of Pentecostal Hermeneutics

A. Reading as/for Experience (with God)

We begin with a brief analysis of three guiding assumptions in Pentecostal hermeneutics literature.⁸ Though these assumptions may not necessarily prescribe a methodological process, they nevertheless articulate a set of dispositions and theological expectations that help capture what it means to read the Bible as a Pentecostal. The first of these assumptions is the Pentecostal emphasis on reading “as an encounter” and “an experience” with God. When talking about their approach to Scriptural texts, Pentecostal scholars frequently make reference to some “experience” that the Bible somehow hosts or fosters. The term “Pentecostal experience,” though variously explained, is not a foreign one for Spirit-filled believers.⁹ Regardless of how Pentecostals articulate or define this phenomenon, they consistently value experience as both the source and goal of a faithful reading of Scripture.¹⁰ As a result, they often present the relationship between religious experiences and Scriptural reading as mutually informative: the believer reads the text as one shaped by spiritual experiences, just as the biblical text forms the Pentecostal believer and facilitates further such “Pentecostal experiences.” There are two hermeneutical principles that complement this preference for experiential reading: (1) the

⁸ Though there are a range of hermeneutical dispositions and methods discussed by Pentecostal scholars, I have chosen to address three ideas that recur across the literature and that best apply to Lamentations.

⁹ It is often hard to define a “Pentecostal experience” because of the uniqueness of Pentecostalism. “All Christians have had some level of experience with God, but not all Christians share in some of the depths of experience and insight which have been a part of the modern Pentecostal movement. It is, therefore, difficult to describe an experience which is not held in common by all.” See Scott Ellington, “Pentecostalism and the Authority of Scripture,” in *Pentecostal Hermeneutics: A Reader*, 153.

¹⁰ Although an overarching Pentecostal experience is hard to define, it might be inferred that “Pentecostal experience” is synonymous with the experience of Spirit baptism or the initial evidence of tongues.

elimination of historical distance between the reader and biblical author and (2) the understanding of the biblical text as a “holy space.”

1. Becoming a Part of the Story

One of the distinct ways that Pentecostals interpret Scripture is through the metanarrative of the Bible. For the Pentecostal, a key point of interpretation is the value of seeing oneself within the broad history of God in the world. This is unique to Pentecostals because of their pneumatology: according to their high view of the Spirit, they see themselves as a part of the larger story of God’s redemptive plan precisely as they participate in the same Spirit that once inspired the texts and the events to which they bear witness. Cheryl Bridges Johns notes this in her discussion of the Bible as “Spirit-Word”: “This account of Scripture requires a pneumatology that covers the entire span of God’s actions in history.”¹¹ In light of this robust pneumatology, Pentecostals begin to read in a way that not only transcends human history but also bridges the expanse of time by the Spirit. The Spirit present in the text is the same Spirit that allows us to enter the communion of the saints and interpret the scriptures for a fresh encounter with God. This fresh encounter allows Pentecostals to view “the Bible as a single unified narrative of God’s redemptive plan.”¹²

Pentecostals can view themselves in this redemptive plan because of the marriage of Spirit and word in Pentecostal conception. As Pentecostals are brought into the story of the Bible, they experience or encounter not only the text but also the God to whom the text bears witness. The act of reading brings them into the text in such a manner that they “interpret

¹¹ Cheryl Bridges Johns, “Grieving, Brooding, Transforming,” in *Grieving, Brooding, Transforming* (Leiden: Brill, 2021), 14. The “Spirit-Word” represents the Pentecostal conception of Scripture’s marriage to the work of the Spirit. Johns explains, “[J]ust as Jesus could not minister apart from the work of the Spirit, so the Bible cannot speak apart from the work of the Spirit” (“Grieving, Brooding, Transforming,” 13).

¹² Lee Roy Martin, “Introduction to Pentecostal Biblical Hermeneutics,” in *Pentecostal Hermeneutics: A Reader*, 4.

Scripture by encounter more than exegesis.”¹³ According to Pentecostal theology, Scripture’s authority is thus located in its Spirit-empowered capacity to facilitate transformative experiences with the presence of God via the mediation of the text.¹⁴ Secondly, the text then provides the language by which Pentecostals justify and further explain their experiences to others. For Pentecostals, reading the text is not a past historical document for criticism; it is a locus for the present encounter with the Spirit. Historical confines do not bind Pentecostals to mere historical criticism or the discernment of the meaning “back then,” for they are brought into the text by the Holy Spirit who transcends time. This unique relationship with the text encourages a mode of reading that sees Scripture as a site of divine encounter as enabled by the power of the Spirit.

2. Reading as “Holy Space”

As a part of this experiential hermeneutic, Pentecostals often speak of the text as a “space” wherein the reader encounters God. In this textual space, God is immediately available to the believer, whom the Spirit comes and meets in a divine exchange. Once again, Pentecostal pneumatology looms large here, for it is the Spirit that enables communion between the reader, the biblical authors and communities, and God, as Cheryl Bridges Johns explains: “[T]he sacred space of the Bible reaches back in time to include those who were the first witnesses to the Word, as well as those who are now standing in the presence of that Word. It is thus a large, corporate space and not just an individual, existential one.”¹⁵ For the Pentecostal reader, the lack of historical distance between the text’s original composition and the reader allows the Bible to become a “holy space” for an encounter. Johns calls this a “sacramental space” that “offers the

¹³ Andrew Davies, “What Does It Mean to Read the Bible as a Pentecostal?” in *Pentecostal Hermeneutics: A Reader*, 254.

¹⁴ Davies, “What Does It Mean to Read the Bible as a Pentecostal,” 150.

¹⁵ Johns, “Grieving, Brooding, Transforming,” 15.

reader the real presence of the Triune God.”¹⁶ As the Pentecostal reads the Bible, the text becomes a physical space where the presence of God meets the reader. This holy space is open and free from the confines of time, forcing the Pentecostal to “re-envision the context for approaching Scripture and Scripture interpretation.”¹⁷ Rickie Moore notes the importance of viewing scripture this way by saying, “It is not just that Scripture needs to be drawn into the zone of sacred space, but also that Scripture itself needs to be recognized as a kind of sacred space that we are graciously invited to enter.”¹⁸ This radical view of experiencing God while reading scripture is of the utmost importance within Pentecostal scriptural interpretation. The ability to encounter the Holy Spirit in the sacred space of the text only further demonstrates the importance of experience and the Spirit’s work within Pentecostal Hermeneutics.

B. Reading with/for the Spirit

As I have noted above, reading for and as an experience with God hinges on the work of the Holy Spirit in the lives of Pentecostals. Although there is no prescribed method for bringing the Spirit into Pentecostal reading, the Pentecostal believes the Holy Spirit is an active presence in the act of interpretation and reads *for* the Spirit—that is, the reader reads *for the sake of* encountering the Spirit just as the reader *searches for* the Spirit in the details of the text. The dwelling of the Spirit within the believer allows the Pentecostal to read and interpret the text *with* the Holy Spirit. Interpretation becomes an act of worship as the Pentecostal waits on the Spirit to come and fill the reader, just as on the day of Pentecost in Acts 2. Kenneth Archer writes,

“The role of the Holy Spirit is continually referred to by Pentecostals as an important element in hermeneutics. A fundamental principle is that ‘Scripture given by the Holy Spirit must be mediated interpretively by the Holy Spirit.’ The Holy Spirit is viewed as

¹⁶ Johns, “Grieving, Brooding, Transforming,” 14.

¹⁷ Moore, “Altar Hermeneutics,” 152.

¹⁸ Moore, “Altar Hermeneutics,” 152.

both inspirer of Scripture as well as illuminator of Scripture; therefore, the Holy Spirit plays a vital part in elucidating the contemporary meaning of Scripture.”¹⁹

The Holy Spirit meets the reader and illuminates the scriptures even if they do not know it, and consequently, the Spirit becomes the prime interpreter of the text. Once again, the inextricable bond between Spirit and Word remains central: “Pentecostals understand the Bible as married to the work of the Spirit in actualizing the presence of the Living Word and in actualizing the work of God in the healing of creation.”²⁰ This “marriage of Spirit and Word” cannot be separated by Pentecostals and should be seen as of utmost importance because it allows Pentecostals to read presently with the Spirit.

1. Reading in Light of Acts 2

In some way, the Pentecostal emphasis on the Spirit-Word marriage has its basis in the biblical text itself, and few passages are as paramount for Pentecostals as Acts 2. For the Pentecostal, Acts 2 represents more than just a memory of divine power; it also serves as a contemporary model and ongoing reality for biblical interpreters. In this conception, the Pentecostal focus on “baptism in the Holy Spirit with speaking in other tongues” plays an integral role in the interpretation of the Spirit-Word.²¹ Rickie Moore writes,

“Thus, among all the things for which the Day of Pentecost serves as a foundational matrix for us Pentecostals, including the experience of being filled with the Spirit, the charismatic gift of tongues, empowerment to be witnesses, the inauguration of the multicultural mission of the church, the arrival of Joel’s eschatological vision, the manifestation of ‘the prophethood of all believers,’ and so on, another significant thing that needs to be included is the setting forth of a pneumatic paradigm for hermeneutics and Scripture interpretation—one that is born out of what we would understand as an altar setting of divine-human encounter.”²²

¹⁹ Kenneth Archer, “Pentecostal Hermeneutics: Retrospect and Prospect,” in *Pentecostal Hermeneutics, A Reader*, 145.

²⁰ Johns, “Grieving, Brooding, Transforming,” 12.

²¹ Archer, “Pentecostal Hermeneutics,” 136.

²² Moore, “Altar Hermeneutics,” 152.

Pentecostals indeed cannot separate the event of Pentecost in Acts—and their subsequent “personal Pentecost”—from their biblical interpretation. As such, Pentecostals read through the lens of the full gospel,²³ wherein Spirit baptism with the evidence of speaking in tongues further enables the believer to read with the active presence of the Holy Spirit. A byproduct of this presence is a special attention to Acts 2 themes throughout the canon.

2. Wind and Fire

Many of the themes that Pentecostals search for within Scripture come from the Acts 2 narrative. The mighty rushing wind (Acts 2:2) and tongues of fire (2:3) are motifs that have personal meaning to the Pentecostal and are sought throughout. The narrative quality of Pentecostal reading allows the interpreter to find these themes within other stories in the Bible: all Scripture is interpreted in a way that points to God’s Spirit-filled plan. For the Pentecostal, stories of wind and fire dot the landscape of the biblical metanarrative and invite new pneumatological meaning.

In Pentecostal perspective, a story like that of Ezekiel in the valley of dry bones (Ezek 37) points to the Spirit’s work in the contemporary world to bring life to dead things. Because these themes are easily identifiable, anyone can read in this way (pneumatologically and faithfully), regardless of whether they have received formal theological training. The accessibility of Pentecostal hermeneutics highlights the priest and prophethood of all Pentecostal believers. Interpretation becomes an experience open to all and sometimes “puts the ‘modern’ person at a distinct disadvantage,”²⁴ precisely as their concern with dispassionate dissection and

²³ The book of Acts is the continuation of the book of Luke, which includes the day of Pentecost. Pentecostals often refer to themselves as individuals who preach the “full gospel,” because they also preach heavily on the experiences of Pentecost. As Archer writes, that the early classical Pentecostals’ “interpretation was theologically colored by their Christological ‘full gospel’ pre-understanding.” See Archer, “Pentecostal Hermeneutics,” 135.

²⁴ Ellington, “Pentecostalism and the Authority of Scripture,” 159.

historical explanation precludes divine experience. The Pentecostal approach thus allows those not traditionally heard within the world of theology to participate in the interpretive dialogue. The marginalized are invited to contribute their unique perspective on the text in a manner that other reading communities might exclude.²⁵ The search for Pentecostal themes allow the uneducated and overlooked to tell their testimony and read the Bible in ways typically seen as unfit for theological reflection in the academy.

C. Reading as Being Read

As a part of Pentecostalism's emphasis on divine encounter when reading the Bible, they often articulate this experience of "reading the text" as a "being read by the text." When Pentecostals read Scripture, they ultimately understand that they are opening themselves to the transforming power of the Holy Spirit, wherein the Spirit "reads" the believer and begins to "interpret" them. This is an open, intimate exchange between the believer and God, even if it occurs during a corporate worship gathering. As the Spirit-Word is opened, the space between the reader and the Spirit becomes thin,²⁶ and an "altar setting of divine-human encounter" is fostered.²⁷ This may seem like a sort of ecstatic or euphoric event, but Pentecostal readers do not always frame it as a pleasant experience: the Pentecostal believer often understands that examination and purification must occur when the Spirit is invited into a space. It can often be a dangerous space because it "offers to us God as the living subject."²⁸ We no longer act as the subject objectifying the scriptures, but rather, the objects searched by the Spirit via the text. In this "reversal" of Pentecostal interpretation, "we are known and read more than we know and

²⁵ There are many different types of Pentecostal Hermeneutics and "each expression is deserving of its own particular version of Pentecostal Hermeneutics." See Lee Roy Martin, "An Introduction to Pentecostal Hermeneutics," 9.

²⁶ Cheryl Bridges Johns notes that the nature of "Sacred Space" is "a thin space where the veil between the supernatural and the natural world become transparent." See Johns, "Grieving, Brooding, Transforming," 14.

²⁷ Moore, "Altar Hermeneutics," 152.

²⁸ Johns, "Grieving, Brooding, Transforming," 15.

read.”²⁹ Being read by the Spirit as we read may not be “new” in the Christian tradition, but it does distinguish Pentecostal hermeneutics from other methods that see the Bible as an object of scrutiny.

1. Spiritual Formation

Over against the standard exegetical methods of the academy, Pentecostals have emphasized Scripture’s sanctifying capacity. Though Pentecostals had inherited rationalist and fundamentalist ways of reading Scripture, they “found it necessary to revise their hermeneutics in the light of their Pentecostal experience of the Spirit.”³⁰ The focus shifts from historical contextualization (rationalism) and doctrinal construction (fundamentalism) to the sanctification of the Pentecostal. The search for “Acts 2” themes across the canon—especially the “fire” of God—exegetically underscores this purification process.

2. Orthopathy

Because sanctification is holistic, the act of reading in Pentecostal conception even reshapes the believer’s affections. While many read primarily for orthodoxy (proper thinking) or orthopraxy (proper practice), a Pentecostal hermeneutic may also inform its adherents in matters of orthopathy (proper feeling).³¹ In the reading event, the Spirit comes and allows the believer to grieve, rejoice, and mourn for what God does. Cole calls this “learning to feel as God feels.”³² As the Pentecostal reader examines the feelings of those within a given passage, they feel what the characters in Scripture feel and thereby share in divine empathy, anger, or joy. This is done within and via the holy space of the Bible and represents a unique exchange of time and space.

²⁹ Johns, “Grieving, Brooding, Transforming,” 15.

³⁰ Martin, “Introduction to Pentecostal Hermeneutics,” 3.

³¹ Casey Cole, “Taking Hermeneutics to Heart: Proposing an Orthopathic Reading for Texts of Terror via the Rape of Tamar Narrative,” in *Pentecostal Hermeneutics*, 58 (italics original).

³² Cole, “Taking Hermeneutics to Heart,” 58.

This should be expected because of the unique way Pentecostals can weep, groan, and grieve with the Holy Spirit.

III. A Pentecostal Reading of Daughter Zion (Lamentations 1-2)

Although there is no prescribed method for Pentecostal reading, the above discussion of uniquely Pentecostal assumptions concerning (and approaches to) the Bible provide a framework by which to read biblical texts faithfully and pneumatologically. In what follows, I will apply three of these hermeneutical assumptions—namely, the elision of historical distance between the text and reader, the search for Acts 2 themes, and the concern with orthopathic formation—to a reading of Daughter Zion in Lamentations. In so doing, I will show the utility of books like Lamentations—rarely addressed in Pentecostal scholarship³³—for spiritual formation, as well as the contribution that Pentecostal hermeneutics might make to Lamentations scholarship.

A. Lamentations in Historical and Literary Context

The book of Lamentations was written during the period of the Babylonian exile. Though the book's authorship is often debated, it is reasonable to date the book sometime after the destruction of Jerusalem in 586 BCE but before 562 BCE.³⁴ Though the “Jewish and LXX traditions attribute the book to Jeremiah,”³⁵ many scholars reject Jeremiah's authorship and opt for an anonymous³⁶ (group of) poet(s) instead.³⁷ Because Lamentations is rather non-specific regarding the details of Jerusalem's destruction in the text, determining author and date becomes nearly impossible.³⁸

³³ Though Pentecostals include Lamentations within their liturgy and their canon, Moore and Peterson, *Voice, Word, and Spirit*, [202-205] are the only authors who address Lamentations at length.

³⁴ Moore and Peterson, *Voice, Word, Spirit*, 202.

³⁵ Moore and Peterson, *Voice, Word, Spirit*, 202.

³⁶ Kathleen O'Connor notes that authorship in the ancient world was not as important as modern authorship because of the value we place on individual creativity and ownership of personal material. See Kathleen O'Connor, *Lamentations and the Tears of the World* (15).

³⁷ Moore and Peterson, *Voice, Word, Spirit*, 203.

³⁸ Adele Berlin, *Lamentations: A Commentary* (Louisville, KY Westminster John Knox Press, 2004), 1.

The more important aspect of the text is its poetic genre. The poetry of Lamentations functions as a way to convey the hurt of God's people in a way that narrative may not express as well. Four of Lamentations' first five poems feature the acrostic form—a structure that requires tremendous skill and artistic facility. Rather than reflecting a series of random outbursts against God, the book features a well-crafted articulation of suffering that draws upon the received (and adapted) genres of Israelite literature, especially the communal lament.³⁹ The acrostics of the poem convey a journey of pain and loss and give order to the otherwise amorphous pain of God's people.⁴⁰ Altogether, the book articulates a thoughtful and intentionally organized series of pleas for divine attention and compassion in the midst of unspeakable suffering.

B. Daughter Zion as Holy Space

One of the book's leading voices is the personified city, Daughter Zion.⁴¹ Zion's name comes from the mountain in the middle of Jerusalem, where the temple was built.⁴² She is the prime orator of the pain of Jerusalem in Lamentations. Traditionally, Zion is described as God's prized possession and the very place where God has chosen to dwell with God's people (e.g., Isa 8:18; 24:23; Pss 2:6; 74:2). Inviolable and tied to the Davidic dynasty, Zion represents the crown jewel of both Yhwh and Israel. The city's fall seemed all but impossible until the unthinkable disaster of 587 occurred. In the aftermath of Jerusalem's destruction, the authors chose to write about Judah's plight through the voice of the personified city. The dignified princess has now become an abused daughter, as the book's opening makes clear: "How deserted lies the city, once so full of people" (Lam 1:1). Daughter Zion who had once housed God's

³⁹ See O' Connor, *Lamentations and the Tears of the World*, 12.

⁴⁰ For an in-depth look at acrostics and their unique function in the book, see Berlin, *Lamentations: A Commentary*, 4.

⁴¹ Kathleen O'Connor, "Lamentations," in *Women's Bible Commentary*, rev. ed., ed. Carol A. Newsom, Sharon H. Ringe, and Jacqueline E. Lapsley (Louisville: WJK, 2012), 280, notes that the city could be portrayed as a woman because of the Hebrew feminine grammatical form for cities.

⁴² O'Connor, "Lamentations," 280.

presence is now “like a widow” (1:1). How could a woman whose name is a site of “divine encounter” become the woman who cries out for comfort?

1. Zion as Site of Divine Encounter

Zion as the locus of God’s Temple represents the physical place of divine encounter in Jerusalem. In light of Pentecostal hermeneutics, however, one might read the experiences of Daughter Zion as the reader’s own experience, wherein Daughter Zion herself becomes, in fact, the “holy space” of divine encounter. Since Pentecostals read in a way that bridges time, the reader is brought into Daughter Zion’s own experience, thereby seeing the once beautiful city deserted (Lam 1:1) and hearing her weeping as she cries out for someone to comfort her (Lam 1:2, 7, 9, 16, 17, 21; 2:13).

As the biblical text hosts the Spirit’s presence, the Pentecostal is forced to feel Daughter Zion’s feelings and then interpret them as their own. It is a horrifying experience to hear an abused daughter cry for a comforter, but as the Spirit bridges the historical divide between text and reader, Pentecostals are enabled to encounter God in Zion’s space; they are drawn “into a world of pain, loss, and abandonment.”⁴³ This is a vulnerable space that calls the reader to hear the testimony of Daughter Zion, to share in her search for God, and to articulate her grieving words as their own.

2. Zion as a Site of Divine Destruction

Inasmuch as Zion is a site of divine encounter, she is also a site of divine destruction. God has seemingly abandoned Daughter Zion: “In the days of her affliction and wandering, Jerusalem remembers all the treasures that were hers in days of old” (Lam 1:7). All of the treasures of Zion have been stripped from her, and a “cloud of anger” has been placed upon her

⁴³ O’Connor, *Lamentations and the Tears of the World*, 17.

by Yhwh (Lam 2:1). The city's destruction has become so great that worship, government, and security have fallen away.⁴⁴ Though once the dwelling of God, Daughter Zion herself has become a site of divine judgment. She is described as a widow—indicating her insecure economic status—and a woman who without a comforter (*verses?*). Her children have gone into exile (Lam 1:5), and her “lovers” who comforted and provided for her and the children that would care for her in old age have all gone. She is left alone, and God is present only anger. The sins of Zion have caused uncleanness to come upon her and cause those around her to turn away (Lam 1:8). Her suffering is so disastrous that she does “not consider her future” (Lam 1:9). Daughter Zion’s plight that was planned by YHWH and her sins have caused her to become a space of destruction so vast that the poet is left without words (2:13). She asks the reader, “Is any suffering like my suffering?” (Lam 1:12). Tragically, “the only possible healer is God, but God is the very one who assaulted her and smashed her in the first place.”⁴⁵

In Pentecostal perspective, Lamentations 1–2 offer the reader a holy space wherein one encounters God’s presence, but as Daughter Zion occupies the landscape of the biblical text, the reader inhabits a destroyed and destructive space—a site of divine anger, human sin, and voiced protests against divine injustice and absence. To read with and within Daughter Zion is to find oneself broken down by divine judgment and yet rebuilt through Zion’s prayerful defiance (cf. Lam 2:18–19). Both experiences—suffering the Spirit’s judgment and praying the Spirit’s groans—contribute to the holistic sanctification of the believer.

3. God Confronts the Reader as an Abused Daughter

The nature of Lamentations and the cries of Daughter Zion offer a unique confrontation in the holy space of Scripture. Because the scripture fosters a Holy Space for encounters with

⁴⁴ O’Connor, *Lamentations and the Tears of the World*, 34.

⁴⁵ O’Connor, *Lamentations and the Tears of the World*, 38.

God, we are near to the Spirit and Daughter Zion. It is believed that God uses the sanctified vessel of Scripture to speak to the Pentecostal reader, but how does God speak to the reader through the testimony of an abused daughter? It is worth asking what happens when the Pentecostal hears the testimony of Daughter Zion.

Lamentations may present a theological problem for the Pentecostal reader. Because they believe in the Holy Spirit's proximity and activity in the life of the believer, they may find it difficult to fathom Daughter Zion's lament concerning God's abandonment. In many ways, the story of Daughter Zion is "in no way instructional or explanative, and it does not contain characters we want to see as role models."⁴⁶ The laments and cries in the book do not give us many applicable themes for our lives or characters we might admire, but Lamentations does force us to examine ourselves in ways other biblical stories do not. The text works with the Spirit to confront our thoughts about God, women, and the marginalized. By probing the very reaches of the Spirit's presence and testing the limits of divine justice, the text hosts a unique confrontation that sanctifies insofar as it prompts the reader to be transparent about their suffering and the suffering of the world.

C. Daughter Zion as Spirit Testimony

It would seem unfit to describe Daughter Zion as a testimony of the Spirit of God. Still, she demonstrates unique qualities of the Spirit's work within the world and the Pentecostal believer. The text's lack of comfort and pain would not lead the reader to think of God. God is entirely voiceless within the book, and this divine silence causes us to think of God as distant and unacquainted with the plight of Zion. Nevertheless, as O'Connor writes, "The Bible's most

⁴⁶ Cole, "Taking Hermeneutics to Heart" 53. Cole is using this in regard to the story of Tamar as a text of terror. The same ideas in texts of terror could be applied to Lamentations in the abused Daughter Zion.

comfortless book opens the way to comfort.”⁴⁷ The testimony of God by Daughter Zion in Lamentations speaks of the terrors of God raining upon her. But there is brief praise in the middle of the book. This causes a bit of contradiction in the view of God, from anger and abuse to hope and love. There are many views on how we should explain this phenomenon, but there is a testimony of God that incorporates the grief and pain while also noting the steadfast love of God.⁴⁸ Daughter Zion can testify to God standing as witness to her suffering and pain, watching from afar and taking the laments, and as the psalm says, “list my tears in your scroll” (Psalm 56:8). This is not to trivialize the pain of Zion but to express, though silent, that God still bears witness to the grief of Zion in a poetic form. Maybe in a way not expected, but Daughter Zion can attest that God hears her cries and laments and cares enough not to speak cheap responses to her. God certainly could have spoken to Daughter Zion. The voices within the text could have easily noted God’s words against God’s people. After all, other books written by the prophets note God’s anger and record God’s words of resentment (Isaiah 10:5-6). Yet God does not speak in the book. The lack of voice points to the way God listens to the Laments of Daughter Zion and the narrator similar to the way the Spirit groans with the Pentecostal and hears their cries (Romans 8:26-27).

1. Images of Fire and Acts 2

As Pentecostals read the story of Daughter Zion, it is easy to see the themes of fire and wind from Acts 2. We hear the testimony, “From on high he sent fire, sent it down into my bones” (Lam 1:13). Out of context, the Pentecostal would shout and dance to hear of fire sent from God into Daughter Zion’s bones. But for Zion, this is a terrifying experience of anger from God.

⁴⁷ O’Connor, *Lamentations and the Tears of the World*, 97.

⁴⁸ See O’Connor, *Lamentations and the Tears of the World*, 115, for the portrait of God and approaches to divine violence.

Reading through the lens of Acts 2, one can see the fire of God coming to Zion to purify her, even if it means destruction. This could allude to the sanctifying experience of Pentecost that brought fire onto the disciples and purified their speech. On each occasion, the fire sent from God purifies what it pleases. One might say that Pentecostal hermeneutics also purifies the reader like a fire. The fire of God is not always a pleasant experience, but it is a purifying one. Similarly, a Pentecostal hermeneutic is not always a pleasant experience, but it is a sanctifying one. Daughter Zion attests, “He has burned in Jacob like a flaming fire that consumes everything around it” (Lam 2:3). Everything around Zion has been consumed, and the fire has been sent deep into her bones. Although painful, it is a sanctifying experience that resonates with the Pentecostal reader. Zion testifies to the Spirit’s purifying work in creation and within God’s people.

2. Taking Seriously the Testimony of Zion

Because of our Pentecostal hermeneutic, we must take the terrifying testimony of divine anger against Zion seriously.⁴⁹ Pentecostals thrive on testimony and call us to find the truth within the stories of others. Although Daughter Zion’s testimony is one of divine judgment and anger, as Pentecostals, we can see the truth and power of her words. We must sit and listen to her agonizing story, and as we do, in the words of Cheryl Johns, “by the Spirit, [she] becomes our sister. By the Spirit, her abuse becomes our abuse. The Spirit joins the pain of this biblical narrative joined with the groaning of all creation. In the space of the text, the Spirit carries us into the pathos found in the life of God.”⁵⁰ The story of Zion becomes our story, and she brings

⁴⁹ In my experience within the Pentecostal church, testimony is a crucial aspect of Spirit-filled worship. Often, a Pentecostal will recount an experience and share God’s activity within the account. This may not always be a pleasant story, but it is taken at its word by the faith community. Similarly, we can listen to the testimony of Daughter Zion, even if it isn’t a pleasant story.

⁵⁰ Johns, “Grieving, Brooding, Transforming,” 17.

us new feelings in our own lives and our life with God. We hear her story as valid and full of truth, even when others discount Lamentations strictly as poetry. Because we are drawn into the sacred space of Zion, we hear more than poetry; we hear the cries of God's own daughter. We are forced to think of our theology and the text's legitimacy. We cannot diminish the story of Daughter Zion or reason it away; we must consider her words and take them as theological discernment. After all, the Spirit stays silent and hears her testimony, unmoved by the words against Godself. We must hear her testimony and wait for the Spirit to teach us to sit and listen rather than hurriedly explaining away the pain of this abused daughter.

D. Daughter Zion as Christ's Image and Formation into the Image of Christ

In a way, Daughter Zion represents an image of Christ—God's beloved, bruised seemingly at the hands of God. The testimony of Zion is similar to Jesus's on the cross, "My God, my God, why have you forsaken me" (Matt 27:46)? The place of God's dwelling, beaten and bruised while others look upon their suffering and explain away the agony. But these testimonies also shape us into the image of Christ. The story of Zion allows us to feel as God feels. We feel the feelings of God and are formed more into the image of Christ.⁵¹ As we feel how God feels, our mind is shaped into Christ's mind, the Spirit purifies our thoughts and feelings about the text, and we are transformed. As we read the problematic testimony of Daughter Zion, "we learn the Bible does not merely share our doctrines and inform our ethics, but through the Spirit it sculpts our desires and teaches us how to feel as God feels, forming our character. The Spirit is at work in us through the text, but also at work in the text through us."⁵² The testimony of Daughter Zion shows us what it means to be purified by the Spirit and enter into the work of sanctification by the text.

⁵¹ See Cole, "Taking Hermeneutics to Heart," 60.

⁵² Cole, "Taking Hermeneutics to Heart," 62.

Conclusion

The explosive growth of Pentecostalism since the early 1900s has allowed the Pentecostal movement to flourish into the global movement it is today. It is estimated that by 2050 there will be a staggering 1 billion Pentecostal/Charismatics.⁵³ The vastness of the Pentecostal movement has brought forth many distinctions within Pentecostal theological reflection and biblical interpretation. Since its inception, the Pentecostal movement has been intentionally working to bring Pentecostal theological interpretation to global Christianity.⁵⁴ This work has brought clarity to what it means to read the Bible and encounter God as Pentecostal while simultaneously laying the foundation for Pentecostal theologies for generations. Although we have articulated Pentecostal hermeneutics and our theology, our global Pentecostal community depends on continued theological reflection. In a sense, we are behind in interpreting the entirety of scripture from a distinctly Pentecostal perspective, especially as our tradition continues to grow. In other words, our movement is outgrowing our ability to articulate our unique Pentecostal theological reflection. In this essay, I have sought to reinforce our distinct Pentecostal hermeneutic while also exploring what it means to read Lamentations as a Pentecostal. The three assumptions of Pentecostal hermeneutics I have outlined (Reading as/for Experience (with God), Reading with/for the Spirit, and Reading as Being Read) have come from the extensive work completed by Pentecostal scholars. The three assumptions I have outlined seeks to bring a fresh interpretation of scripture that leads us into a more faithful Pentecostal hermeneutic. A Pentecostal reading of Lamentations shows us how Daughter Zion becomes a holy space, a

⁵³ Nimi Wariboko and L. William Oliverio Jr., "The Society for Pentecostal Studies at 50 Years," *Pneuma* 42 (2020), 329.

⁵⁴ Wariboko and Oliverio, "The Society for Pentecostal Studies at 50 Years," 327, demonstrate the disdain and lack of respect for Pentecostal scholarship and the work that has occurred to further Pentecostal theological reflection.

testimony of the Spirit, and calls us into the image of Christ. These three areas within Lamentations further call us to articulate what it means to read the scriptures as a Pentecostal. I am confident as Pentecostals continue to interpret texts and articulate the theological implications thereof, the Pentecostal movement will continue to flourish by the power of the Holy Spirit.

BIBLIOGRAPHY

- Archer, Kenneth J. *A Pentecostal Hermeneutic: Spirit, Scripture, and Community*. Cleveland, TN: CPT Press, 2009.
- Archer, Kenneth J. "Pentecostal Hermeneutics: Retrospect and Prospect." Pages 131-148 in *Pentecostal Hermeneutics, A Reader*. Edited by Lee Roy Martin. Leiden: Brill, 2013.
- Berlin, Adele. *Lamentations: A Commentary*. Louisville: Westminster John Knox Press, 2004.
- Cole, Casey. "Taking Hermeneutics to Heart: Proposing an Orthopathic Reading for Texts of Terror via the Rape of Tamar Narrative," Pages 53-62 in *Grieving, Brooding Transforming: The Spirit, The Bible, and Gender*. Edited by Cheryl Bridges Johns and Lisa P. Stephenson. Leiden: Brill, 2021.
- Davies, Andrew. "What Does It Mean to Read the Bible as a Pentecostal?" Pages 249-262 in *Pentecostal Hermeneutics, A Reader*. Edited by Lee Roy Martin. Leiden: Brill, 2013.
- Ellington, Scott. "Pentecostalism and the Authority of Scripture," Pages 149-170 in *Pentecostal Hermeneutics, A Reader*. Edited by Lee Roy Martin. Leiden: Brill, 2013.
- Isgrigg, Daniel D., Mittelstadt, Martin W., and Wadholm Jr., Rick. *Receiving Scripture in the Pentecostal Tradition: A Reception History*, Cleveland, TN: CPT Press, 2021.
- Johns, Cheryl Bridges. "Grieving, Brooding, Transforming," Pages 7-19 in *Grieving, Brooding Transforming: The Spirit, The Bible, and Gender*. Edited by Cheryl Bridges Johns and Lisa P. Stephenson. Leiden: Brill, 2021.
- . *Pentecostal Formation: A Pedagogy among the Oppressed*, Eugene, OR: Wipf & Stock, 2010.
- Keener, Craig S. *Spirit Hermeneutics: Reading Scripture in Light of Pentecost*, Grand Rapids: Eerdmans, 2017.
- Leulsegged, Philemon. *Pneumatic Hermeneutics: The Role of the Holy Spirit in Theological Interpretation of Scripture*, Cleveland, TN: CPT Press, 2019.
- Martin, Lee Roy. "Introduction to Pentecostal Biblical Hermeneutics." Pages 1-10 in *Pentecostal Hermeneutics, A Reader*. Edited by Lee Roy Martin. Leiden: Brill, 2013.
- McQueen, Larry R. *Joel and the Spirit: The Cry of a Prophetic Hermeneutic*. Cleveland, TN: CPT Press, 2009.
- Moore, Rickie D. "Altar Hermeneutics: Reflections on Pentecostal Hermeneutics." *Pneuma* 38 (2016): 148–159.

Moore, Rickie D. and Brian Neil Peterson. *Voice, Word, and Spirit: A Pentecostal Old Testament Survey*, Nashville: Abington Press, 2017.

O'Connor, Kathleen. *Lamentations and the Tears of the World*. New York: Orbis Books, 2002.

———. "Lamentations." Pages 278-282 in *Women's Bible Commentary*. Edited by Carol A. Newsom, Sharon H. Ringe, and Jacqueline E. Lapsley. Louisville: WJK, 2012.

Oliverio, L. William. *Pentecostal Hermeneutics in the Late Modern World*. Eugene, OR: Wipf and Stock, 2022.

Wariboko, Nimi and L. William Oliverio, Jr. "The Society for Pentecostal Studies at 50 Years." *Pneuma* 42 (2020): 327-33.

Summer 2022

Spiritual Assessment Use in Physical Therapy Practice

Viktoriya Marushka

Lee University

Under the guidance of Pamela Hobbs, D.PT.

Abstract

Research has shown that spirituality is an important aspect of the biopsychosocial model of health. Self-care, quality of life, and spiritual and religious beliefs factor heavily into health promotion and patient wellness due to the great influence on personal behaviors in the healing process. This study surveyed physical therapists on their use of spiritual health assessments with patients to determine the usefulness or practicality of such assessments and the methods in which they are utilized. Results indicated that although this group of physical therapists found spiritual assessments to have great potential in the physical therapy field regarding their usefulness, the practicality of putting them in practice and the educational resources available about them are lacking.

Keywords: Spiritual Health, Physical Therapy, Patient Care

Spiritual Assessment Use in Physical Therapy Practice

Research has shown that spirituality is an important aspect of the biopsychosocial model of health. Self-care, quality of life, and spiritual and religious beliefs factor heavily into health promotion and patient wellness due to the great influence on personal behaviors in the healing process (Pignataro & Hartsell, 2017). Patients' spiritual values, beliefs, and practices have been positively related to decreased pain, shorter hospital stays, decreased post operative morbidity, lower blood pressure, less depression and fewer suicides, higher quality of life, hope, enhanced social support networks, and a sense of well-being, among other outcomes (Highfield & Osterhues, 2003). Spirituality itself can be defined in various ways. Puchalski et al. (2014) defined spirituality in the setting of health care as the "aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred," while Lavinder et al. (2012) defined it as "an internal experience that provides a sense of purpose in life in relation to self and others." Experts in the field believe that the primary goals of obtaining a spiritual history are to share and learn about spiritual and religious beliefs, assess spiritual distress or strength, provide compassionate care, help the patient to find inner resources of healing and acceptance, identify spiritual/religious beliefs that affect the patient's treatment, and identify those in need for referral to a chaplain or spiritual care provider (Koenig, 2012; Lucchetti et al., 2013). Incorporating a spiritual history into treatment plans has helped health care professionals learn how patients best cope with their illnesses, the kinds of support systems available to them in the community, and any strongly held beliefs that might influence medical care. An overall understanding of the role of spirituality to a patient's treatment plan is expected to improve the ability to recognize patients' and families' spiritual needs and improve the quality of care.

