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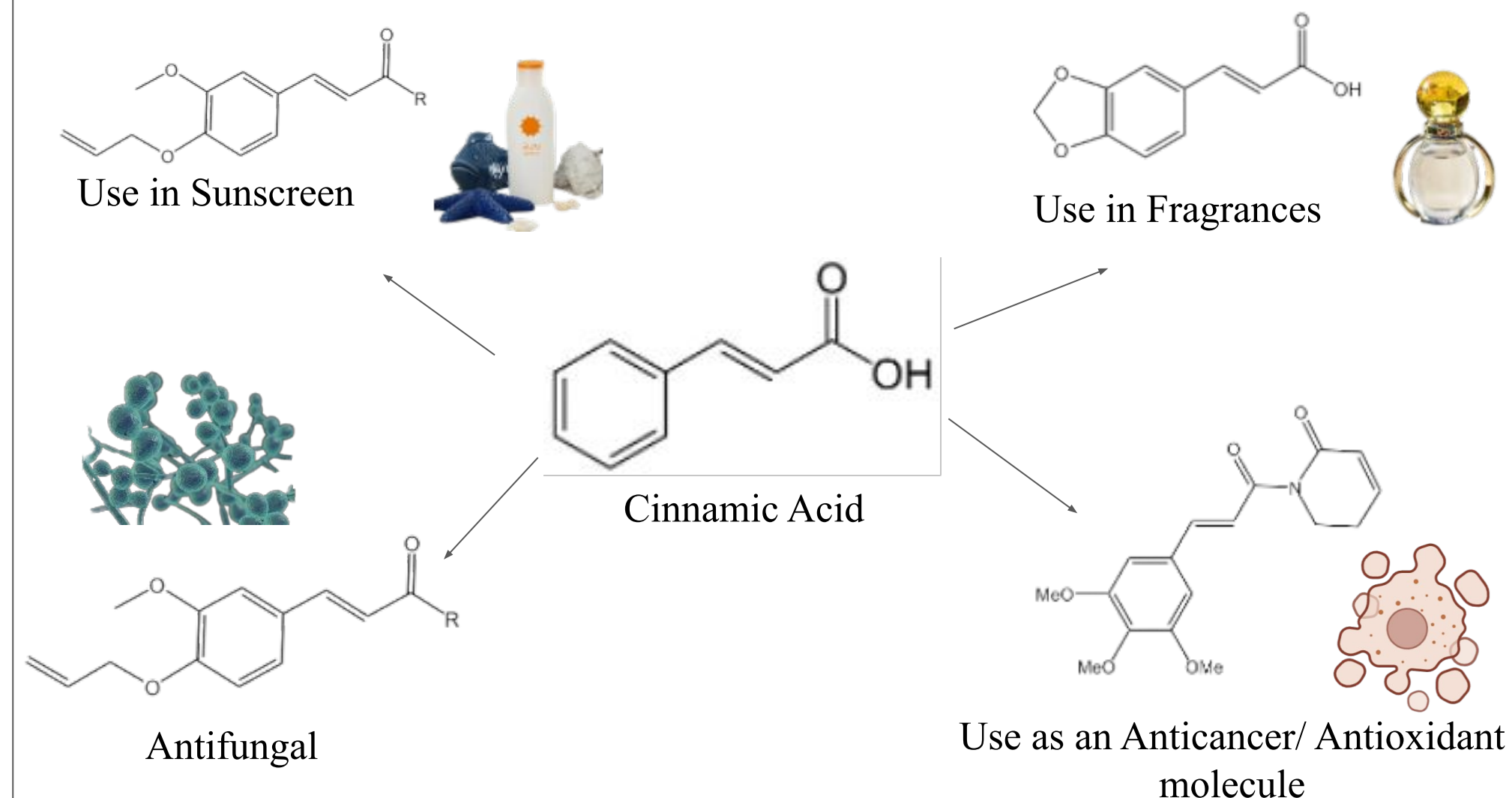
Acknowledgements  
Thank you to my McNair Mentor: Dr. Manchanda,  
and the members of the Manchanda Lab

## Abstract

Cinnamic acid is a widely used aromatic compound, admired for its easily manipulated structure and properties, making it a desired molecule within the cosmetic and pharmaceutical industries. Derived from the *Cinnamomum cassia*, cinnamic acid its corresponding derivatives serve as potent biological molecules with roles including being; antimicrobial, anticancer, antioxidant, and antifungal (Vasconcelos, 198). Through different reactions, the chemical structure of cinnamic acid can be altered at its different functional groups, serving as a preliminary molecule for the synthesis of various molecules, with diverse roles. For example, the derivative known as Piplartine, has shown to serve as an anti-cancer therapeutic (Guzman, 19292). While other molecules such as Coumaric acid, are used to protect from UV rays and may be found in sunscreen.

In our lab, we synthesize amine functionalized xylene bridged silica nanotubes as a catalyst for the synthesis of cinnamic acid. The method of synthesis follows the formation of the synthesis of double-helical silica structures as describe in the paper *Swollen mixed Pluronic surfactant micelles as templates for mesoporous nanotubes with diverse bridged-organosilica frameworks* by Mandal. We seek to quantify the efficiency of our xylene bridged silica nanotube catalysts against a commercially available catalyst for the synthesis of cinnamic acid, which occurs under the Knoevenagel reaction of Benzaldehyde and Diethyl malonate.

## Applications of Cinnamic Acid



## Morphology of Xylene bridged silica nanotubes before surface modification

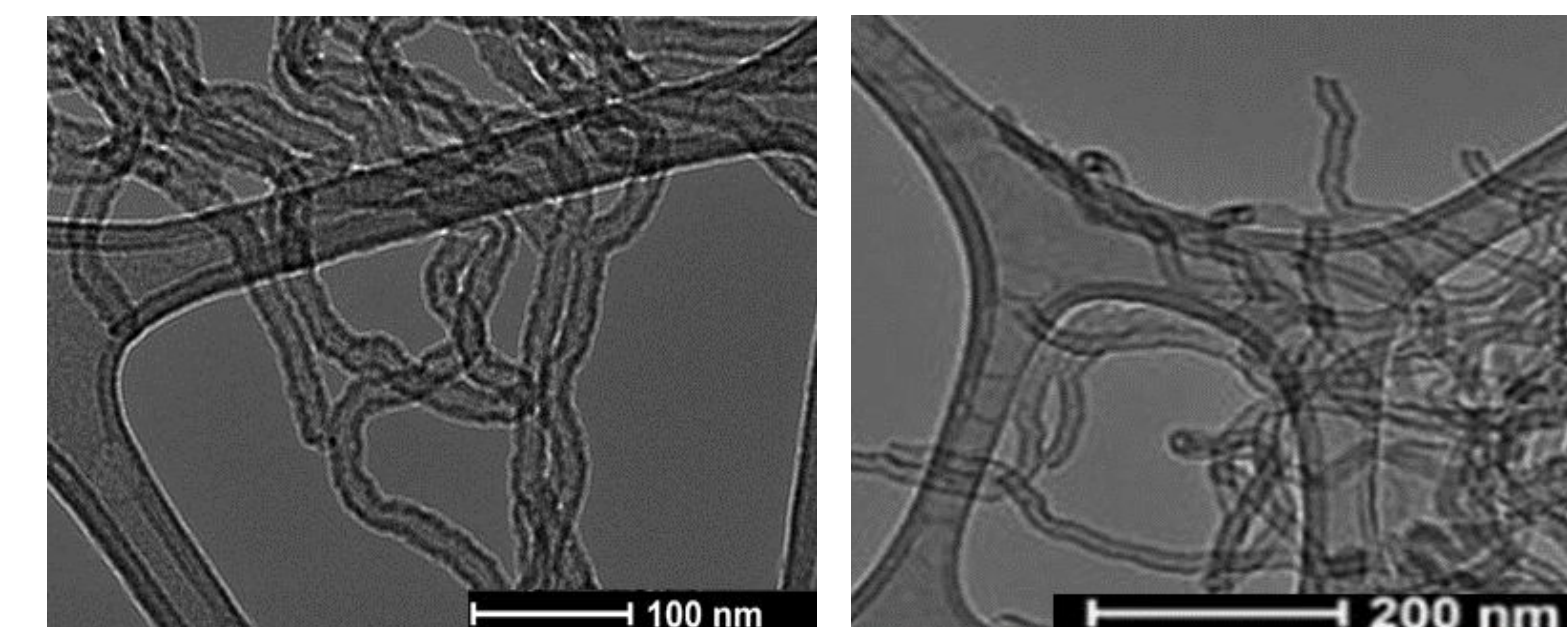
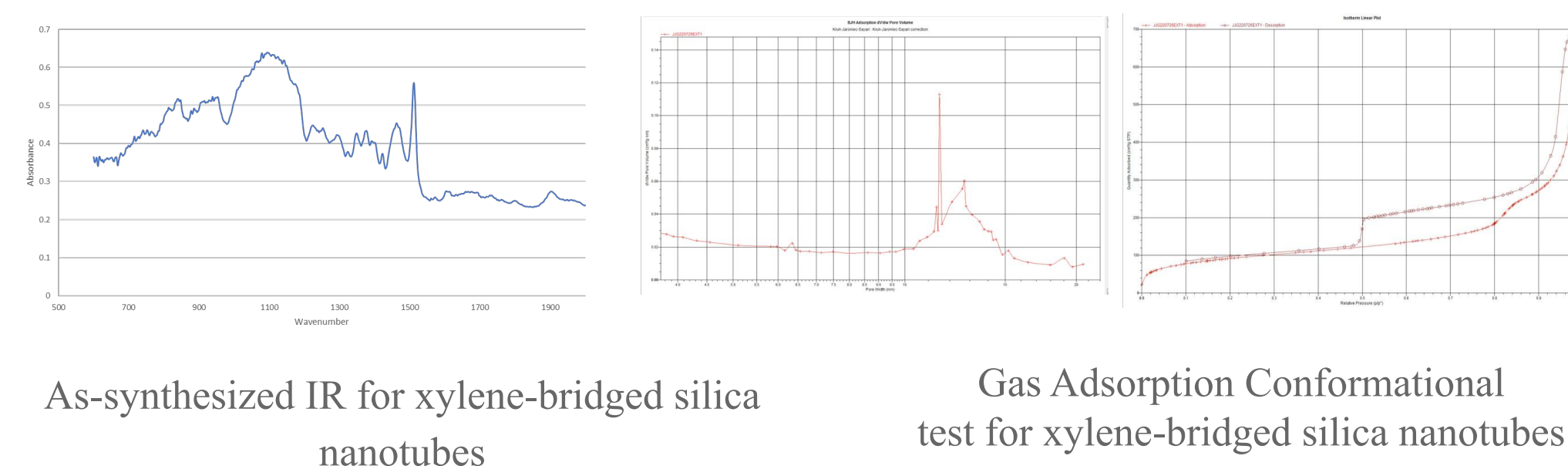
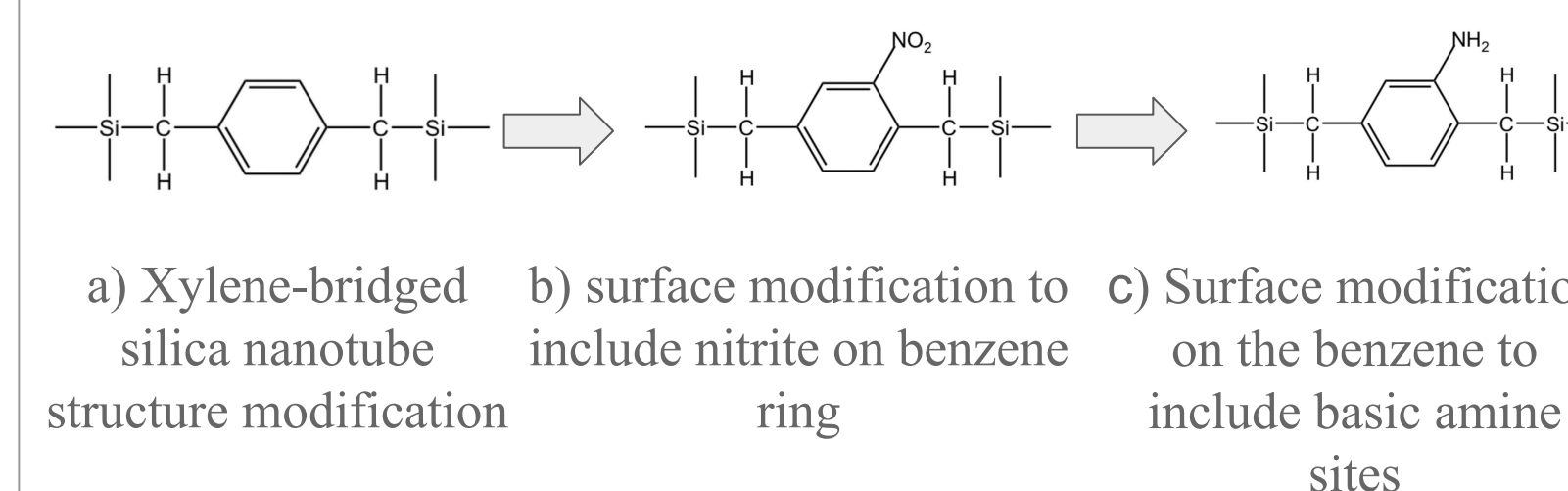