Previous data has shown that patients themselves believe that spirituality or spiritual health relates to their physical health, and most have wanted their physicians or other health care providers to address their spirituality (Koenig et al., 2017). Fuchs et al. (2021) found that while a majority of participants in their study identified as religious or spiritual and that many of them desired spiritual assessment, the majority of patients had never or rarely had been asked about their spirituality. This demonstrated a significant gap between patient preference and provider practice of spiritual assessment in the primary care setting. Yet, the desire for spiritual assessment has remained relatively stable over time. Across studies, the percentage of patients that desire for providers to know about their spiritual beliefs has ranged from 30% to 63% (Fuchs et al., 2021). Patients' desire for spiritual assessment has particularly received significant attention in the context of serious illness and end-of-life care (Hart et al., 2003). Given the previous definition of spirituality, it is apparent why patients have a strong desire to include spirituality in the discussion of life-threatening illnesses, serious medical conditions, and loss of loved ones. Mackey & Sparling (2000) mentioned that an intact spiritual faith appeared to help the hospice participants in their study to respond to terminal illness with strength and acceptance, enhancing their quality of life until death.

Spiritual assessments can be approached formally and informally and may be accomplished using tools and questionnaires compatible with usual assessment methods used in everyday physical therapist practice. Some of those formal assessments may include FICA, SPIRITual History, FAITH, and HOPE (Lucchetti et al., 2013). FICA, for example, is a questionnaire tool based on the four domains of spiritual assessment: the presence of Faith, belief, or meaning; the Importance of spirituality on an individual's life and the influence that belief system or values has on the person's health care decision making; the individual's spiritual Community; and interventions to Address spiritual needs (Borneman, 2010). There has been some resistance to the implementation of spiritual assessment taking in clinical practice due to concerns about ethical issues. Biomedical professionals often avoid this topic due to a lack of clarity on

how to ethically engage with diverse spiritual practices and maintain professional boundaries regarding spiritual care (Sager, 2022). Many obstacles may be faced while a practitioner obtains a spiritual history, including a lack of time or training, concern over activity beyond the professionals' area of expertise, discomfort with the subject, worries about imposing religious beliefs on patients, lack of interest or awareness, and difficulty identifying patients who want to discuss spiritual issues (Larimore, 2015; Lucchetti et al, 2014).

When clinicians without technical training of spiritual assessments do take time to engage in spiritual practices with patients, they often do so inconsistently and without clear knowledge about appropriate boundaries, and this activity may be driven by personal religious beliefs, rather than by the needs of the patient. (Koenig et al., 2017). For this reason, the training of health professionals on how to integrate spirituality into patient care has been strongly encouraged across the health professions, including by the American Physical Therapy Association (APTA) in continuing education course offerings (Pignataro & Hartsell, 2017). Koenig (2012) explained that conducting a spiritual history should always be patient-centered and patient-desired. The health professional should never do anything that involves coercion. The patient must feel in control and free to reveal or not reveal information about their spiritual lives or to engage or not engage in spiritual practices, such as prayer. Sager (2022) argued that healthcare professionals must acknowledge that the connection of spiritual needs and beliefs to the individual experience of health and illness is essential to providing care that respects patients' autonomy and unique life goals. She supported this claim by compiling a list of components to consider in order to perform a successful, comprehensive spiritual assessment. (Table 1).

Table 1

Components of a Spiritual Assessment

Component	Considerations
Delegation	<p>Ensure that a member of the medical team is able to engage in spiritual discussions and address spiritual needs uncovered</p> <p>b. Utilize a system that allows for the sharing of this information with all relevant members of medical team</p>
Open-Ended Questions	<p>Ask broad questions that allow for individuals to share their narrative experience of illness and spiritual beliefs</p> <p>Be open to whatever direction the patient chooses to take the conversation</p> <p>c. Never push conversations, accept that some patients may not wish to disclose spiritual experiences</p>
Active, Empathetic Listening	<p>Be present with patients and actively pay attention</p> <p>Exercise genuine compassion and empathy when experiences are shared</p> <p>Confirm that you understand what is being shared by asking follow-up questions</p>

	Positively affirm experiences shared
Component	Considerations
Health Goal Setting	<p>Ask patient about their goals for treatment and try to understand their individual conceptualization of health</p> <p>b. Determine what values they hold that may be relevant in creating a treatment plan</p>
Creative Incorporation	<p>Ensure that all religious needs/obligations are respected throughout treatment processes whenever possible</p> <p>Draw upon existing spiritual communities and beliefs to help patients to choose positive coping mechanisms and uncover internal resilience</p> <p>c. If a patient has unmet spiritual needs, make individualized efforts to improve their experience and overall health and wellbeing</p>
Self-Reflection	<p>Take time to consider how one's own beliefs and values impact these interactions as a clinician</p> <p>b. Ensure that one's own spiritual needs are being met so that compassionate care can be provided</p>
Consistent Revisiting	<p>Consistently engage in discussions of spiritual needs</p> <p>Be conscious of the spiritual journey and of changes in beliefs and values that a patient may experience due to illness or other life events</p> <p>c. Revisit physical and spiritual treatment plans regularly as patient needs change</p>

It is known that most current physical therapists have some form of direct access to patient care in all U.S. states, meaning they would be the first point of contact in healthcare for many patients. In addition, physical therapists have frequent contact with these patients, which requires them to strive for trusting, therapeutic patient-provider relationships. Physical therapists help patients draw strength and motivation for therapy from a range of coping strategies in health promoting behaviors, which can be spiritual in nature (Highfield & Osterhues, 2003). However, Lavinder et al. (2012) claimed that the physical therapy profession had yet to establish a strong presence of spirituality in their scope of practice or academic curricula. Due to the understanding that spiritual health assessments have been linked to positive outcomes in health, investigators of this study attempted to understand if these assessments are utilized in physical therapy practice and whether there was a need for better education or new therapy tools to meet patient needs. Considering that modern health care has placed physicians in high pressure, fast-paced environments that value efficiency and often do not leave room for regular, emotionally involved discussions, it was of interest to collect input from practicing physical therapists on their familiarity with

spiritual health assessments and the outlook or practicality of incorporating them into daily practice to determine what would provide time efficient and effective care.

Methods

A survey questionnaire was developed on SurveyMonkey by investigators and emailed to practicing physical therapists in Alabama, Florida, North Carolina, South Carolina, and Tennessee through state and national physical therapy association connections held by the faculty mentor of this project. Investigators were able to survey twenty-five physical therapists online from June through August in 2022. The survey was structured with a brief introduction that informed participants about the study's aims and requested for informed consent before starting the investigation. The survey required voluntary participation and took approximately nine minutes to complete. Participants were considered anonymous, ensuring data confidentiality. Responses were only considered eligible if participants were licensed physical therapists and had completed the entire survey. Participants were asked a series of twenty-seven questions that covered demographic information and educational and work experience. Questions were formatted as a mixture of multiple choice, select all that apply, fill in the blank, and short response. Participants were given the opportunity to speak in depth about their perspective on the topic, offering a place for clarifications and valued considerations in the open-ended questions toward the end of the survey. This study was done in accordance with CITI's responsible conduct research and approved by the IRB committee of Lee University.

Results

Demographics

Participants of this study consisted of nine males and sixteen females who identified as either "White or Caucasian" (92%) or "Black or African American" (8%). Participants were asked to signify whether they identified with a particular religion. The majority (80%) identified as "Christian/Protestant/Methodist/Lutheran/Baptist." A small number identified as either "Atheist or Agnostic" (8%) or "Catholic" (4%), while two physical therapists (8%) did not identify with a particular religion. The survey intended to distinguish between spirituality and religion upfront by asking participants to rate themselves on the significance of religion and spirituality in their personal life. Participants first considered themselves on a scale of *not religious* (16%), *slightly religious* (4%), *moderately religious* (40%), or *very religious* (40%). Participants then considered themselves on a scale of *not spiritual* (4%), *slightly spiritual* (8%), *moderately spiritual* (40%), and *very spiritual* (48%). The results of these considerations can be visually compared in Figure 1A and 1B.

Figure 1A

Participants' Self Perception of Religious Life

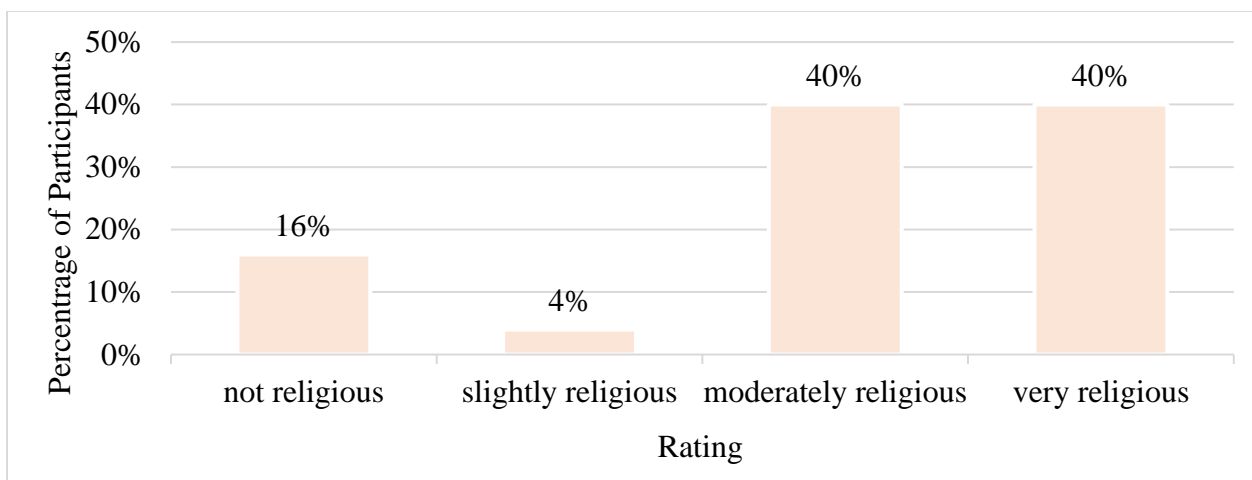
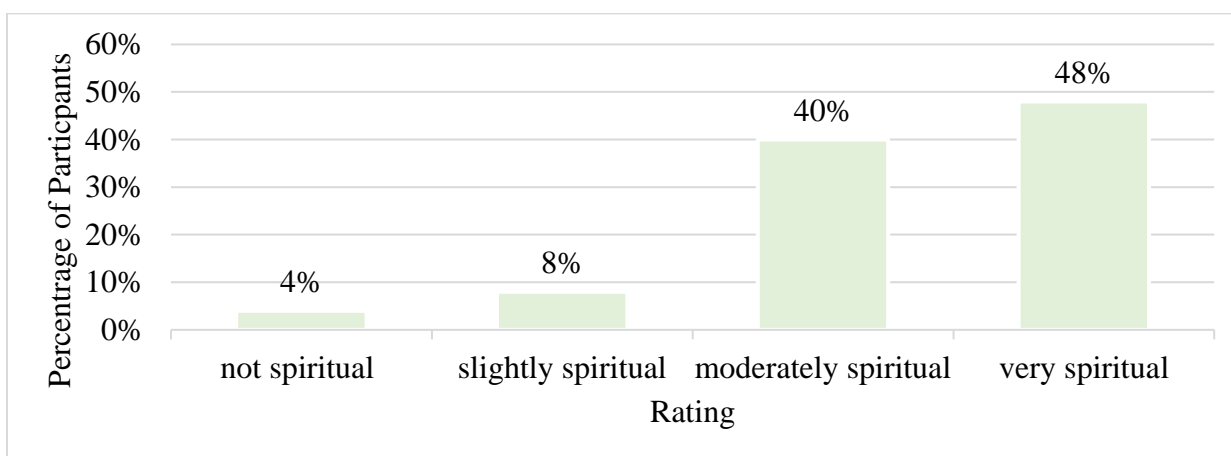


Figure 1B

Participants' Self Perception of Spiritual Life



Educational Experience

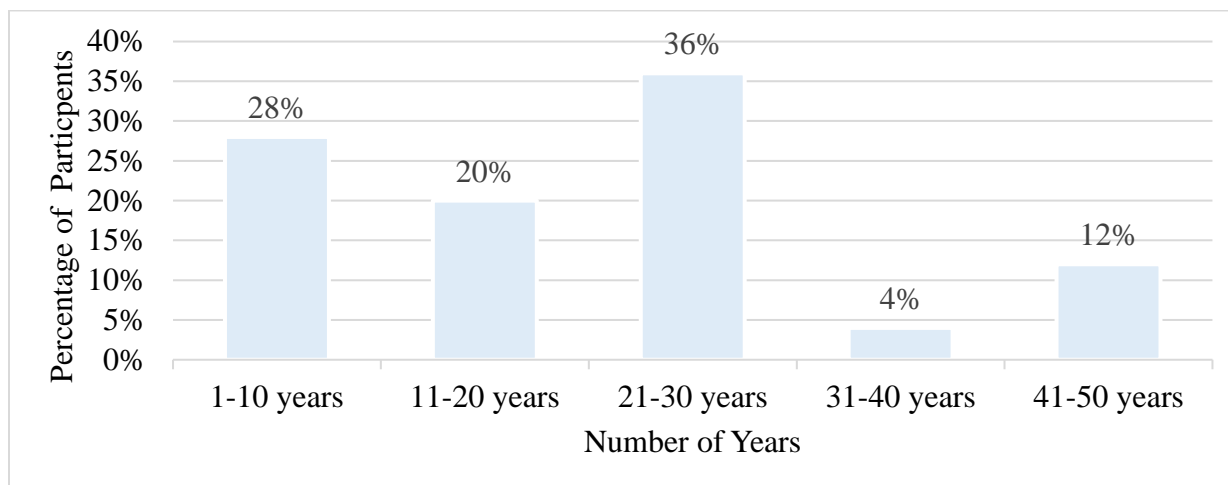
The educational backgrounds of participants varied. The earliest physical therapy school graduation date was 1977, while the latest was 2019. The sample consisted of physical therapists with either a Bachelor's in Physical Therapy (24%), Master's in Physical Therapy (20%), or Doctor of Physical Therapy (68%). Though most participants practiced in Tennessee at the time of the study, their degree may have been obtained in a separate state. The sample included those that went to college in Alabama (16%), California (4%), Florida (8%), Georgia (4%), Massachusetts (4%), Michigan (4%), New York (4%), North Carolina (4%), South Carolina (4%), and Tennessee (44%).

Work Experience

Participants in this study had a wide range of work experience in the physical therapy field. As seen in Figure 2, this sample represented physical therapists with 1-10 years (28%), 11-20 years (20%), 21-30 years (36%), 31-40 years (4%), and 41-50 years (12%) of work experience.

Figure 2

Participants' Years of Physical Therapy Work Experience



Many of the participants (76%) were working as physical therapists in Tennessee at the time of the study. The sample also included a few physical therapists who worked in either Alabama (8%), Florida (8%), North Carolina (4%), or South Carolina (4%). To grasp the amount of patient-interaction these physical therapists had, they were asked to comment on the percentage of the work week that they found themselves working directly with patients. It was found that 12% of the sample did not work directly with patients at the time, 16% worked with patients less than 25% of the time, 4% worked with patients about 25% of the time, 4% worked with patients about 50% of the time, 20% worked with patients about 75% of the time, and 44% worked with patients about 100% of the time. The physical therapists in the sample had worked in acute care hospitals (68%), home health (40%), outpatient clinics (88%), rehabilitation centers or hospitals (36%), school systems (4%), skilled nursing or residential care facilities (32%), and sports fitness facilities (20%). A few therapists (20%) also specifically mentioned working in either management, post-secondary education, research/military operations, or wound care clinics. In addition, two of the therapists (8%) mentioned that they worked primarily with pediatric patients, while about half of the therapists (52%) worked primarily with geriatric patients.

Familiarity with Spiritual Assessments

Only two participants (8%) confirmed that spiritual assessments were taught in their physical therapy training. One of these individuals graduated physical therapy school in 1992, while the other graduated in 2018. The main difference between the two therapists was that one went to a public university, while the other went to a private Christian university to receive their physical therapy degree. The latter shared a high regard for the incorporation of spiritual assessments in her education, as stated here:

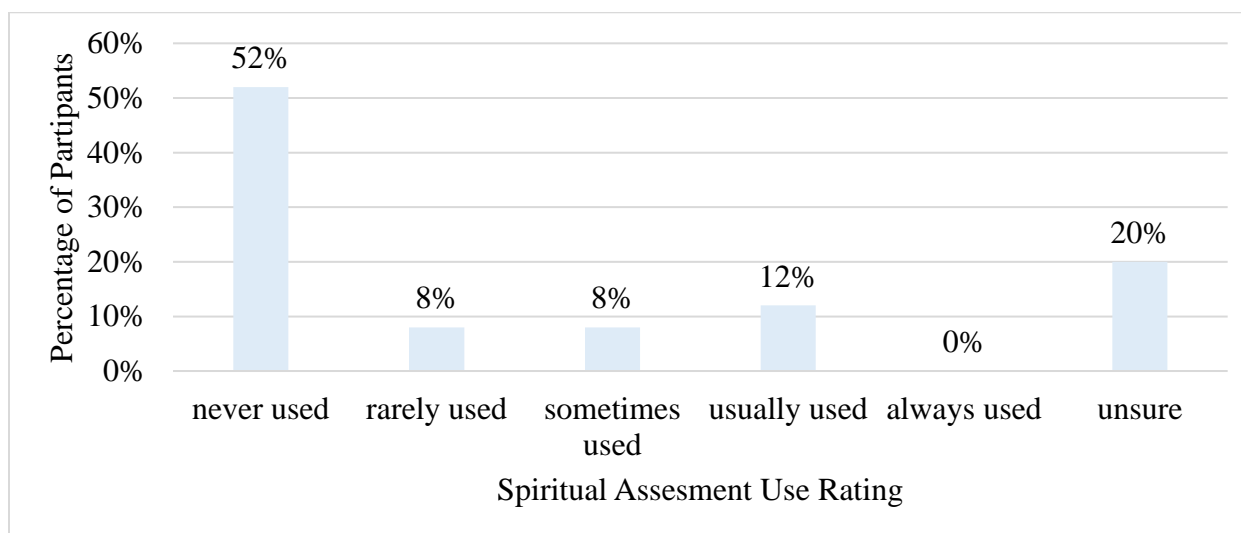
I believe going to a Christian University and having a course in “Spirituality and Health care” in the DPT program gave me a broader perspective in my role as a health care professional in treating my patients as a whole person. Our textbook for the course was full of research showing how spirituality influences healing and recovery. Physical therapists are in a unique position as a consistent medical provider over 4-8 weeks of a patient's recovery that gives us an opportunity to build rapport and relationships with patients and provide a safe place for patients to share their concerns and vulnerability of poor mental health. By using spiritual assessments, we can have a better handle on

ministering to their whole person needs - physically, mentally, emotionally, and spiritually. (PT #10)

When asked if, whether technically trained or not, they used spiritual assessments in their current practice, about 52% said they never used spiritual assessments, 8% rarely used them, 8% sometimes used them, and 12% usually used them. No one identified that they would always use them, and 20% remained unsure what a spiritual assessment was. These results are shown in Figure 3.

Figure 3

Participants Use of Spiritual Assessments



Furthermore, participants were asked to explain the methods that they utilized to perform a spiritual assessment. Brief descriptions of methods included “encouraging patients to ‘listen to their bodies’ or their intuition to seek guidance in how to assist their self-healing”; “assessing psychosocial factors that may play a significant role in the patient’s sensitivity, prognosis, and treatments”; utilizing “communication, mindset talk, and prayer”; and asking “informal questions.” In depth descriptions of methods are listed in Table 2.

Table 2

Physical Therapists’ Profiles and Perspectives on Spiritual Assessment Methods

Physical Therapist’s Profile	Physical Therapist’s Perspective
Physical Therapist #5 had a Doctorate in Physical Therapy and thirty years of experience working in the physical therapy field. He was unsure of whether spiritual assessments were taught in his physical therapy training, but he would usually use them because he saw that they were beneficial and easy to incorporate into conversations. He considered himself to be very religious and very spiritual.	“I don’t have a specific tool that I use when assessing spirituality. Rather, I simply asked them if they have faith and if they are tapping into this faith to help them deal with their physical and mental health challenges. If someone does not have much experience with spirituality but recognizes an opportunity to find greater peace and satisfaction through spirituality, I will usually direct them to a friend or other community resource with which they are

	already familiar for additional help. Because of where I live, by far the majority of patients already have a spiritual connection.”
Physical Therapist’s Profile	Physical Therapist’s Perspective
Physical Therapist #21 held a Bachelor’s in Physical Therapy and twenty-nine years of experience working in the physical therapy field. She was not technically trained on performing spiritual assessments and was unsure of what they truly are but considered them to be relevant and would attempt to incorporate them into practice. She considered herself very religious and very spiritual.	“I don’t use a specific assessment per se. JCAHO requires us to see if spiritual beliefs require us to treat differently. Once I ask that question, we move into different aspects of spirituality if it presents itself. I have found in neuro rehab, it’s vital to some recovery. In pediatrics, a firm spiritual background grounds the parent and family. In sports medicine, kids who have a spiritual background, tend to not have the emotional downfall that others who don’t have it [do].”

Spiritual Assessments in Terms of Usefulness and Practicality

Figures 4A and 4B show the perceived usefulness and practicality of spiritual assessments to the sampled physical therapists. Three of the physical therapists (12%) agreed that spiritual assessments had not been useful to them and did not seem to make a difference to the patient healing process. Eight of the physical therapists (32%) agreed that spiritual assessments had been somewhat useful as they were good to include but would not make a huge difference to the patient healing process. Four of the physical therapists (20%) claimed that spiritual assessments were very useful and had made a huge difference to the patient healing process. The other nine physical therapists (36%) did not find the question of usefulness to be applicable to their practice. Nine of the physical therapists (36%) found spiritual assessments to be impractical as they would be difficult to fit into a session and would not tend to be a top priority for the therapist to include in their care plan. To further explain this perspective, one physical therapist shared that though she considered herself very religious and very spiritual, she would not particularly advocate for the inclusion of spiritual assessments due to time constraints. She mentioned:

Adding spiritual assessments to an already time demanding field that is reimbursed based on units of treatment poses a problem. I feel, we as therapists, have limited time to identify the impairments, develop a plan, communicate, and implement. Adding another measure without taking one away limits practicality of one's work life further. (PT #16)

Eight of the physical therapists (32%) found spiritual assessments to be somewhat practical as they would attempt to fit in a spiritual assessment but that this decision depended greatly on the patient's needs for the day. Only one physical therapist (4%) found spiritual assessments to be very practical as they were able to fit in a spiritual assessment with almost every patient. The other seven physical therapists (28%) did not find the question of practicality applicable to their practice.

Figure 4A

Participants’ Perception of the Usefulness of Spiritual Assessments

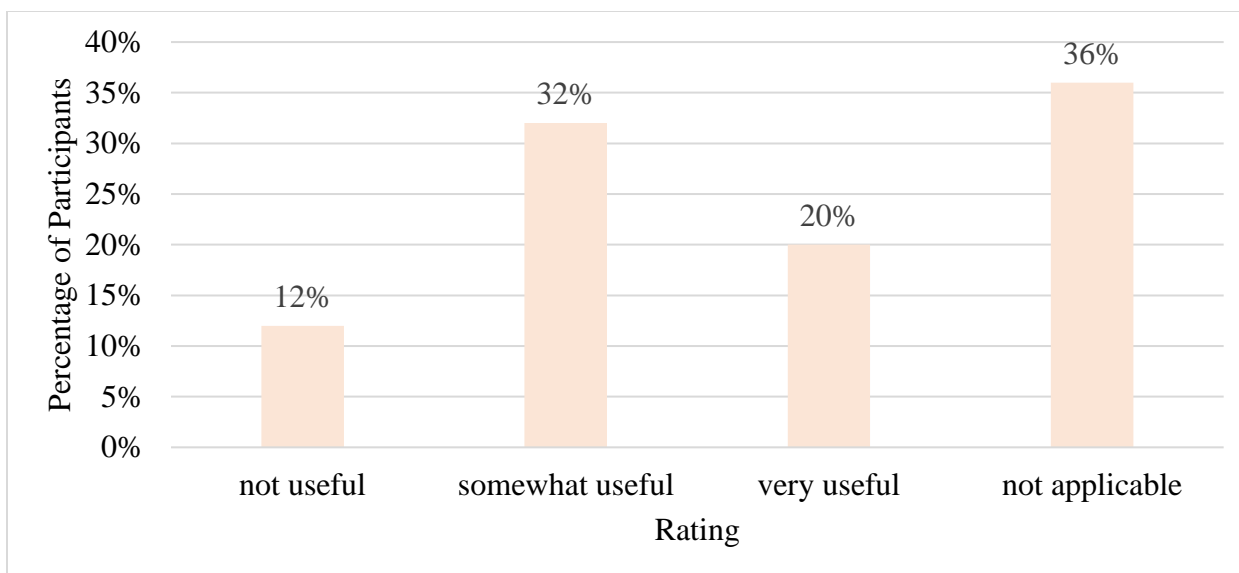
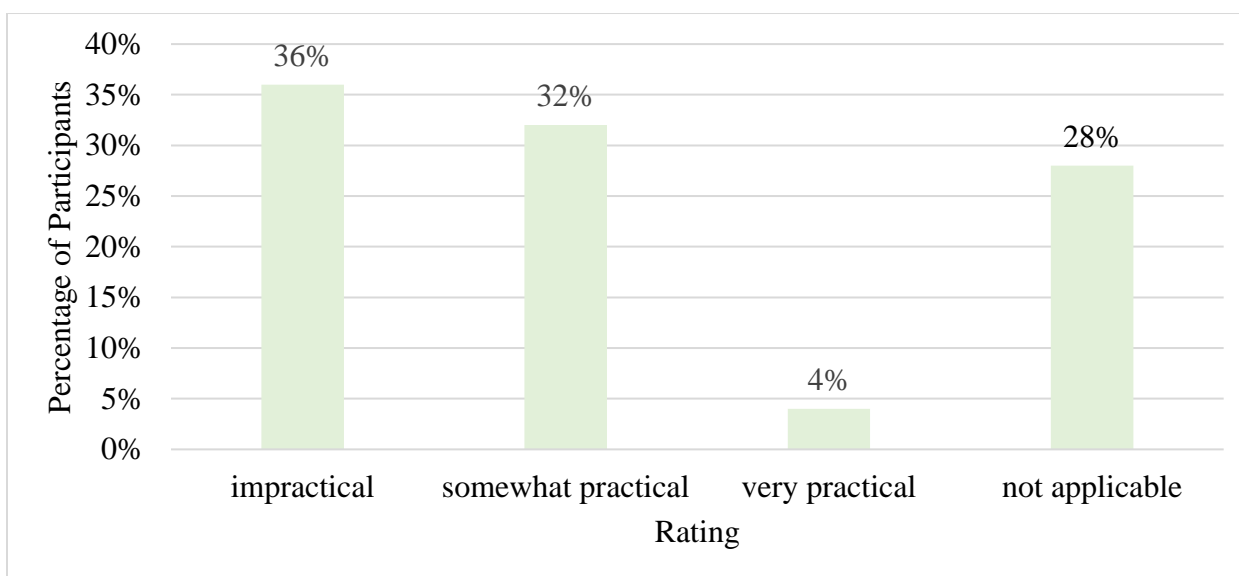


Figure 4B

Participants' Perception of the Practicality of Spiritual Assessments



Toward the end of the questionnaire, participants were asked to rate what they believed education in spirituality would accomplish considering the definition: "spirituality is an internal experience that provides a sense of purpose in life in relation to self and others." The results of their ratings are listed in Table 3.

Table 3

Participants' Perceived Clinical Benefits of Education in Spirituality

Education in Spirituality will...			Scale				
			Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Statement	enhance care of the whole person	Previous Study	0.90 %	4.60%	14.70 %	53.20 %	26.00 %
		This Study	0.00 %	4.00%	12.00 %	28.00 %	56.00 %
	increase sensitivity towards patients	Previous Study	0.90 %	9.20%	15.60 %	51.40 %	22.00 %
		This Study	0.00 %	4.00%	8.00%	32.00 %	56.00 %
	improve patient/clinician relationship	Previous Study	0.90 %	5.50%	24.80 %	53.20 %	14.70 %
		This Study	0.00 %	8.00%	16.00 %	24.00 %	52.00 %

Education in Spirituality will...			Scale				
			Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Statement	improve quality of care	Previous Study	1.80 %	10.00 %	34.00 %	41.30 %	12.00 %
		This Study	0.00 %	12.00 %	16.00 %	20.00 %	52.00 %
	reinforce APTA core values/ethics	Previous Study	0.90 %	9.20 %	32.00 %	46.80 %	10.00 %
		This Study	4.00 %	8.00 %	36.00 %	16.00 %	36.00 %

Note. Table 3 reflects results from a previous study (Lavinder et al, 2012) in comparison to the present study.

Fourteen participants (56%) believed there was a greater need for spiritual assessment training, while seven participants (28%) believed there was not a need, and four (16%) were unsure. When asked if physical therapy students should be educated on the role of spirituality in healthcare, 72% said *yes*, 16% said *no*, and 12% were *unsure*. Participants were then asked if they believed spirituality had been explored well in the field of physical therapy. Two therapists (8%) said *yes*, 84% said *no*, and 8% were *unsure*. Despite the high number of physical therapists that believed spirituality had not been well explored in their field, the idea of holistic care was seen as an important factor to patient care, as mentioned by this therapist:

As a whole, I have not had spiritual assessment training formally. [However], during Orthopedic residency, we had additional training regarding pain neuroscience education, yellow flags, and prognostic factors that play a role in patient care, and I believe that I have made a bigger impact on patient's lives by being more holistic and discussing how other factors besides anatomy play a role with their pain/symptoms, as well as other educational topics on general wellness. (PT #13)

When asked if they were open to further education of the incorporation of spiritual assessments to physical therapy practice, 68% said *yes*, 16% said *no*, and 16% were *unsure*. Participants were particularly supportive of education on the difference between spirituality and religion as it relates to patient care. Participants voiced that because this discussion was brought to their attention, they felt inclined to do additional research on the topic of spiritual assessments. They mentioned a need for guidance from the APTA as to how to incorporate this topic into the education of physical therapy students and continuing education for practicing therapists. Furthermore, participants specifically requested additional information for the connection between spiritual health and mental health. One therapist mentioned the value of this holistic connection by stating:

Yes, I learned about [spiritual assessments] in school, but at the jobs that I have had, they have not been available. I am interested in incorporating assessments. In the meantime, I talk with patients about faith and God as they bring it up and share prayer requests. Several patients have mentioned that they appreciate my care for them as a whole person, not just for their physical pathology, and I believe my interest in their mental and spiritual health is the difference. (PT #10)

As exemplified above, none of these physical therapists had a specific spiritual assessment for use at their work site. Many sought a practical and/or brief solution to spiritual assessment use. They stated that there may be a need for a short, standardized form for spiritual assessments that can be used across settings.

While there was mention that spiritual assessments were easy to incorporate into a conversation, there were participants who voiced concern that either it was not appropriate to make patients participate in a spiritual assessment or that the job setting ultimately determined the use of spiritual assessments. This idea was exemplified in the following reflection:

The facility and company that the physical therapist works for dictates the appropriateness of spiritual assessments. At [...] hospital, workers were trained to assess spiritual needs and encouraged to pray with patients. At [...] hospital, workers were discouraged from assessing the patient's spiritual needs or addressing them. Other

employers like [...] or nursing homes I have worked at were neutral and never addressed good or bad spiritual assessments, which left the topic up to the physical therapist [to handle]. (PT #15)

Spiritual Assessments in Relation to the COVID-19 Pandemic

Participants were asked if they believed the recent COVID-19 pandemic had impacted the need for spiritual assessments in healthcare. Almost half of the physical therapists (48%) agreed that the pandemic did have an impact. They believed that the pandemic caused patients to seek a purpose or “source” for connection during the physical isolation periods that left people feeling hopeless and limited in their social lives. Their patients had difficulties dealing with the complexities of COVID-19 and showed less “spiritual grit” as the pandemic created adversity and fear. The pandemic stimulated a need for something to believe in individually and as a society, while increasing conversations about life and death. Participants also believed that the pandemic increased mental health concerns that spiritual assessments could have the opportunity to address, as there was a claim that there is a clear correlation between spirituality and good mental health. These healthcare professionals witnessed a shift in healthcare for both patients and providers in terms of the level of response, awareness, and overall care for the healing of patients. The common understanding among these individuals was that the effects of the pandemic stimulated a discussion of spirituality in patient care. One therapist shared:

Many individuals who do not have a spiritual foundation have grappled for meaning and understanding over the last thirty months. Many have felt isolated not knowing that they have the option of turning to God and have begun to [seek a better understanding of] spirituality to find purpose, meaning, hope, and joy. (PT #5)

On the other hand, eight physical therapists (32%) did not believe that the pandemic influenced spiritual assessment use. They believed the need was always there, regardless of the pandemic. One therapist shared:

No, not any more than before the pandemic. Patients have health concerns and often a life crisis that increases their need for spiritual help. The pandemic put extra stress on patients that had COVID-19, or had family members die from it, or felt isolated by not being able to meet at church or with their family. The need for a spiritual assessment in healthcare is consistent over my thirty-six-year career. Part of ‘meeting the patient where they are’ is addressing their spiritual needs. (PT #15)

The remaining physical therapists (20%) were unsure of the role that the pandemic played in relation to spiritual assessments.

Limitations

The small number of participants does not allow us to make a definitive statement about physical therapy with this sample. However, this study allowed a glimpse into current perspectives of spiritual assessment use for future consideration.

Discussion

This study was created to form a foundational understanding of the current use of spiritual assessments in physical therapy practice. Findings concluded that although this group of physical therapists found spiritual assessments to have great potential in the physical therapy field regarding their usefulness, the practicality of putting them in practice and the educational resources available about them

are lacking. It was clear that the more the physical therapists were familiar with the assessments, the more they were able to form in depth responses to the varying dimensions of their use. Those who were unfamiliar with spiritual assessments were unsure in their answers and sought education on the topic before they could consider the question applicable to their practice. Although the sample provided a wide range of experience to compare, it would be of benefit to extend this study to a larger sample. Altogether, it seemed that the participants appreciated the dialog, finding it interesting and beneficial, and looked forward to more opportunities to include spirituality in the physical therapy field. The majority believed that education in spirituality would enhance care of the whole person, increase sensitivity towards patients, improve the patient-clinician relationship, and improve the overall quality of care. Many believed that spirituality in physical therapy has not been well explored but that it should be because spirituality is a part of the holistic care model that has worked well for healthcare providers and patients in a variety of settings. With a better understanding of the current foundation of spiritual health assessments, it is hoped that physical therapists would be able to deepen the provider-patient relationship and fulfill a patient-requested need and, leading to valuable insights that would help the patient progress better and make better health decisions.

Acknowledgements

Acknowledgement is due to the support of Lee University's McNair Scholars Program and Ledford Scholars Program for providing the resources for this study, to Dr. Pamela Hobbs for her guidance on this research within the Department of Natural Sciences, and to the physical therapists willing to share their experience and perspective on the subject.

References

- Borneman, T., Ferrell, B., & Puchalski, C. M. (2010). Evaluation of the FICA Tool for Spiritual Assessment. *Journal of Pain and Symptom Management*, 40(2), 163–173.
<https://doi.org/10.1016/j.jpainsymman.2009.12.019>
- Fuchs, J. R., Fuchs, J. W., Hauser, J. M., & Coors, M. E. (2021). Patient desire for spiritual assessment is unmet in urban and rural primary care settings. *BMC Health Services Research*, 21(1), 1–9.
<https://doi.org/10.1186/s12913-021-06300-y>
- Highfield, M. E., & Osterhues, D. (2003). Spiritual care rights and quality of care: perspectives of physical therapy students. *Journal for healthcare quality: official publication of the National Association for Healthcare Quality*, 25(1), 12–16. <https://doi.org/10.1111/j.1945-1474.2003.tb01026.x>
- Hart, A., Kohlwes, R. J., Deyo, R., Rhodes, L. A., & Bowen, D. J. (2003). Hospice patients' attitudes regarding spiritual discussions with their doctors. *American Journal of Hospice and Palliative Care*, 20(2), 135–139. <https://doi.org/10.1177%2F104990910302000212>
- Larimore, W. (2015). Spiritual assessment in clinical care - part 1: The basics. *Today's Christian Doctor*, 46(1). <https://cmda.org/resources/publication/tcd-spring-2015-spiritual-assessment-in-clinical-care-part-1>
- Lavinder, G., Patel, U., Campo, M., & Lichtman, S. W. (2012). The Perceived Role of Spirituality in Physical Therapy Education. *International Journal of Health, Wellness & Society*, 2(3), 133–154.
doi:10.18848/2156-8960/CGP/v02i03/41033
- Lucchetti, G., Bassi, R. M., & Lucchetti, A. L. G. (2013). Taking Spiritual History in Clinical Practice: A Systematic Review of Instruments. *Explore: The Journal of Science and Healing*, 9(3), 159–170.
<https://doi.org/10.1016/j.explore.2013.02.004>
- Koenig H. G. (2012). Religion, spirituality, and health: the research and clinical implications. *ISRN psychiatry*, 2012, 278730. <https://doi.org/10.5402/2012/278730>
- Koenig, H. G., Perno, K., & Hamilton, T. (2017). Effects of a 12-month educational intervention on outpatient clinicians' attitudes and behaviors concerning spiritual practices with patients. *Advances in medical education and practice*, 8, 129–139. <https://doi.org/10.2147/AMEP.S125352>
- Mackey, K. M., & Sparling, J. W. (2000). Experiences of Older Women With Cancer Receiving Hospice Care: Significance for Physical Therapy. *Physical Therapy*, 80(5), 459.
<https://doi.org/10.1093/ptj/80.5.459>
- Pignataro, R. M. & Hartsell, H. (2017). *Spiritual and health implications for physical therapy practice*. APTA Learning Center. Retrieved February 18, 2022, from
<https://learningcenter.apta.org/student/MyCourse.aspx?id=ae30173c-a2b7-4a34-b7d0-28b5916efe86&ProgramID=dcca7f06-4cd9-4530-b9d3-4ef7d2717b5d>
- Puchalski, C. M.; Vitillo R.; Hull S.; Reller N. (2014). Improving the Spiritual Dimension of Whole Person Care: Reaching National and International Consensus. *Journal of Palliative Medicine*, 17(6), 642–656. <https://doi.org/10.1089/jpm.2014.9427>
- Sager, E. (2022). Components of Successful Spiritual Care. *Journal of Religion & Health*, 61(2), 1139–1154.
<https://doi.org/10.1007/s10943-020-01089-2>

Summer 2022

Testing Zoom's Best Practices on a Live Zoom Meeting

Ariana Medina

Lee University

Under the guidance of Andrea Phillips, Ph.D.

Abstract

The purpose of this study was to discover if there was a correlation between the facilitator's implementation of Zoom's best practices and the participant's retention of the information after the live synchronous Zoom meeting. There was two experimental groups and two control groups. In the two experimental groups, the facilitator implemented "Live-Event Best Practices" from Zoom's blog (found here: <https://assets.zoom.us/docs/user-guides/Zoom-Online-Event-Best-Practices.pdf>) during the meeting, and the two control groups did not have the best practices. After the Zoom meeting, the participants took a brief quiz regarding the content of the presentation. The score was used to discover if there was a correlation between the facilitator's implementation of best practices and information retention.

The correlation test revealed there is no relationship between the facilitator's implementation of best practices during the live synchronous Zoom meeting and the participants' retention of information; furthermore, a linear regression test revealed that any improvement in retention based upon best practices was not statistically significant. Based upon the mean scores from the groups, the results indicate that something impacted the participants' retention. As a result, there is potential to do future research to evaluate other factors that may impact participant retention.

Introduction

During the pandemic, people around the world were forced to quickly adapt to remote learning or working. Zoom became a common video platform for people to connect with others in personal and professional settings, and people were searching the internet to discover how to utilize the platform effectively. Zoom released an article called “Online Event Best Practices – A Zoom Success Guide” in which they provide a guide for live-event best practices that includes things such as using dual monitors, always recording, and encouraging a discussion-based presentation.

The authors of the article say, “We’ve listed them all here for you and you can do your best with what we’re sharing.” When an individual is facilitating a meeting by utilizing Zoom, the facilitator’s hope is that the participants will remember the key information from the presentation after the Zoom event. The purpose of this study is to discover if there is a correlation between the facilitator’s implementation of best practices and the participant’s retention of the information after the live synchronous Zoom meeting.

Literature Review

Since the pandemic, video platforms like Zoom have become a common method of computer mediated communication. Prior to the pandemic, experts were saying that computer mediated communication was “...the latest trend and focus of much research in the information technology and development industry” (Olaniran & Rodriguez, 2010). Furthermore, “There is a prevalence of computer-mediated communication (CMC) in education...” (Sherblom, 2010). However, outside of the education field, some organizations “...still appear to be uncomfortable with online media because they do not understand how to maximize their potential to interact effectively with stakeholders” (Pang et al., 2018).

The ability to interact with stakeholders is an important component of working in the public relations field, and now there is a shift occurring because it has become more common to interact on digital platforms such as Zoom. Furthermore, according to Sommerfeldt & Yang (2018):

...computer-mediated communication is now an indispensable part of the public relations practice. It is clear from the state of research and practice in public relations that the question is no longer if, but how to best use digital communication technologies to build relationships with publics. With new ways of engaging stakeholders on digital platforms and much wider-spread adoption of digital communication by organizations around the world, it is time to take another look at where we are and ask difficult questions about the potential for dialogic communication through digital media.

Overall, prior to the pandemic, scholars already recognized the potential in utilizing computer mediated communication effectively primarily within the education field. According to Smith (1994), “Most computer-mediated communication research has been published in education, computer science, psychology or management journals, rather than those of the communication field.” However, it appears as if computer mediated communication is an essential part of business and personal communication as well beyond the education field. Since the use of computer mediated communication has grown and is suspected to continue, we should try to discover how to communicate online more effectively.

Rationale

This experiment tested the impact of Zoom best practices on participants within a live synchronous Zoom lecture. When one hosts a Zoom meeting, the hope is that participants remember the content covered in the presentation. Zoom’s best practices article says, “If online events fail to meet expectations it is most likely due to a lack of planning and adherence to best practice.” Therefore, in this experiment, the facilitator presented Zoom lectures two using

Zoom's "Live-Event Best Practices" and two without it, to evaluate whether Zoom practices have an impact on the participants recall of information.

H0 = The facilitator's implementation of Zoom best practices do not lead to an increase of participant retention.

H1 = The facilitator's implementation of Zoom best practices lead to an increase of participant retention.

Methods

Prior to recruiting participants, this project received approval through Lee University's IRB committee (see Appendix A). The target population for the experiment was traditional, full-time, current students at Lee University between the ages of 18-23 who have not attended another higher education institution. College students were selected as the population for this experiment because many of them share similar experiences utilizing Zoom as a video platform before and after the pandemic forced them into remote learning. Furthermore, much of the existing literature focuses on the role of computer mediated communication within the classroom setting.

For this experiment, the researcher collected a convenience sample. Participants were invited through communication channels the researcher has access to: social media networks and groups the researcher is a part of and email addresses and texts the researcher has in her contact lists. Potential participants were given a link to a Google form that took them to a series of yes-or-no questions where the participants confirmed that they met the target population requirements. A total of 281 people were invited to the link, and 69 completed the form representing a 25% response rate. In addition, 37 qualified to be a participant for the study.

If the individual met the target population requirements, the Google form directed them to submit their email address and select the potential dates and times they were available to attend a Zoom meeting. Three participants did not indicate their availability and were not put into a group. Based upon the availability of the remaining participants, the researcher's goal was to ensure that each group contained an equal number of participants without consideration of any other individual demographic information. Ultimately, the researcher assigned participants to one of four groups.

The researcher followed-up by contacting the individuals through their email with invitations which informed them the date and time of their assigned group. Furthermore, the researcher attached a link to the online informed consent form (see appendix B) for participants to complete. A total of 15 participants completed the informed consent form and were sent a link to the Zoom meeting. There was four groups total, three of the groups had three participants, and one of the groups had four. A total of 13 participants participated in the experiment.

The researcher had two trials of this experiment; in each trial, the researcher performed one presentation using best practices and a second presentation without using best practices. Therefore, the researcher performed four presentations total. During each Zoom meeting, the participants watched a 15-20 minute presentation. In the two experimental groups, the facilitator implemented live-even best practices from Zoom's blog during the meeting.

In order to evaluate the participant's retention of information, after the Zoom meeting, the participants were sent a link and QR code to a Google Forms survey with three sections. The survey responses were anonymous. The first section was a brief quiz regarding the content of the presentation. The second section was a series of questions asking the participant to evaluate the Zoom meeting and the facilitator. The final section included a few demographic questions.

Upon completion of the quiz, the researcher exported the data from the Google forms survey into Google sheets to analyze the participants' responses and to calculate the quiz score. In addition, the researcher utilized a Google Sheets extension called XLMiner Analysis ToolPak to run a correlation and linear regression test between the groups and the score received. Thus, the score was used to discover correlations between the facilitator's implementation of best practices and information retention.

Results

The facilitator implemented the best practices in groups 1 and 3. In the first trial, group 1 that implemented the best practices received the higher mean score of 87% compared to group 2 that didn't use best practices. The first trial appeared to indicate that best practices led to participant retention. However, in the second trial, both groups received the same mean score of 73% indicating that best practices do not make a difference on participant retention.

Table 1. Trial 1 scores

Group #	Participant #	Mean	Median	Mode	Range
1 – with best practices	3	87%	90%	None	30%
2 – control group	3	83%	90%	90%	20%

Table 2. Trial 2 scores

Group #	Participant #	Mean	Median	Mode	Range
3 – with best practices	4	73%	75%	None	40%
4 – control group	3	73%	75%	None	30%

In both trials, most of the participants (83% in trial 1, 100% in trial 2) were not familiar with the content prior to attending the presentation (see Table 3). In both trials, most of the participants (100% in trial 1, 71% in trial 2) knew the facilitator prior to attending the presentation (see Table 4).

Statistical Analysis. In the first trial, a correlation test

revealed $r = -0.15$ indicating no relationship between implementation of best practice and the quiz score. The researcher also ran a linear regression test that revealed $p = 0.78$ that shows the results were not significant because $P > 0.05$. In the second trial, a correlation test revealed $r = 0.03$ which indicates no relationship. The researcher also ran a linear regression test that revealed $p = 0.95$ which shows the results were not significant because $P > 0.05$

Table 3. Percentage of participants familiar with the presentation content

Trial #	Yes	No
Trial 1	17%	83%
Trial 2	0%	100%

Table 4. Percentage of participants that knew the facilitator beforehand

Trial #	Yes	No
Trial 1	100%	0%
Trial 2	71%	29%

Discussion

The researcher predicted that the facilitator's implementation of Zoom best practices would lead to an increase of participant retention of information. In both trials, the correlation test revealed there is no relationship between the facilitator's implementation of best practices during the live synchronous Zoom meeting and the participants' retention of information; furthermore, a linear regression test revealed there was not a statistically significant relationship. Overall, the results from this study failed to reject the null hypothesis and the alternative hypothesis was not supported.

Based upon the mean scores from both trials, the results indicate that something impacted the participants' retention. As a result, there is potential to do future research to evaluate other factors that may impact participant retention. Based upon the participants' responses on the survey evaluating the facilitator and the presentation, some other factors or variables to consider may be the personality of the facilitator or their tech-savviness.

Limitations

The findings of this study have to be seen in light of some limitations that could be addressed in future research. The first limitation was the small sample size. Each Zoom meeting had 3-4 participants, and that makes an impact on the statistical measurement because it would be difficult to find any significant relationships within the data. In the future, one could conduct a study using a larger number of participants within a Zoom meeting to evaluate their retention. Bias was the second major limitation involved because the facilitator and researcher for the experiment was the same person. Furthermore, there is respondent bias because most of the participants knew the facilitator prior to attending the presentation. This bias can be eliminated in a future study by selecting facilitators or participants who are unfamiliar to one another, or by separating the researcher and facilitator roles.

Conclusion

The results from this study showed no significant relationship or correlation between the facilitator's implementation of best practices and the participants' retention of information during a live synchronous Zoom meeting. However, due to the limitations, it would be beneficial to improve the experimental design and repeat the study in the future. In addition, future research studies can be used to evaluate other variables that may impact participant retention such as the tech-savviness of the facilitator or their personality.

Since the pandemic, video platforms such as Zoom have become a common form of computer mediated communication. The hope is that this study opens the conversation or inspires other communication scholars, outside of the education realm, to consider effective methods that can be utilized to communicate across video platforms.

References

- Olaniran, B., & Rodriguez, N. (2010). The role of computer-mediated communication: a look at methods for delivering and facilitating training in academic and organizational settings. *International Journal of Information and Communication Technology Education*, 6(4), 61+. https://link.gale.com/apps/doc/A239645881/PPCM?u=tel_a_leeu&sid=bookmark-PPCM&xid=13f789ac
- Online event best practices – A zoom success guide. <https://assets.zoom.us/docs/user-guides/Zoom-Online-Event-Best-Practices.pdf>
- Pang, A., Shin, W., Lew, Z., & Walther, J. B. (2018). Building relationships through dialogic communication: organizations, stakeholders, and computer-mediated communication. *Journal of Marketing Communications*, 24(1), 68–82. <https://doi.org/10.1080/13527266.2016.1269019>
- Sherblom, J. (2010). The computer-mediated communication (CMC) classroom: a challenge of medium, presence, interaction, identity, and relationship. *Communication Education*, 59(4), 497–523. <https://doi.org/10.1080/03634523.2010.486440>
- Smith, W. E. (1994). Computer-Mediated Communication: An Experimental Study. *Journalism Educator*, 48(4), 27–33.
- Sommerfeldt, E. J., & Yang, A. (2018). Notes on a dialogue: twenty years of digital dialogic communication research in public relations. *Journal of Public Relations Research*, 30(3), 59–64. <https://doi.org/10.1080/1062726X.2018.1498248>

Appendix A
Institutional Review Board Approval Letter



Date: 05/05/2022

Protocol No.: LU-SP2022-23

Dear Ariana,

This letter is to notify you that your proposal entitled "Testing Zoom's Best Practices on a Live Zoom Meeting" has been approved by the Lee University IRB. Your approval date is 05/05/2022 and expiration date is 05/05/2027.

Please note that if an "expedited review" project extends beyond a 5-year period, you are required by federal law to submit a new application to be reviewed at the end of five years. Also, it is the investigator(s) responsibility to notify the IRB if any changes or modifications are made in the study's design, procedures, and so on.

Feel free to contact us if you have any additional questions or concerns.

Best of luck with your research.

A handwritten signature in black ink, appearing to read "Kevin Ung".

Kevin Ung Ed.D.
PI/Director, McNair Scholars Program
Director, Office of Undergraduate Research & Scholarship
Lee University
423-473-3791
www.leeuniversity.edu

Appendix B

Online Informed Consent Form

Lee University

Project Title: Testing Zoom's Best Practices on a Live Zoom Meeting

You have been asked to take part in a research project described below. The following instructions will explain the project to you in detail. If you have questions after completing the following surveys, please contact Ariana Medina at amedin00@leeu.edu

Description of the project: The purpose of this study is to discover if there is a correlation between the facilitator's implementation of best practices and the participant's retention of the information after the live synchronous Zoom event.

Procedures:

If you decide to take part in this study, here is what will happen: You have completed the "Volunteer Sample Survey" to ensure you meet the qualifications for this study. On that form you indicated the dates you are available for a Zoom meeting. You will receive an email from amedin00@leeu.edu to inform you of the assigned date for your Zoom meeting, and a link to the online informed consent form. After the consent form has been submitted you will be sent the official link to your Zoom meeting. You will attend one Zoom meeting. You will watch the facilitator's presentation of the material, take a brief quiz afterwards, and provide evaluation on it.

Risks or discomfort:

The risks that you will be exposed to in this study are minimal.

Benefits of this study:

It is hoped that results of the information from this study may prompt others in professional settings outside of the field of education to consider effective methods that can be used to improve participants retention of information in Zoom meetings.

Compensation:

There is no compensation for participating in this study.

Confidentiality:

Your part in this study is confidential within legal limits. The researchers and Lee University will protect your privacy, unless they are required by law to report information to city, state or federal authorities, or to give information to a court of law. The recording of the Zoom presentation will be used only for research purposes and possibly in presentations about findings from this study. During the Zoom meeting, your face could appear on the screen allowing others to identify you. You will have the choice to turn off your camera or change your name if you

prefer not to be identified as a participant in the presentation. The information you submit in the quiz or in the comments will be anonymous; your identity will not be connected with your answers in any way. The Zoom presentation recording will not be posted to any media sites or made available to individuals not associated with this research study.

Voluntary participation and withdrawal:

All participation is voluntary. Refusal to participate in any or all aspects of this project will be immediately honored. If you decide to be in the study and change your mind, you have the right to drop out at any time.

Questions, Rights and Complaints:

If you have questions after completing the following surveys, please contact Ariana Medina at amedin00@leeu.edu. If you have any questions or concerns about your rights as a research participant in this study, please contact the IRBirr at Lee University (bpoole@leeuniversity.edu).

Consent statement

By reading and moving to the next screen By entering your name, entering the date, and hitting submit you consent to participating in this project being given by the Communication Arts Department at Lee University. This statement certifies the following: that you are 18 years of age or older and you have read the consent and all your questions have been answered. You understand that you may withdraw from the study at any time. All of the answers you provide will be kept private. You have the right to see the results of this study if you wish. A copy of the informed consent will be given to you if requested.

Enter your name: _____

Enter the date: _____

Hit Submit: _____

Volume 5

Article 19

Summer 2022

Anne Boleyn and the English Reformation

Cassandra Olson

Lee University

Under the guidance of Randy Wood, Ph.D.

Anne Boleyn, born in 1501, was exceptional in many ways for her time. She was well educated, learned how to read and write early, and was bilingual, speaking both English and French fluently while speaking Latin to an extent as well.⁵⁵ Although Anne was exceptionally well educated, she was known for something else entirely. Anne Boleyn paved the way for an "official" English Reformation or a reformation that served the needs of the English Monarchy or, at the very least, the English body politic.⁵⁶ On the other hand, some believe that the Reformation was one of religious zeal and the need for church renewal. Henry VIII was a devout Catholic who had no heart for a Protestant Reformation but refused to have any power looming over him. While Anne Boleyn may not have been the direct cause of England breaking away from the Catholic Church, she was the spark that lit the fire because, without her, Henry VIII would have never taken such drastic steps. During his time of trying to persuade the Pope and the Catholic Church to allow him to divorce Catherine of Aragon, he felt the grip of power the Catholic Church had over him and his nation. In his quest to marry Anne Boleyn, she became a catalyst in the start of the English Reformation.

Historians have many different perspectives on The English Reformation and its causes. Pollard believed that the Reformation was an act of Henry VIII's will, but it could not have happened if it weren't for the support of his people.⁵⁷ According to Scarisbrick, the wars, the divorce, and the breach with Rome originated with Henry; he believed that Henry was irked with

⁵⁵ Norah Lofts, *Anne Boleyn*. (Coward, McCann & Geoghegan, 1979), p. 11.

⁵⁶ O'Day, Rosemary. *The Debate on the English Reformation*. (Methuen, 1986), p. 1

⁵⁷ Ibid, p. 105

his inability to act without approval from Rome.⁵⁸ On the other hand, Dickens believed that Protestantism was already a force to be reckoned with by the 1530s. Dickens thought Henry wanted a divorce, but Cromwell guided Henry in his endeavors.⁵⁹ Through research, it can be seen that although Protestantism may have been in England at the time, but without Henry and Anne, the English Reformation would not have been jump-started.

Later on, Henry used Anne to become the Supreme Ruler of England, along with the people's help and push. Although Anne could not have planned for Henry to break from the Church, she demanded that there was to be a church that she could be married in before she would have relations with the King. Henry also had a legitimate desire to secure his line with male heirs, and Anne was a doorway to this wish. After breaking from the Church, Henry VIII was still stringent in his religious views, punishing Catholics and Protestants alike if they disagreed directly with his views. The Henrician Reformation was a reformation for the King, a way for him to secure the monarchy the power he truly desired.

Anne Boleyn, Henry's second wife, was calculating and persistent in her journey to becoming queen. Anne's most significant demand was that there be a church for her to get married in before she would have sexual relations with Henry. She did not keep to this vow but held out long enough for her demands to be seen through. The journey to becoming queen was long, consisting of six years of refusing to be his mistress, which was a mistake she had seen her sister make. Henry had a desire for sons, which fueled his persistence in divorcing Katherine of Aragon, having not given Henry any sons, being past her childbearing years. Anne Boleyn was a

⁵⁸ Ibid, p. 129.

⁵⁹ Ibid, p. 130.

promise of healthy sons, which drove Henry to break from the Catholic Church and create the Anglican Church.

Protestantism in Europe began in 1517, with Luther publishing his 95 Theses in Germany. These controversial ideas spread throughout Europe, such as Calvin in France and Zwingli in Switzerland. Luther argued against the practice of buying or earning forgiveness but instead that salvation is a gift. Most challenges of the Catholic Church revolved around the belief that believers should be less dependent on the Catholic Church for guidance but rather believed that the people should be independent in their relationship with God. Protestantism thought they should take personal responsibility for their faith and refer directly to the Bible for their spiritual wisdom.

Anne Boleyn's connection to Protestantism started when she was a young attendant to princess Mary, Henry's sister, when she was sent to wed Louis XII of France.⁶⁰ While she was in France, religious tension was rising in mainland Europe, where she was exposed to many new religious ideas. As a result, she was exposed to many recent religious reforms revolving around spiritual experiences supported by Biblical readings. As a result, it is said that Anne owned many religious reform texts in French.⁶¹ The Boleyn family, as a whole, was not loyal to the Catholic Church and was known for reformist sympathies. The Boleyn family had a copy of Tyndale's

⁶⁰ Norah Lofts, *Anne Boleyn*. (Coward, McCann & Geoghegan, 1979), p. 11.

⁶¹ E. W. Ives, "Ann Boleyn and the Early Reformation in England: The Contemporary Evidence," *The Historical Journal* 37, no. 2 (1994), <https://doi.org/10.1017/s0018246x00016526>.

New Testament, the first translation of the Bible in the English language.⁶² Although the family was interested in religious reform, even supporters of it, they were not ready to risk their position in court for these views. Anne was known to have reformist sympathies, but she was not a vocal reformer herself. It is important to note that Anne never openly identified as a Protestant until after the start of the Reformation.⁶³

Anne Boleyn and her family had a long climb to power, and the easiest way to rise to political power was through advantageous marriages. Mary was first a mistress to the King but was later cast to the side for other women before she married William Carey. He did not raise their social standing within the court but did provide them with crucial political information. Anne's yearned for more than her lay-in-waiting position, and an advantageous match was her way to power. She was first secretly engaged to the heir of one of the largest Earldoms in the North, Henry Percy. Percy was open to this marriage, believing Anne's lineage was equivalent to his own. Although, the King did not feel this way when he ordered Cardinal Wolsey to end the engagement, showing his first signs of jealousy when it came to Anne.⁶⁴ This Act earned Wolsey Anne's animosity due to the implication that her family was beneath Percy's.

⁶² Ibid

⁶³ Ibid

⁶⁴ "Henry Percy & Anne Boleyn Relationship - Romance in 1523," English History, January 12, 2022, <https://englishhistory.net/tudor/henry-percy-anne-boleyn-relationship/>.

After the engagement was ended, Henry VIII began his advances toward Anne in 1526.

Unlike her sister Anne did not get into bed quickly, giving the King the thrill of the chase. Henry once wrote a letter saying,

but if you please to do the office of a true and loyal mistress and friend, and to give up yourself body and heart, to me, who will be, and have been, your most loyal servant, I promise you that not only the name shall be given you, but also that I will take you for my only mistress, casting off all others besides you out of my thoughts and affection, and serve only you.⁶⁵

Henry, at first, did not offer to make Anne his queen but rather his mistress. After seeing how her sister was treated and replaced quickly when Henry lost interest, Anne dodged his advances, knowing better than to trust the King, knowing that he would say anything to get the woman he desired into bed. Anne would only accept one position with the King, and that was queen. The only obstruction to this goal was Katherine of Aragon, Henry's wife and queen of England.

Katherine had been married to Henry's older brother, Arthur, who was initially in line for the throne but died shortly after the marriage. After Arthur's death, it was decided that Katherine should marry Henry to secure the alliance and her dowry. While the couple lived happily for many years, it turned sour after their failed attempt to conceive male heirs, with only one child surviving to adulthood, their daughter, Mary. The fact that their only surviving heir was female drove Henry straight into Anne Boleyn's arms to attempt to conceive male heirs. Katherine was past her childbearing years, while Anne had many years of childbearing potential in front of her. Anne was a solution to his problem, believing she could give him an heir to the throne.

⁶⁵ Elizabeth Norton, in *Anne Boleyn Papers* (Gloucestershire: Amberley Publishing, 2013), p. 56.

Henry's intentions to give England a male heir led to the Henry's Reformation, with Henry appealing to Rome for an annulment of his marriage because his marriage to Katherine had been against God's law from the beginning. Henry, at this time, believed that he was being punished for marrying his brother's wife, sighting Leviticus 20:21, "And if a man shall take his brother's wife, it is an unclean thing: he hath uncovered his brother's nakedness; they shall be childless."⁶⁶ Henry believed that God saw his marriage as sinful, which was why he had not given him a son. However, Katherine sighted Deuteronomy 25:5, "If brethren dwell together, and one of them die, and have no child, the wife of the dead shall not marry unto a stranger: her husband's brother shall go in unto her, and take her to him to his wife, and perform the duty of a husband's brother unto her."⁶⁷ She believed God meant for them to marry after her first husband's death. She appealed to Pope Clement VII, stating that her marriage to Henry was valid because her marriage to Arthur had never fully been consummated. Katherine said she had "remained as intact and uncorrupted as the day she left her mother's womb."⁶⁸ Arthur had been young and sickly when he married Katherine and died about a year after the marriage, so their marriage might have never been consummated.

Henry and Katherine's annulment was difficult because the Pope did not want to upset Katherine's nephew, the Holy Roman Emperor Charles V, who had the Vatican

⁶⁶ Leviticus 20:21 (KJV)

⁶⁷ Deuteronomy 25:5 (KJV)

⁶⁸ J. S. Brewer, *The Reign of Henry VIII: From His Accession to the Death of Wolsey* (London: Murray, 1884).

controlled by his troops due to the ongoing war with the French. On the other hand, the Pope did not want to lose England to the Reformation as he did with so many other European countries. The Catholic Church was stuck in between two mighty rulers, but the threat of Charles' troops was more significant of a threat to him than losing England.

Henry waited for an answer from the Pope, with him drawing out negotiations over several years, while Anne refused him sexual relations when Henry finally separated from Katherine in July of 1531 without the support of the Pope. Anne used what she had to her advantage and became the queen of England. Anne should be considered the woman that started the English Reformation because Henry's break with the Pope gave way to Protestantism. Henry's lust for Anne and reasonable desire for heirs led him to break from the Catholic Church to be with Anne. Anne likely had become impatient and may have seen a baby as the only way to rid herself of Katherine permanently, which led her to sleep with the King and become pregnant. Anne and Henry were secretly married in January 1533, with the place and the officiating priest unknown.⁶⁹ Henry and Anne's marriage was kept relatively secret until May, when Thomas Cranmer declared their marriage valid due to many English subjects still loyal to Katherine. Then, on May 23, 1533, the Archbishop of Canterbury, Thomas Cranmer, annulled Katherine and Henry's marriage. It was Cranmer who gave the King the idea that his divorce should not be a legal matter but a moral one, with the Bible making no mentions of Popes. As a result of the annulment, Katherine was sent into exile, where she lived for the rest of her life.

⁶⁹ Norah Lofts, *Anne Boleyn*. (Coward, McCann & Geoghegan, 1979), 102.

On June 1, 1533, Anna Boleyn was crowned queen in a lavish ceremony that lasted four days. Henry required every traditional element of a medieval coronation to be included in Anne's coronation wanting her to be honored as his true queen. Her coronation began with a fleet of barges rowing to Greenwich to accompany the queen to the Tower of London, and as she approached, thousands of rounds were fired from the guns at the Tower of London.⁷⁰ On the third day of celebrations, she was paraded through the city of London, surrounded by hundreds of courtiers, ladies, and officials. On the last day, she received the Crown of St. Edward and the rod and scepter from the Archbishop of Canterbury.⁷¹ Anne's wishes finally came true; married to Henry, crowned queen, and with a child on the way, with the consequence being Henry breaking from the Church and destroying his relationship with the Pope. Anne had finally met the goal she had been working towards for the past six years.

In 1534 Parliament passed the Act of Supremacy which rejected all papal jurisdiction in England and made Henry VIII the head of the English Church. Thomas Cranmer and Thomas Cromwell were the ones that built a case that England's King should not be under the Pope's jurisdiction, with Henry agreeing due to his belief that kings had a divine right to rule. The Act of Supremacy states, "Albeit the King's Majesty justly and rightfully is and ought to be the supreme head of the Church of England, and

⁷⁰ Elizabeth Norton, in *Anne Boleyn Papers* (Gloucestershire: Amberley Publishing, 2013), p. 178.

⁷¹ *Ibid*, p. 181-184.

so is recognized by the clergy of this realm in their convocations.”⁷² The beginning of the Act of Supremacy shows the King’s supreme right to rule not only his country but also allows him to be the head of the Church in his country, looking to only God. It also shows that he will be recognized as the head of the Church by the clergy in his country, and they will answer only to him and God.

Nevertheless, for corroboration and confirmation thereof, and for increase of virtue in Christ's religion within this realm of England, and to repress and extirpate all errors, heresies, and other enormities and abuses heretofore used in the same, be it enacted, by authority of this present Parliament, that the King, our sovereign lord, his heirs and successors, kings of this realm, shall be taken, accepted, and reputed the only supreme head in earth of the Church of England, called *Anglicana Ecclesia*.⁷³

The Act then states that to increase religion within the realm, the King and his heirs must be accepted as the supreme head of the Church, and all authority is under them.

And shall have and enjoy, annexed and united to the imperial crown of this realm, as well the title and style thereof, as all honors, dignities, preeminences, jurisdictions, privileges, authorities, immunities, profits, and commodities to the said dignity of the supreme head of the same Church belonging and appertaining; and that our said sovereign lord, his heirs and successors, kings of this realm, shall have full power and authority from time to time to visit, repress, redress, record, order, correct, restrain, and amend all such errors, heresies, abuses, offenses, contempts and enormities.⁷⁴

The Act of Supremacy then shows that the crown will receive the honor and privilege of being the Supreme head of the Church. All authority will fall under them, including correcting and restraining their people who wrong the crown for any reason.

⁷² Bray, Gerald. *Documents of the English Reformation*. (Lutterworth Press, 1994), 113.

⁷³ Ibid, p. 113

⁷⁴ Ibid, p. 113

Whatsoever they be, which by any manner of spiritual authority or jurisdiction ought or may lawfully be reformed, repressed, ordered, redressed, corrected, restrained, or amended, most to the pleasure of Almighty God, the increase of virtue in Christ's religion, and for the conservation of the peace, unity, and tranquility of this realm; any usage, foreign land, foreign authority, prescription, or any other thing or things to the contrary hereof notwithstanding.⁷⁵

It is then stated that all spiritual authority also falls under the crown and that anything may be reformed under the command of the crown if it pleases God. Finally, the Act ends by stating that no foreign land or authority has the power to control the crown or its people, showing the crown only looks to God Almighty.

The overarching theme of the Act of Supremacy and all of his heirs who rule England would no longer be under the Pope's authority, and they were only the head of the Church who only answered to God. The Act also required an oath of loyalty from all British subjects to recognize the marriage between Anne and Henry, and refusal to swear an oath was considered treasonous. The Act also legitimized any heirs that he and Anne would have, along with removing Mary from the line of succession. Henry VIII would then work out what the Doctrine of the new Anglican Church would look like for the rest of his reign, which in extremely simple terms was the catholic Church with Henry as the head of the Church rather than the Pope.

Pollard shows that the English Reformation was an official event for the King and his court to gain power rather than a genuine religious reformation. Anne Boleyn, Henry VIII's second wife, unknowingly started the English Reformation. Anne was ambitious and craved power, and Henry could give this to her. The only dilemma was that Henry was already married, and the only position Anne would take next to Henry was the

⁷⁵ Ibid, p. 113

position of queen. Henry, driven by lust and a desire for a male heir, broke from the Catholic Church to give Anne what she wanted, the crown. Although Anne was cunning and persistent, it is hard to believe that the King, named defender of the faith, would break from the Church he so dearly defended. While Anne was a believer in the protestant faith, she was not a staunch defender of the Protestant religion, nor was she a vocal reformist. Anne inadvertently started the Protestant Reformation in England. Anne demanded a church where she could be married and crowned before having sexual relations with him. While the process of Henry and Anne's marriage was a long one, six years of waiting, it did lead to a church in which Henry and Anne's marriage would be recognized. Henry's desire for a male heir drove his break from the Catholic Church, while Anne's promise for healthy male heirs led to her demise.

Anne was the start of the Henrician Reformation, with the passing of the Act of Supremacy only solidifying the break from the Catholic Church. Cranmer and Cromwell, protestants, were in positions of power, and England soon started adopting ways of the continental Reformation, which included an English translation of the Bible. Along with the break from the Catholic Church, the crown also dissolved England's monasteries, including taking control of the Church's vast holdings throughout the country and redistributed to those faithful to the King. There was also the abolition of Mass, the use of the English language within services, the replacement of altars with communion tables, and doing away with most Catholic traditions around the year 1552 during Edward's reign. Although the majority went along with this change, some groups were opposed, Catholics and radical Protestants alike.

The first glimpse of the break was in 1532 with the Act for conditional restraint of Annates which limited funds the Church paid to the Papacy. As a last attempt to sway the Pope, Henry decreed that annates would temporarily be withheld. This Act allows only 5% of the money customarily remitted to Rome.

Foreasmuch as it is well perceived, by long-approved experience, that great and inestimable sums of money have been daily conveyed out of this realm, to the impoverished the same; and specifically such sums of money as the Pope's holiness, his predecessors and the court of Rome by long time have heretofore taken of all and singular those spiritual persons which have been named, elected, presented, or postulated to be archbishops or bishops within this realm of England, under the title of annates, otherwise called first fruits...first-fruits, have been thereby utterly undone and impoverished.⁷⁶

After, in the year 1533, there was the Act in Restraint of Appeals which declared the English monarch the highest authority in all legal matters and not the Pope. This Act was passed with urgency after Henry had secretly married Anne, and she was known to be pregnant to expedite the divorce between Henry and Katherine. This Act became the legal basis for the final separation from Rome the following year.

Pollard shows that the King was not interested in reforming the Church, only in controlling it.⁷⁷ Henry was committed to catholic theology and practices, such as Mass, confession, and clerical celibacy, which can be seen in the Act of Six Articles. The Act of Six Articles of 1539 affirmed half a dozen key Catholic beliefs, and their denial was punishable by law.

⁷⁶ Bray, Gerald. *Documents of the English Reformation*. (Lutterworth Press, 199), p. 72.

⁷⁷ O'Day, Rosemary. *The Debate on the English Reformation*. (Methuen, 1986), p. 106.

First, that in the most blessed Sacrament of the Altar, by the strength and efficacy of Christ's mighty word, it is spoken by the priest, is present, under the form of bread and wine, the natural body and blood of Our Saviour Jesu Christ, conceived of the Virgin Mary, and that after the consecration there remaineth no substance of bread and wine, nor any other substance but the substance of Christ, God and man;⁷⁸

The first article focuses on the Catholic belief of transubstantiation, which is the conversion of the substance of the Eucharistic elements into the body and blood of Christ at consecration only the appearances of bread and wine remaining.

Secondly, that communion in both kinds is not necessary ad salutem, by the law of God, to all persons; and that it is to be believed, and not doubted of, but that in the flesh, under the form of the bread, is the very blood; and with the blood, under the form of the wine, is the very flesh; as well apart, as though they were both together.⁷⁹

The second article focuses on the Catholic tradition that both the bread and the wine in communion do not have to be taken together.

Thirdly, that priests after the order of priesthood received, as afore, may not marry, by the law of God.

Fourthly, that vows of chastity or widowhood, by man or woman made to God advisedly, ought to be observed by the law of God; and that it exempts them from other liberties of Christian people, which without that they might enjoy.⁸⁰

The third and fourth articles pertain to chastity. Firstly, the third article speaks on the obligation of priests to remain celibate, while the fourth pertains to the binding character of vows of celibacy.

Fifthly, that it is meet and necessary that private masses be continued and admitted in this the King's English Church and Congregation, as whereby good Christian people, ordering themselves accordingly, do receive both godly and goodly consolations and benefits; and it is agreeable also to God's law.

⁷⁸ Bray, Gerald. *Documents of the English Reformation*. (Lutterworth Press, 1994), p. 222

⁷⁹ Ibid, p. 222.

⁸⁰ Ibid, p. 222.

Sixthly, that auricular confession is expedient and necessary to be retained and continued, used and frequented in the Church of God:. . . It is therefore ordained and enacted.. . .⁸¹

The fifth and sixth acts pertain to the subject of Mass and confession. First, the fifth confession states that private Mass must continue in the King's English Church. While the sixth confession pertains to auricular confession, which is the confession of sins to God in the presence of a priest authorized to forgive them in His name.

Only a few years after their marriage, Henry grew tired of Anne finding her guilty of adultery, incest, and conspiracy against the King. She was beheaded on May 19, 1536. O' Day showed that Henry could be a man of many moods, and once he bored of Anne, he found a way to be rid of her. In the end, Anne was a way for Henry to gain immense power allowing him to look to no one other than God. Anne's death was not the end of the Reformation, with others continuing what was started, eventually becoming a true religious reformation with her daughter Elizabeth. Henry went on to have four more wives, allowing him to have a son and an heir. Henry died on January 28, 1547, allowing the growth of Protestantism through his son Edward.

⁸¹ Ibid, p. 222.

Volume 5Article 20

Summer 2022

Wives Who Stay: A Grounded Theory Study on Infidelity

Nichole Sandell and Gillian Little

Lee University

Under the guidance of Julie Gardenhire, Ph.D., and Kirstee Williams, Ph.D.