Image shows image of Xylene bridged silica nanotubes under TEM

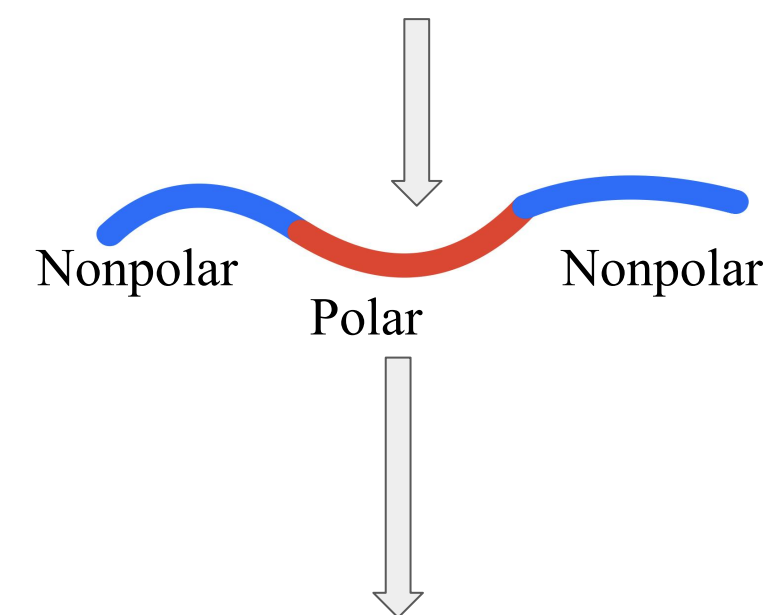
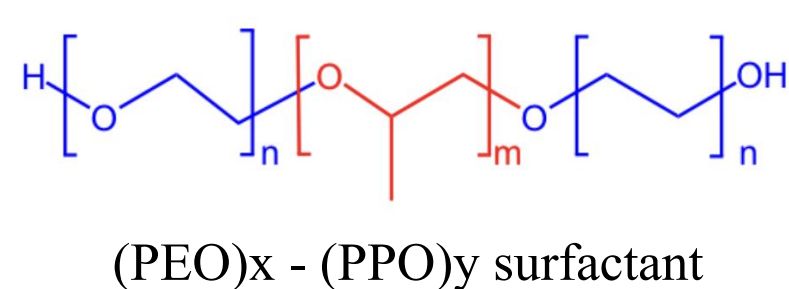
## Conformational Tests for synthesis of Xylene-bridged silica nanotube catalyst



## Surface modification of Xylene-bridged silica nanotubes to include basic amine sites



## Schematic for the Synthesis of Xylene Bridged silica nanotubes

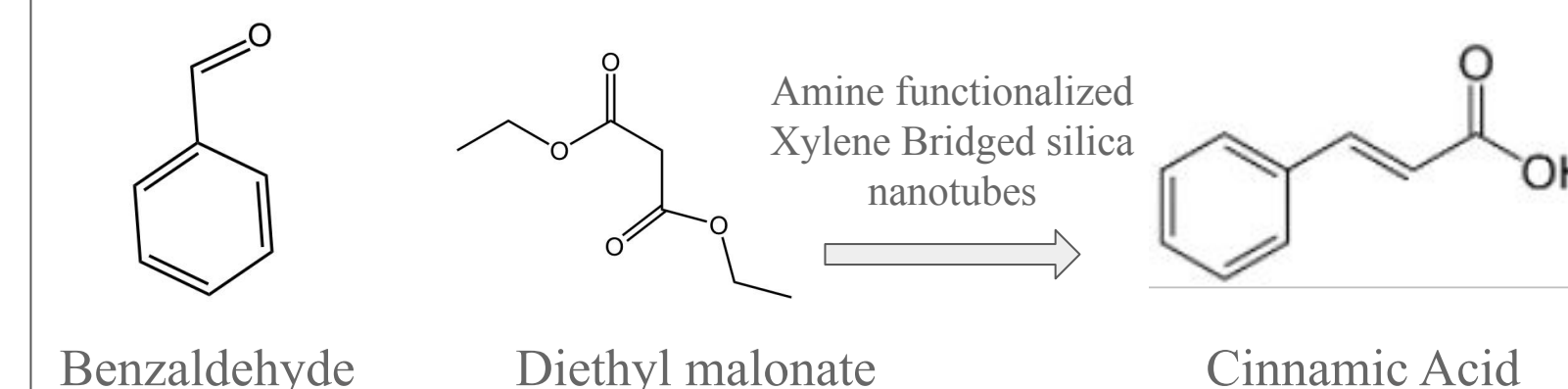


The hydrophobic Propylene oxide (PPO)- (red) arranges itself towards the outside of the micelles while the hydrophilic Ethylene Oxide (PEO)- (blue) arranges itself on the inside of the micelles.

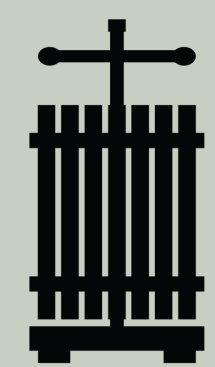
Addition of the xylene bridged organosilica precursor forms around the micelles

Calcification through heat removes the (PEO)<sub>x</sub> - (PPO)<sub>y</sub> surfactant leaving organosilica nanotubes

## Our catalyst in the Knoevenagel Reaction







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# Modified Nickel (0) Chemosensor for UV-Visible Spectroscopic Detection of 2,4,6-Trichloroanisole



## Introduction:



Within the realm of winemaking there are numerous factors that can drastically alter the smell, taste, and mouthfeel of wine. Winemakers are diligent in monitoring the progression of fermentation along with the development of the wine's taste profile. This painstaking process comes to a halt when after months of hard labor their efforts are wasted by a bad cork. Within the wine industry, cork taint is among the largest offenders of wine spoilage. 2,4,6-Trichloroanisole (TCA) is well recognized as one of the leading molecules responsible for cork taint, an organoleptic defect in wine (Takeuchi 2013). The aroma of TCA is characterized as a musty, moldy-like off-odor. At low concentrations, around 1-3 parts per trillion, TCA has a muting affect. This is due to it being an inhibitor of human olfactory signal transduction. At higher levels of contamination, it can render a wine undrinkable. This presents a major financial challenge for wineries. The Cork Quality Council has been estimated that 2-5% of all bottled wines are affected by cork taint every year. Resulting in a financial loss of almost \$10 billion annually. For smaller wineries that presents a risk they cannot afford to take. Thus, the ability to accurately and precisely detect and quantify TCA is vital. Many methods for detection and quantification of TCA have been developed, all utilizing expensive and sensitive instrumentation not readily available to most wineries. In order to give these wineries access to TCA testing, the concept of biosensors in tandem with a nickel complex has been considered.



## Acknowledgements:

Research made possible by the generous donation of Bronco Wine Company. Thank you to Dr. Koni Stone and Dr. Suditi Gupta for their continued support, knowledge, and wisdom.

## Contact Information:

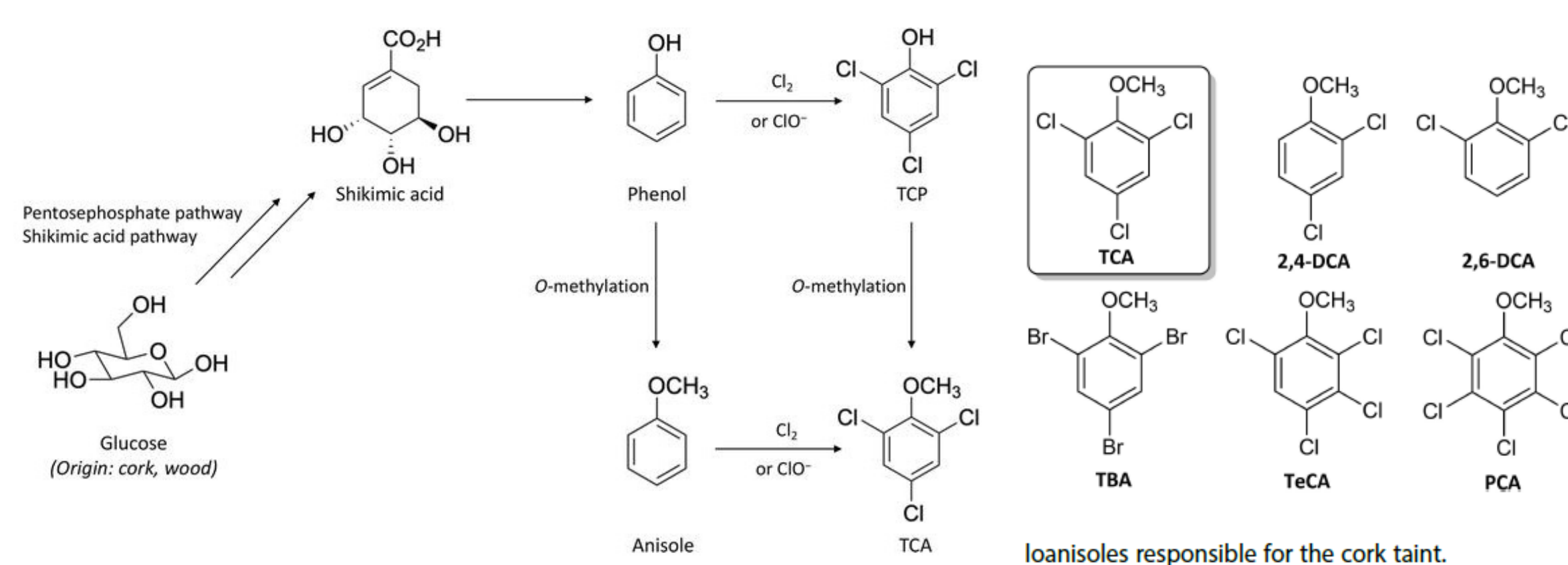
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## Research Question:

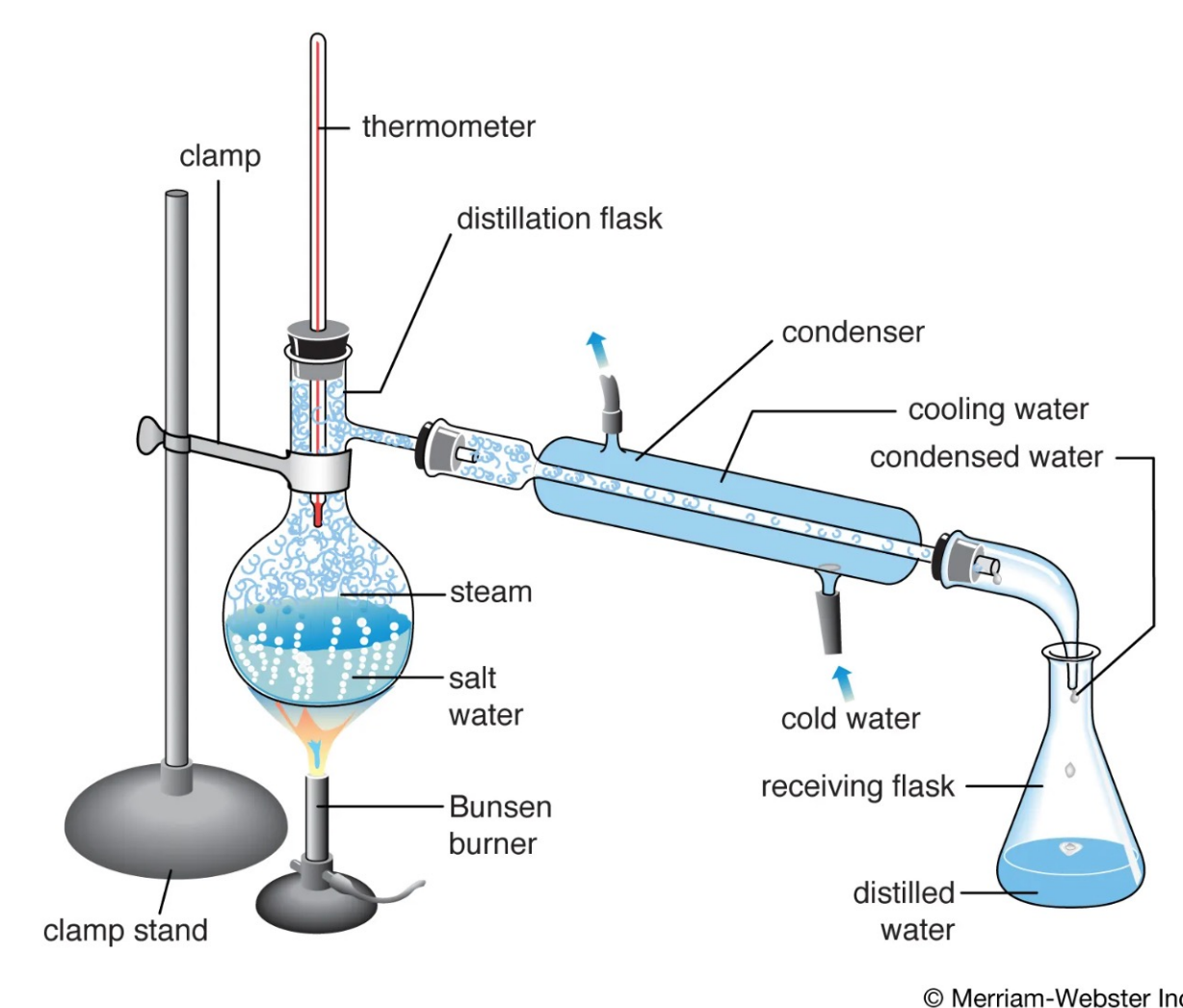
Can we use biosensors and or chemosensors as a way to alter the characteristics of 2,4,6-trichloroanisole to therefore be manipulated via analytical chemistry techniques to allow for detection and quantification in wine and wine corks via UV-visible spectroscopy?

## Literature Review:

- Wine corks are made from bark harvested from the *Quercus Suber* oak tree. The fungi present during production of corks produce phenols as a defense mechanism which undergoes methylation to produce anisole. 2,4,6-trichloroanisole is formed by the reaction of anisole and a chlorinated cleaning agent, such as bleach. There are many chlorinated anisole derivatives.



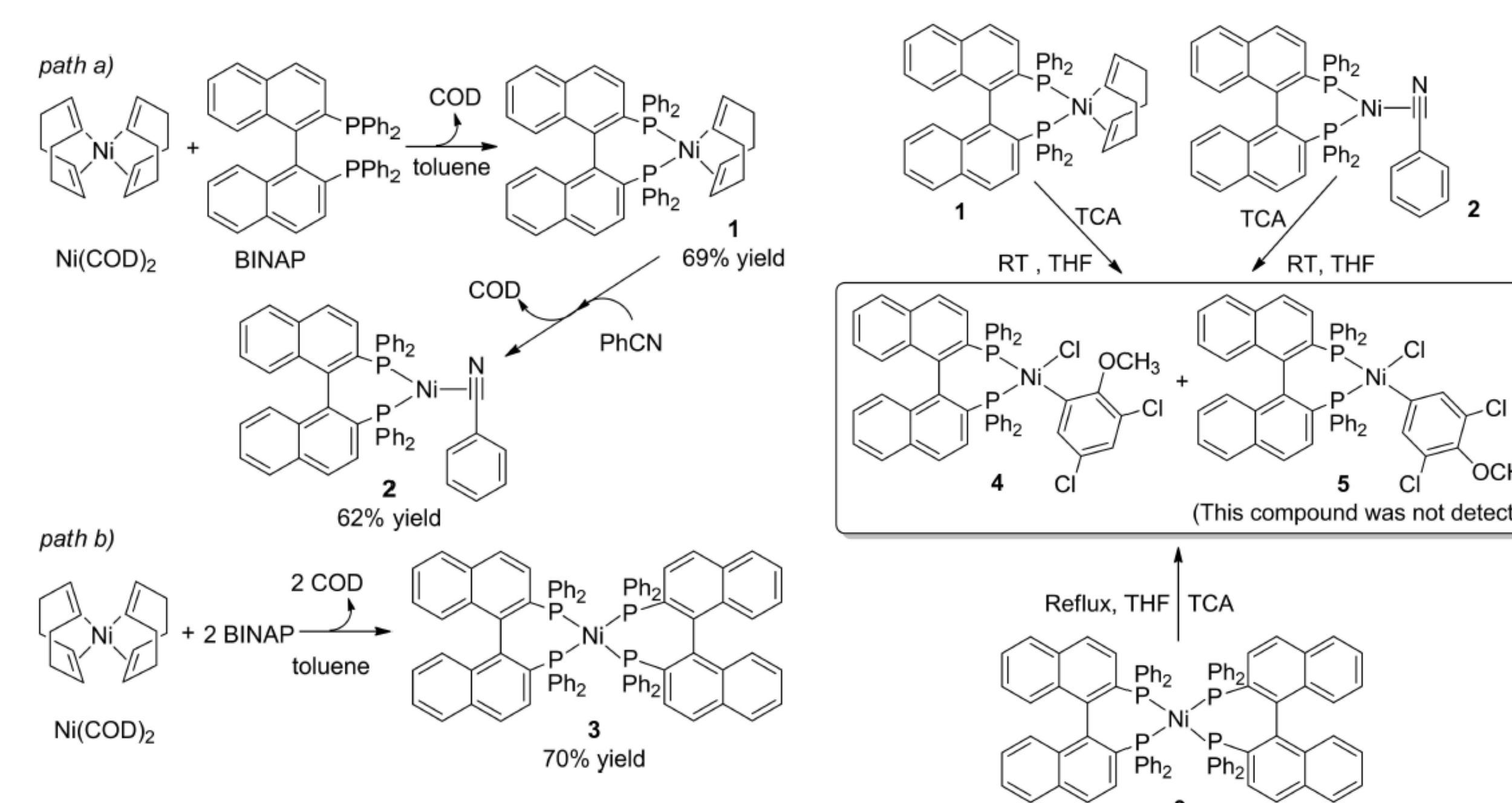
- TCA can have varying affects in the wine. The average consumer can detect TCA at 3 ppt (Prescott, 2004). At this concentration TCA can have a muting affect on the wine.
- Bring in the biosensors! A biosensor is a device that measures a biological or chemical reaction by generating signals proportional to the concentration of an analyte. Research from Dr. Hiroko Takechi, a biophysicist at Osaka University in Japan, demonstrated that TCA inhibits human olfactory signal transduction (inhibits the sense of smell). Therefore, we can exploit this response allowing us to utilize biosensors to quantify TCA.
- Research in 2022 by Dr. Damiano and her team has shown the ability of a nickel-based complex as a chemosensor to impart TCA with UV-visible characteristics.



## Method:

### Materials:

- The synthesized Chemosensor will have nickel as the central atom, thus, to inhibit its propensity toward oxidation, inert atmospheric conditions are necessary. Ni(COD)<sub>2</sub> (1,5-cyclooctadiene) will act as a base for the chromophore. BINAP (2,2'-bis(diphenylphosphino)-1,1'-binaphthyl dissolved in toluene will react with Ni(COD)<sub>2</sub> to create the initial complex prior to further constituent addition. Benzonitrile will undergo an addition reaction with the Ni(0)(BINAP)(PhCN) complex to form the previously determined chemosensor (Damiano, 2022).
- Once the intermediate complex has been formed, pentane, ethylene and three different carbonyls will be utilized as an option for constituent selection. Distilled TCA dissolved in Tetrahydrofuran (THF) over benzophenone and sodium will be combined with the nickel complex via magnetic stirring to form the final product.



Images sourced from Damiano, c. Intriery, D. Sonzini, P. Rizzato, S. Di Natale, C. Paolesse, R. Gallo, E. (2022) Nickel (0) Complexes as Promising Chemosensors for Detecting the "Cork Taint" in Wine. European Journal of Inorganic Chemistry. Vo 2022 (9) Pg: 1434-1442

### Design:

- This is an experimental design focuses on the addition of a chromophore to increase the sensitivity of the resulting Nickel-TCA complex to detection via UV-visible spectroscopy.
- If the selected chromophore is a beneficial addition to the complex, we will see an increase in the sensitivity of the product towards quantification via spectroscopy. Current values indicate sensitivity of approximately 10 ppt (Damiano, 2022).

### Procedure:

Synthesize the nickel (0) complex through a ligand exchange reaction using Ni(COD)<sub>2</sub> along with BINAP in toluene. As reported by Damiano and her team, the highest yield is achieved through a 1:2 equimolar ratio of the reactants. This product then undergoes an addition reaction with benzonitrile to form complex 2. As described by Dr. Ge this product creates a weaker linkage to the nickel center atom which allows for milder reaction conditions for the replacement of the benzonitrile molecule with TCA (Ge, 2014). The reaction of complex two with TCA in THF is achieved in approximately four hours at room temperature while only utilizing magnetic stirring. The resulting compound is stable enough to be analyzed through UV-visible spectroscopy at 444 nm.