Abstract

For many years, research has focused on the detrimental impact of infidelity on spousal relationships; however, minimal research has focused specifically on wives who choose to reconcile with their spouses post-discovery of the betrayal. The purpose of this study was to examine the wounded wife's experience of infidelity as well as the process of reconciliation in order to facilitate a better understanding of the post-infidelity experience as a whole. Answers to a series of open-ended questions, collected over Zoom interviews or open-ended surveys were analyzed using grounded theory methodology to form a process model of the wife's discovery of an affair. Researchers quested to uncover the experiences associated with infidelity, the process of reconciliation, and the post-infidelity experience. The findings are illustrated in the process model and include the following experiences and emotional themes: discovering that their husbands have engaged in online affairs, having symptoms of PTSD, anxiety, depression, and developing a new sense of identity post-infidelity. The findings are divided into two main themes - the discovery of the affair and post-infidelity experiences for the betrayed wives. The discovery of the affair was characterized by the following: 1) the wife's feelings, both positive and negative emotions; 2) the husband's behavior, both positive and negative; and 3) the wife's loss of meaning. The post-infidelity experience included both positive and negative changes, the loss of trust, the wife forming a new identity, and the keys to marriage reconciliation.

Keywords: infidelity, wife, reconciliation, post-infidelity experience, grounded theory

Wives Who Stay: A Grounded Theory Study on Infidelity

Introduction

Infidelity is a serious issue that may have significant repercussions for couples. Numerous definitions of infidelity can make it difficult to have a clear, concise understanding of what infidelity entails; however, much previous literature describes this phenomenon as a breach of expectations surrounding sexual exclusivity (Blow and Hartnett, 2005). According to the General Social Survey (GSS), approximately 20% of men and 13% of women reported having sexual intercourse with someone other than their spouse while married (National Opinion Research Center, 2016). However, other research suggests that infidelity expands beyond sexual intercourse to include a variety of sexual behaviors, emotional affairs, and internet infidelity (Blow and Hartnett, 2005; Glass, 1985). This expanded view on infidelity is important to note, especially for betrayed women. Research suggests that women commonly consider any acute, emotional involvement with a third party outside of a monogamous relationship to be a commitment breach (Scheeren et al., 2018). Furthermore, in some cases, emotional infidelity may be more distressing than sexual infidelity for women (Cann et al., 2010). Additionally, extramarital involvement occurring online may be just as detrimental to marriages as those occurring offline (Cravens et al., 2013). Since distress may follow various types of relationship betrayal, it is not surprising that infidelity may be the most common reason for divorce (Coop et al., 2020; Fincham & May, 2017). Due to the prevalence of infidelity and its detrimental effects on relationships, there is a need for research to better understand experiences surrounding infidelity and reconciliation.

Causes and Predictors of Infidelity

Previous research identifies factors that may contribute to infidelity. For example, relationship dynamics may play an important role. Previous research suggests that relationships perceived by spouses to be low in quality, happiness, and satisfaction may be associated with a greater risk for extramarital affairs (Mark et al., 2011). Furthermore, lower perceived relationship quality may be linked with less frequent, meaningful intercourse, which in turn may lead partners to seek, or fantasize about opportunities for extramarital sex (Thompson, 1983).

Factors beyond romantic relationship dynamics may contribute to infidelity as well. For

example, lower moral principles may also be a contributing factor. Furthermore, poor mental health, depression, anxiety, PTSD, low self-confidence, financial struggles, or poor communication/life skills may be linked with infidelity (Khorramabadi et al., 2019; Tajbakhsh, 2021). Some research aims to identify a profile or specific traits associated with engagement in extramarital relations, such as a lack of capacity for goal-setting, self-confidence, spousal support, self-control, and emotional maturity (Bashirpour et al., 2020).

The Internet may play an important role in relationship betrayal for many couples. Previous research suggests that Internet infidelity may be distressing and harmful to the couple's relationship. Nguyen (2022) found that pornography use may correlate with betrayed partners' experience of lower levels of commitment and higher levels of depressive symptoms. Cravens et al. (2014) found that betrayed partners may experience a loss of trust in their relationship, shock, jealousy, embarrassment, and anger following the discovery of Facebook infidelity. Internet infidelity is a relatively new phenomenon and previous research seeks to identify online behaviors linked with betrayal. The opportunity to fabricate illusion may be associated with Internet infidelity. Stewart and Clayton (2022) found photo manipulation on Instagram to be linked with infidelity and relationship dissolution. Furthermore, virtual interactions, a shadow of traditional interactions, may not be as fulfilling. Social media platforms may facilitate superficial friendships, leading to poor mental and emotional health (Amedie, 2015). Additionally, traversing a fantasy world where members present their ideal selves may lead to a lower perceived quality of life. The relationship between social media, both poor mental health, and the overall perception of quality of life may be linked with unfaithful behaviors (Bashirpour et al., 2020). On a practical note, time spent online may detract from the time the couple may spend together (Amedie, 2015).

Impact and Effects of Infidelity

Infidelity can be incredibly distressing, especially for the betrayed partner. Research suggests that infidelity can be classified as a form of trauma, specifically referred to as betrayal trauma (Öztürk & Erdoğan, 2021; Warach & Josephs, 2021). Betrayal trauma is described in the literature as a form of trauma in which trusted individuals or institutions violate or cause harm (Freyd, 1996). Survivors of betrayal trauma often experience symptoms of Post-Traumatic Stress

Disorder (PTSD) following a traumatic event (Öztürk & Erdoğan, 2021; Warach & Josephs, 2021). Victims of infidelity may suffer from a variety of PTSD symptoms including obsessive rumination, hyper-arousal, elevated anxiety, flashbacks and/or intrusive images of the infidelity, emotional numbness, and depression, both immediately following and, in some cases, long after the infidelity (Warach & Josephs, 2021). Victims of infidelity may also experience a shift in perspective. For example, Öztürk & Erdoğan suggest that some survivors of infidelity develop a dyadic view of their life, categorizing life as before and after the betrayal trauma (2021).

Multiple studies suggest that infidelity may lead to a variety of negative outcomes, both psychological and physical (Seyed et al., 2022; Whisman, 2016; Yaghoobi Tourki et al., 2022). According to Whisman, the discovery of a partner's affair may be linked with a higher prevalence of Major Depressive Episode (MDE) (2016). Additionally, victims of infidelity may experience an array of psychological symptoms including frustration, shock and denial, anger and hatred, anxiety and rumination, cognitive errors, negative emotions, and sleep disorders. Victims of infidelity may experience negative physical symptoms as well (Yaghoobi Tourki et al., 2022). More specifically, the distress surrounding infidelity may influence the victim's sleep, exercise, diet, substance use, and healthcare utilization, which may contribute to disease, longevity, and quality of life (Shrout, 2021).

Reconciliation and Healing Process

Much research examining reconciliation following marital infidelity is lacking; however, limited research suggests that effort from both partners is crucial for successful reconciliation (Côté et al., 2021; Woodyatt et al., 2022). Additionally, forgiveness may be an important component of reconciliation; however, arriving at a place to offer forgiveness may require a complex journey. Forgiveness following infidelity may be a non-linear process requiring substantial effort from both partners. Furthermore, the capacity to tolerate stress may be crucial in the forgiveness process for both the injured partner and the transgressor (Côté et al., 2021).

Moral repair may play an important role in reconciliation following infidelity. Moral repair is described in the literature as a process that explores the ethical and moral psychology of responses to misconduct (Walker, 2006). Moral repair consists of three principles: 1) coengagement, which refers to the couple's need to engage with one another in the process of

reflection and emotional labor; 2) coevocation, which refers to the couple's need to evoke and respond to behaviors in one another; and 3) coconstruction, which refers to the need for both partners to be involved in the process of shaping their social environment (Woodyatt et al., 2022). Forgiveness may be an integral element of moral repair following interpersonal transgressions (Woodyatt et al., 2022).

Previous research also seeks to identify positive characteristics linked with relationships that remain faithful. Commitment, loyalty, forgiveness, and patience may be vital for the genesis of a healthy, lengthy marriage (Bashirpour et al., 2020).

Therapeutic treatment for couples following infidelity may provide support for reconciliation. Research highlights effective modalities for treating betrayal trauma including Emotionally Focused Therapy (EFT) and Eye Movement Desensitization and Reprocessing (EMDR) (Linder et al., 2021). Research also highlights the Relational Justice Approach (RJA), a method for treating infidelity by taking into account the couple's socio-emotional influences and examining power imbalances within the relationship (Williams, 2011). Although these therapeutic approaches may be effective in helping couples heal following a relationship breach, more research is needed to better understand the reconciliation process's experiences in order to better support clinicians working with this population.

Purpose of Study

While extensive research exists on romantic betrayals and therapeutic treatment for the wounded parties, limited research has specifically examined the experiences of betrayed women who choose to reconcile with their partners. The purpose of this study is to address this research gap by examining betrayed women's experiences surrounding infidelity and reconciliation, the effects of infidelity on women, as well as the process of reconciliation and healing for wounded, female partners. More specifically, this grounded theory study sought to elicit information surrounding emotional and psychological experiences common for women in the aftermath of infidelity as well as the post-infidelity reconciliation process.

Methods

Constructivist Grounded Theory

Constructivist grounded theory methodology was used in this study to better understand the impact of infidelity on women and their process of reconciliation. Grounded theory methodology is used to inductively build theories from the data through an iterative process in which the researchers weave back and forth through the data to develop a theory. This process allows researchers to develop theories grounded in the data as opposed to examining data using preexisting ideas (Charmaz, 2014). Our goal was to develop an explanatory theory describing the basic social process surrounding relationship reconciliation for women (Starks & Brown Trinidad, 2007). Constructivist grounded theory is an appropriate methodological approach since, to our knowledge, no current theory exists for understanding the specific phenomenon of betrayed women who choose to stay with their partner following a commitment breach (Charmaz, 2014; Corbin & Strauss, 2008; EchevarriaDoan & Tubbs, 2005).

Researcher Reflexivity

The constructivist grounded theory methodology recognizes the potential influence of the researcher on the research process (Charmaz, 2014). Researcher reflexivity necessitates researchers to recognize any relationships to the studied topic or biases that may influence the research process (Charmaz, 2014; D'Aniello & Fife, 2017). The first two authors in this study are undergraduate psychology students. One of the primary authors has a specific interest in studying infidelity due to her personal experience with her husband's infidelity and reconciliation. The other primary researcher, as well as her family, has also been directly impacted by infidelity. The other two authors are both university professors and licensed marriage and family therapists. Their understanding of the data is influenced by their training in systems theory, which provides a specific lens for understanding infidelity and reconciliation within the social context. The third author has close friends and family impacted by infidelity, and has worked with couples clinically who have experienced infidelity. The fourth author has published previous research on infidelity and has specialized in providing clinical services specifically to couples who have experienced infidelity. Throughout the research, the authors maintained awareness of personal interests, conflicts, and potential biases and upheld a commitment to a diligent process of analysis that aimed to remain true to the accounts and experiences of the research participants. The authors used memos during the analysis to

document thoughts and ideas about the data, and to record reflections, potential connections, their own experiences, and preconceived ideas about infidelity. The authors discussed their memos as a team to prevent inadvertently forcing the analysis to fit any preconceived ideas.

Sampling and Participants

The participants for this study were recruited from a variety of online support groups and forums. There were a total of 10 participants, all women who were wounded by infidelity and working toward reconciliation with their partners. Each participant completed an interview, either via email or with a researcher via the Zoom platform. Each participant was given an identification number for use in the analysis process, and each interview was transcribed. All participants were asked the same series of questions, which are included in Appendix A.

Ethical Considerations

This study was approved by a university institutional review board. It was considered an exempt study because the data was recorded in such a way that the participants could not be identified and the participant's responses did not place the participant at risk of criminal or civil liability, damaged financial standing, or damaged reputation. All participants participated voluntarily and were allowed to drop out of the study or choose not to answer an interview question at any given time. In addition, all participants signed a consent form and were provided details on how their responses would be handled and analyzed.

Analytical Process

For this study, we used the constructivist grounded theory methodology as detailed by Charmaz (2014). The analysis was executed through several stages: initial coding, focused coding, and categorization. We used a recursive process of continual comparison of all the stages throughout the analysis to develop a substantial grounded theory (Charmaz, 2014). We began our analysis with initial coding in which we each independently analyzed the participants' accounts using line-by-line coding. After our independent analyses, we met as a team to review and discuss codes as well as to determine which codes were central to the research questions. Following our consensus on initial coding, we began the process of focus coding in which we

compared our initial codes with our data and identified patterns in the participants' responses. We then determined which codes best accounted for the data, and considered prominent themes. Next, we started the process of categorizing our codes into groups and subgroups and discussed how the groups and subgroups were related. As previously mentioned, coding continued in a recursive process until all interviews and coding were complete. Based on our code groups, subgroups, and prevailing themes, we created a model to depict the experience of being wounded by infidelity and the process of reconciliation, which is presented below.

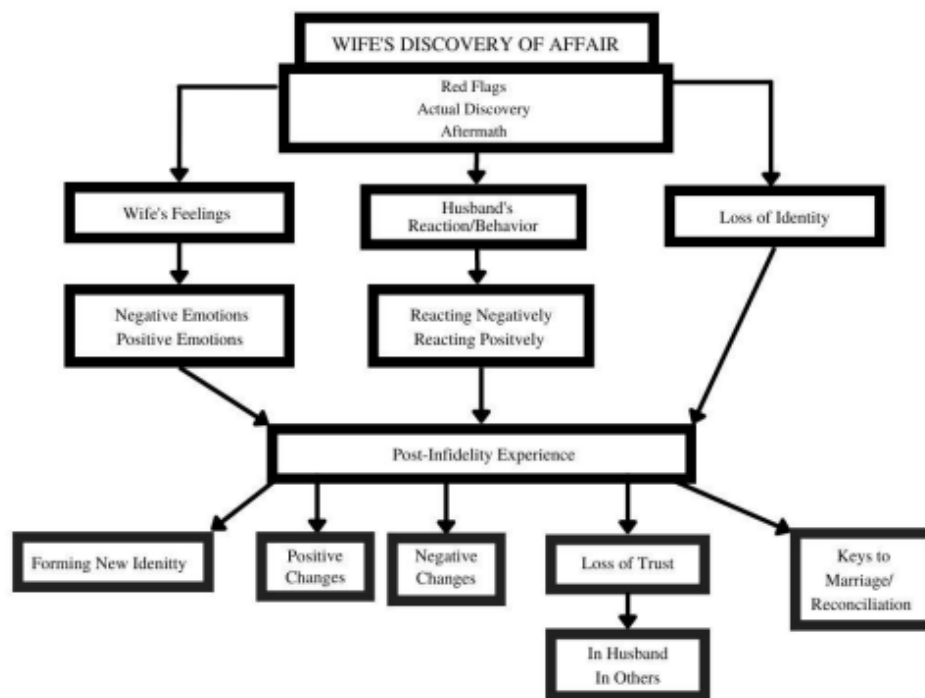


Figure 1: Experience Model

Results

The findings suggest that the wounded wives who experienced betrayal endured a series of emotions and experiences following the initial discovery of the affair. The wives' emotions and experiences, as well as their husbands' responses to being confronted, inevitably lead to a post-infidelity experience involving both changes to the marriage, as well as, the wife's sense of self. These experiences, shown in Fig. 1, are described below.

Wife's Discovery of Affair

The process of discovering the affair unfolded in a linear progression. Initially, there was a perceived change in the husband's personality or behavior, which served as a red flag indicating something was wrong. The wife's discovery of the affair typically followed the red flags and tended to occur either through the husband's confession or the wife's confrontation. Following the discovery of the affair, the participants experienced the initial aftermath. The initial aftermath included the wife's initial reactions, as well as, the initial reactions belonging to the husband, family, and friends. While these stages did not manifest precisely in the same manner, they were experienced by each participant and followed the same linear progression.

Red Flags

It is important to note that many of the participants did not recognize the red flags until retrospectively reflecting on changes in their husband's attitudes or behavior. The most commonly reported red flag was an increase in their husband's cell phone use. One wife reflected on her husband's increased cell phone use: "You know, in the moment, the only thing that I noticed was he was just on his phone all the time. And I never, I never suspected an affair." Another commonly reported red flag was changes in work schedule, especially an increase in hours worked. Additionally, there was often a decrease in quality, one-on-one time for the couple. One wife recollected her husband's increased workload:

"At the start of the year, January, he was picking up extra shifts with her all the time at work. I was feeling jealous, like every single weekend.... and he started canceling fun things that we had planned, like, we were supposed to go to a concert at the end of January."

Other red flags that participants mentioned included a lack of intimacy and catching their husband watching pornography.

Actual Discovery

The actual discovery of the affair occurred in a variety of ways for the participants. The most common experience was finding evidence of an affair on their partner's cellular device and/or smartwatch. One wife recalled the experience:

“I was standing in the kitchen with my husband and took his phone to look up directions to the cemetery. When I looked at the screen, I saw a thread of communication between him and another woman”.

Many of the wounded partners discovered that their husbands had engaged in an online affair, or had been seeking out affair partners through text and/or email. One wife shared that she “hacked his accounts” and found evidence of “calls and texts and snapchats”. The actual discovery also typically consisted of an eventual confession once the wife became suspicious of an affair and confronted the husband.

Aftermath

In the initial aftermath of the actual discovery, participants commonly reported receiving advice and support from their family and friends. Some participants reported receiving positive encouraging advice, while others reported receiving negative advice and pressure to leave their spouse. One woman described this experience:

“It was a mixed bag. A lot of friends were like, ‘Leave [him]. Take him for all he's worth!’ You know, all that really negative stuff. Then other friends and family were just concerned about me. And, ‘take the time you need, what can I do?’ Fortunately, I listened to the ones that felt more loving.”

Another commonly reported factor in the initial aftermath of the discovery was the effect that the infidelity had on the participant’s family and friends. One participant noted that her “kids got caught in the middle of it,” and other participants reported the effect it had on their parents’ and friends’ opinions of the marriage as a whole.

A less frequently reported factor in the initial aftermath was the separation of the couple. In a few cases, the couple initially separated before later deciding to work towards reconciliation. One participant outlines her reasons for choosing that path:

“Initially, he left. He packed his stuff and moved out...then I learned about the fourth and the fifth [affairs]...that's when I knew something was wrong...it wasn't my idea that he was in love with someone...I thought, ‘there's something really wrong, and I want to figure out what's wrong’...And it was my curiosity...that kept me going”

Wife's Feelings

The participants reported a variety of both negative and positive emotions surrounding the discovery of the affair and the journey towards reconciliation. Negative emotions accompanied the discovery of the affair; however, many of the participants described experiencing positive emotional experiences once they worked through their initial shock and heartache. The details of these emotional responses are discussed below.

Negative Emotions

Understandably, the women in this study reported feeling a variety of negative emotions throughout their experience with infidelity. The most prevalent emotions were depression and devastation. One participant discusses this:

“I was devastated, gut wrenchingly devastated as we were married for 22 years at the time, my soul was destroyed. Emotionally I was all over the place.”

While every participant reported feeling depression and devastation, a few participants also described a desire and a sense of desperation for closeness with their husbands. One participant chronicled her array of emotional experiences: “I went from sobbing, to having insomnia, poor concentration, feeling blocked emotionally, to begging him to stay and be with me.”

Additionally, many women reported blaming themselves. They went through periods of questioning themselves and wondering what they could have done differently to prevent the infidelity. One participant detailed her feelings of self-blame:

“[I felt] a lot of ‘what did I do to cause this? You know, ‘what, what did I do wrong?’ I always thought I was being the perfect wife. I always thought I was being the perfect mom. ‘What did I do? What did I do wrong? And why didn't you tell me I was doing something wrong?’”

Another commonly reported negative emotion was a feeling of being weak or lacking strength. Many of the women reported a struggle to recognize their strengths. One participant went so far as to say, “I feel like a weak woman now that all this has happened.” Participants also detailed feelings of disbelief that their husband was capable of having an affair. Additionally, they reported periods of overthinking and obsessing as well as feeling betrayed and violated. For instance, a participant stated:

“...I’m a lot more paranoid about whether he is doing something again behind my back. I find myself checking his things to see if there is evidence of more transgressions. During intimacy, it’s also different as I often think of him being with someone else...”

Most of the participants reported feeling all of the previously described negative emotions at some point following the discovery of the affair. However, several of the participants reported feeling many of these emotions at the same time. It was not unusual for the participants to feel a wide array of emotions at one time, especially during the actual discovery and initial aftermath.

Positive Emotions

Despite the difficulties the wounded partners reported following the affair discovery, many participants also expressed feeling hopeful for the future of their marriage. For instance, one participant reported that she “...remains hopeful that marriages can last with a lot of hard work by each partner”. Another participant stated she maintains the belief that her “marriage will be even stronger” in the coming years. Participants also reported feeling hopeful about their future ability to move forward. One participant described hope in how she perceives her future self:

“I see myself as an ever-improving superwoman. Still married to the man that broke my heart after working so hard to fix it... This future person has confidence and purpose”

Another common positive emotion that wounded partners described was a renewed, or newly developed, sense of empowerment within themselves and their marriage. Participants reported an improved ability to advocate for themselves and their emotional needs. For example, one participant described herself as having “the strength to express...feelings even if he doesn’t want to hear it”. Participants also describe positive development in their character as a result of infidelity. One participant detailed this newfound positive sense of self:

“I discovered a resilience that I didn't really know I had that much. I feel like I am a more real person, a more accepting person, a much more compassionate person...I don't judge...And I really appreciate that about myself...”

Husband’s Reaction/Behavior

Something that all of the participants disclosed was how their husband’s behavior impacted them throughout the reconciliation process. The husband’s reactions seemed to fall on

two opposite ends of the spectrum - either positive or negative. In other words, the participants reported actions and reactions from their husbands that were either drastically negative or drastically positive. The details of the spouse's negative and positive actions are discussed in depth below.

Reacting Negatively

Husbands' negative actions reported by their wives included gaslighting, trying to switch blame back onto the wife, refusing therapy, and continuing to act secretively. In these cases, the husband did not take responsibility for their actions or make an effort to heal the damage in the marriage, even though many of these husbands communicated they did not want to separate or divorce. A common reaction that many women reported, especially in the stage where they began to notice red flags, was gaslighting. Gaslighting is described in the literature as a form of manipulation that can cause the recipient to question and doubt themselves or their sanity (Psychology Today, 2022). One participant reported:

“I just had weird feelings and he also seemed to be on his phone a lot and go out to the garage to smoke and be gone a long time and he also would say I was spying on him by looking for when he was in the house.”

Even though the participant's suspicions and “weird feelings” were justified, her spouse made her feel as if she was spying too much or being too paranoid. Similar to gaslighting, another commonly reported negative reaction involved placing the blame on the wife. One wife described how she was blamed:

“He told me I was not pretty, nor was he attracted to me anymore. I have a history of Major Depressive Disorder, and he told me that if I were to ever try to commit suicide, he would not stop me.”

Other less commonly reported reactions included: refusing therapy or attempts at reconciliation, continuing to act secretively (e.g. locking and hiding their phone), lying about where they were going, and changing social media passwords and settings.

Reacting Positively

Positive reactions included taking responsibility, attending therapy, and changing

behavior. Many of the participants reported that their husbands were willing to go to marriage therapy, and were devoted to trying to change their behavior to facilitate healing within the marriage. One participant shared:

“He had to be willing to change, not me. He has attended individual therapy, SA group, couples therapy with a specialist in sex addiction, and taken a lie detector test.”

Participants reported that their husbands' positive actions and behavior changes were influential in experiencing healing and reconciliation.

Loss of Identity

Many of the wounded partners reported feeling a loss of their previous identity in the wake of the affair experience. Various perceived positive traits that they reportedly had prior to the infidelity were lost in the post-infidelity experience due to a growing desire to maintain their husband's interest. For instance, one participant stated she “tried to change” herself “to his liking”. Other participants noted a change in their overall demeanor after their distressing experience of betrayal. A participant noted:

“Before the infidelity, I was just very, very secure. Happy, confident, sure of myself, sure that I could make things right...just very trusting...After the infidelity, in the short run, I became pretty cynical...And then I thought ‘that is not who I am’. I am not a distrustful, cynical person”.

This dissociation from their pre-infidelity identity was shown to have been brought on by a loss of contentment in simply being “wife”. For example, one participant shared that after discovering her husband's affair she had “lost her identity for a second time” because she could no longer remain content with “having that identity of being his wife”.

Post-Infidelity Experience

While many aspects of the infidelity experience occurred immediately after the discovery, many of the participants also had long-term post-infidelity experiences. Throughout the process of reconciliation and healing, the participants' lives and senses of self seemed to change and evolve. During this process, most of them women began forming a new identity in place of the one they felt they had lost after the discovery of the infidelity. The new identity that the women

developed seemed to be more internally founded rather than reliant on their husbands. Additionally, as the women shared their long-term changes following the infidelity, both positive and negative, there was an emphasis on the persistent theme of losing trust. Finally, many of the participants revealed what they believed to be the keys to reconciliation and healing with their spouses.

Forming a New Identity

Findings revealed that many of the participants experienced the formation of a new identity resulting from infidelity and the experiences associated with it. Participants noted a desire to develop a new sense of self apart from being a wife. Many described this formation in terms of taking more time to invest in their own well-being and themselves outside of their marriage relationship. One participant stated, “I learned that I need to put me first”. Another participant advises other victims of infidelity:

“Do the best you can and take your time. Realize that your life is much more than just that relationship. Even if the other person won’t get help, get it for yourself. Take care of yourself.”

Other participants engaged in the formation of a new identity by exploring new coping mechanisms and hobbies in order to move past the infidelity experience and become a new being. In other words, this exploration of a new identity apart from their marriage was heavily impacted by the work done introspectively. One shared commonality among the participants was a positive therapeutic experience that led to new insights and changes in their previous traits. For instance, one participant shared:

“...we saw a marriage therapist...Their influence was mostly to have me give myself grace, to give myself time to process this, to not rush making decisions, and just to take care of my nervous system.”

Another common aspect of this identity genesis was the sense of empowerment the wounded partners could find due to their new sense of self. One participant reported, “...it has become easier for me to express my feelings since all of it happened because I feel like I am entitled to saying what I need to say”. Some of the women were even able to regain an active role and participation in their marital responsibilities. A participant noted, “He let me take over all of our

finances”.

Positive Changes Post-Infidelity

Despite the devastation that infidelity can cause, the participants still reported many positive changes that occurred as a result of their experiences. The most common positive change that was reported was participants discovering their own strength and resilience. The ability to persist through such a difficult event revealed an inner strength that many of the women didn’t realize they had prior to the infidelity. One participant stated:

“I discovered a resilience that I didn't really know I had that much. I feel like I am a more real person, a more accepting person, a much more compassionate person.”

Another positive change that was commonly reported was the ability to set and honor boundaries as well as wounded spouses being able to put themselves and their needs first rather than neglecting their needs for the sake of pleasing others. One participant reported:

“I have got a lot more boundaries around myself and what I need and what I want and what I deserve. So, I'm just more upfront, and I am less of a people pleaser, and less concerned about trying to make other people happy.”

Additional positive changes that were frequently reported include gaining a new understanding of infidelity, understanding more about their spouses through the reconciliation process, and developing an internally founded positive self-esteem as opposed to self-esteem that was reliant on the approval or acceptance of others.

Negative Changes Post-Infidelity

Results showed an onset of extensive, and potentially life-altering, negative changes, and losses following the infidelity experience. Participants reported experiencing symptoms of a variety of mental health disorders, including anxiety, depression, and post-traumatic stress. One participant shared “I worry a lot, and I overthink a lot. I am on antidepressants now”. Another reports “...I struggle daily with varied levels of severity...About 3 weeks ago I was suicidal but managed to fight”. Others even noted a decline in physical health as well as mental health. A participant describes this experience:

“...I've had to wear a heart monitor for extreme stress, I've had to increase medicines,

depression medicines, migraine medicine, I'm not sleeping, I'm definitely overeating. I wasn't eating in the beginning, I was throwing up...I have carotid aneurysms and dissections that have grown...because of the extreme stress.”

Further negative changes include a decline in self-esteem and an increase in upward comparison.

One participant revealed:

“I cannot stop following these women online...I'm more or less comparing myself to them. Why can't I be like them so he likes me instead of them? I lack confidence and have a low self esteem...”

Wounded partners also reported struggles with ruminating and intrusive thoughts about their husbands and the infidelity experience. Many participants described the inability to engage in day-to-day activities without negative thoughts or feelings despite already working towards reconciliation with the husband. One participant noted that one of her greatest struggles post-reconciliation is “not being able to ever stop thinking about it”. Another participant writes:

“...on the days when I am really struggling I get paranoid. I wonder if my husband is lying to me or cheating on me, and I can't stop thinking about the infidelity.”

Feelings of paranoia and suspicion about the husband's actions and/or whereabouts showed to be common among participants as well. One describes feeling intensely “uncomfortable when he is away” and “suspicious that something is going on”. Another participant even reported feeling that she has become less trustworthy since the infidelity due to the overwhelming urge to discreetly monitor her husband's actions. This participant noted:

“ ...I am not as trusting as I used to be. I am also not as trustworthy. I have had to learn how to be sneaky so that I can make sure he's not lying to me again, and I don't like that. It has made me sneaky...”

Wife Losing Trust

All of the participants reported a loss of trust. While still a negative post-infidelity experience, the pattern of the wounded spouse losing trust was such a prevalent theme that it needed to be addressed independently. In many cases, the loss of trust experienced by the wives was not just toward their spouses; it also extended to others in their life. The participants' loss of trust in their husbands was often accompanied by actions of supervision and surveillance of their

husbands as well as feelings of paranoia. The experiences surrounding the participants' loss of trust are detailed below.

In Others

Results suggest that the infidelity brought a new sense of distrust, not only in the husband but also in others. Participants reported feeling strongly that if the person closest to them could betray them, then others could certainly do the same. This led them to ultimately determine that others were no longer worthy of their trust. For instance, several of the women emphasized their distrust by stating, "you cannot trust others, even those that you think will never hurt you" and "you can't truly trust anyone". One participant further highlighted her distrust of others:

"...he was the perfect husband...So if I can't trust him, there's not another spouse in the world who could be trusted...and same thing with my best friend, if you can't trust those people...do you even trust another single person in the world?"

In Husband

Results indicated that the betrayal the participants felt from their spouse's infidelity led to a loss of trust in their husband. Every participant reported this loss of trust, with many also indicating they still struggle with feelings of paranoia and have installed tracking devices on their husbands' phones and computers. One participant reported:

"[The doctor] told me about a way that I could track my husband, which I have a lot of tracks on him right now. Some that he knows about, and some that he doesn't. But because in my mind, I'm thinking if he's willing to cheat and lie to me, then you know, if he knows that the track is there, then he can do something to change that, you know, turn off his phone or whatever."

In addition to the participants not trusting their husband's actions or whereabouts, they also reported feeling a loss of trust in their husbands' words and efforts to reconcile. Many of the wives reported they had trouble trusting when their husbands expressed "I love you."

Keys to Marriage/Reconciliation

The most commonly reported factor that was reported as vital to reconciliation was hard work from both partners. Both the participant and their spouse had to be willing to work towards reconciliation, and the adulterous spouse had to be willing to take accountability for their actions.

This was important in both personal lives and in marriage therapy.

Marriage therapy was another commonly reported necessary factor in reconciliation. In addition to the willingness of both spouses to work towards reconciliation, many women emphasized that therapy was imperative for guiding them in how to do the work and what that work entailed. One participant noted, “We needed our therapists. You know, we needed all of those people who would ask the right questions, and give us the right books.”

Other reported important factors for reconciliation included communication, honesty, the ability to listen, and the ability to be curious without pointing the finger or placing blame.

Discussion

This study explored women’s experiences of being wounded by infidelity as well as the process of reconciliation following this event. For the participants in this study, the experience of being wounded by infidelity was characterized by a rise in depressive symptoms, anxiety symptoms, PTSD symptoms, and, in some cases, substance use. These findings support previous research suggesting that negative emotional experiences, a rise in mental illness symptomatology, and declines in physical health are common in the aftermath of infidelity (Öztürk & Erdoğan, 2021; Shrout, 2021; Whisman, 2016; Yaghoobi Tourki et al., 2022). However, findings from this study differ from previous literature in that they highlight specific positive long-term post-infidelity experiences, including a new identity formation and the development of a sense of empowerment.

A common theme that frequently emerges in literature is the importance of a willingness from both partners to work towards a happy, healthy marriage (Côté et al., 2021; Woodyatt et al., 2022). Our findings support previous research by highlighting the importance of effort from both partners towards reconciliation. Additionally, our findings suggest that the unfaithful partner’s willingness to take accountability and willingness to change played an important role in the reconciliation process. Furthermore, participants in our study reported healthier relationship dynamics and more ease in healing and redeveloping trust in cases in which the spouse participated in therapy, was honest about his actions, and accepted his wife’s need for frequent reassurance.

Reflective of previous research on Internet infidelity (Boroon et al., 2021; Cravens et al.,

2013; Nessaibia et al., 2022), our sample experienced a high prevalence of online betrayals. Most of the participants found evidence of their husband's affairs online, or that their husbands had engaged in both in-person and online affairs. Participants described their partners as having online affairs via social media platforms, such as Instagram and Facebook, as well as using apps to covertly chat with affair partners without their spouses knowing. These findings propose questions about the impact of easy internet access on rates of infidelity and on the potential rise in opportunities to easily hide unfaithful behaviors.

Limitations

A limitation of this study is the relatively small sample size (N=10). While saturation was reached in this study, it is important to note that our sample lacked diversity, so our findings should not be generalized to the larger population. This is often the case for studies using grounded theory methodology (Charmaz, 2014). Due to the limitations of the sample size, our findings can be viewed as one representation of experiences for women surrounding infidelity and reconciliation, not as the only representation. This is congruent with the constructivist paradigm that guided this research. Despite these limitations, we believe the themes that emerged from this study may be beneficial in better understanding the experiences of women who have been wounded by infidelity and their experiences surrounding reconciliation.

Another limitation is that our biases and perspectives influenced the coding process. As researchers, we acknowledge that our individual paradigms influence our interpretation of the data to a certain extent. To address our biases, we followed several steps, discussed previously, to ensure that our findings were supported by the data and allowed the participants' voices to be heard (Charmaz, 2014).

Clinical Implications

Our research suggests that the women in our study experienced a variety of negative emotions and challenges as well as, in the long-term, some positive emotions, and outcomes. These findings outline the participants' emotions, outcomes, and challenges in detail. Clinicians working with individuals or couples wounded by infidelity can assess for themes represented in these research findings. This may help clinicians to better understand emotional experiences

surrounding infidelity and reconciliation, and to track clients' progress. Awareness of the themes represented in this research may help clinicians support clients in better understanding their own experiences and to consider what to expect moving forward. Furthermore, clinicians may be able to support clients in reaching positive long-term outcomes following betrayal including forming a new identity and developing a sense of empowerment within themselves.

Research Implications

Future research could benefit from examining the experience of infidelity and reconciliation in diverse populations, especially surrounding ethnicity, gender, gender identity, sexual orientation, and socio-economic status. Furthermore, quantitative research could examine themes that emerged in this study on a much larger scale so findings could be generalized to the larger population. Additionally, extensive research examines the negative aspects of the post-infidelity experience, including the development of PTSD and depression; however, future research could examine positive long-term aspects of the infidelity experience, including identity formation post-infidelity as well as the process of developing a sense of independence or empowerment.

Conclusion

The process of discovery, reconciliation, and post-infidelity are shown in the following five main sections depicted by the process model: Wife's discovery of the affair, wife's feelings, husband's reaction/behavior, loss of identity, and post-infidelity experience. Each of the five phases is integral in the experience of being wounded by infidelity and in the process of reconciliation. Although each participant's story and experience with infidelity are different, many of the stories share common experiences and emotional themes. Common themes include finding evidence on their spouse's phone, having residual symptoms of PTSD, and finding a new sense of personal identity. Our hope is that the results from this study will help clinicians to better understand a woman's experience of being wounded by infidelity and what the process of reconciliation following infidelity may entail.

References

- Amedie, J. (2015). The impact of social media on society.
https://scholarcommons.scu.edu/engl_176/2
- Bashirpour, M., Shafi'abadi, A., & Doukaneifard, F. (2020). Factors affecting the tendency to marital infidelity: A grounded theory study. *Journal of Qualitative Research in Health Sciences*, 8(4), 16-27.
- Blow, A. J., & Hartnett, K. (2005). Infidelity in committed relationships I: A methodological review. *Journal of marital and family therapy*, 31(2), 183-216.
<https://doi.org/10.1111/j.1752-0606.2005.tb01555.x>
- Boroon, L., Abedin, B., & Erfani, E. (2021). The Dark Side of Using Online Social Networks: A Review of Individuals' Negative Experiences. *Journal of Global Information Management (JGIM)*, 29(6), 1-21.
- Cann, A., Mangum, J. L., & Wells, M. (2001). Distress in response to relationship infidelity: The roles of gender and attitudes about relationships. *Journal of Sex Research*, 38(3), 185-190. <https://doi.org/10.1080/00224490109552087>
- Charmaz, K. (2014). *Constructing grounded theory: A practical guide through qualitative analysis* (2nd ed.). Thousand Oaks, CA: Sage.
- Coop Gordon, K., & Mitchell, E. A. (2020). Infidelity in the Time of COVID-19. *Family process*, 59(3), 956-966. <https://doi.org/10.1111/famp.12576>
- Corbin, J., & Strauss, A. (2008). *Strategies for qualitative data analysis. Basics of Qualitative Research. Techniques and procedures for developing grounded theory*, 3(10.4135), 9781452230153.
- Côté, M., Tremblay, J., & Dufour, M. (2021). What Is Known about the Forgiveness Process and Couple Therapy in Adults Having Experienced Serious Relational Transgression? A Scoping Review. *Journal of Couple & Relationship Therapy*, 1-26.
<https://doi.org/10.1080/15332691.2021.1939216>
- Cravens, J. D., Leckie, K. R., & Whiting, J. B. (2013). Facebook infidelity: When poking becomes problematic. *Contemporary Family Therapy*, 35(1), 74-90. DOI 10.1007/s10591-012-9231-5
- D'Aniello, C., & Fife, S. T. (2017). Common factors role in accredited MFT training programs.

- Journal of Marital and Family Therapy, 43, 591–604. doi:10.1111/jmft.12218
- Echevarria-Doan, S., & Tubbs, C. Y. (2005). Let's get grounded: Family therapy research and grounded theory. *Research methods in family therapy*, 2, 41-62. New York: Guilford Press.
- Fincham, F. D., & May, R. W. (2017). Infidelity in romantic relationships. *Current opinion in psychology*, 13, 70-74. <https://doi.org/10.1016/j.copsyc.2016.03.008>
- Freyd, J. J. (1996). *Betrayal trauma: The logic of forgetting childhood abuse*. Harvard University Press
- Glass, S. P., & Wright, T. L. (1985). Sex differences in type of extramarital involvement and marital dissatisfaction. *Sex Roles*, 12(9), 1101-1120.
- Glen, S. (2021, September 4). Grounded theory: Simple definition and examples. *Statistics How To*. Retrieved August 6, 2022, from <https://www.statisticshowto.com/grounded-theory/>
- Khorramabadi, R., Sepehri Shamloo, Z., Salehi Fadardi, J., & Bigdeli, I. (2019). Prediction of Extramarital Relationships Based on Executive Functions With the Mediatory Role of Marital Commitment. *Practice in Clinical Psychology*, 7(2), 147-157. doi:10.32598/jpcp.7.2.147
- Linder, J. N., Niño, A., Negash, S., & Espinoza, S. (2021). Integrating EMDR and EFT to treat trauma in couple therapy: A literature review. *International Journal of Systemic Therapy*, 32(4), 251-272. <https://doi.org/10.1080/2692398X.2021.1954862>
- Mark, K. P., Janssen, E., & Milhausen, R. R. (2011). Infidelity in heterosexual couples: Demographic, interpersonal, and personality-related predictors of extradyadic sex. *Archives of sexual behavior*, 40(5), 971-982. DOI 10.1007/s10508-011-9771-z
- National Opinion Research Center. (2016). *General Social Survey, 2010*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. <https://doi.org/10.3886/ICPSR35331.v3>
- Nessaibia, I., Sage, R., Atwood, L., Bouslama, Z., Cocci, L., Merad, T., & Tahraoui, A. (2022). The way COVID-19 transforms our sexual lives. *International Journal of Impotence Research*, 34(2), 117-119.
- Nguyen, V. (2022). The Perception of Partner's Pornography Use as a Betrayal: The Role of Trust, Investment, Commitment, and Forgiveness.

- Odebode, A. A., & Adegunju, K. A. (2022). Causes of Infidelity as Expressed by Literate Working-Class Women in Lagos State, Nigeria. *Canadian Journal of Family and Youth/Le Journal Canadien de Famille et de la Jeunesse*, 14(3), 211-222.
<https://doi.org/10.29173/cjfy29799>
- Öztürk, E. R. D. İ. N. Ç., & Erdoğan, B. (2021). Betrayal trauma, dissociative experiences and dysfunctional family dynamics: Flashbacks, self-harming behaviors and suicide attempts in post-traumatic stress disorder and dissociative disorders. *Medicine Science*, 10(4). doi: 10.5455/medscience.2021.10.342
- Scheeren, P., Apellániz, I. D. A. M. D., & Wagner, A. (2018). Marital infidelity: The experience of men and women. *Trends in Psychology*, 26, 355-369. DOI: 10.9788/TP2018.1-14En
- Seyed Aghamiri, F., Luetz, J. M., & Hills, K. (2022). Impacts of Sexual Addiction on Intimate Female Partners—The State of the Art. *Sexual Health & Compulsivity*, 1-37.
<https://doi.org/10.1080/26929953.2022.2050862>
- Shrout, M. R. (2021). The health consequences of stress in couples: a review and new integrated Dyadic Biobehavioral Stress Model. *Brain, Behavior, & Immunity-Health*, 16, 100328.
<https://doi.org/10.1016/j.bbih.2021.100328>
- Stewart, V. T., & Clayton, R. B. (2021). Achieving the ideal-self while harming my relationship: Examining associations between self-discrepancy, instagram photo manipulation, and romantic relationship outcomes. *Psychology of Popular Media*.
<https://doi.org/10.1037/ppm0000344>
- Thompson, A. P. (1983). Extramarital sex: A review of the research literature. *Journal of sex research*, 19(1), 1-22. <https://doi.org/10.1080/00224498309551166>
- Walker, M. U. (2008). Moral Repair: Reconstructing moral relations after wrongdoing. *Researchgate.Net*. Retrieved August 12, 2022, from
https://www.researchgate.net/publication/290520878_Moral_repair_Reconstructing_moral_relations_after_wrongdoing doi.org10.1017/CBO9780511618024
- Warach, B., & Josephs, L. (2021). The aftershocks of infidelity: a review of infidelity-based attachment trauma. *Sexual and Relationship Therapy*, 36(1), 68-90.
<https://doi.org/10.1080/14681994.2019.1577961>
- Whisman, M. A. (2016). Discovery of a partner affair and major depressive episode in a

probability sample of married or cohabiting adults. *Family Process*, 55(4), 713-723. doi: 10.1111/famp.12185

Williams K. (2011). A socio-emotional relational framework for infidelity: the relational justice approach. *Family process*, 50(4), 516–528.

<https://doi.org/10.1111/j.1545-5300.2011.01374.x>

Woodyatt, L., Wenzel, M., Okimoto, T. G., & Thai, M. (2022). Interpersonal transgressions and psychological loss: Understanding moral repair as dyadic, reciprocal, and interactionist.

Current Opinion in Psychology, 44, 7-11. <https://doi.org/10.1016/j.copsyc.2021.08.018>

Yaghoobi Tourki, M., Khodabakhshi-koolaei, A., & Falsafinejad, M. R. (2022). Psychological Reactions and the Process of Coping with Marital Infidelity in Couples: A Grounded

Theory Research. *Journal of Qualitative Research in Health Sciences*.

10.22062/JQR.2021.195198.1012

Appendix A

Initial Open-ended Questions

1. Tell me how you came to learn about your partner's infidelity.
2. When, if at all, did you first notice signs of secretive behavior with your spouse/partner?
3. What was it like? If you recall, what were you thinking then? How did you happen to react to the secrecy or infidelity? Who, if anyone, influenced your actions? Tell me about how he/she/they influenced you.
4. Could you describe the events that led up to the infidelity?
5. What contributed to the infidelity?
6. What was going on in your life then? How would you describe how you viewed your marriage/relationship before the infidelity happened? How, if at all, has your view of marriage/relationships changed?
7. How would you describe the person you were then?

Intermediate Questions

1. What, if anything, did you know about infidelity?
2. Could you tell me about your thoughts and feelings when you learned that your spouse/partner had cheated?
3. What happened next?
4. Who, if anyone, was involved? When was that? How were they involved?
5. If you recall, could you tell me about how you learned to handle the infidelity/betrayal?
6. How, if at all, have your thoughts and feelings about relationships/marriage changed since your past relationship?
7. What positive changes have occurred in your life since the infidelity?
8. What negative changes, if any, have occurred in your life since the infidelity?
9. Tell me how you go about coping with the infidelity. What do you do?
10. Could you describe a typical day for you when you feel that you are coping well with the infidelity? Now tell me about a typical day when you feel you are struggling to cope with the infidelity.
11. Would you tell me how you would describe the person you are now? What most

contributed to this change [or continuity]?

12. As you look back on the state of your marriage/relationship before the infidelity, are there any other events that stand out in your mind? Could you describe [each one] it? How did this event affect what happened? How did you respond to _____ [the event; the resulting situations]?

13. Could I ask you to describe the most important lessons you learned through experiencing infidelity?

14. Where do you see yourself in five years? Describe the person you hope to be then. How would you compare the person you hope to be and the person you see yourself as now?

15. What helps you to manage your thoughts, feelings, and actions about the infidelity? What problems might you encounter? Could you tell me the sources of these problems?

16. Who has been the most helpful to you during this time? What did _____ help you with? How has it been helpful?

Ending Questions

1. What do you think are the most important ways to respond to infidelity? How did you discover [or create] them? How has your experience before the infidelity affected how you handled your partner cheating?

2. Could you tell me about how your views [and/or actions] may have changed since you have experienced disloyalty from a spouse/partner?

3. How have you grown as a person since the infidelity? Tell me about the strengths that you discovered or developed through the infidelity. [If appropriate] What do you most value about yourself now? What do others most value in you?

4. After having these experiences, what advice would you give to someone who has just discovered that he or she has been cheated on by a spouse/partner?

5. Is there something that you might not have thought about before that occurred to you during this interview?

6. Is there something else you think I should know to understand infidelity, and the experiences associated, better?

7. Is there anything you would like to ask me?

Volume 5

Article 21

Summer 2022

Lose the War, Win the Peace: American Democratic State-building in Occupied Japan, 1945-52

Lake Preston-Self

Lee University

Under the guidance of Jason Ward, Ph.D.

Abstract

One of the chief presuppositions of the field of history is that it aspires to provide us with knowledge of our past failures and successes, so that we may learn from such failures and seek to recreate conditions for future success. However, history also teaches us to criticize simplistic, narrow, and deterministic interpretations of the past. One of the cited “successes” in the history of American foreign relations is the Occupation of Japan (1945-52), an immense political effort to transition the former militaristic Empire of Japan into a peaceful ally of the free world. By many counts, that effort did succeed, and that success has resulted in a number of calls for policy replication (in Iraq and other developing nations) by leading American political officials and statesmen, including former president George W. Bush. The Occupation of Japan, as a composite exchange of global and national influences, as well as temporal and geographic conditions, highlights the inseparability of historical context from the understanding of historical events and ultimately reveals the futility of attempting to replicate unique historical conditions in an entirely different, modern context. Qualifying the *successes* and *shortcomings* of American policy in Occupied Japan simply requires analysis of American goals and practices, that is, what exactly policymakers hoped to achieve by deploying boots on the ground, and whether those efforts succeeded. Upon evaluation of American policy, one finds that humanitarianism and democratization were not the primary objectives of American efforts, and that, in practice, nation-building in Japan was rather anti-democratic, severe, and, at times, immoral. Despite such flaws in the methods of the occupiers, democratization did ultimately succeed in Japan. However, truly understanding that success requires moving beyond American policy into considerations of other important contextual influences, from the broader history of modernization in Japan dating back to the Meiji Restoration of 1868 to the sociocultural context of absolute defeat and unconditional surrender after WWII. The overarching purpose of this paper is to call into view such themes with the chief goal of explaining the historical uniqueness of the occupation and attempting to understand what truly was a remarkable time of change.

“One of the primary objectives of the foreign policy of the United States is the creation of conditions in which we and other nations will be able to work out a way of life free from coercion.”

Harry S. Truman
March 12, 1947

The “Truman Doctrine” and the Origins of Postwar U.S. Interventionism

On March 12, 1947, President Harry S. Truman appeared before a joint session of the United States Congress to address the nation amidst an international crisis.⁸² On the eve of the Cold War, pressing concerns, including the deterioration of U.S.-Soviet relations in the postwar era and growing threats of authoritarian expansionism, had contributed to a nationwide sense of uncertainty as to the state of American foreign policy and national security. In February, the British Embassy had informed the State Department that it intended to discontinue its distribution of foreign aid to Greece and Turkey, both of which U.S. policymakers believed were at serious risk of falling to communist subversion. The responsibility to provide economic and military assistance to both nations thus fell on the United States, prompting the president to ask Congress for the authorization of an emergency \$400 million in foreign aid.⁸³ In defense of such a request, Truman cited not only practical and strategic justifications for American involvement, but a moral and philosophical obligation for the United States to boldly take the “leading role” in a global effort to expand and protect democratic ideals. The sentiments outlined in Truman’s speech came to define American foreign policy in the Cold War era. The “Truman Doctrine,” as

⁸² Truman’s speech, officially titled “Address of the President of the United States Delivered Before a Joint Session of the Senate and the House of Representatives, Recommending Assistance to Greece and Turkey” is better known to historians as the “Truman Doctrine Speech;” President Truman’s Message to Congress, 80th Congress, 1st Session, *Records of the U.S. House of Representatives*, Record Group 233, National Archives, March 12, 1947.

⁸³ U.S. Congress, Senate, *A Bill to Provide Assistance to Greece and Turkey (Greek-Turkish Aid Act)*, S 938, 80th Congress, 1st Session, March 18, 1947.

it was called, maintained that the international mission of the United States, as the leader of the free world, was to “ensure the peaceful development of nations, free from coercion,” by aiding “free peoples” in their struggles to “maintain their free institutions and their national integrity against aggressive movements that seek to impose upon them totalitarian regimes.” The principal means by which the United States was to achieve this goal was through the geographic “containment” of communist governments abroad. As Truman put it, “The free peoples of the world look to us for support in maintaining their freedoms. If we falter in our leadership, we may endanger the peace of the world -- and we shall surely endanger the welfare of our own nation.”⁸⁴ Truman’s insistence on the United States’ “great responsibilities,” to fight tyranny and promote democracy abroad, persisted into the development of a distinctly American brand of interventionism and state-building in the postwar era. At the end of the Second World War, the victorious nation had found itself with a new, leading position in international affairs, sole possession of the atomic bomb, and the most advanced economy in the world. With such a position, some argued, came a responsibility to bring about global improvement through American-led democratic activism abroad.⁸⁵ A sense of triumphalism, idealism, and duty thus captivated the American government and public, and the United States, for a short time, sat positively poised to lead the world in achieving an amicable state of peace and prosperity.

⁸⁴ Truman’s remarks align with the sentiments of “Domino Theory,” which posited the notion that communist success in one nation, in a geopolitical domino effect, would subsequently spread to neighboring nations and ultimately threaten all democratic states across the globe. See Frank Ninkovich, *Modernity and Power: A History of the Domino Theory in the Twentieth Century* (University of Chicago Press: 1994).

⁸⁵ Supporters of American-led democratic activism generally subscribed to the tenets of “Modernization Theory.” Developed principally by thinkers such as German sociologist Max Weber and American sociologist Talcott Parsons, the theory argued that all societies follow a modernization process of development, from early agricultural and rural stages to later postindustrial and urban stages. See, for example, Max Weber, *Soziologische Kategorienlehre*, trans. by Talcott Parsons and Alexander Morell Henderson in *The Theory of Social and Economic Organization* (New York: Free Press, 1947).

Occupied Japan as a Case of American Democratic State-building

In the seven decades that have passed since Truman's address, shifting American interests have led to lasting military commitments in every major geographic region of the world, trillions of dollars in expenses on foreign aid, and the loss of thousands of lives to violent conflict and destruction. Today, as interventionism remains a pertinent topic in foreign policy discussions and tensions between authoritarian and democratic regimes persist in the international sphere, inquiries into historic cases of American state-building are especially relevant. Out of seventeen cases of U.S.-led state-building since 1898, only four occupations (that of post-WWII Japan and Germany, 1984 Grenada, and 1989 Panama) resulted in the development of legitimate and lasting democratic institutions in the "host nation" after American withdrawal.⁸⁶ Postwar Japan, as a non-Western nation, former Axis power, and once stark enemy of the United States, especially offers a valuable case for historical analysis. Over the course of seven years after the war (1945-52), American occupying forces implemented a series of dramatic and comprehensive reforms aimed at transitioning Japan away from its militaristic and imperial tendencies and toward becoming a peaceful and reliable ally state. Such efforts brought rapid political and social change to Japan, and less than a decade after the Japanese surrendered to the United States, relations between the two nations had effectively shifted from a state of total war to a peaceful and harmonious postwar partnership. The gruesome and unrelenting War in the Pacific, a four-year campaign of stark cultural and ideological clash fueled by race hate and plagued by atrocity, thus finally gave way, and out of the rubble, in the aftermath of unprecedented violence and destruction, emerged two allies that have since engaged in one of the

⁸⁶ David Lake, "The Practice and Theory of U.S. Statebuilding," *Journal of Intervention and Statebuilding* 4, no. 3 (September 2010): 260. Professor Lake's chosen qualification for successful interventionism is whether American efforts resulted in "democracy lasting more than 10 years."

strongest and most significant relationships in the free world.⁸⁷ The occupation of Japan thus truly occurred in a remarkable context, a transition from war to peace, destruction to reconstruction, and hatred to genuine goodwill.

This admirable context, of peace and order, has prompted idealists to label the occupation as a “resounding success” of American foreign relations, citing Japan’s modern economic prowess, international prominence, flourishing democratic institutions, and strong allyship with the United States as evidence of efficacious American policy construction.⁸⁸ Coinciding with such sentiments, policy architects in recent history have sought to replicate postwar Japan’s success in other nations by invoking the occupation as a model for effective democratic state-building. The most striking and obvious evidence of such efforts occurred in the early 2000s, during the War on Terror, as American policymakers faced a dire situation in the Middle East. On August 30, 2005, a few days before the 60th anniversary of the Japanese surrender aboard the U.S.S. Missouri, President George W. Bush commemorated the occasion by drawing parallels between World War Two and the War in Iraq. “Once again, we face determined enemies [Japan and Iraq] who follow a ruthless ideology [militarism and Islamic fundamentalism] that despises everything America stands for,” Bush stated, “Once again, America and our allies are waging a global campaign with forces deployed on every continent, and once again we will not rest until

⁸⁷ For an excellent description of Japan’s drastic postwar transformation, see John W. Dower, *War Without Mercy* (New York: 1986), especially the final chapter entitled “From War to Peace.”

⁸⁸ This positive depiction of the occupation is central to the “conservative” approach to occupation history (a school largely made up of former SCAP officials and Washington policy planners), which tended to overstate the democratic successes of American policy and the benevolence of MacArthur and SCAP in conducting governmental affairs. See Ray A. Moore, “The Occupation of Japan as History: Some Recent Research,” *Monumenta Nipponica* 36, no. 3 (Autumn, 1981): 318.

victory is America's and our freedom is secure.”⁸⁹ Though perhaps less iconic and passionate, the president's sentiments evoked similar themes to Truman's moralist justifications of Cold War interventionism. In Bush's America, as in Truman's America, a milieu of crisis and war plagued the international sphere. Two years had passed since the initial deployment of the United States military in Iraq, the government had authorized billions to fund the war, and thousands of American troops and Iraqi civilians had been killed as a result of the conflict.⁹⁰

Bush continued in his speech to draw interesting parallels between his administration's constitution drafting efforts in Iraq and the development of the Japanese Constitution during the American occupation in 1947. During the War in the Pacific, Bush claimed, Presidents Roosevelt and Truman “understood that the sacrifices of Allied forces would mean nothing unless we used our victory to help the Japanese people transform their nation from tyranny to freedom.” American-led constitution building, he said, “set Japan on the path to a free society” and guaranteed “the universal freedoms that are the foundation of all genuine democracies.” Similarly, the president argued, the 2005 Iraqi Constitution, as a “result of democratic debate and compromise,” likewise protected “fundamental human freedoms, including freedom for women, freedom of religion, freedom of assembly, freedom of conscience and freedom of expression.” Such comparisons sparked serious debate among policymakers and historians as to whether occupied Japan could, in reality, serve as a model for democratic state-building in occupied

⁸⁹ George W. Bush, “Remarks on the 60th Anniversary of V-J Day,” San Diego, California, August 30, 2005, *Public Papers of the Presidents of the United States, George W. Bush, Book II (July 1-December 31, 2005)*, National Archives and Records Administration, Office of the Federal Register, 2007.

⁹⁰ Quantifying the exact costs of the war is difficult. According to Brown University's “Costs of War” project, 4,598 U.S. soldiers and an estimated 185,831-208,964 civilians died in Iraq from March 2003-August 2021. All post-9/11 wars in the Middle East combined have claimed an estimated 897,000-929,000 casualties; Neta C. Crawford and Catherine Lutz, “Human Cost of the Post-9/11 Wars: Direct War Deaths in Major War Zones,” *Costs of War*, Watson Institute for International & Public Affairs, Brown University, August 2021.

Iraq.⁹¹ Those who called for policy replication based their arguments on the aforementioned perceptions of success, while those who disfavored replication cited historic political, social, economic, and infrastructural differences between postwar Japan and modern Iraq.⁹²

Indeed, Bush's parallelism failed to account for serious contextual differences, and today Japan and Iraq lie on opposite ends of the democratic spectrum. Regardless, both sides of the debate, consisting of evidential arguments based on the historical record, highlight the important role of history in modern policy development. Such bold invocations, aspiring to revive the historical occupation and to apply it as a desirable model for democratization, demand pertinent questions as to the true nature and method of occupation policy as well as the historical context

⁹¹ The debate occurred on multiple levels of American society and permeated various American and global institutions, including the press, the academy, and the research wing of the United Nations: Peter Wallsten and Tony Perry, "Bush Likens Democracy Effort in Japan to That in Postwar Iraq," *Los Angeles Times*, August 31, 2005; Ken Gewertz, "Looking at Germany, Japan, Iraq: A tale of three occupations, U.S. 'occupations' compared by panel," *Harvard Gazette*, March 18, 2004; John W. Dower, "Remaking History: Bush's comparison of Iraq with postwar Japan ignores the facts," *The Asia-Pacific Journal* 1, no. 5 (May 23, 2003); United Nations University, "Research Brief: Lessons from U.S. Interventions to Japan, Afghanistan, and Iraq," World Institute for Development Economics Research, 2013.

⁹² Interestingly, the contemporary policy debate followed similar divisions between conservative and revisionist historians. In the latter 1960s and early 1970s, revisionist (or "new left") historians began to challenge the conservative domination of occupation policy studies. Contemporary factors, including the broader international concerns of the Cold War and critical questions arising from failed interventionism in Indochina, contributed to a rekindled scholarly interest in U.S.-Asia policy and a necessary reassessment of the occupation in light of the tense international landscape. The availability of a robust number of newly declassified government documents, policy papers, and memoranda, as well as the opening of private archives, allowed these historians to address such concerns and to revisit the occupation as informed by fresh primary source accounts. Thus, some scholars began to view occupied Japan through the lens of the Cold War, noting a connection between global containment policy and SCAP directives and describing the occupation as a piece of the larger international rivalry between the U.S. and the Soviet Union. Building from such interpretations, certain revisionists labeled the occupation as a missed opportunity for genuine democratization, starkly contrasting the existing romanticism of conservative interpretations with a more comprehensive and critical approach. See, for example, Michael Schaller, *The American Occupation of Japan: The Origins of the Cold War in Asia* (Oxford University Press: 1985); Howard Schonberger, *Aftermath of War: Americans and the Remaking of Japan, 1945-1952* (Kent, OH: Kent State University, 1989). Renowned occupation historian John W. Dower addresses the contemporary influences on revisionist scholarship in "A Rejoinder," *Pacific Historical Review* 57, no. 2 (May 1988): 202-9. Notable revisionist works include John W. Dower, "Occupied Japan and the American Lake, 1945-1950," in *America's Asia: Dissenting Essays on Asian-American Relations*, ed. by Edward Friedman and Mark Sheldon, (New York: 1971); Theodore Cohen, *Remaking Japan: The American Occupation as New Deal* (New York: 1987). For further description of revisionist historiography, see Dayna Barnes' excellent explanation in "Armchair Occupation: American Wartime Planning for Postwar Japan, 1937-1945," PhD diss., London School of Economics, 2013.

surrounding the occupation. The dilemma before historians is not whether Japan democratized, it is rather how Japan democratized. To what extent did democratization constitute American priorities? What role did American policy efforts play in Japan's ultimate adoption of democracy? And, finally, to what extent did the United States truly *succeed* in Japan?

One of the chief presuppositions of the field of history is that it aspires to provide us with knowledge of our past failures and successes, so that we may learn from such failures and seek to recreate conditions for future success. However, history also teaches us to criticize simplistic, narrow, and deterministic interpretations of the past. Fundamentally, the study of historical events must operate from the understanding that phenomena are complex and that specific outcomes possess a sensitive dependence upon contextual conditions.⁹³ The Occupation of Japan, as a composite exchange of global and national influences, as well as temporal and geographic conditions, highlights the inseparability of historical context from the understanding of historical events and ultimately reveals the futility of attempting to replicate unique historical conditions in an entirely different, modern context. Such themes will be the subject of the latter portion of this paper. Yet, for a moment, let us view the occupation in a vacuum, devoid of the broader historical context, where we are left only with raw policymaking from a distinctly American perspective. In that vacuum, qualifying the *successes* and *shortcomings* of American policy simply requires analysis of American goals and practices, that is, what exactly policymakers hoped to achieve by deploying boots on the ground in Japan, and whether those efforts succeeded. Upon evaluation of American policy, one finds that humanitarianism and democratization were not the primary objectives of American efforts, and that, in practice,

⁹³ For further description of the importance of "initial conditions" in accounting for phenomena, as well as a sweeping description of historical method and theory, see John Lewis Gaddis, *The Landscape of History* (Oxford University Press: 2004).

nation-building in Japan was rather anti-democratic, severe, and, at times, immoral. Despite such flaws in the methods of the occupiers, democratization did ultimately succeed in Japan. However, truly understanding that success requires moving beyond American policy into considerations of other important contextual influences, from the broader history of modernization in Japan dating back to the Meiji Restoration of 1868 to the sociocultural context of absolute defeat and unconditional surrender after WWII. With such themes taken into account, the principal goals of this paper are to uncover the true nature of the American occupation, to explain American goals and practices in detail, and to dispel the myth of Occupied Japan as a so-called “perfect” occupation, begging for replication in the modern era.

The Theory and Practice of “Democratic” State-building in Occupied Japan

Though cited by some as a case of multilateral cooperation among the occupiers and the occupied, and as a success of international collaboration, the occupation was in practice a fully unilateral effort undertaken by a significant number of American occupying forces, who possessed near-totalitarian power and authority. On August 15, 1945, President Truman appointed General of the Army Douglas MacArthur as the “Supreme Commander” of the occupying forces, a powerful position that afforded him absolute authority in conducting the affairs of the occupation.⁹⁴ MacArthur presided over a large administrative system of U.S. military officials and American bureaucrats collectively referred to as the office of the Supreme Commander for the Allied Powers (SCAP). In theory, SCAP was to conduct a multilateral,

⁹⁴ President Truman officially clarified the extent of MacArthur’s power in a message to the general dated September 6, 1945: “The authority of the Emperor and the Japanese Government to rule the State is subordinate to you as Supreme Commander for the Allied Powers. You will exercise your authority as you deem proper to carry out your mission... You may enforce the orders... as you deem necessary, including the use of force;” Instructions to General of the Army Douglas MacArthur (Message No. 1), *Foreign Relations of the United States (FRUS): Diplomatic Papers, 1945, The British Commonwealth, The Far East, Volume VI*, September 6, 1945.

Allied occupation “acting in the interests of the United Nations.”⁹⁵ However, in practice, the United States, acting through MacArthur, possessed unilateral authority as to the nature of the occupation. In SWNCC 150/4, a document outlining the United States’ guidelines for initial post-surrender procedure, American policymakers clearly stated that “although every effort will be made...to establish policies for the conduct of the occupation and the control of Japan which will satisfy the principal Allied powers, in the event of any differences of opinion...the policies of the United States will govern.”⁹⁶

SCAP authority was centralized at General Headquarters (GHQ) in Tokyo, from which MacArthur delegated the responsibility of implementing directives to a number of Japanese politicians and bureaucrats. Due to the “desire of the United States to attain its objectives with a minimum commitment of its forces and resources,” MacArthur was directed to “exercise his authority through Japanese governmental machinery and agencies.”⁹⁷ Though the government was granted “the normal powers...of domestic administration,” all levels of the Japanese government were ultimately “subject to the Supreme Commander,” who possessed “all powers necessary to effectuate the surrender terms and to carry out the policies established for the conduct of the occupation and the control of Japan.” Operating from the terms of the “unconditional surrender” provision outlined in the Potsdam Declaration,⁹⁸ initial American

⁹⁵ In December 1945, the Allied powers set up the Far Eastern Commission (FEC), a multilateral international organization theoretically designed to oversee the occupation of Japan. For information on the institutional framework of the “Allied occupation,” see “Part II: Allied Authority” in State-War-Navy Coordinating Committee (SWNCC) 150/4, “U.S. Initial Post-Surrender Policy for Japan,” *Harry S. Truman Presidential Library*, September 6, 1945.

⁹⁶ SWNCC 150/4, “Part II: Allied Authority,” *Truman Library*, September 6, 1945.

⁹⁷ SWNCC 150/4, “Part II: Allied Authority,” Par. 2, “Relationship to the Japanese Government,” *Truman Library*, September 6, 1945.

⁹⁸ “Proclamation Calling for the Surrender of Japan, Approved by the Heads of Governments, United States, China, and the United Kingdom” (Potsdam Declaration), *FRUS: Diplomatic Papers, The Conference of Berlin (Potsdam Conference)*, 1945, Volume II, July 29, 1945.

occupation policy thus granted SCAP the ultimate authority to penetrate Japanese society, enact radical reform, and attain “absolute” control over the future of Japan.

Though romanticized and idealized as a resounding democratic success, American occupation policy did not primarily aim to develop an independent, democratic state in Japan, but rather sought to create a subordinate, ally state sympathetic to American interests. At best, American policymakers viewed democratization as merely a means in achieving broader goals, and at worst, democracy was cast aside altogether in favor of anti-democratic, authoritarian practices, such as the systemic “purging” of unfavorable individuals from civil positions and the imposition of strict censorship policies. As detailed in SWNCC 150/4, “the ultimate objectives of the United States in regard to Japan” were (1) “to insure that Japan will not again become a menace to the United States or to the peace and security of the world” and (2) “to bring about the eventual establishment of a peaceful and responsible government which will respect the rights of other states and will support the objectives of the United States as reflected in the ideals and principles of the Charter of the United Nations.”⁹⁹ The occupation aimed to achieve such objectives through four “principal means:” disarming the Japanese military, dispossessing the colonial holdings of the empire, promoting a peacetime economy, and encouraging the development of certain democratic tendencies in Japanese government and society. Such distinctions between “ultimate objectives” and “principal means” carry important connotations for deciphering overarching American state-building goals. In the context of SWNCC 150/4, democratization is spoken of as a “means” of achieving higher “objectives.” According to initial post-surrender policy, the Japanese were to simply “be *encouraged* to develop a desire for

⁹⁹ SWNCC 150/4, “Part I: Ultimate Objectives,” *Truman Library*, September 6, 1945.

individual liberties” and “be *encouraged* to form democratic and representative organizations.”¹⁰⁰ Furthermore, though the U.S. intended for the new regime to “conform as closely as may be to principles of democratic self-government,” policy writers made clear that it was “not the responsibility of the Allied Powers to impose upon Japan any form of government not supported by the freely expressed will of the people.”

Thus, while promoting a successful democracy by peaceful and orderly means was certainly a component of initial occupation policy, pure aspirations to build a genuine democratic Japanese state proved less pervasive than pragmatism in sparking American involvement.¹⁰¹ A “successful” operation, in the view of the American occupiers, was not as much measured by levels of peace, order, or democracy, but by the extent to which American occupiers could effectively use Occupied Japan to advance American interests, namely by developing a sympathetic government that would “support the objectives of the United States” and satisfy a broader desire to preserve American economic and security interests in the Far East. Of course, over the seven years of the occupation, changing American interests and motivations resulted in an evolution of policy goals and thus certain changes in SCAP directives over time. Such evolutions primarily reflected two overarching phases of American policy in Occupied Japan: the “reorientation” phase and the “containment” phase.

¹⁰⁰ Ibid.

¹⁰¹ David Lake notes the centrality of *realpolitik* to American state-building goals in what he calls “Statebuilding 1.0,” which ran from the late 1890s to the end of the Cold War: “Statebuilding 1.0 was premised on a political theory of *realpolitik*. Only states in America’s expanding sphere of influence were subject to its ministrations. There was no universal call or campaign to build states around the globe. Rather, efforts were concentrated in areas of concern and undertaken only in the self-interest of the United States.” See “The Practice and Theory of U.S. Statebuilding,” 263.

The Reorientation of Postwar Japan: Ending Militarism and Promoting Democracy

During the “reorientation” phase (1945-48), American occupiers essentially engaged in a neocolonial, military expedition to formally decapitate the Japanese Empire and to elevate a peaceful and reliable government in its place. SCAP officials sought to actualize this goal by first demilitarizing and second democratizing the Japanese state. Disarmament and demilitarization policies were implemented through a large framework of SCAP directives, including actions to both punish former imperial officials for the war and to prevent any future resurgence of Japanese militarism. In the eyes of the Allied powers, militaristic ideologies had been the chief enemy of the war and were responsible for unprecedented death and destruction. Nazi militarists, in a quest for global domination, had laid waste to European cities and landscapes, systematically murdered six million Jews, mobilized a system of institutionalized slave labor, and executed thousands of hostage soldiers and civilians. In the Pacific, Japanese militarists, in an effort to bring about the “purification” (*misogi*) of the planet, had likewise launched a campaign of unrelenting atrocity, including the massacre of noncombatants, torture and execution of military and civilian prisoners, mobilization of forced labor, and the conduction of grotesque scientific experiments on human subjects. Thus, as detailed in SWNCC 150/4, one of the primary components of initial occupation policy in Japan (and Germany) was to “totally eliminate” the “authority of the militarists and the influence of militarism” from the country’s “political, economic, and social life” and to vigorously suppress “institutions expressive of the spirit of militarism and aggression.”¹⁰²

¹⁰² SWNCC 150/4, “Part I: Ultimate Objectives,” *Truman Library*, September 6, 1945. In a memo to Secretary of State James F. Byrnes, George Atcheson, then Acting Political Advisor in Japan, referred to the effort to purge Japan of militarism as a “de-nazification” process; Atcheson to Byrnes, Doc 113, *FRUS, 1946, The Far East, Volume VIII*, January 5, 1946.

The first of such efforts occurred from May 1946 to November 1948, as the International Military Tribunal for the Far East (IMTFE), a multilateral court consisting of justices from eleven Allied nations,¹⁰³ presided over the Tokyo War Crimes Trials. A group of twenty-eight prominent Japanese government leaders and military officials, including prime minister Tōjō Hideki, were tried as “Class A” war criminals for committing “crimes against peace” and “crimes against humanity.”¹⁰⁴ Of these, two died during legal proceedings and one was declared mentally unfit for trial; of the other twenty-five, seven were executed by hanging, sixteen received life imprisonment, and two received lesser punitive terms.¹⁰⁵ By the conclusion of the Tokyo Trials, Allied war tribunals had heard cases from a total of 5,379 Japanese, 173 Taiwanese, and 148 Korean war criminals tried for a variety of “Class B” and “Class C” charges, including “conventional war crimes,” “conspiracy to wage aggressive war,” “waging aggressive war,” rape, murder, and the maltreatment of Allied prisoners of war.¹⁰⁶ Of these, roughly 4,300 were convicted, nearly 1,000 were sentenced to death, and hundreds more received life imprisonment.¹⁰⁷

¹⁰³ The eleven justices were from the United States, United Kingdom, Australia, New Zealand, Canada, France, the Netherlands, India, the Philippines, China, and the Soviet Union. Justice Radhabinod Pal (India), in a 1,235-page dissenting opinion, rejected both the legal theories and facts upon which the final judgment was based. Pal argued that the Allies did not possess the legal authority to try Japanese leaders as war criminals; that “war” was not a crime in international law when hostilities began; that “aggressive war” was impossible to accurately define; and that the accused should therefore be declared “not guilty.” See W.J. Sebald’s transmission of the IMTFE’s judgment in a memo to Secretary Marshall: Acting Political Advisor in Japan (W.J. Sebald) to the Secretary of State (George C. Marshall), Document 613, *FRUS, 1948, The Far East and Australasia, Volume VI*, November 23, 1948.

¹⁰⁴ Edward Drea et. al., “Researching Japanese War Crimes: Introductory Essays,” *Nazi War Crimes and Japanese Imperial Government Records Interagency Working Group*, National Archives and Records Administration, Library of Congress, 2006, 6.

¹⁰⁵ Acting Political Advisor in Japan (W.J. Sebald) to the Secretary of State (George C. Marshall), Document 613, *FRUS, 1948, The Far East and Australasia, Volume VI*, November 23, 1948; Drea, “Researching Japanese War Crimes,” *Nazi War Crimes and Japanese Imperial Government Records*, 6-7.

¹⁰⁶ Sebald to Marshall, Document 613, *FRUS, 1948, The Far East and Australasia, Volume VI*, November 23, 1948.

¹⁰⁷ Drea, “Researching Japanese War Crimes,” *Nazi War Crimes and Japanese Imperial Government Records*, 7.

As a part of the “political reorientation of Japan,”¹⁰⁸ American occupiers aimed to purify the Japanese government of individuals who had allegedly “deceived and misled the Japanese people into embarking on world conquest.”¹⁰⁹ SCAP officials executed this mission with two major directives dated January 4, 1946: the “Abolition of Certain Political Parties, Associations, Societies and other Organizations”¹¹⁰ and the “Removal and Exclusion of Undesirable Personnel from Public Office.”¹¹¹ Collectively, such directives were part of the “purge program,” which from January 4, 1946 to May 10, 1948 directly affected the lives of roughly 210,000 people by “disqualifying certain Japanese from holding particular positions and employment.”¹¹² Such practices were controversial at the time and invoked pertinent questions concerning individual liberty, democracy, and national sovereignty, as well as the extent and nature of SCAP authority. American occupiers’ justifications of the purge cited the broad grant of power issued to SCAP leadership by the Allied nations and the unconditional surrender of the Japanese Empire. As outlined in Paragraph 10 of the Potsdam Declaration, the Japanese government was tasked with removing “all obstacles to the revival and strengthening of democratic tendencies among the Japanese people.”¹¹³ The “Government Section” of the occupying forces, which held “the responsibility of reshaping the governing system of Japan into a modern institution,” concluded

¹⁰⁸ Supreme Commander for the Allied Powers (SCAP), Government Section, *Political Reorientation of Japan, September 1945-48*, U.S. Government Printing Office, 1949, 8-66.