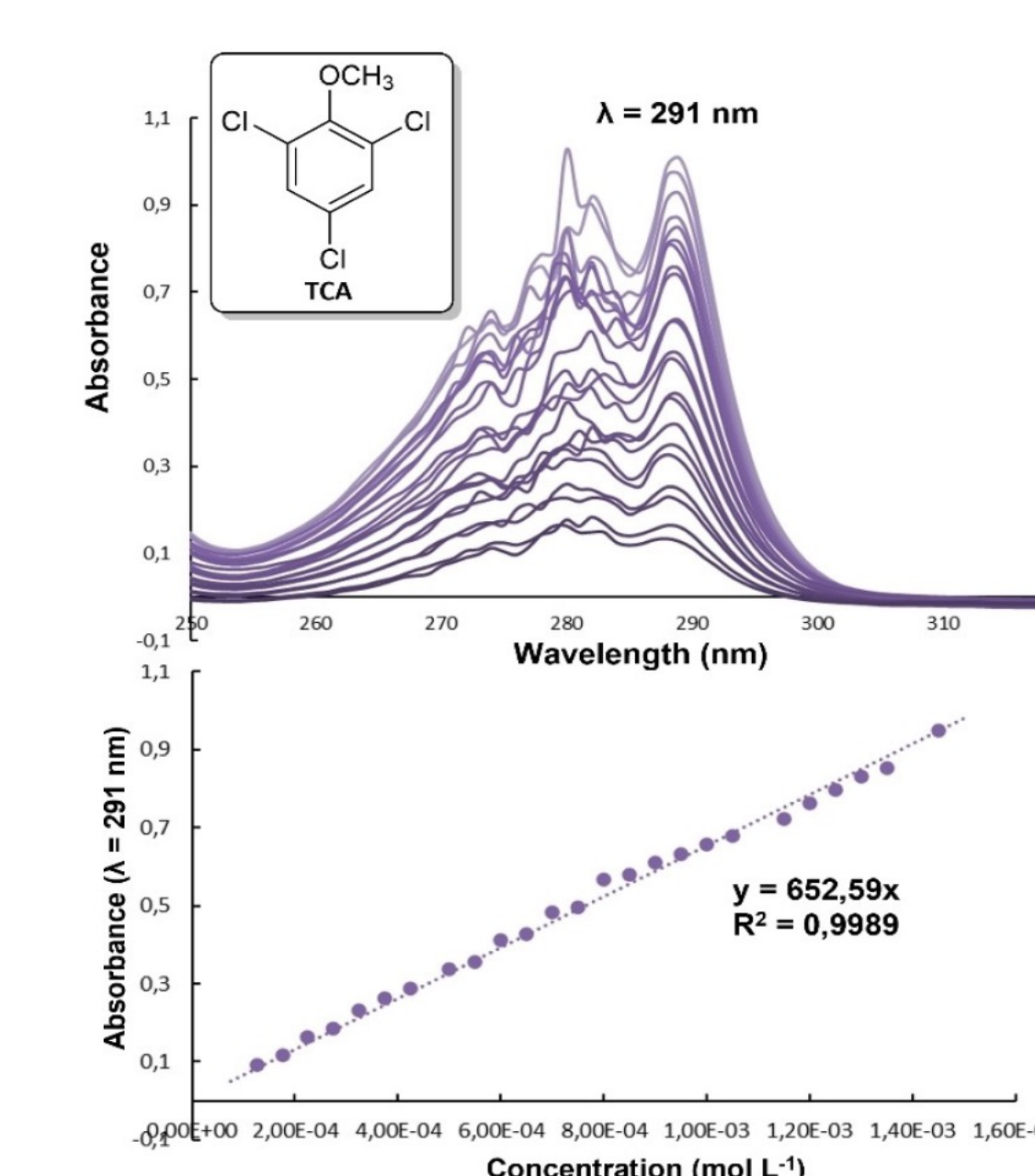
## Expected Results:

I expect to see an increase in the limits of detection to reflect the sensitivity of methods currently utilized in the winemaking industry. Current GC/MS methods report a detection threshold of 3-4 parts per trillion (Macku, 2009). This increase in sensitivity is dependent on the constituent's ability to loosely bind with the nickel complex but retain a stronger bond with the TCA resulting product. Preliminary data is reporting an increase in sensitivity resulting from changes in molar ratios. Possible techniques for increasing the ability for TCA to bind by addition by be to lightly heat the reaction or add a catalyst. This may increase the probability for a contaminant to interfere with the detection via UV-spectroscopy.

## Significance:

This research will allow for increased access to TCA testing within the wine and water industries. Wineries who were previously priced out of this type of testing will now be able to replicate this method and utilize it for their benefit. This method could potentially be modified for detection of various aromatic sulfides or the detection of Brettanomyces, a yeast commonly found in wine that also produces an off-odor.

While this specific work is incredibly relevant to the wine and water industries it holds a greater potential for applications in other industries. Biosensors have been underutilized and having more evidence of their capabilities in the production and agriculture space will allow for other industries to find ways of making them applicable for their own needs.



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# Testing the Relative Efficacy of Lytic Phages in Cocktails on Food Crops to Stabilize Supply and Decrease the Risk of Famine.

## Abstract

Anti-Microbial Resistance, or AMR, has become a major public health threat in recent years, as the rate of new antibiotics to treat bacterial infections has been unable to keep pace with the rapid increase in the number of new resistant strains. With renewed interest and funding in the field of bacteriophages (small viruses that only infect certain strains of bacteria), there have come a series of papers on medical and clinical applications of bacteriophage. However, there remains disappointingly little literature on the agricultural uses of bacteriophages, something that this paper will help to alleviate.

## Introduction

The bacteria that garner the most attention are the ESKAPE pathogens: (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species). Of equal concern is the dangers that these and other bacterial pathogens pose to food safety and agriculture, specifically the *Xanthomonas* Genus, which is responsible for a large majority of losses in economically important crops annually.

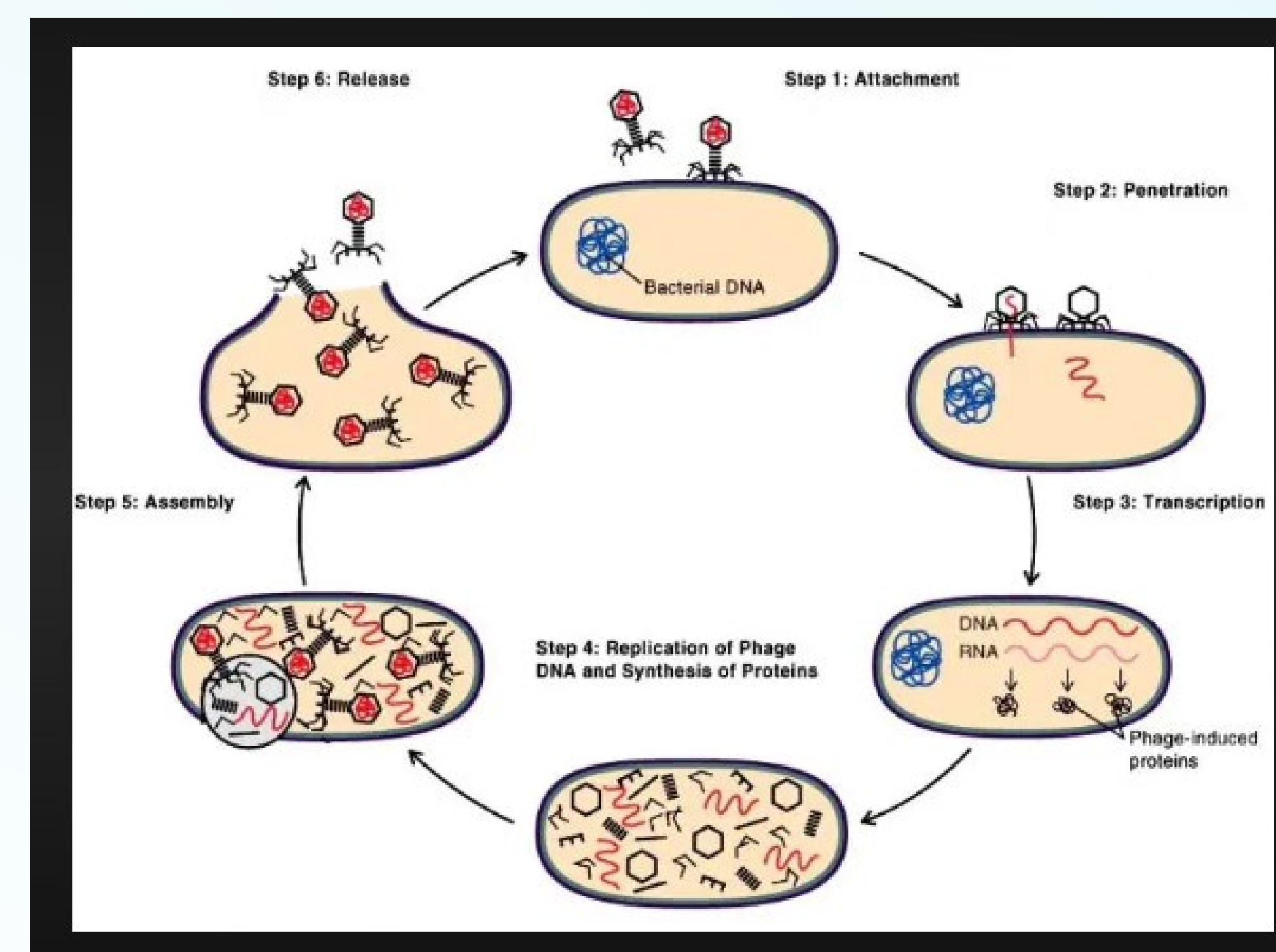


## Materials

- ~ 200 Agar overlay plates
- *Xanthomonas campestris pv. campestris* bacteria
- 7 different phages shown to be effective for *Xanthomonas campestris pv. campestris*
- Photos of each plate every 12 hours for 72 hours
- Optical density measurements every 12 hours

## Methodology

*Xanthomonas campestris pv. campestris* infection (also known as bacterial leaf spot disease on lettuce) will be treated using a series of replicate plates to compare the relative PFU's for each bacteriophage separately, and in combination with others to evaluate if the effectiveness of each bacteriophage are increased, decreased, or unchanged by the presence of other bacteriophages. 10 replicate plates will be made for each bacteriophage and cocktail of phages. Only Lytic Bacteriophages will be used, so that an accurate picture of its effectiveness in treating the infection can be measured.



The experimental data of the individual phage replicates will be assigned as the standard to evaluate the effectiveness of the phage cocktails. Once the combinations are mixed and applied, plates will again be incubated at room temperature for 72 hours to determine total phage life cycle, and photographs recorded of each plate every 12 hours. Like each separate bacteriophage, PFUs will be calculated after every 12 hour period. Concurrently optical density measurements will be taken of the bacterial growth curve, as well as for the bacteriophage-bacteria solutions and cocktail-bacteria solutions.



ASM MicrobeLibrary.org © Hudson

Once the plates have been made, each bacteriophage will be plated separately onto ten replicate plates at room temperature. Images of each plate will be taken at 12 hour intervals for a total of 72 hours to evaluate the full life cycle of the bacteriophages and PFUs calculated after each 12 hour period, in order to track the progression of the infection over time. Experimental data will be compared with pre-existing data on these phages from the literature to identify margins of error, etc.

## Results

In this study we will be answering: "Does exposing lawns of *Xanthomonas campestris* to set concentrations of different bacteriophages, combined with other bacteriophages or in isolation, result in a substantial reduction in the growth of *Xanthomonas campestris* in a lab setting?"

I predict that the results of this study will show:  
- a 0.5-1 log reduction in bacterial growth when exposed to one bacteriophage,  
- A 2-5 log reduction in growth when exposed to cocktails.

Plaque Forming Units on agar overlays will overlap with these results, and demonstrate a significant increase in bacterial lysing with the cocktails.

## Conclusion

This study will show that exposing lawns of *Xanthomonas campestris* to set concentrations of different lytic bacteriophages in combination with others results in a significant reduction of growth, when compared to single bacteriophages, offering a potential avenue for treatment of food crop diseases that can reduce losses and reduce hunger worldwide stemming from *Xanthomonas* bacterial strains.

Acknowledgments-McNair Mentors:  
Tricia van Larr, Andrew Gardner



# Changing the Native Flower Color of Roses

Justin Raymond  
California State University, Stanislaus

## Introduction

Flowers are a very important plant for design and for important occasions. Often, flowers are chosen for their colors or for the intrinsic meaning that they hold. Normally, different colors of a specific species of flower are produced either because the species has different alleles that can give rise to different colors of petals, or a new species has been selectively bred to exhibit the desired color. This study will be focused on exploring if it is possible to have a flower change its pigmentation in its petals without going to a genetic level. Certain species of flowers, like the Hydrangea, exhibit a color changing phenomenon when experiencing changes in soil pH. When growing, flowers already need sufficient nutrients in the soil, so by manipulating soil factors, it is expected to see some marked change within the flower itself.

## Research Question

- Is it possible to change the flower color of a rose without going to a genetic level?
- What is the correlation between soil nutrient content and pigmentation of rose petals?