¹⁰⁹ Potsdam Declaration, Par. 6, *FRUS, Potsdam Conference, 1945, Volume II*, July 29, 1945.

¹¹⁰ SCAPIN 548, “Abolition of Certain Political Parties, Associations, Societies, and other Organizations,” January 4, 1946, in *Political Reorientation of Japan*, 479.

¹¹¹ SCAPIN 550, “Removal and Exclusion of Undesirable Personnel from Public Office,” January 4, 1946, in *Political Reorientation of Japan*, 482.

¹¹² Acting Political Adviser in Japan (W.J. Sebald) to the Secretary of State (George C. Marshall), Document 551, *FRUS, 1948, The Far East and Australasia, Volume VI*, May 27, 1948.

¹¹³ *Ibid.*

that the removal of such obstacles “could not be brought about without a major alteration in Japanese leadership, which in turn could not be brought about without the purge.”¹¹⁴ Dissenting with such justifications, notable Japanese scholars have questioned both the legality and the morality of the purge program, based on the premise that the drastic reorientation of the Japanese government led to a loss of valuable bureaucratic talent with damaging consequences for society.¹¹⁵ Indeed, such questions were appropriate, especially regarding the innocence of certain lower-level government officials and the effectiveness of a regime purged of a significant number of its most talented bureaucrats. Such controversies, among broader changes in policy objectives, ultimately led SCAP to re-evaluate and remove the purge program in May 1948.¹¹⁶

In addition to occupier unilateralism and the purge program, other anti-democratic and authoritarian tendencies characterized the demilitarization phase, further plaguing the credibility of American democratic efforts throughout the occupation. From September 1945 to September 1949, SCAP imposed a variety of strict censorship laws through the Civil Censorship Detachment (CCD), a new bureaucratic body designed to vet all forms of Japanese press, media, and artistic expression, including radio, newspapers, and magazines, as well as music, film, and theatre.¹¹⁷ Criticism of SCAP, the United States, and the Allied Powers was strictly forbidden;

¹¹⁴ Ibid.

¹¹⁵ For examples of the “occupation as a tragic encounter,” see Etō Jun, “1946-nen Kempō – Sono Kōsoku,” in *Shokun!* (August 1980): 20-65; Shimizu Ikutarō, “Kaku no Sentaku,” in *Shokun!* (July 1980): 22-68; cited in Moore, “The Occupation of Japan as History,” 325-28.

¹¹⁶ Sebald to Marshall, Document 551, *FRUS, 1948, The Far East, Volume VI*, May 27, 1948.

¹¹⁷ In a directive dated September 10, 1945, entitled “SCAPIN 16,” the Japanese government was “directed to prevent dissemination of news which failed to adhere to the truth or which disturbed public tranquility.” See *Political Reorientation of Japan*, 194-95. Historical literature on SCAP censorship is robust. For an in-depth study of CCD censorship of Japanese literature, see Jay Rubin, “From Wholesomeness to Decadence: The Censorship of Literature under the Allied Occupation,” *Journal of Japanese Studies* 11, no. 1 (1985): 71–103. Marlene Mayo has contributed a number of valuable works. See, for example, Mayo’s “Civil Censorship and Media Control in Early Occupied Japan,” in *Americans As Proconsuls: United States Military Government in Germany and Japan, 1944-1952*, ed. by Robert Wolfe (Southern Illinois University Press: 1984); and “The War of Words Continues: American

writers and publishers were expected to support the judgments of the Tokyo Trials, as well as SCAP constitution-building efforts; and any “references to censorship” were strongly prohibited.¹¹⁸ The CCD worked closely alongside the Civil Intelligence and Education (CI&E) section, the quintessential propaganda arm of the occupying forces, which formally instituted a “war guilt program” in 1945 aimed at controlling public perception and psychologically demilitarizing Japanese society.¹¹⁹ The CIE propaganda campaign sought to perpetuate the American version of the Pacific War, and thus the program published an Allies-slanted “History of the Pacific War” in domestic newspapers and established a biased radio program entitled “Now It Can Be Told.”¹²⁰ Such attempts to commandeer the narrative and weaponize history seriously comprised Japanese freedoms of thought and expression, as well as society’s capability to adequately process, debrief, and grieve the tragedies of the war.¹²¹ Evidence of such effects is perhaps most obvious in the censorship of the atomic bombings of Hiroshima and Nagasaki, which included SCAP suppression of various writings, including American author John Hersey’s famous 1946 piece, *Hiroshima*.¹²²

Democratic Reform and the 1947 Constitution

Radio Guidance in Occupied Japan,” in *The Occupation of Japan: Arts and Culture*, ed. by Thomas W. Burkman (Norfolk, VA: 1988), 45–83. See also Dower’s chapter entitled “Censored Democracy: Policing the New Taboos” in *Embracing Defeat*, 404–40.

¹¹⁸ For more information on the “press code” and the CCD’s “categories of deletions and suppressions,” see Dower, *Embracing Defeat*, 410–11.

¹¹⁹ Takashi Yoshida discusses the “war guilt program” in “Historiography of the Asia-Pacific War in Japan,” *ScholarWorks at Western Michigan University* (June 3, 2008): 4. For the “psychological demilitarization” of Japanese society, see Dower, *Embracing Defeat*, 413–15.

¹²⁰ “Supreme Commander for the Allied Powers Monthly Summary,” no. 1, September–October, 1945, National Archives, Record Group 331, Box 1349, cited in Yoshida, “Asia-Pacific War in Japan,” 4.

¹²¹ Dower, *Embracing Defeat*, 313–14.

¹²² The later edition of the book contains an additional chapter written forty years after the bombing: John Hersey, *Hiroshima* (New York: 1985).

After the campaign to disarm and demilitarize the empire was mostly complete, American occupiers shifted their efforts toward building and strengthening Japanese democratic institutions through a series of SCAP-directed and Japanese-implemented political, social, and economic reforms. The core of such democratization efforts rested around the modernization and “liberalization” of the Japanese constitution,¹²³ which, once ratified by the National Diet, formally transitioned the state from an oligarchical military empire to a parliamentary constitutional monarchy. The final draft included a variety of new political provisions designed to permanently thwart the resurgence of the militarist regime and to implement a representative government with authorities “derived from the people,” including the implementation of “universal adult suffrage...with regard to the election of public officials.” The constitution further secured equal protection for women and minorities by banning “discrimination in political, economic or social relations because of race, creed, sex, social status or family origin.” Other reforms included the unionization of labor, the establishment of fair trial rights, and the development of a new court system protecting freedoms of religion, speech, assembly, thought, and conscience.

In a more controversial move, American occupiers sought to solidify previous demilitarization efforts through the inclusion of the infamous “Article 9,” a unilaterally American-authored¹²⁴ safety provision officially banning the development of a future Japanese military. The full text of the provision reads:

¹²³ The Constitution of Japan, promulgated: November 3, 1946, effective: May 3, 1947, National Diet Library, Japan, Government Printing Bureau.

¹²⁴ Shrouds of darkness and uncertainty surround the authorship of Article 9. Though Japanese officials were integral to the constitution-building process, many historical accounts emphasize the strong influence of SCAP in directing the drafting process. Due to persistent American unilateralism throughout the occupation, the constitution is sometimes referred to as the “MacArthur Constitution,” paralleling the previous “Meiji Constitution.” Charles Kades, Deputy Head of the Government Section, apparently claimed to have authored Article 9 under MacArthur’s supervision at a 1980 conference held at Amherst College. See Ray A. Moore, “The Occupation of Japan as History,” 326.

“Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as a means of settling international disputes.

In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.”¹²⁵

Though the Americans effectively protected Japan militarily throughout the occupation and the Japanese “Self-Defense Force” came into existence in 1954, the systemic deprivation of the Japanese government’s ability to defend its own people seriously undermined the fundamental legitimacy of the state. The primary purpose of a democratic, liberal government (according to Western Enlightenment philosophers such as John Locke) was to protect the natural rights of its citizens.¹²⁶ A government with a permanent, institutionalized inability to provide basic defense (without relying on foreign military) was by such counts illegitimate. The inclusion of “Article 9” thus further complicates the assumption that the Americans’ main goal was to erect a fully legitimate, democratic, and independent government in Japan. To a certain extent influenced by prejudiced assumptions of inherent racial untrustworthiness and the fear that Japan’s Asian identity would compel the country to align itself with other Asian powers,¹²⁷ a persistent mistrust of Japanese militarism continued to hinder genuine democratic gains. In the eyes of the occupiers, broader American interests required attention before Japan could receive full independence. A genuine democracy would have to wait.

The “Reverse Course” and Geostrategic Containment

¹²⁵ The Constitution of Japan, “Chapter II: Renunciation of War,” Article 9, promulgated: November 3, 1946, effective: May 3, 1947, National Diet Library, Japan, Government Printing Bureau.

¹²⁶ John Locke, *Second Treatise of Government*, ed. by C.B. Macpherson (Cambridge: 1980).

¹²⁷ Dower, *War Without Mercy*, 310-11.

During the next era of the occupation, the “containment” phase (1948-52), American policy objectives shifted toward developing Japan as a geostrategic buffer zone to ensure the containment of Russian and Chinese communism and the continual protection of broader American security and economic interests in the Far East. Reflecting the onset of the Cold War, strong fears of communist expansionism effectively replaced the Americans’ initial postwar concern of militarism. Occupied Japan thus became a contemporary test model for the “Truman Doctrine” and an opportunity to perpetuate American ideals against growing communist threats in East Asia. The execution of this vision largely fell in the hands of George Kennan, a career foreign service officer, whose anticommunist ideals came to fruition in a new, guiding policy document entitled “NSC 13/2.”¹²⁸ The October 7, 1948 document heavily emphasized developing and strengthening the Japanese economy, removing “existing obstacles to the revival of foreign trade,” bolstering “private enterprise,” aiming to “raise production” and “maintain high export levels,” attacking inflation, and balancing the budget.¹²⁹ During this period, SCAP directives noticeably changed direction from certain initial post-surrender policies, prompting some historians to identify a “reverse course” in American policy objectives.¹³⁰ Notable changes

¹²⁸ National Security Council, NSC 13/2, “Report by the National Security Council on Recommendations with Respect to United States Policy Toward Japan,” *FRUS, 1948, The Far East and Australasia, Volume VI*, October 7, 1948.

¹²⁹ Though anticommunist and “containment” sentiments certainly began earlier, the implementation of NSC 13/2 marks the most distinct change in occupation policy. Thus, the official date for the start of the “containment phase” is October 7, 1948. See LaFeber, *The Clash*, 294.

¹³⁰ Certain revisionist historians have argued that the “reverse course” featured a radical break from initial reform policies, thus shifting efforts away from democratization and toward preserving Cold War security interests. See, for example, Howard Schonberger, *Aftermath of War: Americans and the Remaking of Japan, 1945-1952*, (Kent, OH: Kent State University, 1989); Michael Schaller, *The American Occupation of Japan: The Origins of the Cold War in Asia*, (Oxford University Press: 1985). On the other hand, Justin Williams, a former SCAP official, has argued that no policy changes occurred in 1948 and that Kennan’s objectives “made no major impact on the occupation.” In an effort to discredit the “reverse course,” Williams further stated that the concept was associated with “Japanese marxian socialists.” Indeed, American interests remained consistent throughout; however, an important change from initial policy certainly occurred in 1948. Evolving security interests necessitated a revisitation of policy, and certain reversals in SCAP directives effectively distinguished American policy before and after October 7, 1948. See Justin

included the end of the purge program, the implementation of policies to consider certain previously purged individuals as “re-eligible for governmental, business and public media positions,” and the strengthening of the “Japanese police establishment” and “coastal patrol” via the “re-enforcing and re-equipping” of existing forces.

Overall, the “containment” period featured significant overlap between Cold War security concerns and broader American economic interests, especially as the push to revive the Japanese economy was integral to preserving the American international capitalist system in the Far East.¹³¹ As described by nineteenth-century reconstructionist and trade expert, Henry Grady, “The capitalistic system is essentially an international system. If it cannot function internationally, it will break down completely.”¹³² Occupation policy thus dually served American pragmatism: the United States’ desire to contain communism in East Asia relied upon a strong, economically dependable Japanese ally state, which in turn conveniently aligned with its wishes to transition Japan into a reliable trading partner. As outlined in NSC 13/2, “second only to U.S. security interests, economic recovery should be made the primary objective of United States policy in Japan for the coming period.”¹³³ The American-led development of Japan thus provided the United States access to the *military* as well as the *economic* frontier in East Asia, as it acquired the ability to maintain a reliable military presence on Japanese territory via the establishment of military bases and a consistent mode of Pacific commerce vis-à-vis

Williams, *Japan’s Political Revolution Under MacArthur: A Participants Account* (University of Georgia Press: 1979), 8-14, cited in Moore, “The Occupation of Japan as History,” 321-22.

¹³¹ I am deeply indebted to Walter LaFeber and his work in describing the significant overlap between American economic policies and anti-communist efforts in “To Create a New Japan: Reforming, Reversing, and Warring (1945-51),” from *The Clash*, 257-83.

¹³² Grady’s quote is cited in LaFeber, *The Clash*, 258.

¹³³ NSC 13/2, Par. 15, “Economic Recovery,” *FRUS*, 1948.

multilateral trade with its new Japanese ally. As Paul Nitze, a close adviser to Secretary of State Dean Acheson, later stated, the containment of communism and U.S. economic policies “were viewed as being one and the same thing.”¹³⁴

Communism, Korea, and the “Full Steam Ahead”

The latter two years of the American occupation (1950-52) may deserve consideration as a distinct third phase of U.S. policy objectives. Newer goals, including the development of a bilateral security agreement and the completion of a formal peace treaty, became the primary focus of American efforts during this period.¹³⁵ Additionally, in April 1951, SCAP experienced a slight regime change as President Truman authorized General Matthew Ridgway to replace Douglas MacArthur as Supreme Commander. Changing contextual conditions in East Asia likewise characterized this latter period, as is evident in the completion of the Chinese Communist Revolution on October 1, 1949, and the onset of conflict in Korea on June 25, 1950. Though markedly different in policy practice, the final two years of the occupation are best understood as a continuation of the objectives of the “containment” era. That is, policymakers continued to develop Japan as a geostrategic ally state with the chief aim of establishing military and economic security in East Asia. The presence of new leadership and changing contextual influences served not to redirect American goals but to push American policy “full steam ahead” toward the completion of previously defined objectives.

American interests consistently remained the chief impetus of policy construction over the course of the final two years of the occupation; however, the occupiers faced a conflict in

¹³⁴ Nitze’s quote is cited in LaFeber, *The Clash*, 295.

¹³⁵ “Bilateral Security Treaty Between the United States of America and Japan,” signed: September 8, 1951, San Francisco, U.S. Government Printing Office, 1952; “Treaty of Peace with Japan” (Treaty of San Francisco), signed: September 8, 1951, San Francisco, *United Nations Treaty Series*, no. 1832.

interests: the U.S. government aspired to develop Japan as a military ally to combat communist expansion in East Asia; however, at the same time, policymakers were concerned with the consequences of renewing Japan's means to militarize.¹³⁶ Currents of mistrust and skepticism, especially concerning Japan's national character, loyalty to the West, and former militaristic tendencies, persisted well into the era of peace, and thus the Americans aimed to solve their dilemma by orchestrating the bilateral security agreement in such a way that "ensured Japan's permanent military insubordination to the United States," a tactic reminiscent of the "unequal treaties" of the nineteenth century.¹³⁷ Such actions reveal that, in the eyes of American policy architects, Japan possessed only limited sovereignty. Thus, the end goal of reviving Japan's economy and erecting democratic institutions was not to create a *fully* independent state; rather, it was to build Japan as an ally, sympathetic to democracy and capitalism, yet ultimately subordinate to American interests.

Such depictions of Japan as untrustworthy, inferior, and subject to American wishes compounded upon existing currents of racism and paternalism in Western society. In fact, prejudiced notions of racial superiority and the suspicion of the "other" contrasted the Americans' moral and humanitarian justifications for interventionism throughout the occupation. For example, in a 1951 U.S. Senate hearing concerning MacArthur's relief from duty, the

¹³⁶ Rearmament was a major concern to U.S. officials, including MacArthur, who "came down hard against rearming and suggested instead that Japan become the productive arsenal of military goods and weapons for its allies in the region." See, LaFeber, *The Clash*, 291.

¹³⁷ In addition to Japan's wartime rhetoric, which emphasized the creation of a pan-Asian "Co-Prosperity Sphere," racial prejudice and stereotyping likewise influenced persistent suspicion (and perhaps paranoia) in Washington. For example, certain policymakers were concerned that Japan would betray the U.S. in favor of establishing a racially motivated alliance with Communist China. During the peace treaty hearings, Senator Everett Dirksen Dower echoed such concerns, stating, "Every ethnic argument is on my side when I say they are Asiatics and will be Asiatics." Further, in a conversation with the ambassador from Nationalist China, Secretary Dulles proclaimed, "The Oriental mind, particularly that of the Japanese, was always more devious than the Occidental," and expressed concern that, in regard to the People's Republic of China, Japan was "playing a double-faced policy vis-à-vis the United States." See, Dower, *War Without Mercy*, 310-11.

general articulated a strongly racist and paternalistic view of the Japanese by distinguishing between American democratization efforts in Germany and Japan:

“The German problem is a completely and entirely different one from the Japanese problem. The German people were a mature race. If the Anglo-Saxon was say 45 years of age in his development, in the sciences, the arts, divinity, culture, the Germans were quite as mature. The Japanese, however, in spite of their antiquity measured by time, were in a very tuitionary condition. Measured by the standards of modern civilization, they would be a boy of 12 as compared with our development of 45 years. Like any tuitionary period, they were susceptible to following new models, new ideas. You can implement basic concepts there. They were still close enough to origin to be elastic and acceptable to new concepts...”¹³⁸

Such paternalism reveals important insights into the Americans’ underlying assumptions of the role of the United States in Japan. The adoption of such a perspective (of racial, cultural, and philosophical superiority) possessed a dichotomous nature in its policy effects. On the one hand, American superiority in part justified the paternalistic exportation of liberal, democratic values to Japan, which was often depicted as a feudalistic, inferior society. In this way, the United States could conceal its more selfish efforts to mold Japan into a subordinate ally state under the guise of acting in the best interest of democracy, morality, and humanitarianism. On the other hand, the view of American superiority reinforced abuses of occupier power. As the victor of the war, the “superior” United States possessed absolute and supreme authority in Japan, and thus the occupying forces could expand and contract democracy at will, subject the Japanese to punishment, implement reforms only piecemeal, and ultimately mold Japanese politics, economics, and society however they saw fit to best fulfill American desires in East Asia.

Lose the War, Win the Peace

¹³⁸ U.S. Senate, Committee on Armed Services and Committee on Foreign Relations, 82nd Cong., 1st sess., *Hearings to Conduct an Inquiry into the Military Situation in the Far East and the Facts Surrounding the Relief of General of the Army Douglas MacArthur from His Assignments in that Area*, 1951, Part One: 312-13, cited in Dower, *War Without Mercy*, 303.

Though perhaps not the primary goal or an entirely consistent effort, democratization did eventually succeed in Japan. However, as evident in the dramaticism of American policy design, achieving successful state-building in postwar Japan necessitated a comprehensive and radical restructuring of Japanese politics from top to bottom, unprecedented penetration into Japanese society, and unilateral control by a significant presence of American forces. The successful implementation of demilitarization and democratization policy likewise required comprehensive wartime planning and deliberation before boots first hit the ground in Japan.¹³⁹ In fact, planning for certain components of postwar policy began during the war, including the drafting of the landmark SWNCC 150/4.¹⁴⁰ Despite the aforementioned currents of racism, paternalism, and anti-democratism, certain American efforts are to be commended, including the successful removal of militaristic oppression from the nation's political and social life and the procurement of equal protection laws for all Japanese people, including historically marginalized groups such as women, Koreans, the native Ainu, and the Okinawans. However, while American policy architects deserve a fair share of credit for such successes, it is not entirely accurate to assume that Japan's radical transition, from a deeply engrained military regime to a full-fledged democracy, solely succeeded due to effective policy construction on the part of the occupiers.

¹³⁹ For an insider account of pre-surrender planning, see Hugh Borton's "Preparation for the Occupation of Japan," *Journal of Asian Studies* 25, no. 2 (1966): 203-12; and "American Presurrender Planning for Postwar Japan," *Occasional Papers of the East Asian Institute*, Columbia University (1967); in John W. Dower, *Embracing Defeat: Japan in the Wake of World War II* (New York: 1999), 589.

¹⁴⁰ On May 4, 1944, the State Department Postwar Programs Committee released a policy document entitled "PWC 108b," which bore strikingly similar language to the later SWNCC 150/4. The "Fundamental Objectives" of postwar policy were to prevent Japan "from being a menace to the United States and the other countries of the Pacific area" and to establish a "government which will respect the rights of other states and Japan's international obligations." Furthermore, American efforts were to "prevent Japanese aggression," "eradicate militarism," and to promote the "encouragement of democratic thought through the press, radio, cinema, and schools;" Postwar Programs Committee, State Department, PWC-108b, "Japan: The Post-War Objectives of the United States in Regard to Japan," *FRUS: Diplomatic Papers, 1944, The Near East, South Asia, and Africa, The Far East, Volume V*, May 4, 1944. For an in-depth study of the wartime planning for occupied Japan, see Dayna Barnes, *Architects of Occupation: American Experts and the Planning for Postwar Japan* (Cornell University Press: 2017).

In fact, several other important contextual factors influenced Japanese democratization outside of American efforts.¹⁴¹ Fundamentally, the occupation occurred in a context of absolute defeat and unconditional surrender. The costs of the Pacific War for defeated Japan were monumental. Though difficult to ascertain truly accurate numbers, it is estimated that as many as 2.7 million Japanese soldiers and civilians died due to the conflict.¹⁴² As a result of Allied air raids and bombing campaigns, sixty-six total Japanese cities were left in utter destruction and scores of homes were completely destroyed, leaving 30 percent of the total population homeless. The American atomic bombings of Hiroshima and Nagasaki alone left as many as 105,000 civilians dead and 94,000 wounded, while also intoxicating people, animals, and plants in surrounding areas with horrific radiation effects.¹⁴³ In the aftermath of such destruction, the Japanese people, like people across Europe and the rest of the world, lay utterly devastated, tired of death, and weary from war. It was in *this* context that Japanese society underwent a radical cultural shift away from its former militaristic tendencies (that, in the eyes of some, had lost the war, contributed to domestic and international suffering, and brought devastation upon the homeland) and toward a new national mission, marked by a commitment to peace, democracy,

¹⁴¹ Non-American perspectives are especially important to attaining a fuller understanding of the occupation. Beginning in the 1980s, historians began to analyze the consequential impacts of SCAP policy on Japanese society, culture, and education and to emphasize the role of non-American political actors in occupation politics. For a comprehensive study of the Japanese perspective, see John W. Dower, *Embracing Defeat* (New York: 1999). For the importance of the Japanese government, see Eiji Takemae, *Inside GHQ: The Allied Occupation of Japan and its Legacy* (New York: 2002). Akira Iriye describes the role of Japanese Prime Minister Yoshida Shigeru in influencing the “reverse course” changes in *The Cold War in Asia: A Historical Introduction* (Prentice Hall: 1974), 147-53. For the role of non-American FEC powers, specifically Britain and New Zealand, see Roger Buckley, *Occupation Diplomacy: Britain, the United States, and Japan, 1945-52*, (Cambridge University Press: 1982); Peter Bates, *Japan and the British Commonwealth Occupation Force, 1946-52*, (London: 1993); Ann Trotter, *New Zealander and Japan, 1945-52*, (London: 1990). For more on international historiography see Barnes, “Armchair Occupation,” 13-14; Moore, “The Occupation of Japan as History,” 320-28.

¹⁴² Dower presents an excellent analysis of the overall costs of the war on Japanese society in *Embracing Defeat*, especially in his section on the quantification of war costs entitled “Quantifying Defeat,” 45-48.

¹⁴³ The Manhattan Engineer District, *The Atomic Bombings of Hiroshima and Nagasaki*, Army Medical Library, 1946, 18.

and liberalism.¹⁴⁴ Though that new mission brought radical change upon Japan militarily, politically, economically, and socially, important continuities persisted in Japan philosophically, namely in the traditional Shinto and Confucian concepts of “purity” and “proper place.”¹⁴⁵

The militarist regime had in part led the country into war on the premises of Japanese invincibility and racial superiority, reinforced by propagandistic depictions of the Japanese people as the morally superior “leading race” (*shidō minzoku*) of the world, or more traditionally as the “Yamato race” (*Yamato minzoku*).¹⁴⁶ Immediately after the War in the Pacific began, the Japanese government released a document entitled “An Outline of Information and Propaganda Policies for the War between Japan and the Anglo-American Powers,” declaring that the chief impetus for war was to “create a new world order” enabling “all nations and races to assume their proper place in the world, and all people to be at peace in their own sphere.”¹⁴⁷ A 1942 document published by the Imperial Rule Assistance Association, entitled *The Great Shinto Purification Ritual and the Divine Mission of Japan*, described that same mission as an effort to create a natural global hierarchy, a “fundamental vertical order” of “perfect concord and

¹⁴⁴ Japan’s postwar evolution is well-documented by scholars. Akira Iriye argues that Japan’s successful reintegration into the international order following the war occurred in part due to both nations’ “shared interests” in “holding to a framework of 1920s internationalism, with its emphasis on regional stability, economic development, and internal order as prerequisites to peace.” See *Power and Culture*, 1, 148. Of course, there was no one Japanese response to defeat. However, sentiments of “liberation from war” and anti-militarism were certainly pervasive in postwar Japanese society. As John Dower notes, “Because the defeat was so shattering...the disgrace of the militarists so complete...starting over involved not reconstructing buildings but also rethinking what it meant to speak of a good life and good society.” See *Embracing Defeat*, 33-84.

¹⁴⁵ I owe much of the following discussion of Japanese culture and philosophy to John Dower’s detailed descriptions in “The War in Japanese Eyes,” from *War Without Mercy*, 203-90.

¹⁴⁶ In January 1942, a popular Tokyo magazine included a propaganda piece entitled “Establishing a Japanese Racial Worldview,” which labeled the Japanese people as “the most superior race in the world.” The article appropriated Shintoism to propagate the notion that life was equitable to death by sacrifice, stating that “the purity associated with Shinto” was “tinged with the pinkness of blood.” Cited in Ben Kiernan, *Blood and Soil: Modern Genocide 1500-2000* (Melbourne University Publishing: 2008).

¹⁴⁷ “An Outline of Information and Propaganda Policies for the War between Japan and the Anglo-American Powers,” cited in Dower, *War Without Mercy*, 205; Kiernan, *Blood and Soil*, 482.

consummate harmony,” in which the Emperor and the Japanese people assumed *their* “proper place” as the patriarchal head of a “world-wide family system.”¹⁴⁸ Militarists thus framed the Pacific War as a “holy war,” a “divine mission” to restore ancient virtues, to “transcend the modern,” and to bring about the “purification” (*misogi*) of the world.¹⁴⁹ Despite Japan’s nineteenth-century modern transformation and adoption of certain Western ideals, to some thinkers achieving such purity required the purging of foreign (mostly Western) influences, including the “dangerous thoughts” of Western movies and music, as well as Western ideologies, such as liberalism and democracy.¹⁵⁰

On the eve of the enemy occupation, however, the nation had been dealt its first major loss in modern history, the militarists had failed, and the country lay physically, psychologically, economically, and environmentally depleted. The Japanese government thus drastically changed direction from its initial wartime mission. The new future of a prosperous Japan lay not in the purging of Westernism, but in accepting defeat and ushering in a new era of peace, stability, and economic growth along a Western model. To put it simply, postwar Japan’s “proper place” was, as former Prime Minister Suzuki Kantarō proposed, that of a “good loser;” Yoshida Shigeru, Suzuki’s successor, summarized the same mission as an effort to “win the peace.”¹⁵¹ This psychological and tactical shift is perhaps most evident in the postwar transformation of Emperor

¹⁴⁸ The document was written by Fujisawa Chikao, a professor at Kyoto University and the head of IRAA Research Bureau: Imperial Assistance Rule Association, *The Great Shinto Purification Ritual and the Divine Mission of Japan*, cited in Dower, *War Without Mercy*, 225-26; Kiernan, *Blood and Soil*, 482.

¹⁴⁹ For a description of the tension between restoring ancient virtues and striving to “transcend the modern,” see, Dower, *War Without Mercy*, 226.

¹⁵⁰ Akira Iriye, *Power and Culture: The Japanese-American War, 1941-1945* (Harvard University Press: 1981), 4-6; Dower, *War Without Mercy*, 228.

¹⁵¹ Kantarō and Shigeru are quoted in Dower, *War Without Mercy*, 205; See also, John W. Dower, *Empire and Aftermath: Yoshida Shigeru and the Japanese Experience, 1878-1954* (Harvard 1979), 312-13.

Hirohito's public image, from the chief symbol of purification by war to a converse symbol of purification by peace. Due to the efforts of certain elites to sway public perceptions, the Emperor, while retaining his cultural significance as the quintessential embodiment of Japanese purity, thus became the emblematic leader of postwar Japan's peaceful "purification" process from a militaristic nation of supremacism and conquest to a cooperative nation of democracy and pacificism.¹⁵² Though significant and impressive, the nation's cultural shift toward democracy during the occupation years (the effort to "win the peace") was not Japan's first effort to increase its stature on the world stage. In fact, the nation's postwar democratization efforts compounded upon existing modernization efforts dating back to the nineteenth century.

From Subjects to Citizens

On July 8, 1853, a fleet of four ships entered Edo Bay donning American colors. Earlier that year, the U.S. government had tasked U.S. Navy Commodore Matthew C. Perry with negotiating the opening of trade with Japan, which had been largely closed to foreign commerce since 1639.¹⁵³ Upon their arrival, the Americans displayed an approach of "gunboat diplomacy." Perry's fleet, equipped with industrial Paixhan shell guns, threatened to open fire on Japanese soil should the government, then the Tokugawa Shogunate, decline trade negotiations. Such tactics ultimately earned the American ships the title of "black ships" (*kurofune*). The American fleet returned in March 1854, and the Tokugawa Shogunate signed the Treaty of Amity and Peace, or

¹⁵² Dower, *War Without Mercy*, 306-7. The symbolism of the emperor carried important ramifications for Allied treatment of the imperial system after the war. Ultimately, the American occupiers decided to retain the emperorship and to demote it to a figurehead position; however, extensive debate as to the true character of Hirohito, as either a militaristic symbol of "world conquest" or as a peaceful Shinto religious leader, influenced the discussion on whether to abolish or preserve the system. See Kiyoko Takeda, *The Dual-Image of the Japanese Emperor* (London: 1988).

¹⁵³ Rhoads Murphey discusses the "Perry Expedition" in *A History of Asia* (New Jersey: 2006), 242-43.

the Treaty of Kanagawa,¹⁵⁴ which effectively ended Japanese isolationist policy (*Sakoku*, or “the closed country”) and granted the United States favored-nation trading privileges.¹⁵⁵ As it rapidly and drastically altered Japanese foreign relations, the Perry Expedition resulted in domestic political criticism toward the Tokugawa Shogunate and its chief senior councilor Abe Masahiro, marking the decline of the shogunate and the beginning of a new era.¹⁵⁶

This new era was the period of *Bakumatsu* (1853-68), or “the end of the shogunate,” which featured the governmental transition from the Tokugawa Shogunate to the restoration of imperial rule under Mutsuhito, or “Emperor Meiji” in 1868.¹⁵⁷ Mutsuhito’s elevation marked the beginning of the “Meiji Restoration” and the adoption of the policy of *kaikoku* (“open the country”)¹⁵⁸ and of *Bunmei-kaika* (“civilization and enlightenment”), which emphasized national Westernization and modernization in order to foster Japanese prominence in an international environment dominated by Western nations.¹⁵⁹ Meiji Japan saw remarkable advancements in industry,

¹⁵⁴ “Japan-US Treaty of Peace and Amity” (Treaty of Kanagawa), signed: March 31, 1854, Yokohama, Japan, National Archives and Records Administration.

¹⁵⁵ It is important to qualify the extent that *Sakoku* was truly “isolationist.” Historian Brett Walker points out that, “after the expulsion of Christians, Japan was not secluded.” Rather, the country “reconfigured foreign relations in a manner” that “strictly benefitted the Tokugawa state.” See Brett Walker, *A Concise History of Japan* (Cambridge University Press: 2015), 95. For more information on Edo-era foreign policy, see Tashiro Kazui and Susan Videen, “Foreign Relations during the Edo Period: Sakoku Reexamined,” *Journal of Japanese Studies* 8, no. 2 (1982): 283-306.

¹⁵⁶ Conrad D. Totman discusses the domestic political effects of the Perry Expedition and the decline of the Tokugawa regime in *The Collapse of the Tokugawa Bakufu* (University Press of Hawaii: 1980).

¹⁵⁷ Mark Thomas McNally, *Like No Other: Exceptionalism and Nativism in Early Modern Japan*, (Honolulu: University of Hawai’i Press, 2016), 69-103.

¹⁵⁸ Walker, *A Concise History*, 145; For a discussion of the tension between “open door” *kaikoku* policy, aimed ultimately at “internationalization” (*Kokusaika*), and “secluded nation” (*Sakoku*) mentality, see Mayumi Itoh, *Globalization of Japan: Japanese Sakoku Mentality and U.S. Efforts to Open Japan* (New York: 2000).

¹⁵⁹ For an in-depth description of *Bunmei-kaika* from a contemporary Japanese scholar, see, Yukichi Fukuzawa, 1835-1901, *Bunmeiron no gairyaku*, trans. by David A. Dilworth and G. Cameron Hurst in *An Outline of a Theory of Civilization* (New York: Columbia University Press, 2008), 17-58.

infrastructure, and bureaucracy, as well as the introduction of proto-democratism into Japanese politics. On February 11, 1889, Mutsuhito and the imperial government authorized the promulgation of the Constitution of the Empire of Japan (often called the “Meiji Constitution”). The primary aim of the “Imperial House Law and Constitution,” was not to formally establish a commitment to democratic values but to “give greater firmness to the stability” of the Japanese state.”¹⁶⁰ In recognizing “the progressive tendency of the course of human affairs” in the Western world, the drafters believed that the establishment of a constitutional framework in which “fundamental laws” were “formulated into express provisions” was “in parallel with the advance of civilization” and, most importantly, in accordance the best interests of the empire. The Meiji Government, as the “Successor to the prosperous Throne of Our Predecessors,” thus did not intend to create a new government founded upon Western ideals but rather aspired to preserve and codify Japan’s existing imperial hierarchy by adapting elements of Western political thought to the traditional imperial system. Thus, the government “humbly and solemnly” swore an oath “to the Imperial Founder of Our House and to Our other Imperial Ancestors” that their actions were “in pursuance of a great policy co-extensive with the Heavens and with the Earth.” According to that oath, the aim of the new constitution was to “maintain and secure from decline the ancient form of government” and to ensure “that the observance of Our laws shall continue to the remotest ages of time.”

Functioning as a system of rigid hierarchy, the final draft did not consider the Japanese people as “citizens” with rights to petition their representatives but as “subjects” under the supreme authority of the empire. By operating in an absolute power framework, the constitution’s extension of “individual rights” to the Japanese people did not serve as a barrier

¹⁶⁰ “Imperial Oath at the Sanctuary Palace,” February 11, 1889, trans. by Ito Miyoji, National Diet Library, Japan.

between the government and the individual, but as a general guideline of the ruler-subject relationship in accordance with ancestral customs and ancient law. The following excerpt from the Imperial Speech on the Promulgation of the Constitution, given by Prime Minister Ito Hirobumi on February 11, 1889, effectively details this ruler-subject relationship:

“Considering that Our subjects are the descendants of the loyal and good subjects of Our Imperial Ancestors, We doubt not but that Our subjects will be guided by Our views, and will sympathize with all Our endeavours, and that, harmoniously cooperating together, they will share with Us Our hope of making manifest the glory of Our country, both at home and abroad, and of securing forever the stability of the work bequeathed to Us by Our Imperial Ancestors.”¹⁶¹

Thus, the imperial government’s “oath” was less of a contract between the government and the people as it was a contract between the modern government and the “Imperial Ancestors” from whom the power of the present regime was derived. Nevertheless, the 1889 draft included a proto-“bill of rights” entitled the “rights and duties of the subject.”¹⁶² Western influence is rather obvious throughout the fifteen articles. For example, Articles 25 and 26 paralleled the Fourth Amendment: “Except in the cases provided for in the law, the house of no Japanese subject shall be entered or searched without his consent. / Except in the cases mentioned in the law, the secrecy of the letters of every Japanese subject shall remain inviolate;” and Articles 28, 29, and 30 paralleled the First Amendment; “Japanese subjects shall, within limits not prejudicial to peace and order, and not antagonistic to their duties as subjects, enjoy freedom of religious belief. / Japanese subjects shall, within the limits of law, enjoy the liberty of speech, writing, publication, public meetings and associations. / Japanese subjects may present petitions, by observing the proper forms of respect, and by complying with the rules specially provided for the

¹⁶¹ “Imperial Speech on the Promulgation of Constitution,” February 11, 1889, trans. by Ito Miyoji, National Diet Library, Japan.