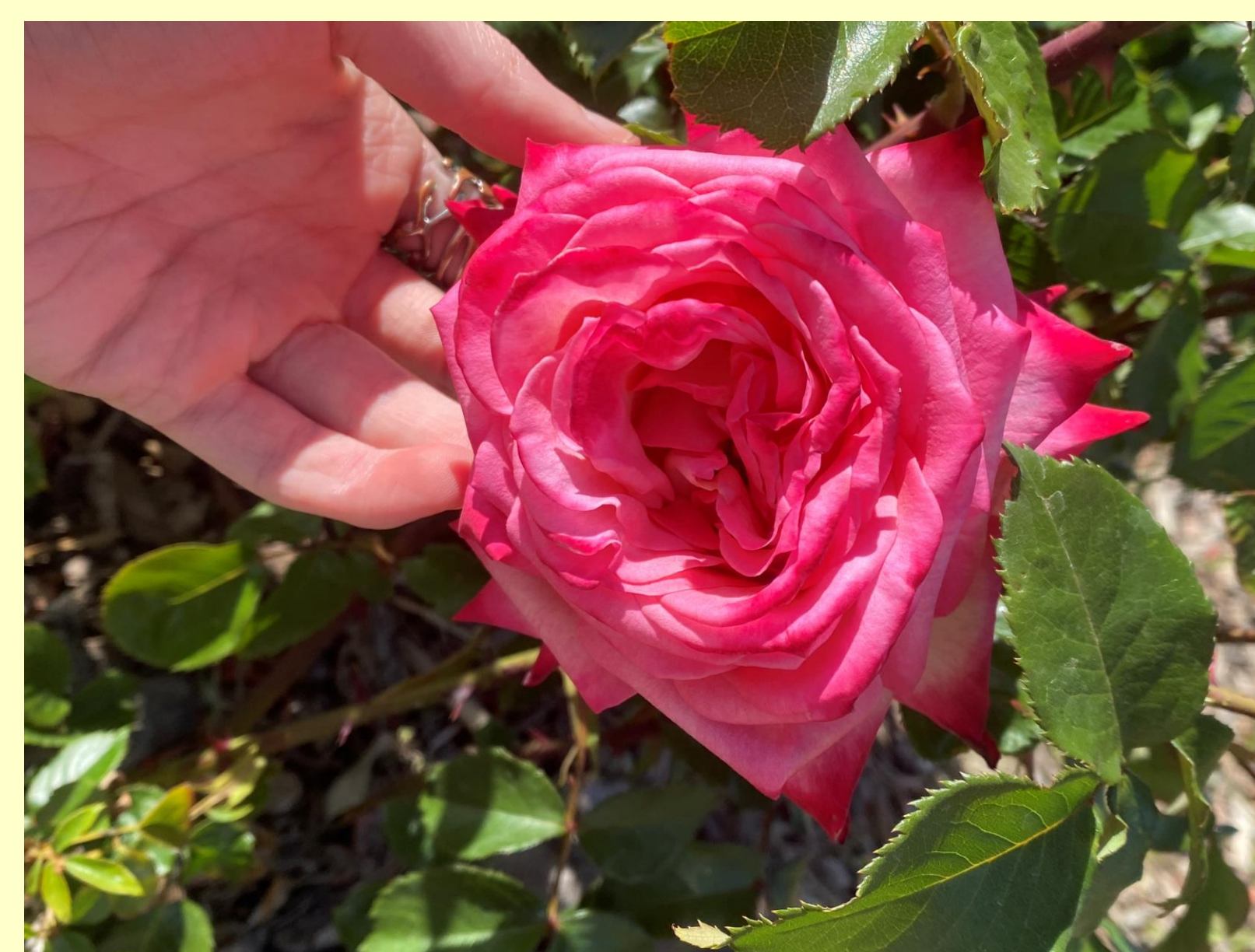


## Background and Literature Review

- Roses have been systematically bred throughout the years, looking for different characteristics which include flower color, petal size, number of petals and shape of the flower itself. The original rose is thought to be a species of *R. gallica*, from which now more than 30,000 species of roses exist due to years and years of expert crossbreeding and mixing of desired traits (Lindley, 1979). Certain species are endemic to certain parts of the world which go on to create wonderful hybrids when they are mixed.
- Roses have a wide usage between being decorative, being utilized in many fragrances to even being used in food dishes and even medicine (Huang et al, 2019).
- Flowers in general are a very important source of food for many different pollinators, with flower color being the main attractant for said pollinators. The 2012 study shows that certain species of pollinators have a 1-to-1 relationship with certain colors of flowers, where they are more likely to pollinate that specific color, even if different colors are present in the environment (Malerba et al., 2012)

## Methods

- Study will be completed experimentally
- The rose seeds/plants will be purchased from a reputable vendor
- There will be multiple plots, each with a different variable tweaked:
  - The pH of the soil will be modified in 2 different plots, one for a higher pH (alkaline) and one for a lower pH (acidic)
  - Another plot will have added Aluminum Sulfate to introduce the presence of aluminum into the soil
  - A final plot will have increased potassium and nitrogen, in the form of fertilizer.
- All plots will be watered the same way and exposed to sunlight the same way, to reduce error in the controls.
- The flowers of each plot will be allowed to grow until they flower, at which point they will be visually compared to the control plot to see if any changes in color have transpired.



## Expected Conclusions

It is expected to see that there will be a rose that blooms with a lighter color than the control group does. It is expected that some of the roses will not grow or even bloom, as that is a standard issue when attempting to grow roses.

## Significance

The significance of this experiment is simply just to expand knowledge of the intricacies of growing and cultivating roses, but the processes here can be applied to other species of flowering plants which can lead to a more diverse and colorful gardening experiment. Without needing a super in-depth knowledge of the genetics of flowering plants, one should be able to try and select for their desired color of flowering plants within their own garden.

With an increase in the worry about pollinators dying off, it could present a way to keep species that need to be pollinated in the unfortunate event that the bees or another pollinator goes extinct.

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All photos taken by Justin Raymond from Stanislaus State University

## Acknowledgements

Dr. Suditi Gupta- University Honors Program

Tim Held- Librarian

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# Regenerating the Ecosystem: Growing Strawberries in an Agroecological and Conventional Manner



Sharlien Envieh

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## Introduction

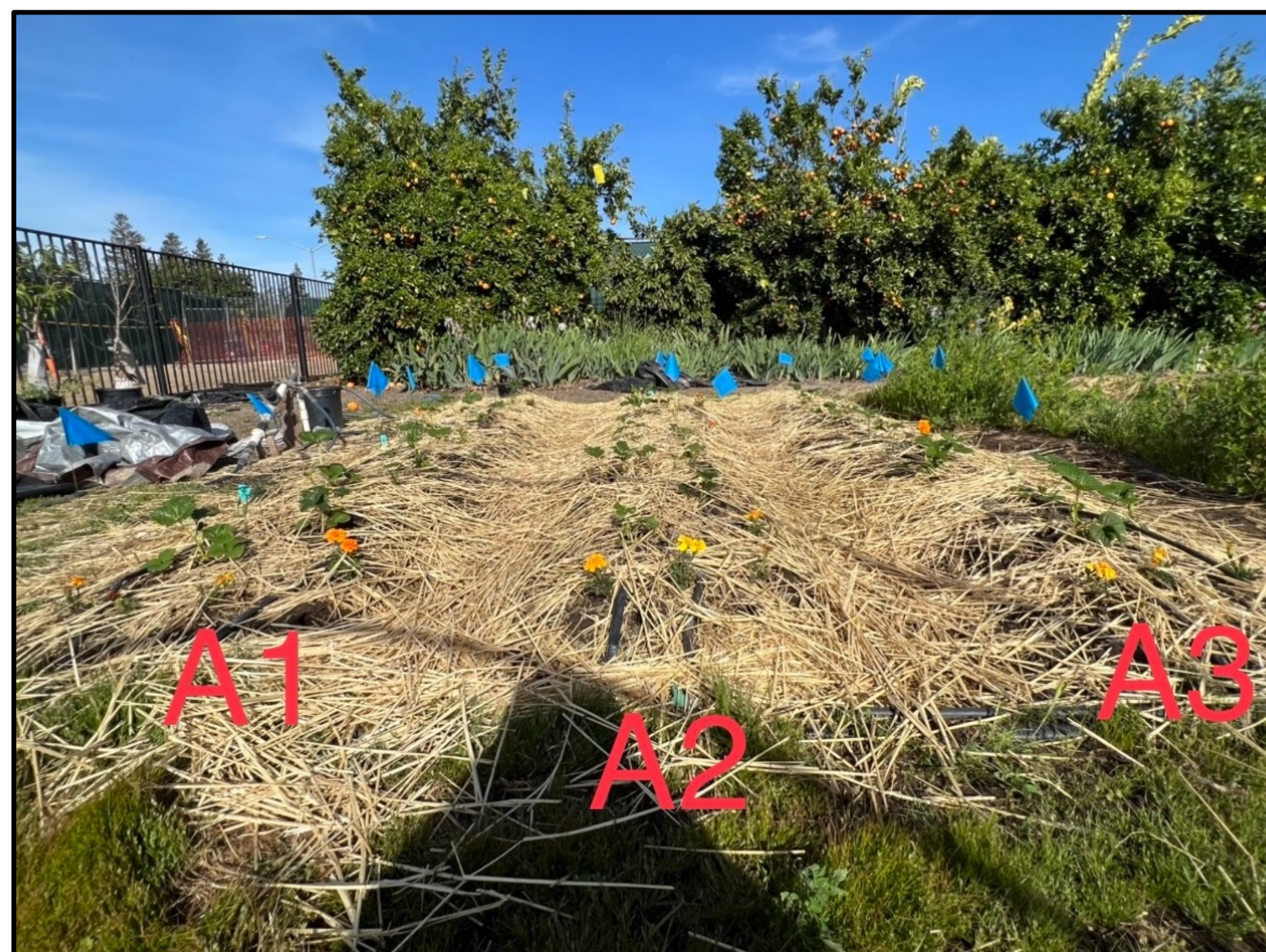
- Strawberries are a popular fruit that are loved by many in the summertime. Eight pounds of strawberries are consumed every year by Americans alone (Milena Guajardo et al., 2022).
- Using polythene film, commercial growers practice plasticulture by using it as a mulch (Schirmel et al., 2018). Plasticulture benefits growers by suppressing weeds, and therefore increasing yields (Annie Klodd et al., 2023).
- Plasticulture contributes to non-recyclable waste (Zhang et al., 2021), and it harms and decreases the abundance of microbial biomass of soil (Schirmel et al., 2018).
- Agroecology emphasizes the importance of regenerating the ecology in agroecosystems.
- Many garden blogs use agroecological practices such as intercropping basil, beans, chives, and lettuce with strawberries, but science has yet to experiment with these companion plants.
- This study seeks to emulate the garden blogs to create a diverse agroecosystem.
- While there are many studies about comparing different mulches such as plastic and straw, there are few studies about comparing a diverse agroecological strawberry system to a conventional one.
- We hypothesize that by having a diverse ecological system, the strawberries in this treatment will be of better quality, and will provide the most profit, even though the conventional system will likely triumph in terms of yield.

## Research Questions

- Which treatment will provide the most yield?
- Which treatment will provide the best quality strawberries?
- Which treatment will provide the most profit?

## Significance

As innumerable acres of arable land are being degraded with current agricultural practices such as plasticulture, it is crucial to understand that these methods will not sustain strawberry production in the long run. It is vital to reinvigorate agricultural lands by investigating agroecosystems, and understanding the underlying ecology that can be used as a driver for restoration.