¹⁶² Constitution of the Empire of Japan, “Chapter II: The Rights and Duties of the Subject,” February 11, 1889, trans. by Ito Miyoji, National Diet Library, Japan.

same.” Although reminiscent of the American Constitution, the final draft lacked genuine protection of such rights and included significant caveats to each of its listed provisions. Article 31 effectively allowed for the emperor to revoke any of the preceding provisions in order to ensure that subjects’ “rights” did not “affect the exercise of the powers appertaining to the Emperor, in times of war or in cases of a national emergency.” Further, as such provisions were officially “duties” as well as “rights,” the subject, in receiving such privileges simultaneously “agreed” to a strict contract to “forever assume the duty of allegiance to the present Constitution” and by extension a commitment of undying allegiance to the state.

The 1889 constitution’s cementation of the traditional hierarchal system was perhaps most evident in its large grant of executive power to the emperor and imperial cabinet. As outlined in Chapter I, the state was to “be reigned over and governed by a line of Emperors unbroken for ages eternal” and the throne was only to “be succeeded to by Imperial male descendants.” Naturally, the power vested in the imperial office was absolute and unquestionable. Mutsuhito, as the “sacred and inviolable” leader of the state, received an especially broad grant of administrative, legal, and legislative authority, including the ability to “open,” “close,” and “dissolve” the legislature, exercise “legislative power with the consent of the Imperial Diet,” and issue “Imperial Ordinances in the place of law.” A wide range of other powers likewise fell under imperial authority, including the ability to declare war, “make peace,” and conclude treaties; confer “titles of nobility, rank, orders and other marks of honor;” determine “the organization of the different branches of the administration;” appoint, dismiss, and determine the salaries of “all civil and military officers;” and confer the punishments and pardons of the realm.

To a certain extent, the constitution's provisions of imperial authority borrowed from elements of Western political thought, especially in its conception of some of the aforementioned executive powers (Mutsuhito was given "supreme command of the Army and Navy" for example). However, the pervasiveness of the imperial office as an absolute and divine authority complicated genuine democratic gains for the Japanese people. For example, in instances in which it was deemed "necessary to amend any of the provisions of the present Constitution," the emperor and his advisors assumed the "initiative right" to make any alterations to the document. Given the extent of executive power, it is no wonder that the architects of the corollary Article I of the 1947 Constitution (entitled "The Emperor") made sure to reduce the imperial office to a "symbol of the State...deriving his position from the will of the people with whom resided sovereign power." The language of the new constitution was revolutionary in light of the existing system. American efforts to redefine the power structure of the state drastically stripped the emperor of his former authority by clearly stating that "he shall not have powers related to government." Instead, executive power was "vested in the Cabinet" comprised of the Prime Minister and Ministers of State. Further provisions were included in the 1947 draft to systematically deprive the emperor of certain former constitutional powers and to diminish the influence of imperial elites. For example, it was declared that "no privilege shall accompany any award of honor, decoration or any distinction," that "the people have the inalienable right to choose their public officials and to dismiss them," and that "all public officials are servants of the whole community and not of any group thereof." The demotion of the imperial office effectively dismantled the former ruler-subject relationship on which the entire 1889 system was built, thus paving the way for genuine democratization.

The most important element of the proto-democratic Meiji Constitution was its establishment of a semi-parliamentary legislature called the “Imperial Diet” (*Teikoku Gikai*), which consisted of the “House of Peers” and “House of Representatives.” Originally, the House of Peers was “composed of the members of the Imperial Family, of the orders of nobility, and of those persons, who have been nominated thereto by the Emperor,” and the House of Representatives was “composed of Members elected by the people, according to the provisions of the Law of Election.” At the time, Japanese election law severely limited voting rights based on wealth, sex, and ethnicity, and merely the upper one percent of Japan’s adult population could vote.¹⁶³ Despite calls to expand parliamentary influence in the 1920s and the extension of universal male suffrage in 1925, legislative authority remained limited due to the inability of political parties to garner adequate electoral support and the Diet’s institutionalized subordination to imperial rule. By the 1930s, inadequate safeguards against corruption had effectively allowed for militarist oligarchs to take over the state, control the emperor,¹⁶⁴ and dominate the Imperial Diet.

In an effort to purify the legislature of corruption and strengthen political representation, the 1947 constitution transformed the “Imperial Diet” into the “National Diet,” the latter of which became an important vehicle of American democratization efforts throughout the course of the occupation. The new parliament effectively replaced the emperor and his advisors as the

¹⁶³ T.J. Pempel presents an excellent, concise historical study of political representation in Japan in “Political Parties and Representation: The Case of Japan,” *PS: Political Science and Politics* 25, no. 1 (March 1992): 13-18.

¹⁶⁴ Standard interpretations of the Japanese imperial system often label the emperor as merely a “symbol,” or even a “puppet,” of the state. For example, Charles Sheldon distinguishes between the emperor and the imperial system in “Scapegoat or Instigator of Japanese Aggression? Inoue Kiyoshi’s Case against the Emperor,” *Modern Asian Studies* 12 (1978): 1-35, cited in Stephen Large, *Emperor Hirohito and Showa Japan: A Political Biography* (London: 1992). Herbert A. Bix, in a sweeping biography, challenges this orthodox assumption, instead arguing that “Hirohito exercised, within a complex system of mutual constraints, real power and authority independent of governments and the bureaucracy.” See *Hirohito and the Making of Modern Japan* (New York: 2009), 14-15.

“highest organ of state power.” The updated legislature retained its former bicameral nature by establishing a “House of Representatives” and a “House of Councillors,” both of which “consist of elected members, representative of the people.” However, the new constitution’s shift in political authority from the emperor to the legislature, like its changes in executive power, possessed revolutionary effects on Japanese politics. The drastic nature of the change is evident in the semantic differences between the preambles of both documents. The 1889 constitution opens with language typical of the ruler-subject relationship, taking the first-person perspective of the imperial state:

“Having, by virtue of the glories of Our Ancestors, ascended the throne of a lineal succession unbroken for ages eternal; desiring to promote the welfare of, and to give development to the moral and intellectual faculties of Our beloved subjects, the very same that have been favoured with the benevolent care and affectionate vigilance of Our Ancestors; and hoping to maintain the prosperity of the State, in concert with Our people and with their support, We hereby promulgate, in pursuance of Our Imperial Rescript of the 12th day of the 10th month of the 14th year of Meiji, a fundamental law of the State, to exhibit the principles, by which We are guided in Our conduct, and to point out to what Our descendants and Our subjects and their descendants are forever to conform.”

The 1947 document flipped this entire framework on its head, adopted a citizen-representative framework, and assumed the first-person perspective of the Japanese people:

“We, the Japanese people, acting through our duly elected representatives in the National Diet, determined that we shall secure for ourselves and our posterity the fruits of peaceful cooperation with all nations and the blessings of liberty throughout this land, and resolved that never again shall we be visited with the horrors of war through the action of government, do proclaim that sovereign power resides with the people and do firmly establish this Constitution.”

The wording of the final draft was intentional: power had changed hands.

Though the country’s early democratization was severely limited by its adherence to the imperial hierarchal framework as well as systemic economic, racial, and gender divisions, Japan nevertheless had begun to develop a nationwide system compatible with future expansions of liberalism and democracy. To be clear, any nation’s adoption of a semi-democratic (or perhaps

quasi-democratic) constitution does not in of itself ensure genuine democratic outcomes. The undemocratic 1889 imperial framework merely possessed a *capacity* for future democratization. When the American occupiers arrived on Japanese soil, they found a highly developed political system, comprised of a large body of ministerial, legislative, and judicial institutions and an efficient, coordinative framework capable of managing and delegating bureaucratic responsibility quickly and effectively. It is perhaps appropriate to say that the Japanese state in 1889 had well become an authoritarian “Leviathan” (to borrow from Thomas Hobbes), with an unprecedented ability to penetrate society and to retain control over the realm.¹⁶⁵ Yet, this was a beast that could be tamed and steered in a different direction. Democratic progress surged following the adoption of the new constitution in 1947: authoritarian institutions became democratic ones; the political and bureaucratic offices originally designed to serve the emperor and to control the people shifted to serve the people and to keep imperialistic power at bay; declarations of individual rights long written down on paper for “subjects” became reality for millions of “citizens.” Thus, the success of the American occupation was not in building democracy from the ground up, but rather in ridding the nation of certain anti-democratic tendencies and bolstering existing institutions favorable to democracy. The occupation was certainly not without its shortcomings, which we have covered at length. Yet, it was likewise not without its achievements. The real *tour de force* of “state-building” in occupied Japan was not necessarily in the building of a state, but in the identification and implementation of specific, tailored reforms, taking into account both the resources and capabilities of the existing system as well as the deeper history of the occupied nation and its people, in an effort to bring to completion the development of a genuine democracy centuries in the making and long overdue.

¹⁶⁵ Thomas Hobbes, 1588-1679, *Leviathan* (Penguin Books: Baltimore, 1968).

Japan and the Future of the Free World

As of late, developments in international affairs have resulted in a tense climate that can be described as nothing other than a Second Cold War. Persistent Russian militarism has brought violent conflict to Eastern Europe, tensions persist between authoritarian and democratic regimes in East Asia, and American involvement in the Middle East continues to spark political debate at home and abroad. Today, as in the mid-twentieth century, it is necessary for the nations of the free world to keep watch of imperialistic tendencies and to vehemently disavow militaristic and expansionistic actions. Likewise, it is necessary to promote amicable partnerships among nations; to bolster existing allyships; to foster freedom, security, and stability; and to commit unapologetically to peace. As made evident by the latter years of the American occupation, Japan held and continues to hold a crucial geostrategic position in global affairs, especially in its close proximity to both China and Russia. The country's membership in the United Nations and strong relationship with the United States are integral to the development of the free world. Russia's unprovoked invasion of Ukraine, on February 24, 2022, has further proven the international importance of a free and democratic Japan. On June 30, 2022, the Prime Minister's Office released a document denouncing the "killing of a large number of innocent civilians by the Russian forces in Ukraine" as a "grave breach of international humanitarian law." The document continued to label Russia's "war crimes" as "absolutely unacceptable," demand that the "truth about the atrocities...be uncovered," and state that "Russia must be held strictly accountable for war crimes."¹⁶⁶ Japan has joined NATO and the European Union in enacting economic sanctions against Russia, removed the country's "most-favored-nation" status, and taken steps to phase out

¹⁶⁶ Ministry of Foreign Affairs of Japan, "Responses to the Situation in Ukraine," *Japan-Ukraine Relations*, Prime Minister's Office of Japan, June 30, 2022.

and ban Russian energy imports, despite a heavy reliance upon Russian oil and coal. Changes in Japanese public opinion have likewise coincided with the War in Ukraine, as concerns of regional security and self-defense have contributed to the beginnings of a shift away from the nation's historic "war-renouncing stance."¹⁶⁷

Indeed, many of the themes present in the modern international landscape harken back to the First Cold War, a time in which deteriorating relations threatened human stability and life on earth as we know it. Yet, it was also a time in which international cooperation and multilateralism were key to maintaining a sense of calm amongst the storm. In response to recent developments, Finland and Sweden, who remained neutral throughout the entirety of the First Cold War, are set to attain membership in NATO, free nations across the globe have communed together in sanctioning Russian militarism, and people everywhere have realized the importance of strong allyships to maintaining peace and stability. Though challenging and complex, one such allyship came to fruition in the radical and remarkable postwar transformation of U.S.-Japanese relations. The Occupation of Japan, in all its uniqueness, intricacy, and controversy, ultimately saw the rise of an unlikely friendship between the United States and Japan that, though once thought to be impossible, continues to serve as an integral component of the free world and a powerful testament to the forces of international cooperation and self-determination, likewise proving that, despite the worst of human conflict and destruction, peace may indeed prevail.

¹⁶⁷ Masahiro Matsumura, professor at St. Andrew's University (Osaka, Japan) discussed these changes with journalist Ravi Buddhavarapu in a recent "Squawk Box Asia" news article: "Ukraine war has pushed Japanese away from war-renouncing stance, political analyst says," *CNBC News*, May 24, 2022.

Acknowledgments

I would like to formally express my gratitude to several individuals who have been invaluable to me throughout my research and writing process. First, I would like to thank my wife, Makayla, for helping me to think through all the ideas in this paper, providing incredible and thoughtful insight on my early drafts, and remaining consistently supportive throughout what has been quite a lengthy process. I would also like to thank my research mentor, Dr. Jason Ward at Lee University, who has been a great help in directing me to many resources and archives prudent to completing my research and giving me critical feedback necessary to bring about a cogent project. Dr. John Coats, Dr. Kevin Ung, and Jeni Turner have also been instrumental to this study by providing me with valuable resources and helpful thoughts throughout this process. Resources from William G. Squires Library, Appalachian College Association, Harry S. Truman Presidential Library, and Wilson Center have also been invaluable. Lastly, I would like to express my gratitude to the many brilliant scholars who have come before me and whose efforts in producing quality historical work have made this study possible: John Dower, Akira Iriye, Walter LaFeber, Ray Moore, John Gaddis, George Herring, Michael Schaller, Howard Schonberger, Dayna Barnes, and others. Thank you.

Tennessee
September 2022

Lake Preston-Self

Bibliography

- Acting Political Advisor in Japan (George Atcheson) to the Secretary of State (James F. Byrnes). Doc 113. *FRUS, 1946, The Far East, Volume VIII*. January 5, 1946.
- Acting Political Advisor in Japan (W.J. Sebald) to the Secretary of State (George C. Marshall). Document 551. *FRUS, 1948, The Far East and Australasia, Volume VI*. May 27, 1948.
- Acting Political Advisor in Japan (W.J. Sebald) to the Secretary of State (George C. Marshall). Document 613. *FRUS, 1948, The Far East and Australasia, Volume VI*. November 23, 1948.
- “Address of the President of the United States Delivered Before a Joint Session of the Senate and the House of Representatives, Recommending Assistance to Greece and Turkey.” President Truman’s Message to Congress. 80th Congress, 1st Session. *Records of the U.S. House of Representatives*. Record Group 233. National Archives. March 12, 1947.
- Barnes, Dayna. *Architects of Occupation: American Experts and the Planning for Postwar Japan*. Cornell University Press, 2017.
- . “Armchair Occupation: American Wartime Planning for Postwar Japan, 1937-1945.” PhD diss. London School of Economics, 2013.
- Bates, Peter. *Japan and the British Commonwealth Occupation Force, 1946-52*. London, 1993.
- Bix, Herbert. *Hirohito and the Making of Modern Japan*. New York, 2009.
- Borton, Hugh. “American Presurrender Planning for Postwar Japan.” *Occasional Papers of the East Asian Institute*. Columbia University, 1967.
- . “Preparation for the Occupation of Japan.” *Journal of Asian Studies* 25, no. 2 (1966): 203-12.
- Buckley, Roger. *Occupation Diplomacy: Britain, the United States, and Japan, 1945-52*. Cambridge University Press, 1982.
- Buddhavarapu, Ravi. “Ukraine war has pushed Japanese away from war-renouncing stance, political analyst says.” *CNBC News*. May 24, 2022.
<https://www.cnbc.com/2022/05/24/ukraine-war-has-pushed-japanese-away-from-war-renouncing-stance-political-analyst-says.html>.
- Bush, George W. “Remarks on the 60th Anniversary of V-J Day.” San Diego, California. August 30, 2005. *Public Papers of the Presidents of the United States, George W. Bush, Book II (July 1-December 31, 2005)*. National Archives and Records Service. Office of the Federal Register.

Cohen, Theodore. *Remaking Japan: The American Occupation as New Deal*. New York, 1987.

The Constitution of Japan. Promulgated: November 3, 1946. Effective: May 3, 1947.
Government Printing Bureau. National Diet Library, Japan.
https://japan.kantei.go.jp/constitution_and_government_of_japan/constitution_e.html.

The Constitution of the Empire of Japan. February 11, 1889. Trans. by Ito Miyoji. National Diet Library, Japan. <https://www.ndl.go.jp/constitution/e/>.

Crawford, Neta C. and Catherine Lutz. "Human Cost of the Post-9/11 Wars: Direct War Deaths in Major War Zones." *Costs of War*. Watson Institute for International & Public Affairs, Brown University. August 2021.
https://watson.brown.edu/costsofwar/files/cow/imce/papers/2021/Costs%20of%20War_Direct%20War%20Deaths_9.1.21.pdf.

Dower, John W. "A Rejoinder." *Pacific Historical Review* 57, no. 2 (May 1988): 202-209.

———. *Embracing Defeat: Japan in the Wake of World War II*. New York, 1999.

———. *Empire and Aftermath: Yoshida Shigeru and the Japanese Experience, 1878-1954*. Harvard University Press, 1979.

———. "Occupied Japan and the American Lake, 1945-1950." In *America's Asia: Dissenting Essays on Asian-American Relations*. Ed. by Edward Friedman and Mark Sheldon. New York, 1971.

———. "Remaking History: Bush's comparison of Iraq with postwar Japan ignores the facts." *The Asia-Pacific Journal* 1, no. 5 (May 23, 2003). <https://apjjf.org/-John-W.-Dower/1660/article.html>.

———. *War Without Mercy: Race and Power in the Pacific War*. New York, 1986.

Drea, Edward, Greg Bradsher, Robert Hanyok, James Lide, Michael Peterson, and Daqing Yang. "Researching Japanese War Crimes: Introductory Essays." *Nazi War Crimes and Japanese Imperial Government Records Interagency Working Group*. National Archives and Records Administration. Library of Congress. 2006.

Etō Jun. "1946-nen Kempō – Sono Kōsoku." *Shokun!* (August 1980): 20-65.

Gaddis, John Lewis. *The Landscape of History*. Oxford University Press, 2004.

Gewertz, Ken. "Looking at Germany, Japan, Iraq: A tale of three occupations, U.S. 'occupations' compared by panel." *Harvard Gazette*. March 18, 2004.
<https://news.harvard.edu/gazette/story/2004/03/harvard-gazette-looking-at-germany-japan-iraq-a-tale-of-three-occupations/>.

Hersey, John. *Hiroshima*. New York, 1985.

Hobbes, Thomas, 1588-1679. *Leviathan*. Baltimore, 1968.

“Imperial Oath at the Sanctuary Palace.” February 11, 1889. Trans. by Ito Miyoji. National Diet Library, Japan. <https://www.ndl.go.jp/constitution/e/>.

“Imperial Speech on the Promulgation of Constitution.” February 11, 1889. Trans. by Ito Miyoji. National Diet Library, Japan. <https://www.ndl.go.jp/constitution/e/>.

Instructions to General of the Army Douglas MacArthur (Message No. 1). *Foreign Relations of the United States (FRUS): Diplomatic Papers, 1945, The British Commonwealth, The Far East, Volume VI*. September 6, 1945.

Iriye, Akira. *Power and Culture*. Harvard University Press, 1981.

———. *The Cold War in Asia: A Historical Introduction*. Prentice Hall, 1974.

Itoh, Mayumi. *Globalization of Japan: Japanese Sakoku Mentality and U.S. Efforts to Open Japan*. New York, 2000.

“Japan-US Treaty of Peace and Amity” (Treaty of Kanagawa). The United States and Japan. Signed: March 31, 1854, Yokohama, Japan. National Archives and Records Administration.

Kazui, Tashiro and Susan Videen. “Foreign Relations during the Edo Period: Sakoku Reexamined.” *Journal of Japanese Studies* 8, no. 2 (1982): 283–306.

Kiernan, Ben. *Blood and Soil: Modern Genocide 1500-2000*. Melbourne University Publishing, 2008.

Lake, David. “The Practice and Theory of U.S. Statebuilding.” *Journal of Intervention and Statebuilding* 4, no. 3 (September 2010): 257-84.

Large, Stephen. *Emperor Hirohito and Showa Japan: A Political Biography*. London, 1992.

Locke, John 1632-1704. *Second Treatise of Government*. Ed. by C.B. Macpherson. Cambridge, 1980.

The Manhattan Engineer District. *The Atomic Bombings of Hiroshima and Nagasaki*. Army Medical Library, 1946.

Mayo, Marlene. “Civil Censorship and Media Control in Early Occupied Japan.” In *Americans As Proconsuls: United States Military Government in Germany and Japan, 1944-1952*. Ed. by Robert Wolfe. Southern Illinois University Press, 1984.

- . “The War of Words Continues: American Radio Guidance in Occupied Japan.” In *The Occupation of Japan: Arts and Culture*. Ed. by Thomas W. Burkman. Norfolk, VA, 1988, 45-83.
- McNally, Mark Thomas. *Like No Other: Exceptionalism and Nativism in Early Modern Japan*. Honolulu: University of Hawai’i Press, 2016.
- Ministry of Foreign Affairs of Japan. “Responses to the Situation in Ukraine.” *Japan-Ukraine Relations*. Prime Minister’s Office of Japan. June 30, 2022.
https://japan.kantei.go.jp/ongoingtopics/pdf/jp_stands_with_ukraine_eng.pdf.
- Moore, Ray A. “The Occupation of Japan as History: Some Recent Research.” *Monumenta Nipponica* 36, no. 3 (Autumn, 1981): 317-28.
- Murphey, Rhoads. *A History of Asia*. New Jersey, 2006.
- National Security Council. NSC 13/2: “Report by the National Security Council on Recommendations with Respect to United States Policy Toward Japan.” *FRUS, 1948, The Far East and Australasia, Volume VI*. October 7, 1948.
- Ninkovich, Frank. *Modernity and Power: A History of the Domino Theory in the Twentieth Century*. Chicago, 1994.
- Pempel, T.J. “Political Parties and Representation: The Case of Japan.” *PS: Political Science and Politics* 25, no. 1 (March 1992): 13-18.
- Postwar Programs Committee. State Department. PWC-108b. “Japan: The Post-War Objectives of the United States in Regard to Japan.” *FRUS: Diplomatic Papers, 1944, The Near East, South Asia, and Africa, The Far East, Volume V*. May 4, 1944.
- “Proclamation Calling for the Surrender of Japan, Approved by the Heads of Governments, United States, China, and the United Kingdom” (Potsdam Declaration). *FRUS: Diplomatic Papers, The Conference of Berlin (Potsdam Conference), 1945, Volume II*. July 29, 1945.
- Rubin, Jay. “From Wholesomeness to Decadence: The Censorship of Literature under the Allied Occupation.” *Journal of Japanese Studies* 11, no. 1 (1985): 71-103.
- Schaller, Michael. *The American Occupation of Japan: The Origins of the Cold War in Asia*. Oxford University Press, 1985.
- Schonberger, Howard. *Aftermath of War: Americans and the Remaking of Japan, 1945-1952*. Kent, OH: Kent State University, 1989.
- “Security Treaty Between the United States of America and Japan.” Signed: September 8, 1951, San Francisco. U.S. Government Printing Office, 1952.

- Sheldon, Charles. "Scapegoat or Instigator of Japanese Aggression? Inoue Kiyoshi's Case against the Emperor," *Modern Asian Studies* 12 (1978): 1-35.
- Shimizu Ikutarō, "*Kaku no Sentaku*." *Shokun!* (July 1980): 22-68.
- State-War-Navy Coordinating Committee (SWNCC) 150/4, "U.S. Initial Post-Surrender Policy for Japan." *Harry S. Truman Presidential Library*. September 6, 1945.
- Supreme Commander for the Allied Powers (SCAP), Government Section, *Political Reorientation of Japan, September 1945-48*. U.S. Government Printing Office, 1949.
- Takeda, Kiyoko. *The Dual-Image of the Japanese Emperor*. London, 1988.
- Takemae, Eiji. *Inside GHQ: The Allied Occupation of Japan and its Legacy*. New York, 2002.
- Totman, Conrad D. *The Collapse of the Tokugawa Bakufu*. University Press of Hawaii, 1980.
- "Treaty of Peace with Japan" (Treaty of San Francisco). Signed: September 8, 1951, San Francisco. *United Nations Treaty Series*, no. 1832.
- Trotter, Ann. *New Zealand and Japan, 1945-52*. London, 1990.
- United Nations University. "Research Brief: Lessons From U.S. Interventions To Japan, Afghanistan And Iraq." World Institute for Development Economics Research. 2013.
- U.S. Congress. Senate. *A Bill to Provide Assistance to Greece and Turkey (Greek-Turkish Aid Act)*. S 938. 80th Congress, 1st Session. March 18, 1947.
- Walker, Brett. *A Concise History of Japan*. Cambridge University Press, 2015.
- Wallsten, Peter and Tony Perry. "Bush Likens Democracy Effort in Japan to That in Postwar Iraq." *Los Angeles Times*. August 31, 2005.
- Weber, Max. *Soziologische Kategorienlehre*. Trans. by Talcott Parsons and Alexander Morell Henderson in *The Theory of Social and Economic Organization*. New York, 1947.
- Williams, Justin. *Japan's Political Revolution Under MacArthur: A Participants Account*. University of Georgia Press, 1979.
- Yoshida, Takashi. "Historiography of the Asia-Pacific War in Japan." *ScholarWorks at Western Michigan University* (June 3, 2008): 1-17.
- Yukichi Fukuzawa, 1835-1901. *Bunmeiron no gairyaku*. Trans. by David A. Dilworth and G. Cameron Hurst in *An Outline of a Theory of Civilization*. Columbia University Press, 2008.

Volume 5

Article 22

Summer 2022

Women Gun Use and Ownership: “It’s Not About Pink, It’s About YOU”

Madilyn Voiles

Lee University

Under the guidance of Ruthie Wienk, Ph.D.

Abstract

In gun culture, firearms are primarily only marketed to women as a weapon to use for the purpose of self-defense while marketing firearms to men for uses that expand well beyond self-defense. Gender stereotypes, especially in gun culture, place women in domestic settings and stray away from displaying women involved in recreational, masculine activities involving guns such as hunting or sport. Companies that sell products such as pepper spray or stun guns use the fear of victimization to their advantage portraying women as vulnerable and in need of a self-defense weapon while also adhering to women's femininity. This research investigates the ways that women as gun owners are perceived by men in masculine-dominated spaces and gun paraphernalia in contrast to the way that women represent themselves in feminine-dominated and controlled spaces, specifically in female ran websites. Findings indicate that women find empowerment in owning a firearm. This empowerment is multilayered, not only to protect themselves and their family, participating in male pastimes such as hunting make women proud to be a gun owner and their skill.

Introduction

Women frequently find themselves victims of crimes. Therefore, any females purchase items such as stuns guns, pepper spray, or even a firearm to keep themselves safe in the event they should fall victim to a crime. Gun culture is dominated by men and has been for many years, but recently the gap in gender and gun ownership has begun to close. This research project aims to investigate how women feel about themselves as gun owners compared to how the rest of society views them and what exactly women are using guns for. Do women buy firearms solely for the purpose of self-defense as the media markets gun usage among women, are women taking part in activities that have been a predominately male pastime such as hunting? It seems that the

efforts made by women pursuing a place in gun culture is much more than the efforts taken by gun culture to invite women into the space. Breaking down gender stereotypes and what is deemed as feminine, and masculine are key essentials in the process of finding the place where women fit into the culture of gun ownership.

Review of Literature

Vulnerability and Victimization

Women are more likely than men to become victims of a crime, therefore putting women in a vulnerable social position. Gun use is stereotyped as a masculine practice. Women can be made to feel intimidated thinking about shooting a gun or becoming a gun owner, which is why most women are taught by their father, boyfriend, or husband how to use a gun. Learning this skill and self-defense tactic from someone in whom women trust makes this masculine practice less intimidating. Guns are symbolic of the relationship that women have with men (Sarat, Douglas, Umphrey 2019). The average woman is seen as “soft” while the average man is seen as “strong” (Stroud 2016). Guns are a way that women can protect themselves and act as a form of balancing out the size difference of the build between male and female. Women are given safety precautions because as a female, the likelihood of being a victim is greater than that of a male. Due to this, women often fall into the narrative that they are always in danger. Consistently, females are being told to be cautious and aware of their surroundings at all times, especially when they are alone. “Avoid male-dominated spaces” and “not walking alone” are phrases used to remind women that they are susceptible to violence in their everyday life (Stroud 2016). Women’s victimization reproduces women’s subordination, and the social construction of crime is responsible for reproducing masculine privilege (Carlson 2014). Children are more vulnerable than women. Children lack autonomy and understanding compared to adults and rely on a parent

or guardian to protect them. Since children are vulnerable, mothers are vulnerable. While it may seem counterintuitive that a woman should have a gun to protect her child and act as a “mother bear” figure, there is a sense of resilience to owning a firearm due to the safety concerns. The concern of a child having access to a deadly weapon may seem more of a risk than needing to own a gun in the event of falling victim to a crime. Some women are skeptical of having a firearm in the home at all, and that skepticism only increased when they became a mother (Sarat, Douglas, Umphrey 2019). Women who have been victims of crime are empowered by owning a gun as it creates a sense of safety and empowerment knowing that they have the capability to defend themselves or their family if needed. Therefore, women who are mothers may have conflicting views about owning a gun depending on if they either have fallen victim to a crime or fear being a victim to a crime. Even when guns are promoted to women as self-defense tools, women are still viewed as vulnerable (Carlson 2014).

Masculinity, Femininity, and Recreational Gun Use

Guns are a gendered phenomenon. At the core of gun use whether for recreational or self-defense is a masculine connotation. Hunting is a male-dominated pastime and therefore creates a hostile climate for females who also participate (Lindemann, Doggett, Getsis 2021). Gun culture focuses on women needing and wanting a firearm for the purpose of self-defense whereas firearms for men are primarily for recreational use, especially hunting. Women must try and overcome the barrier of masculine gender expectations (Schwartz 2021). Hegemonic masculinity, which are actions that justifies a male’s social status in society, and femininity play an important role in the conversation about gun use. Owning a firearm helps establish a male’s dominance in society as a gun itself represents authority and power. Men perform to get the approval of their masculinity by other men, and this is done through activities that are dominated

by the male gender such as hunting (Lindemann, Doggett, Getsis 2021). The typical role that women play in hunting is cooking the game their husband brings home. However, the women who do actively participate in the pastime still adhere to their femininity and normal gender role by feeding their family.

Another popular recreational activity that utilizes the use of firearms is sharpening skills at the shooting range. This is a way that both men and women can better their precision in aiming and become more comfortable with the gun that they are using. Firing ranges are a place that women take advantage of when it comes to empowering other women in gun usage. This is done by creating shooting leagues or organizations that host women-only events. This eliminates the threat of intimidation by men. On the other hand, women can and do surprise men with their proficiency in gun knowledge and shooting skills as certain guns are deemed to be “gender appropriate” or not. Terms such as “Most men don’t know that” or “My wife would never shoot that” are just two examples of how there is a gender standard when it comes to firearms (Carlson 2015). There is no doubt that women feel empowered by being a gun owner and in doing so, it does not have to cancel out their femininity.

An example of an organization creating a feminine and welcoming space for women into gun culture are the efforts pursued by the National Rifle Association. Recognizing that there is a societal taboo concerning women gun owners due to the male domination of firearms has been part of challenge in expanding gun culture to include women (Schwartz 2021). The NRA also created an online streaming service showing women in the role of active gun owners using firearms for the purposes of self-defense, sports, and hunting. One of the shows is titled “Armed & Fabulous,” which displays a sense of femininity that is also highlighted in the show by presenting the women as relatable through talking with their family and friends along with

spotlighting their accomplishments (Schwartz 2021). Jennifer Carlson said that “A woman’s gun can be a tool of embodied empowerment, but it can also be a vehicle of complicity with masculine protectionism. It might even be both, simultaneously. In a complicated, pro-gun country, the gendered meaning of the gun is double-barreled.”

Marketing of Guns

The manner that women are perceived in gun advertisements is a way that society can develop a better understanding where women fit into gun culture. Gun ownership among women has been promoted by pro-gun groups since the mid 1980’s. Two of these groups are Smith & Wesson and the National Rifle Association (T. Smith, R. Smith 1995). With the increased number of women who have become gun owners in recent years, more firearm companies have begun to create new marketing efforts towards the female gun owner. Just as some companies that sell self-defense products add a “feminine” aspect to their products making them more appealing to women, such as jewelry that doubles as a protective measure. Gun manufacturers are also taking advantage of marketing their firearms to women in an appealing way. An example of this is LadySmith handguns designed by the company Smith and Wesson. These revolvers were created with handles of rosewood and smaller grips giving an overall feminine feel (Blair, Hyatt 1995). Some guns and other related items have been feminized and created with a woman in mind. Purses are often a popular concealed carry option women admire as it is fashionable yet practical. Holsters are another way that women can carry their firearm discreetly in a way that still gives them a sense of femininity such as a bra holster. You can also find guns that are a feminine color such as pink or purple with a smaller caliber size that was created with women in mind.

In a study that analyzed advertisements from the popular gun magazine *The American Rifleman* over a period of one-hundred years from 1920 through 2019, women were portrayed as more passive and submissive to men along with being depicted as inferior to men (D. Yamane, Satterwhite, P. Yamane 2021). Although men can be doubtful and hesitant of a woman's ability to use a firearm properly, advertisements play a role in persuading men to buy a gun for the women in their life and teach them how to use it as a self-defense measure (Blair, Hyatt 1995). The news and media play an important role in advertising guns to women. Many women choose to get a firearm due to the fear of crime (Blair, Hyatt 1995). This is something that the media and companies are aware of and use it to their advantage to sell more products. The news will display stories of women who have either been a victim of a crime or is afraid of potentially becoming a victim and so, they purchase a gun and go to firearm training courses (T. Smith, R. Smith 1995). The number of women getting concealed carry permits is increasing and could be the product of advertisements showing women gun owners participating in gun culture in a way that is enjoyable and empowering (D. Yamane, Satterwhite, P. Yamane 2021). The way that women are perceived in advertisements as potential victims of crime heavily influences a woman's decision to buy a gun or other self-defense weapons such as pepper spray or a stun gun. While media today can empower and educate, it also has the power to create fear in women. "Marketers are preying on a vulnerable population" (Blair, Hyatt 1995).

Research Question

How are women perceived by men in masculine-dominated spaces as gun owners and how does that compare or contrast to the way that women represent themselves in female-controlled spaces?

Methods

To answer the above research question, this project conducted a qualitative investigation into the phenomenon of the representation of women gun ownership. Twenty websites and two gun shows were the primary data sources.

Website Selection

The sample in this project were different websites. These were identified by a variety of ways. I sought out websites that were created by women or marketed self-defense products specifically towards women. I was able to find additional websites through some company's affiliate links before independently searching out other types of websites through a google search. I searched with phrases such as "women gun associations" and female shooting league." I wanted to focus primarily on websites created and ran by women to get an understanding of how they represent themselves in a space that they have control over. The twenty websites were a combination of blogs, social organizations with the mission to empower women, sports and skill building organizations, and websites that sell products. Out of the twenty websites total, while still educating and empowering along with the others, there were only two of the websites also sell products such as holsters, stun guns, pepper spray, and more self-defense items.

Screenshots and Coding Process

After I had found the websites that I wanted to use for my analysis, I looked deeper into each website individually. Going through each tab, I noted the way that women were portrayed whether that was through merchandise, blog posts, gallery photos, testimonials, and services offered. I took screenshots of webpages and photos within each website that showed how women were represented by others or themselves. There were ninety-four screenshots in total that I had saved to later begin the analyzing and coding process. I used Dedoose, a qualitative data analysis software for my coding. Line-by-line and image-by-image coding methods were used to find common themes that would emerge from the screenshots. I studied each image and created a code according to how women were being portrayed as a gun owner. From the sixty-one codes that were created while coding the website screenshots, they were applied three hundred and six times.

Gun Shows

In an effort to triangulate data collection, I also attended local gun shows run by two different circuits. These were the RK show in East Ridge, Tennessee and Knoxville's Original Gun Show in Knoxville, Tennessee. I established myself as a participant observer and I spent a total of four hours being at the shows. I took notes on my phone as I walked around observing the different vendors that were present at the event venue. I analyzed types of products that were being sold while also paying close attention to the merchandise that was marketed specifically towards or about women. I wanted to ensure that although I was there as a researcher, I was also in attendance as a female. This gave me ample opportunity to experience first-hand what products were gaining my attention or being advertised to me. As I spent time in that environment, I recognized what vendors were more enthused to speak to me and sell their

products compared to those who were not. I interacted with various vendors not only as a female, but as a potential buyer. I took my jottings and then turned them into formal field notes.

Originally, I had planned to attend three gun shows to ensure that I felt confident of what a woman's place at a gun show and in a more masculine space looks like. After finishing my second gun show as a participant observer and reviewing my field notes, I decided that a third was not needed anymore. The interactions and experiences that I had at each show were very similar in nature along with the way that women were represented in products that were being sold along with the vendors interactions with me. Although both gun shows were in different locations with slightly contrasting demographics, what I inferred about women in relation to guns was very telling and gave me the information that I needed to continue in my research.

Findings

Through this research, I have found that while women will always possess gender roles given to them by society, they have made applaudable efforts in attempting to eliminate the gender gap when it comes to gun usage and ownership. Women have taken the initiative to show that there is a place in gun culture for women. The CAQDAS (computer-assisted qualitative data analysis software) that I utilized for my research allows for a code co-occurrence matrix to be generated and analyzed to show themes in the data. Analysis of the patterns in the codes shows several key themes in how and why women use firearms. There includes hunting, skill building and firing range usage, and self-defense.