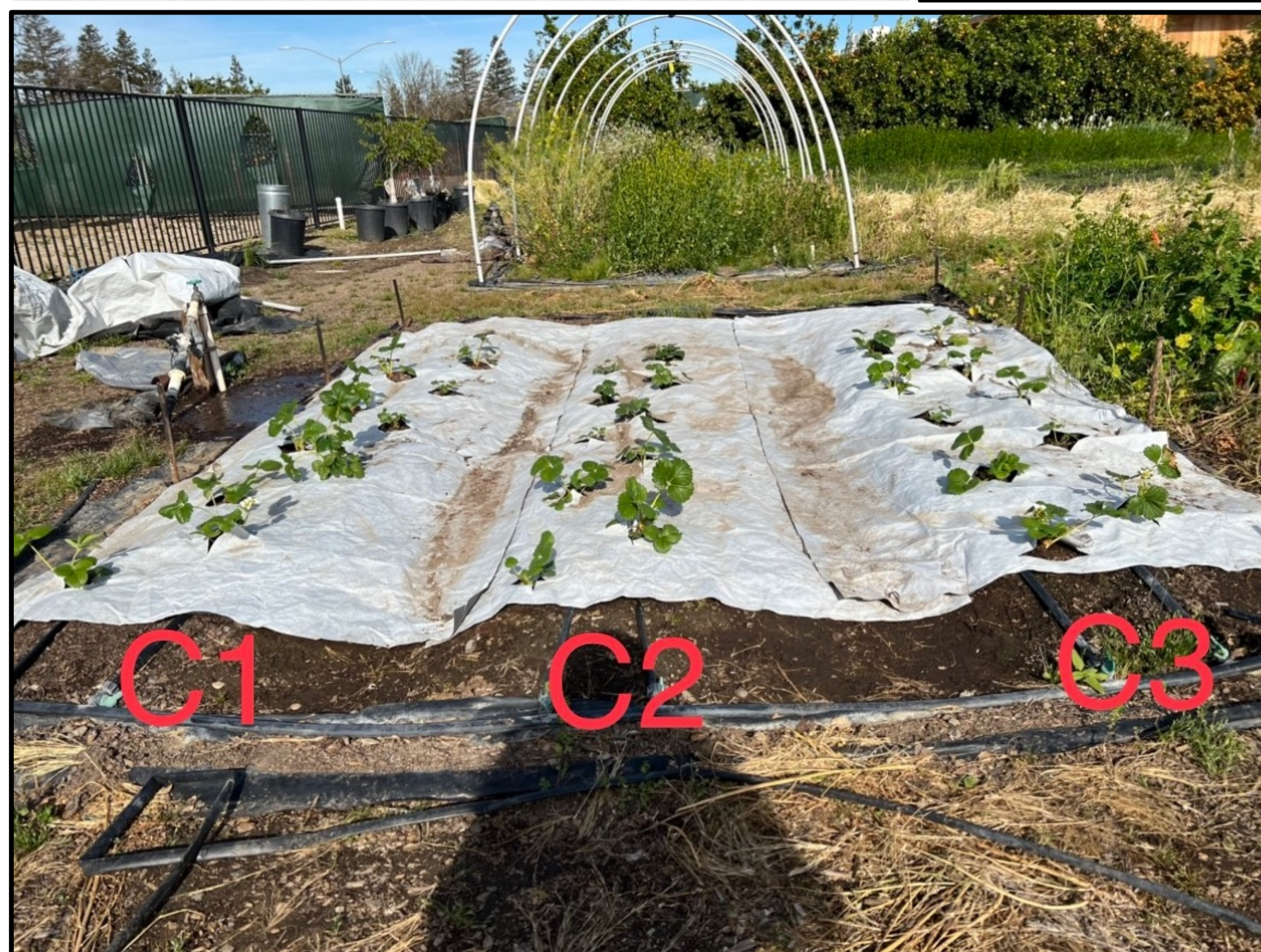
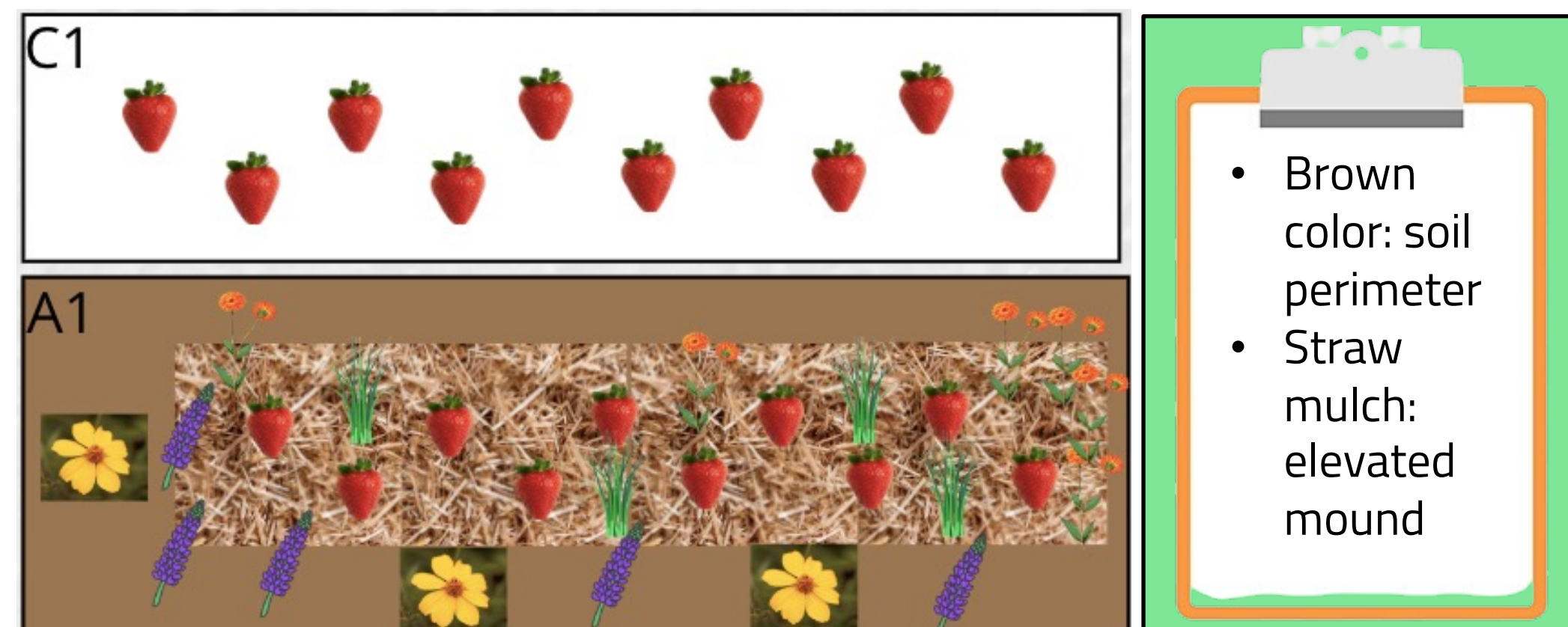
## Literature Review

### Growing Strawberries

- Farmers can grow conventionally or sustainably. Most conventionally grown strawberries consist of fumigation of the soil before planting, the use of plastic mulch, slow-release synthetic fertilizers, and typically methyl bromide as a main pesticide (Gliessman et al., 1996). Sustainably grown strawberries can be grown by following organic guidelines.
- It should be kept in mind that while organic farming is not as harmful to the environment as conventional farming, large scale organic operations still follow the conventional practices of monoculture.
- USDA Organic certification prohibits many synthetic substances such as synthetic fertilizers and pesticides, but there are still some synthetic substances that are allowed to be used such as chlorine materials for pre-harvest use (7 CFR Part 205 Subpart G – The National List of Allowed and Prohibited Substances, 2023). It's important to remember that organic does not entail pure strawberry production.
- In organic strawberry production, materials such as dairy waste and plant residues can be used (Gliessman et al., 1996).

### The Harms of Plasticulture

- Plastic mulches have been used since the 1950s (Zhang et al., 2021). This review states that farmers use plastic mulch to optimize soil temperature, reduce evapotranspiration, reduce weed growth while increasing yield.
- Unfortunately, plastic mulches degrade and contaminate the soil and end up in landfills.
- Plastic mulch also degrades the biodiversity of an agroecosystem. For example, one study demonstrated that there was a greater number of insects such as spiders, ants, isopods, and springtails in the straw mulch treatment compared to the plastic mulch (Schirmel et al., 2018). Straw mulch serves as a source of food for these organisms.
- Degrading plastic mulch contributes to the accumulation of microplastics in our surroundings which can pose a risk to human health.



## Methods

### Plot Preparation (see images)

- Location: CSU Stanislaus in the Sustainable Ag Garden
- Two plots with three mounds
- Each mound serves as a replication of the experiment
- A prod fork was used to loosen the compaction of the soil
- Dimensions of each mound were 13 feet long by 1.5 feet wide.
- Agroecological plot (mounds: A1, A2, A3)
- Conventional plot (mounds: C1, C2, C3)

### Agroecological Preparation

- Vermicompost was applied as a top dressing between the three mounds and was watered in.
- 10 strawberries were planted in each mound in a zig zag pattern and interplanted with chives.
- Marigolds and lupins planted on the sides of the mounds.
- Covered in a layer of straw mulch.
- Drip irrigation system

### Conventional

- Tarp will serve as the "plastic mulch" in this case. It is opaque, so that light transmission isn't possible for the growth of new weeds, but the top is white to prevent fruit burn once the temperature increases in the summer.
- Areas where the strawberry was to be planted was cut with a razor knife.
- Two teaspoons of synthetic fertilizer were mixed directly into the holes
- 10 strawberries were planted for each mound
- Drip irrigation system

### Strawberry Plants

- Day-neutral variety: Seascape cultivar
- Existing flowers were cut off to eliminate any head-starts
- Their flowers will be continually cut off at the base of the stems to allow for vegetative growth until May 26, 2023 (which is six weeks after planting)

### Chives

- The chives in the agroecological plot will be harvested when ready
- Their weight will be recorded

### Data Collection

- Measured for diameter, height, and weight. Conditions such as pest damage, color percentage, brightness, mold presence, and bruising
- Qualitative data will also be collected about the conditions of these systems. Examples include pollinator presence, plant vigor, pest presence, and other observations
- A cut-off date will be decided to be in late summer or early fall

- After the cut-off date, using the USDA standards for strawberries, the strawberries will be classified for market sale. An economic value will be placed on them to create a cost and benefit analysis. The chives will serve as an income stream for the agroecological treatment.

### Soil/fruit tests

- Performed by A&L Western Ag Lab-Matrix

## Expected Results

- I hypothesize the conventional plot to perform better in terms of quantity
- I hypothesize the agroecological plot to have better qualitative characteristics such as color, shape, and brightness due to the increased chances of pollination (as there are marigolds/lupins growing to attract pollinators). I also hypothesize better quality because I predict there will be less pest damage due to the presence of chives repelling pests, and this biodiverse agroecosystem attracting beneficial insects. The application of vermicompost (worm castings) may also aid in better quality strawberries.
- Even though the agroecological plot may not provide the most yield, I hypothesize it to bring in the most profit because there is the income stream of harvesting chives.

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## Acknowledgements

I would like to thank my mentor Dr. Chantelise Pells for her immense help in the creation and execution of this project. I am also grateful for the Stanislaus State Agriculture Department and garden supervisor, Hector Vera for allowing me to use the Sustainable Ag Garden for this experiment. Lastly, I thank my classmate, Matt Young of A&L Western Ag Lab-Matrix for offering to perform the soil and fruit analysis tests for this project.







# The Relationship Between Vision Care Access and Rate of Treatment

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## Introduction

Eyesight is a vital part of everyday human function and experience. In conjunction, vision and eye care is something of utmost importance, due to the crucial nature of vision to human function and experience.

Several factors go into the lack of access and substandard care that may be received, such as historical racial prejudices, lack of transportation, difficulty of access due to disability, job availability and appeal for providers, and age, both young and old.

These factors and what has been done to overcome them must be studied in order to better improve the next steps in access. These factors must also be studied to see the impact they make on people with treatable eye conditions, whom otherwise may have been treated.

## Acknowledgements

A huge thank you to Master Librarian Tim Held and Professor Suditi Gupta for their help and guidance throughout this research process.

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## Research Question

How does access to vision healthcare, in affordability, proximity, and number of options, affect the rate of treatment of frequently occurring or existing, treatable vision conditions?

Does the lack of access significantly contribute to a higher instance of untreated myopia? In what communities is the instance of myopia highest and does this correlate with communities with a combination of low socioeconomic class, low healthcare position availability, and historically impacted racial inequities?