Hunting

Hunting was the most used code in the data set, being coded to the screenshots a total of twenty times. Presenting women as hunters and active participants in outdoor activities was substantially less shown in websites that market items to women compared to women-ran

websites such as blogs. In six different websites that show women as hunters, strength was also displayed by the women holding their “trophies,” or the animals that they hunted. Female hunters were not hunting small animals such as squirrels or rabbits, but rather large animals such as a bear, elk, and coyotes. Women are representing themselves as just as capable as men to hunt wild animals. There was a significant amount of gender equivocation, which is where emphatic sameness and femininity are combined, shown in these websites along with strength. Women still displayed a sense of their typical gender roles, but not in a typical way. For instance, in one of the blogs, along with a photo of a woman holding a large elk there was also a recipe to use with elk meat.



Elk Hunting Basics

19

MAR 2019



Cheese Stuffed Shells with Elk

19

MAR 2019

Women also did not show a strong sense of emphasized femininity when it came to hunting. Emphasized femininity and hunting were only coded together once in the data set. Hunting is associated with masculinity, but there is no question that women are closing the gender gap in taking on the role of a huntress.

Skill building and Firing Range Usage

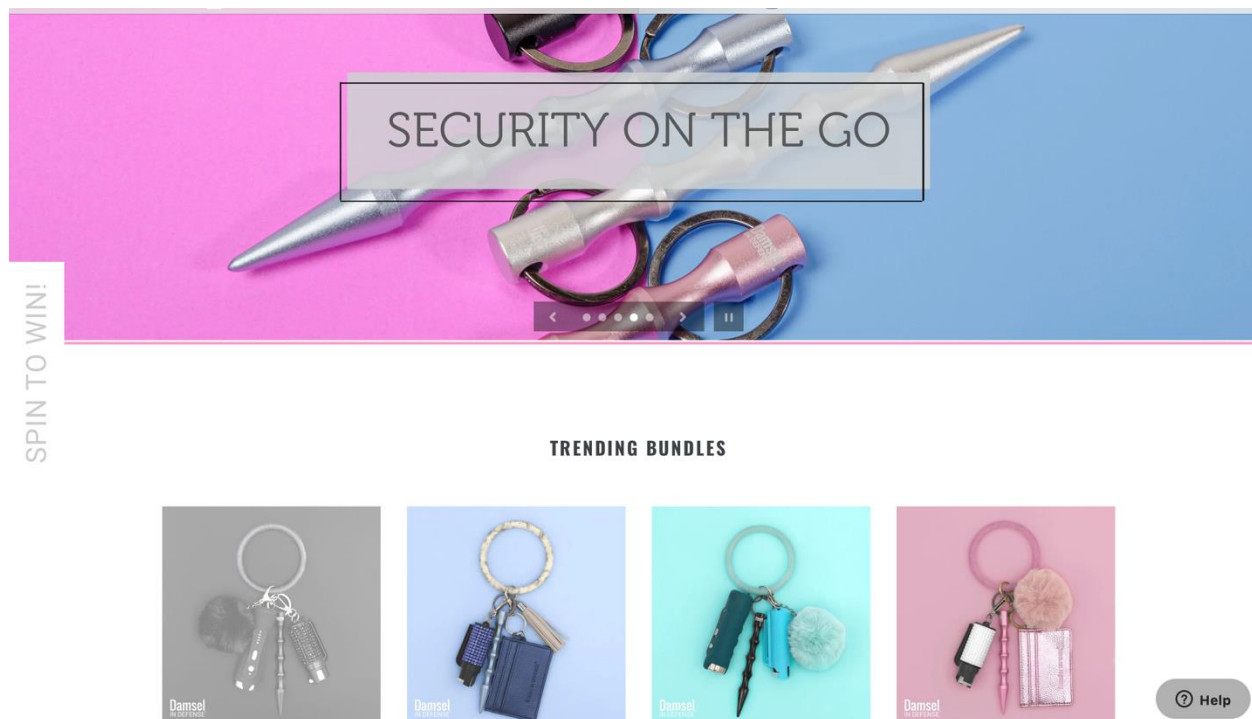
All the websites analyzed that were blogs created by women all served an overall purpose of empowering and encouraging other women in their gun usage. Most of these were female-ran

organizations that host classes and training in firearms for women. Some even have alliances or chapters that you can join in a city near you. The websites were custom and even the titles exhibited a proud woman gun owner with a touch of femininity such as “Defensive Unicorn,” “Like a Lady Firearms Training,” and “Packing Pretty Firearms.” A common theme that was consistent in all the blogs were women engaging in firearm practice at shooting ranges. The photos shown in many of the online galleries were women proudly showing their skillset in aiming. Women do emphasize their femininity at the firing ranges when they are working on their aiming skills. They do this by adding their own touch to their accessories such as adding jewels to their earmuffs and wearing feminine clothing to practice in. Using phrases such as “beat this” show a sense of confidence in their ability and a notion that as women they can shoot just as good as a man.



Self-Defense and Vulnerability

In spaces controlled by women, they portray themselves to be anything but vulnerable. By contrast, online content run by corporations rather than by women themselves do illustrate women as vulnerable and in need of self-protection while simultaneously illustrating women as “brave” and “strong.” To reach the target customer that they have in mind, these websites utilized emphasized femininity to their advantage. By designing products that were feminine, they can sell more products. For instance, necklaces that served as a whistle along with brightly colored stun guns and pepper spray. Even the product names reflect femininity such as “sassy spray” sold by Damsel in Defense that is an empty can of hairspray designed to hold a safety item such as pepper spray discretely.



In these websites, codes that overlapped with vulnerability were motherhood, emphasized femininity, and protection. Since children are vulnerable, mothers are vulnerable and the need to feel capable to protect them is greater. Within the blogs that were investigated, women did not market self-defense items to other women. Those websites and blogs were primarily for the

purposes of promoting and empowering proper gun usage through a community of women gun owners. In the blogs that did have products for sale, it was merchandise such as t-shirts, stickers, etc. with encouraging phrases such as “no more compromises.” While women may be susceptible to crime more so than men in need of self-defense measures, they are steering away from the victim narrative and creating a new story of what women gun ownership looks like.

Discussion

The content on websites that market items to women starkly contrasts with the content that women create about their own gun usage. There are more websites created by women such as blogs or women-based organizations to promote and empower gun usage among females. Women displayed empowerment and strength in the websites that they controlled rather than the vulnerable, meek victim they are portrayed to be by society, the media, or websites marketing self-defense items. The typical woman is often thought of as a mother or homemaker and one that would go to great lengths to protect her children as a mother bear figure, thus making it necessary to own a firearm. However, through this research that does not seem to be the case at all. Women are not only becoming gun owners to protect themselves and their family, but also to find joy and empowerment through something they are passionate about.

References

- Blair, M. E., & Hyatt, E. M. (1995). The Marketing of Guns to Women: Factors Influencing Gun-Related Attitudes and Gun Ownership by Women. *Journal of Public Policy & Marketing*, 14(1), 117–127. <https://doi.org/10.1177/074391569501400111>
- Carlson, Jennifer Dawn. (2015). Carrying guns, Contesting gender. *Contexts*, 14(1), 20–25. <http://www.jstor.org/stable/24710517>
- Carlson, J. (2014). The Equalizer? Crime, Vulnerability, and Gender in Pro-Gun Discourse. *Feminist Criminology*, 9(1), 59–83. <https://doi.org/10.1177/1557085113502518>
- Kelley, M. S. (2022). Feminism and Firearms: Gun Ownership, Gun Carrying, and Women’s Empowerment. *Sociological Perspectives*, 65(1), 77–96. <https://doi.org/10.1177/07311214211028603>
- Sarat, A., Douglas, L., & Umphrey, M. M. (Eds.). (2019). *Guns in Law*. University of Massachusetts Press. <https://doi.org/10.2307/j.ctvk3gkp9>
- Schwartz S. Noah (2021) Called to arms: the NRA, the gun culture & women, *Critical Policy Studies*, 15:1, 74-89, DOI: [10.1080/19460171.2019.1697892](https://doi.org/10.1080/19460171.2019.1697892)
- Smith, T. W., & Smith, R. J. (1995). Changes in Firearms Ownership among Women, 1980-1994. *The Journal of Criminal Law and Criminology (1973-)*, 86(1), 133–149. <https://doi.org/10.2307/1144003>
- Stroud, A. (2015). *Good Guys with Guns: The Appeal and Consequences of Concealed Carry*. University of North Carolina Press. http://www.jstor.org/stable/10.5149/9781469627908_stroud
- Lindemann, D. J., Doggett, A., & Getsis, S. (2022). Hunting in a Hostile Climate?: Hegemonic Masculinity and Emphasized Femininity on a Hunting Message Board. *Men and Masculinities*. <https://doi.org/10.1177/1097184X211065022>
- Yamane, D., Satterwhite, R., & Yamane, P. (2021, January 23). A Woman’s Place in Gun Advertisements: The American Rifleman, 1920-2019. <https://doi.org/10.31235/osf.io/bn3pk>

Volume 5

Article 23

Summer 2022

Finding a Faster Algorithm for Computing the Genus of a Cayley Graph

Jessica Williams

Lee University

Under the guidance of Jason Schmurr, Ph.D.

Finding a Faster Algorithm for Computing the Genus of a Cayley Graph

Jessica Williams
 Lee University
 jwilli62@leeu.edu

August 24, 2022

Abstract

In this article, we discuss how to integrate algorithms into a common topic in graph theory: graph genus. Due to the nature of how we compute the genus, existing algorithms may take exponential amounts of time to complete, depending on the type of polygon the graph represents. This article explores an approach with a branch-and-bound algorithm and the implementation of a computing cluster to reduce computation time. The algorithm referenced throughout this paper can be found here: https://colab.research.google.com/drive/186gHy_N0Aio1Sef2BjtBAnj6FvozjBPx?usp=sharing

1 Graph Theory Background

1.1 Billiard Surfaces

The following is a brief summary of [JS22]. Suppose a point mass is bouncing around the inside of a polygon. When the mass hits a side of the polygon, continue the path in a straight line in a reflected copy of the polygonal table. This is considered ‘unfolding’ the path. In this aspect, a billiard surface can be considered a straight line on a compact surface, rather than a series of slopes within a polygon. Figure 1 provides a visualization for this. For a more rigorous explanation, consider a polygonal region

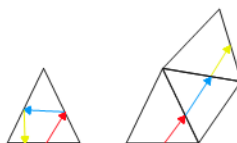
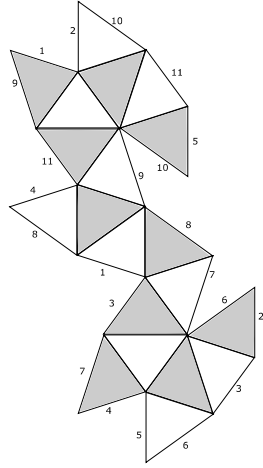
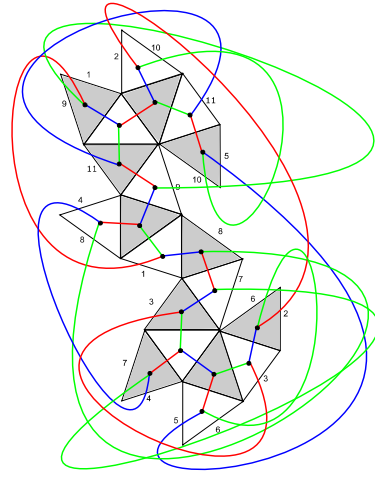


Figure 1: Unfolding a billiard path in a triangle.

R with internal angles that are rational multiples of π . Suppose that the internal angles of R are $\alpha_1 \dots \alpha_n$, where $\alpha_i = \frac{p_i \pi}{n}$, and $n, p_1 \dots p_m \in \mathbb{Z}$. Furthermore, suppose $\gcd(n, p_1 \dots p_m) = 1$, meaning that n is the least common denominator. Let $r_1 \dots r_m$ be the derivatives of the reflections in the set of reflections across the lines through the m sides of R . This set of derivatives creates a collection of reflections across the origin and rotations about the origin. For this paper, we will represent polygons with the notation $[p_1, \dots, p_k]$.

Figure 2: The billiard surface $X(3, 3, 4)$. [JS22]Figure 3: The graph $G(3, 3, 4)$ drawn on $X(3, 3, 4)$. [JS22]

1.2 Cayley Graphs

Definition 1 Let G be a finite group and let S be a set of generators for G . We define a digraph $\text{Cay}(S : G)$ called the Cayley digraph of G with generating set S as follows.

1. Each element of G is a vertex of $\text{Cay}(S : G)$.
2. For x and y in G , there is an arc from x to y if and only if $xs = y$ for some $s \in S$. [Gal15]

A graph is a collection of vertices and edges. A Cayley graph is a graph where the directed edges are labeled by elements of a generating set. There are many different ways to draw the same Cayley graph. The importance lies with which vertices are connected by the different generators, not the appearance of the graph. Figures 4 and 5 are an example of this. Here, the internal angles of the graph are $\frac{\pi}{3}$, $\frac{\pi}{3}$, and $\frac{\pi}{3}$, with notation $\alpha_1, \alpha_2, \alpha_3$ respectively. Reflection angles, which are the generating set of the graph, are found by the formulas $\beta_{i-1} = \alpha_{i-1}$ and $\beta_i = \beta_{i-1} + \alpha_{i-2}$. In this example, $S = \{\frac{2}{3}\pi$ (red), $\frac{1}{3}\pi$ (yellow), 0 (blue) $\}$. The amount of elements in G is $2n$, where half of them will be reflections and the other rotations. The reflections are $\frac{i}{n}$, where i is in the range of n . The rotations are found by applying the generating elements to the reflection elements. This can be done using the following formulas:

$$\text{Ref}(\theta_1)\text{Ref}(\theta_2) = \text{Rot}(2[\theta_1 - \theta_2])$$

$$\text{Ref}(\theta_1)\text{Rot}(\theta_2) = \text{Ref}\left(\theta_1 - \frac{1}{2}\theta_2\right)$$

$$\text{Rot}(\theta_1)\text{Ref}(\theta_2) = \text{Ref}\left(\theta_2 + \frac{1}{2}\theta_1\right)$$

In this case, $S = \{\text{Ref}(0\pi), \text{Ref}(\frac{\pi}{3}), \text{Ref}(\frac{2\pi}{3}), \text{Rot}(0\pi), \text{Rot}(\frac{4\pi}{3}), \text{Rot}(\frac{2\pi}{3})\}$. These graphs are also known as a bipartite graph. A graph is bipartite if the vertices from G can be divided into two groups, B_1 and B_2 , such that elements in B_1 are only connected to elements of B_2 and vice versa. In other words, elements from the same partition are not connected by the generators in S . This is because the reflections and rotations form the partition. Here, the partitions would be the green nodes and the orange nodes.

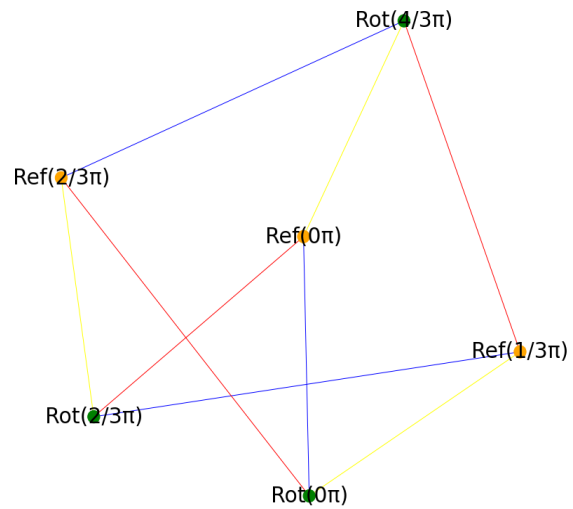
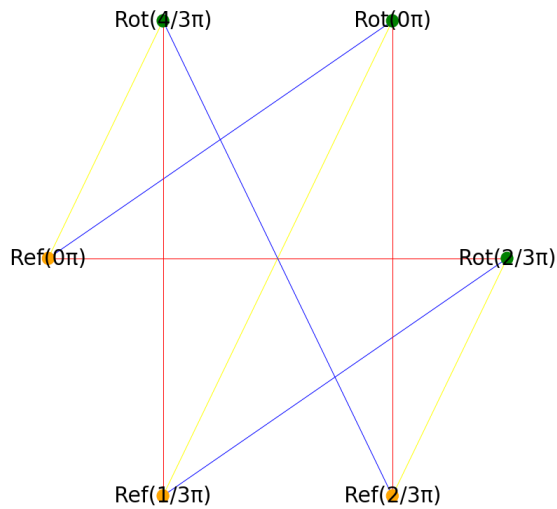


Figure 4: The Cayley graph for a $[1,1,1]$ triangle. Figure 5: The Cayley graph for a $[1,1,1]$ triangle.

1.3 Graph Genus

Definition 2 *The genus of a graph, denoted 'g', is the subscript of the first surface among the family S_0, S_1, S_2, \dots , on which the graph can be drawn without any edge-crossings. [Tru93]*

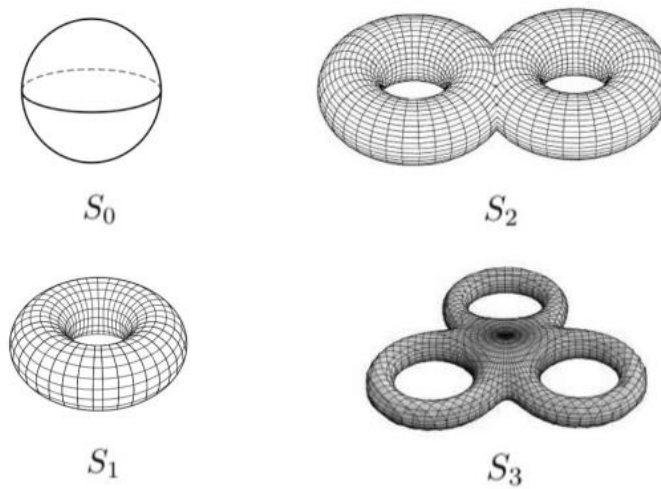


Figure 6: Different surfaces in the family S_0, S_1, S_2, \dots

A graph is considered planar if it is genus zero. This can only happen if a graph can be drawn on the plane without any edges crossing. Note that the genus of a graph is the minimum subscript of a surface it can be drawn on without any edges crossing. If a graph is genus two, then it can also be drawn on S_3, S_4, \dots without edges crossing.

1.4 Graph Rotations

The following definitions are from [HR03]. A rotation of a particular vertex of a graph is an ordered cyclic listing of the vertices adjacent to that vertex. A rotation of a graph, sometimes denoted ρ , consists of rotations for every vertex of the graph.

A rotation of a graph induces circuits. A circuit is a pathway of edges that ends at the starting vertex. In other words, a circuit is a series of reflections and rotations that undo each other. Figure 7 shows a rotation of $\text{Cay}\{R_{90}, H\} : D_4$. A red dot represents a counter-clockwise rotation around a vertex, and a blue dot represents a counter-clockwise rotation. In this particular rotation, there are four induced circuits. Note that depending on the placement of red and blue dots, there are many different rotations of the graph with different amounts of induced circuits. Also note that the length of these circuits is even. This is due to the graph being bipartite. If a circuit were an odd length, it would not return to its starting vertex because it would be in the wrong partition of vertices. The minimum length of an induced circuit for any Cayley graph is four.

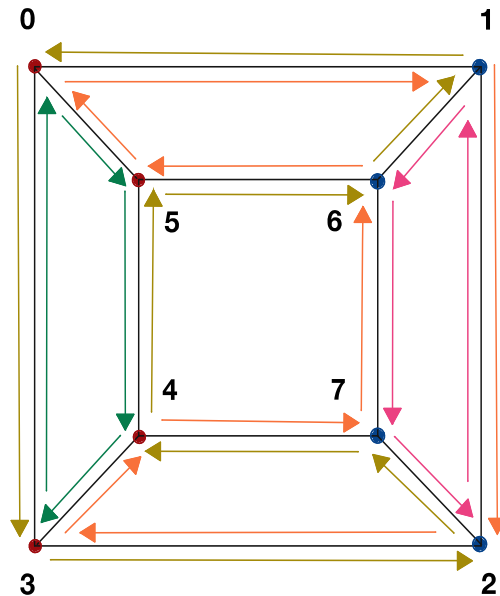


Figure 7: The Cayley graph of $\text{Cay}\{R_{90}, H\} : D_4$.

Theorem 1 *Let G be a connected graph with p vertices and q edges, and let ρ be a maximal rotation of G . Then the genus of G is g , where $p - q + r(\rho) = 2 - 2g$. [HR03]*

This theorem provides the relationship between graph rotations and graph genus. In order to find a graph's genus using this formula, we must find the graph's maximal rotation. This is the maximum amount of induced circuits in the rotation of the graph out of all other possible rotations.

2 Algorithms

2.1 Background

Algorithms are the basis of implementing computers in problem-solving situations. An algorithm is defined to be “a sequence of unambiguous instructions for solving a problem” [Lev03]. Simply put, an algorithm is a strategy for solving a problem. While algorithms are generally performed by a computer, it is not necessarily exclusive to computers. An algorithm can also be considered a thought process to reach a conclusion. Algorithms serve many different purposes. Searching and sorting are just two of the most popular. Depending on the problem, an algorithm may have a specific strategy. Brute force, decrease-and-conquer, and transform-and-conquer are to name a few.

2.2 Branch-and-Bound

For this project, we focus on the branch-and-bound algorithm. The branch-and-bound technique is an enhancement of another strategy called backtracking. These are both strategies to analyze a state-space tree. In a state-space tree, nodes represent partial solutions, and edges are decisions that expand upon the partial solutions. Branch-and-bound is especially helpful for optimization problems. Unlike brute force algorithms, which are ideal for small scale situations, this algorithm utilizes this optimal answer to eliminate possible solutions without attempting them all. The algorithm begins with a depth-first search through the state-space tree and compares the current solution with the optimal solution previously found. If the current answer is not more optimal than the optimal solution thus far, then we can eliminate the current node and edges that follow. This is because a more optimal solution cannot be achieved. Other reasons to terminate a node may include having fully extended the path with no other edges to follow, or the problem’s constraints have been compromised. In figure 8, we see the branch-and-bound algorithm used to find the optimal solution, which is the smallest sum.

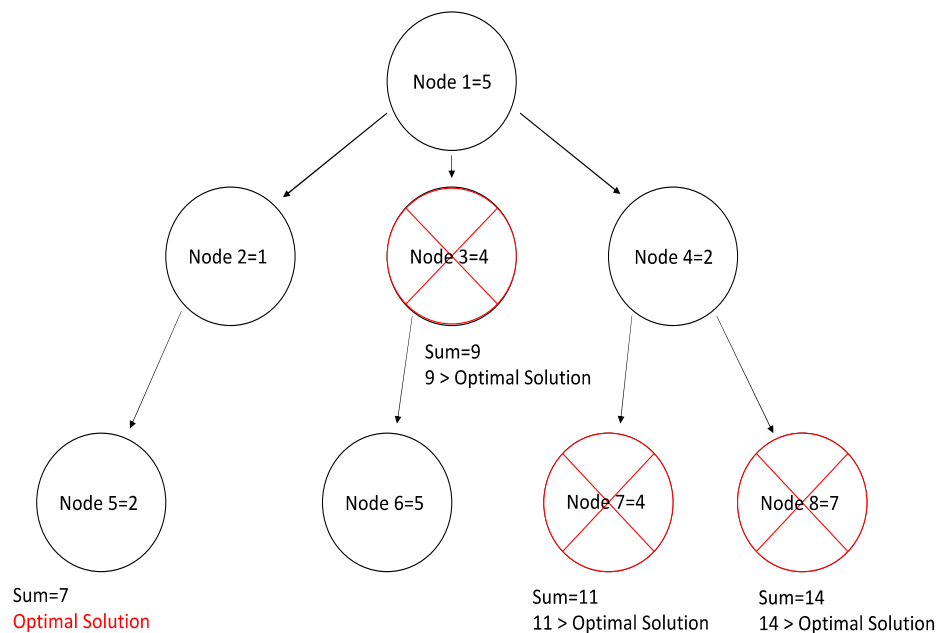


Figure 8: The branch-and-bound algorithm used to find the smallest sum.

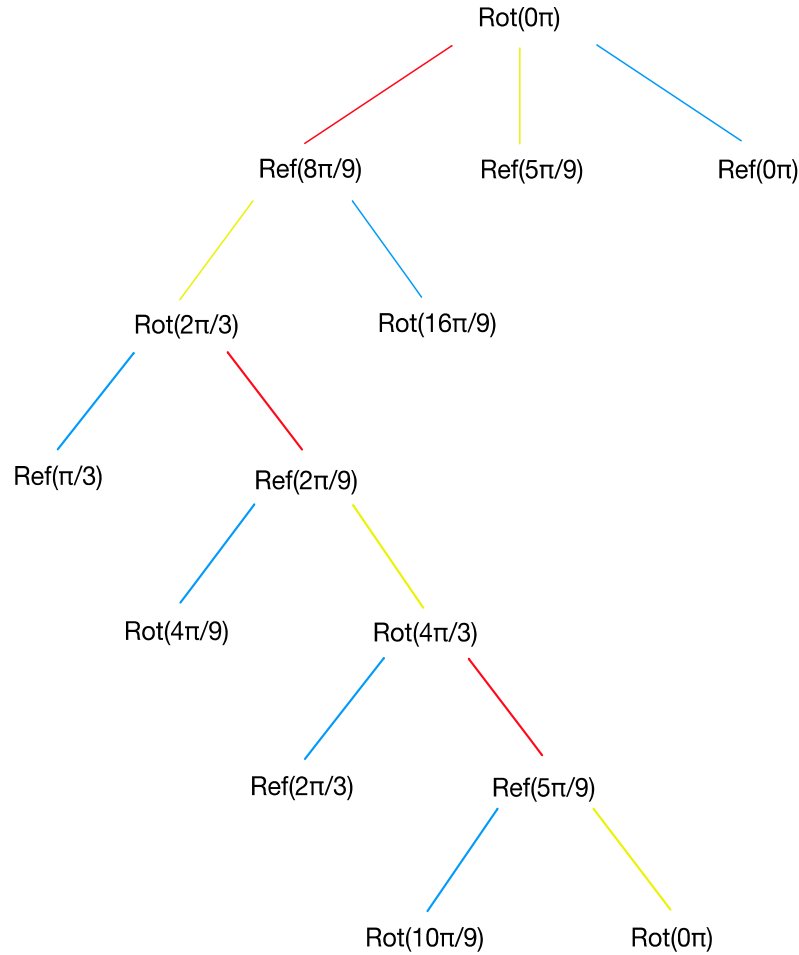


Figure 10: A tree constructed from $[1,3,5]$, where red: a, yellow: b, and blue: c.

Cayley graphs are bipartite. `branch-and-bound` is a boolean variable that determines if the functions uses the branch-and-bound technique. The default value is true.

The algorithm begins with compiling a list of all possible words. The code basically creates a tree of all possible word combinations, similar to the idea of figure 10, and checks to make sure a word represents a closed circuit before adding it to the list. The length of these words will not surpass the value of `max word length`. This list is called `entire_word_list`. These words are then partitioned into dihedral classes. This collects all versions of a word into one class. For example, if 'abcb' is a closed circuit, then 'bcba' and 'cbab' will be in its dihedral class. This will help save time later because all versions of a word, whether it be cyclic copies or backwards versions, are considered the same in this code, and it would be a waste of time to check all versions.

While this is computing, the code also constructs the Cayley graph. The `make graph` function computes the internal and reflection angles, assigns colors to each reflection angle in the generating set, and draws out the graph using Networkx, a python graphing package. Networkx also has an attribute that retrieves the edges in a given graph. In this code, we call those directed edges. The

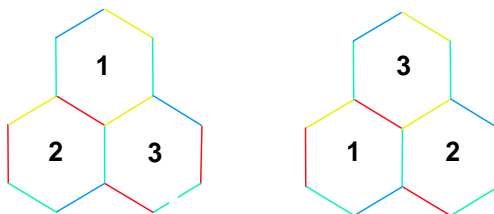


Figure 11: Two different orderings of the same circuits.

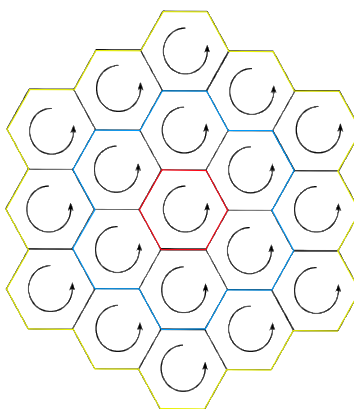


Figure 12: Different layers of one drawing.

directed edges variable is then used to create an initial drawing. In general, a drawing of a graph is when the directed edges are partitioned into circuits. The initial drawing variable is an instance of the Drawing class. The Drawing class stores information like available edges, bare edges, and the number of circuits. Available edges are directed edges that have not been used in a circuit. Bare edges are edges of circuits that are only used in one direction.

From here, we begin building a tree of potential maximal rotations of the graph. The first circuit of any given drawing is assigned by a loop that iterates through each dihedral class. More specifically, the first word in each dihedral class is assigned as the first circuit. This prevents any repetition of drawings because the layout of circuits does not matter. This can be seen in figure 11. The order in which the circuits were drawn does not affect the end result. After the first circuit is assigned, the code loops through these bare edges, also referred to as children, and tries to add more circuits using the word list. The word list is composed of all words from the current dihedral class and forward. We do not include words from previous classes for the same reason we only use the first word for the initial circuit- order does not matter. As these circuits are placed, the edges used to create them are removed from the available edges list. Each edge, also referred to as a child, in children is used in the buildout function. The buildout function takes child, word list, branch-and-bound, and max circuits as parameters. It returns a list of possible circuits that can be used to attach to the child. As these buildouts are established for each child, they are added to a list called next layer. This process

is shown in figure 13.

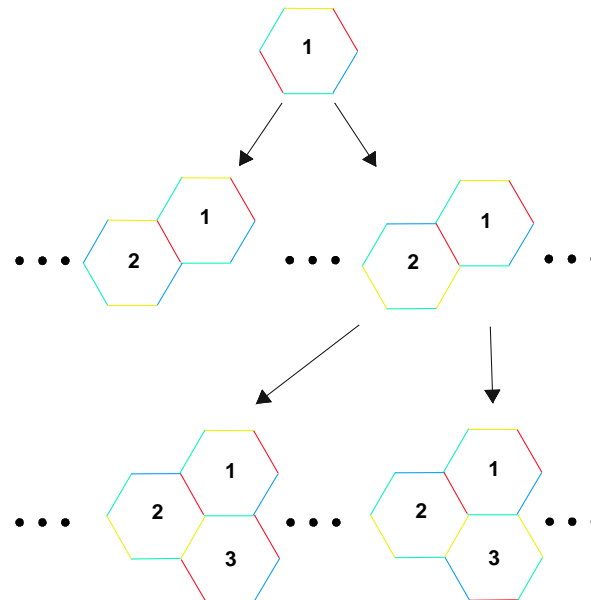


Figure 13:

While the buildouts function is checking circuits to see if they are possible with the remaining available edges, it also runs each drawing through the `still_feasible` function. This function checks to see if it is possible to do better than the current max circuit variable, and if it is not, the current circuit and any following buildouts are terminated. This is the branch-and-bound technique being applied. In figure 12, the red edges are the children of the initial circuit. Once all of the children have been iterated through, the next layer list, the blue edges and later the yellow edges, now become the children list. This process of iterating through the children continues until the children list is empty. This can either happen because every edge was successfully used or there are no more possible buildouts with the edges remaining and words from the word list. The max circuit value is now used in the genus formula and the function returns the genus, max circuit value, and the max circuit drawing.

4.2 Computing Cluster

In addition to exploring more efficient methods for an algorithm, we also ran the algorithm in a computing cluster. The cluster consisted of eight Raspberry Pis connected via a switch. In order to parallel process this algorithm, we used the python package `Mpi4py`. This package is specifically for Raspberry Pi to use MPI, which stands for Message Passing Interface. There are four main functions that are applicable to this code: `comm.get_rank`, `comm.gather`, `comm.bcast`, and `comm.barrier`. `Comm.get_rank` is ran by individual processors to retrieve what processor number they are in the cluster. `Comm.gather` is ran by all processors in sync to send data to a predetermined processor. `Comm.bcast` is also ran in sync by all processors to have one processor send out data to all other processors. `Comm.barrier` is meant to stall a processor until the rest can catch up. The processors can move forward in the code once all processors are running the same `comm.barrier` function.

MPI is used in making the `entire_word_list`. Each Pi runs in a for loop that assigns the first letter of all the words it will create. The loop starts at the Pi's rank, `()`, and is incremented by the cluster size. For example, for a processor with rank zero, all of the words it will compile will start with 'a'.

Once all of the processors have compiled their lists, they run `comm.gather` to send them to processor zero where they are combined into one full list.

5 Results

The main result of this project is an algorithm that computes the genus of graphs generated by triangles. Two by-products of this algorithm are code that can draw the graph of a polygon given in the form of $P(n_1, n_2 \dots n_k)$ and a way to compute and determine the lengths of all valid circuits in a given Cayley graph. We also built a Raspberry Pi computing cluster that can successfully run in parallel.

Polygons	Length 4	Length 6	Length 8	Length 10			Polygons	Length 4	Length 6	Length 8	Length 10
[1,2,3]	1	4	3	14			[1,2,3,4]	3	22	94	633
[2,3,4]	0	3	3	9			[1,2,3,5]	2	10	41	312
[3,4,5]	0	2	3	8			[1,3,5,7]	2	13	65	404
[4,5,6]	0	2	1	7			[1,3,2,8]	3	17	60	477
[5,6,7]	0	2	1	4			[1,8,9,2]	3	8	45	344
[6,7,8]	0	2	1	4			[1,2,3,7]	1	10	39	250
[1,5,6]	1	2	0	8			[2,3,4,5]	3	13	63	471
[1,3,5]	0	3	3	9			[1,8,3,2]	3	17	60	477
[2,2,3]	1	1	4	15			[1,2,2,7]	5	19	79	567
[3,2,3]	1	1	3	13			[1,1,2,3]	3	17	60	477
[2,2,5]	1	1	2	9			[1,2,3,3]	3	13	48	387
[1,4,4]	1	1	2	9			[1,4,4,3]	5	19	79	567
[1,1,1]	3	4	9	24			[2,2,3,3]	4	15	100	615
[4,3,7]	1	2	0	8			[1,4,1,4]	4	18	78	652
[1,4,5]	1	2	0	12			[3,1,3,2]	1	16	55	349
[2,5,7]	1	2	0	8			[1,3,4,3]	3	8	39	305
[1,3,4]	1	2	2	14			[4,3,4,5]	4	8	69	404

Figure 14: Polygons and the lengths of each unique circuit in their corresponding Cayley graph.

6 Future Work

We would like to expand the genus algorithm to be able to compute the genus of other polygons. The difficulties with this are time and memory. The bigger the graph gets, the longer the algorithm, or any other genus algorithm, takes to complete. One way to overcome this is to utilize the Raspberry Pi cluster to divide up the dihedral classes and compute possible buildouts independently. In order for branch-and-bound to be the most effective, each node would need to communicate their max circuit value as it updates. With MPI, `comm.gather` and `comm.bcast` are two functions for communication. Their limits are that they must be ran by all processors in sync. When each processor has a different amount of work from the others, they no longer are able to run code in sync. For example, one processor can be stalled at a barrier, while the rest of the processors are trying to receive data. Because this processor is at a barrier and not running the same code as the rest, the data cannot be received. This can be seen in figure 15. The other difficulty is memory. The tree of possible rotations is made from top to bottom, therefore, each possibility is stored in memory. One way to solve this is to take more of a depth-first search. Then, the max circuits can be updated as rotations of the graph are created, and these rotations do not have to be stored after the number of circuits is found. Another strategy is to reduce the amount that the Drawing class is used. The Drawing class carries a lot of information, and overusing it can use more memory than necessary.

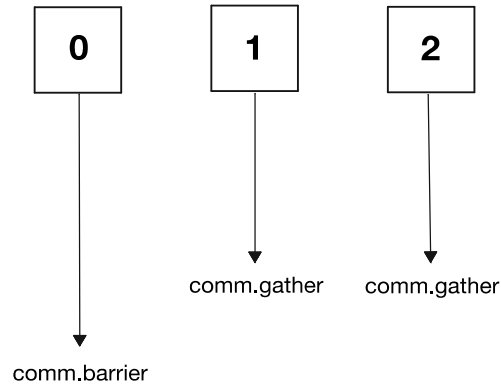


Figure 15: The progress of three processors in a cluster.

Bibliography

- [Tru93] Richard J. Trudeau. *Introduction to Graph Theory*. Dover, 1993. ISBN: 9780486678702.
- [HR03] Nora Hartsfield and Gerhard Ringel. *Pearls in Graph Theory, A Comprehensive Introduction*. Dover, 2003. ISBN: 9780486432328.
- [Lev03] Anaany Levitin. *Introduction to the Design and Analysis of Algorithms*. Pearson, 2003. ISBN: 9780132316811.
- [Gal15] Joesph A. Gallian. *Contemporary Abstract Algebra*. Cengage, 2015. ISBN: 9781305657960.
- [JS22] Jaime Lynne McCartney Joanna Grzegorzolka and Jason Schmurr. “The Genus of Cayley Graphs on Billiard Surfaces”. In: (2022).