What do the areas with high accessibility, high rates of treatment, and higher socioeconomic class do differently and how can it be applied to improve the rate of treatment for the opposite types of areas.

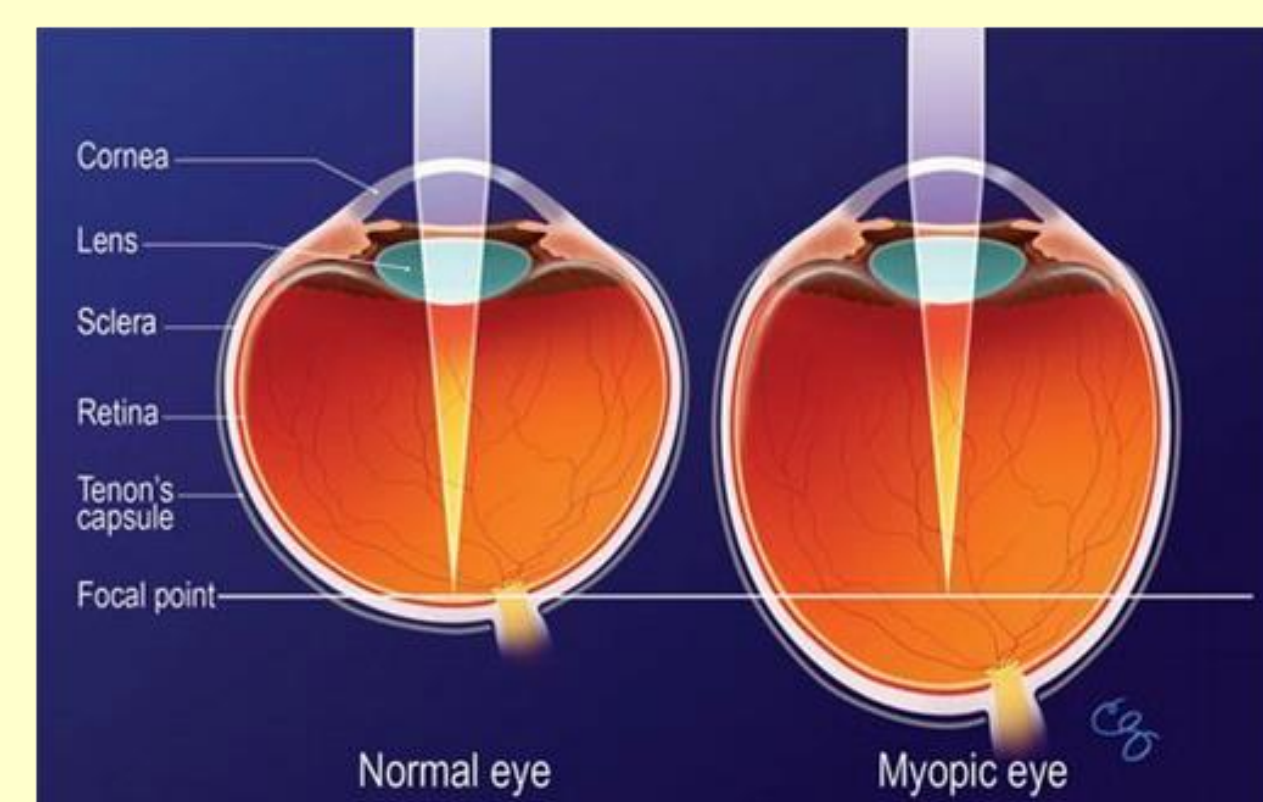


Figure 1. Normal Eye vs Myopic Eye

## Background and Literature Review

An uneven distribution of resources leads to:

- Health disparities
- Worsened health outcomes for particular groups
- Inferior access to high quality healthcare (Chauhan et al., 2023)

Areas of disparity include

- Historically economically disadvantaged communities
- Areas of racial and ethnic minorities
- Areas of low economic and employment opportunity for healthcare providers
- Areas with “culturally based perceptions and norms, and a lack of knowledge about vision-threatening conditions” (2022, Ervin et al.).

Methods of Improving Access

- Ways to mitigate this lack of access, at least due to age or time constraints, could be through telehealth visits, which, during the COVID-19 pandemic, “improved inpatient access to eye and visual neurorehabilitation assessment before and during the COVID-19 quarantine” (2021, Keilty et al.).

## Methods

**Target Groups (Participants):**

- Patients in the U.S. with/without vision conditions
- Racial minorities/majorities

**Design:**

- Correlational research design
- Variables tracked such as: access to vision care, rate of treatment, and quality of vision care

**Materials:**

- Patient statistics, peer-reviewed journal articles, Excel

**Procedures:**

- Systemic literature review of possible solutions or solutions proposed in the past
- Observational data from three counties, includes demographics, ages, etc,
- Comparison of operationalized variables conducted based on data collected

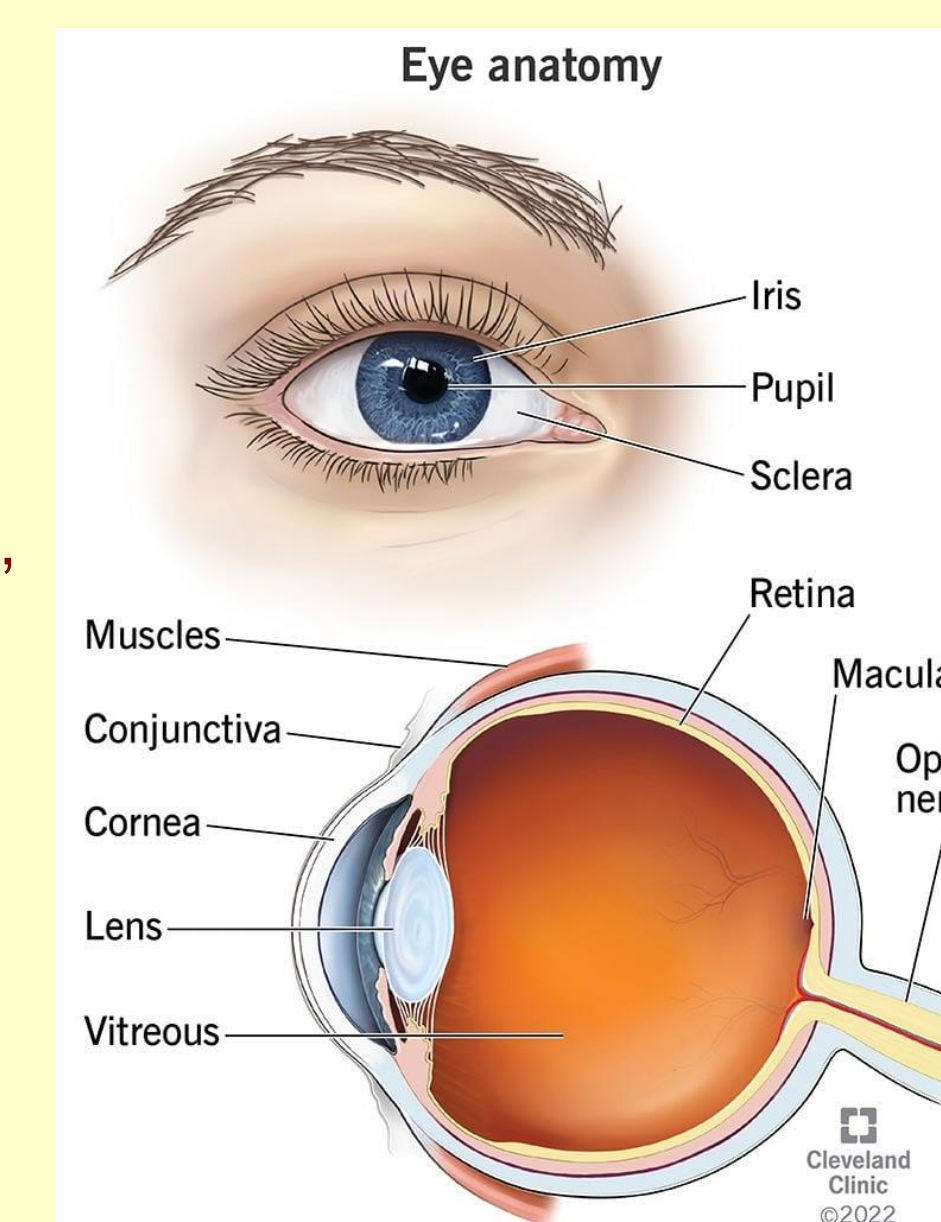


Figure 2. Normal Eye, defined

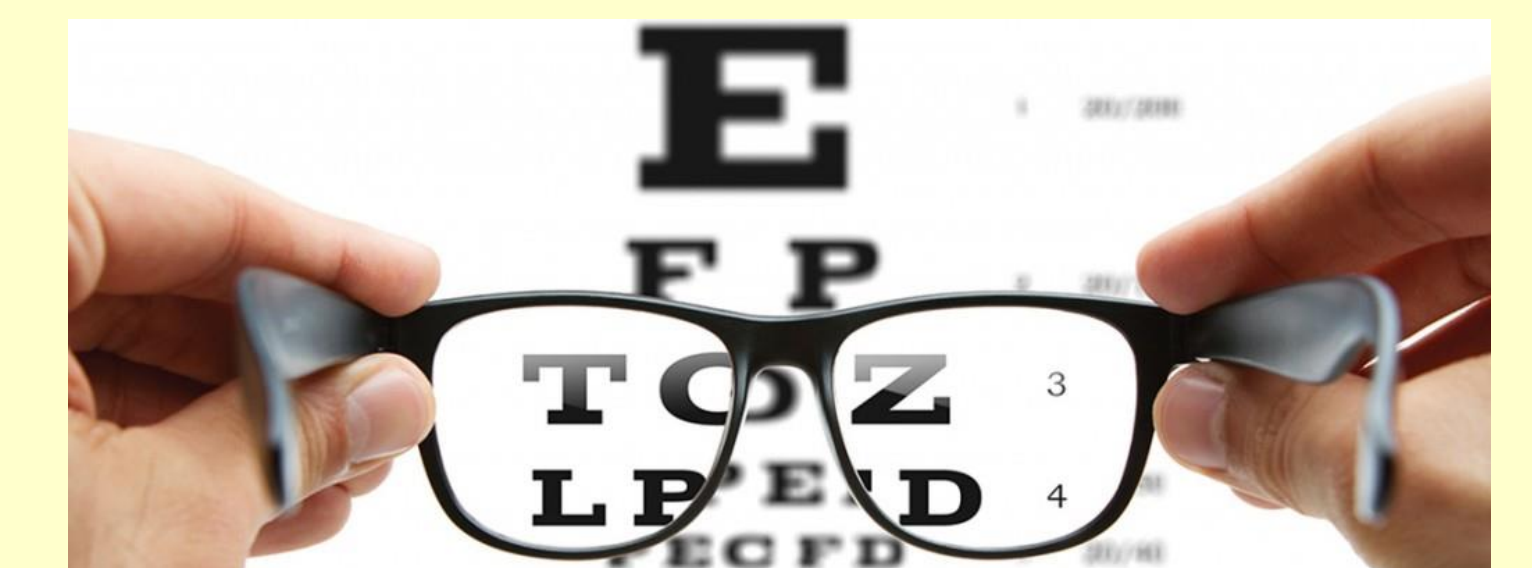


Figure 3. Snellen chart

## Significance

Knowledge in overall barriers to access in vision and healthcare are important research areas to have knowledge in due to the consequences and multi-faceted issues they present. The barriers to healthcare overall can be compared to and applied to access to vision and studied to find evidence showing whether they are significant barriers to vision care as well. Likewise, any barriers found can thereby be applied to other areas in healthcare, and solutions can be found.

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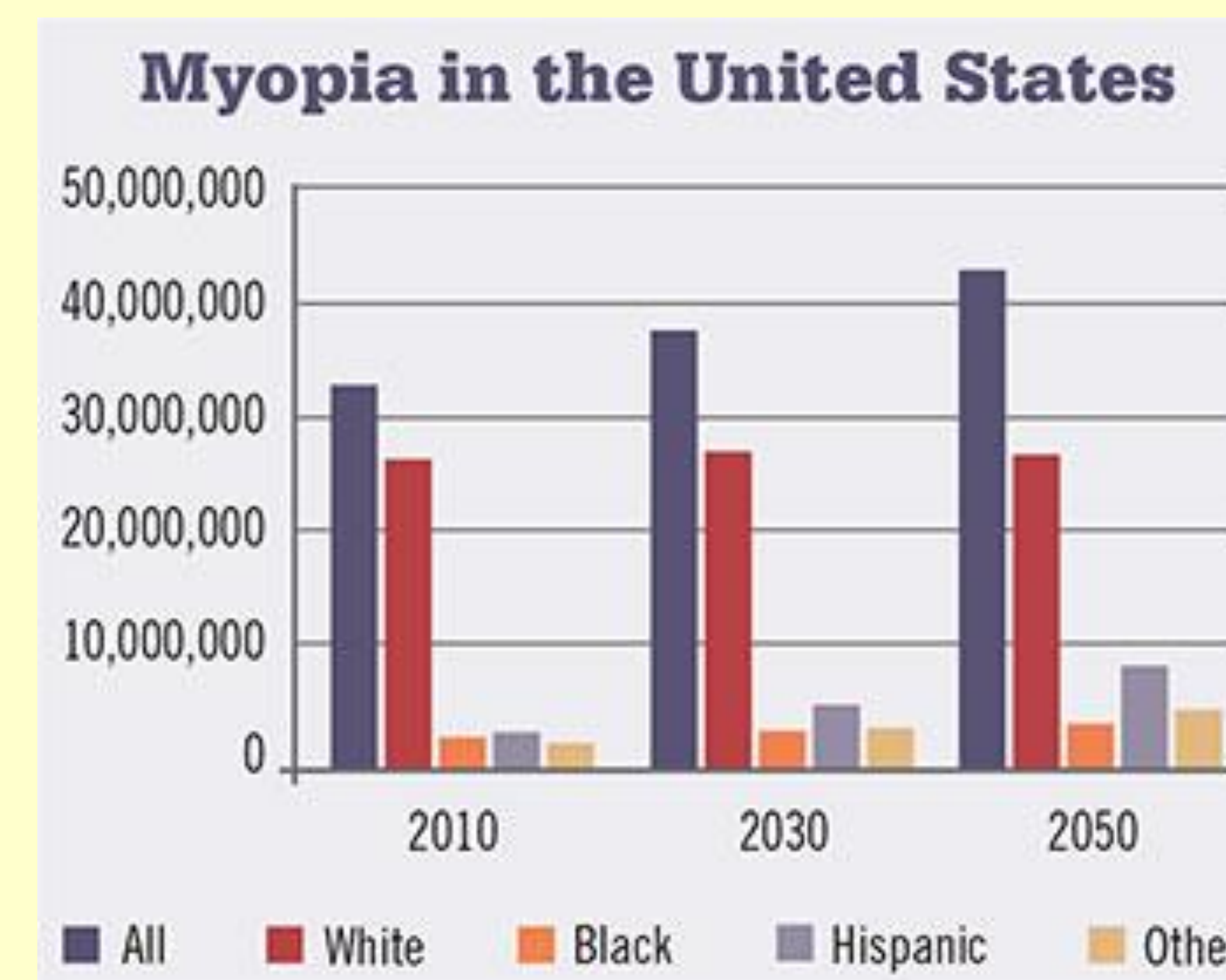


Chart 1. Rates of Myopia, with predicted values



# The Effects of Screen Time on Adolescent Mental Health

Athena Taylor

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## Introduction

In the last 20 years the rise of computers, laptops, and smartphones have made these items prevalent in every aspect of daily life. Most adolescents these days have a smartphone and are engaging with it a good percentage of the day, whether it be for school, entertainment or engaging socially. This study seeks to expand on how smartphones and computer or laptop screen time affect the mental health of adolescent youth, so that we can use this research in order to better understand how these different screen times affect this important issue.

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## Research Question

**What are the effects of screen time on adolescent mental health?**



## Background and Literature Review

Because internet access is widely available now, adolescents use their smartphones for entertainment, communication, and learning (Alt & Boniel-Nissim, 2018), but several alarming trends have been spotted in recent years. The following terms have been applied to some of these trends.

### Problematic Internet Use (PIU)

- Depression
- Substance Abuse
- Isolation

### Problematic Smartphone Use (PSU)

- Anxiety
- Bad sleep habits
- Negative feelings

### Problem Online Gaming (POG)

- Poor academics
- Withdrawal from real life activities

### Fear of Missing Out (FOMO)

- FOMO or the “fear of missing out” is one of the reasons people have taken to carrying their phones or tablets everywhere. FOMO relates to PSU, PIU, and POG the most because most people’s phones are always with them now.



## Method

### Participants

- Adolescent boys and girls ranging from 10 to 19 years of age, from various countries.

### Materials

Databases and Websites

- PSYCInfo
- OneSearch
- EBSCOhost
- ProQuest
- Google Scholar
- ScienceDirect



### Design

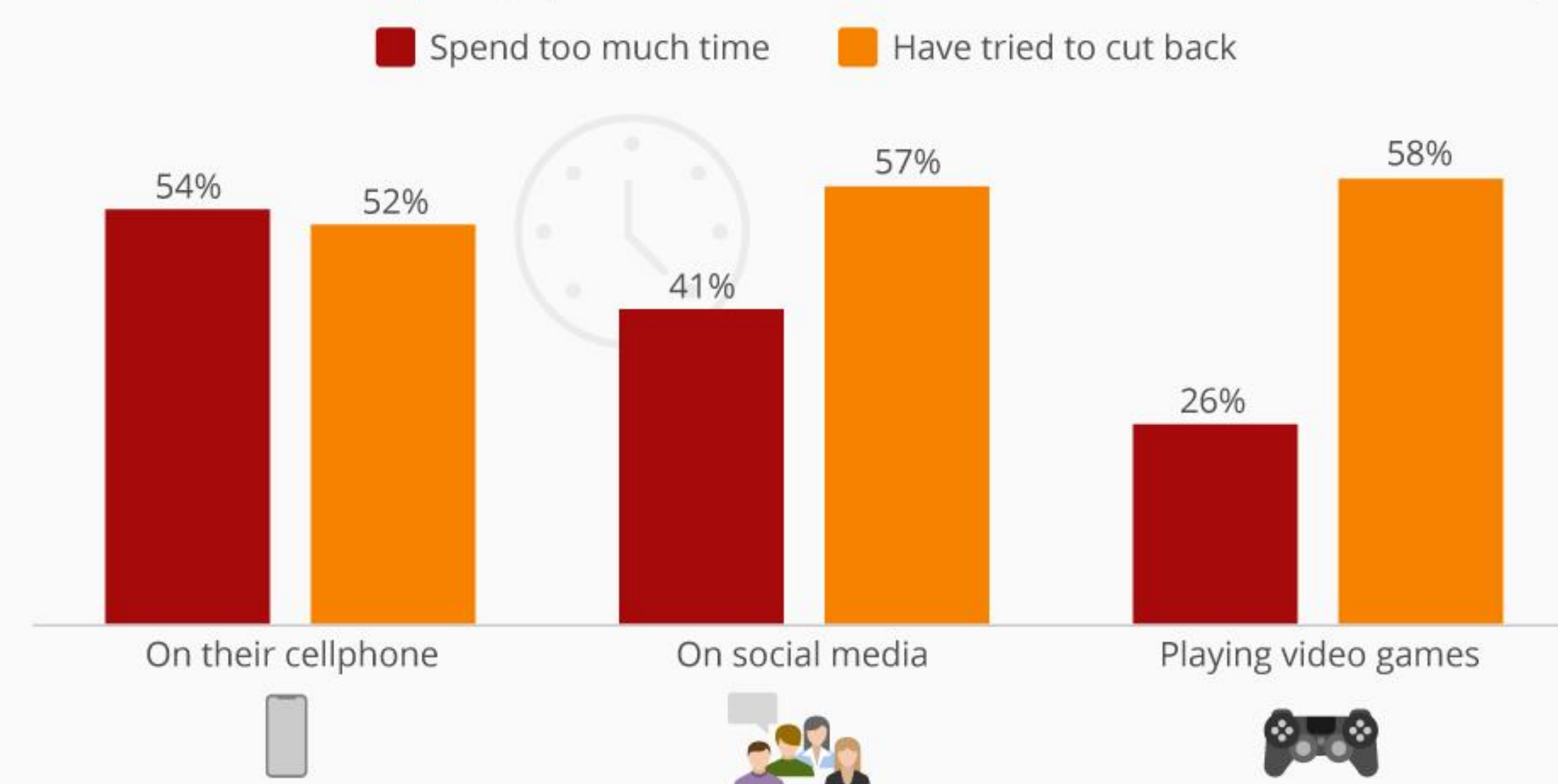
- Non-experimental extended literature review
- Mixed- methods analysis
- Quantitative survey and experiment data
- Qualitative studies and interviews.
- Only peer reviewed and scholarly sources.
- The literature studies that address the correlation between screen time use and adolescent mental health will then be assessed and reviewed. One such study is about the fear of missing out (FOMO) and problematic internet use (PIU) and how it negatively affects learning and study habits (Alt & Boniel-Nissim, 2018). Research that correlates to that can also be found in Lai et al., study about PIU and its relation to depression in adolescents (2022).

### Procedure

Using the Stanislaus State University Library databases listed in the Materials section, key search terms will be used such as “screen time”, “mental health”, **adolesce\***, **problem\***. Then the findings will be synthesized narratively.

## Majority of Teens Admit to Excessive Cellphone Usage

% of U.S. teens who say they spend too much time/ever tried to cut back on the following



Based on interviews with 743 teens (aged 13-17) in the U.S. conducted in March and April 2018  
Source: Pew Research Center



statista

## Expected Results

Expected findings are that no matter the gender or type of screen time, excessive use is problematic and can lead to depression, anxiety, poor sleep habits and an overall decline in adolescent mental health.



## Significance

This study is important because as Twenge and Farley (2020) pointed out, adolescents are spending a good amount of time on their screens either with social media, watching tv, or playing on a computer or mobile game. This research is relevant as the number of youths with access to the internet and smartphones grow rapidly every day. It can help us with today’s children and can also educate future generations about the effect of various kinds of screen time on adolescent mental health.



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## Acknowledgments

Dr. Suditi Gupta  
Dr. Harlold Stanislaw





## Introduction

The labels used to describe people matter because they can shape their self-concepts and the public's perceptions of them. Language acts as a frame. Word choice and phraseology can bring specific attributes to attention which encourages certain viewpoints. Designating a collection of characteristics a psychiatric disorder places them into the "deviant box." Therefore, anyone with a disorder may come to adopt a deviant identity status (Hayes, 2010). However, one might also label themselves as deviant without a formal diagnosis (Thoits, 2016). Self-labelers may have different reactions to a formal diagnosis than their non-self-labeler counterparts.



### Research Question

The purpose of this study is to examine how psychiatric labeling impacts the identity of individuals who have previously self-labeled as deviant.

## Background & Literature Review

### Deviant Identity Status

- Deviant = when a social norm is broken. If norms cannot be met repeatedly, deviance may be absorbed into one's identity.
- Psychiatric labels can confer deviant identity status. The stigma associated with deviance can lead to devaluation, discrimination, and withdrawal (Hayes, 2010).

### Psychiatric Labeling

- Modified Labeling Theory: when an individual is diagnosed, the stigma attached to the label becomes personally relevant, leading to negative self-feelings and fear of rejection. To cope, one might employ adaptive strategies (educating others and challenging stereotypes) or maladaptive strategies (defensiveness and secrecy).
- Self-labeling Theory: individuals may recognize when their behaviors/feelings are not normative and think of themselves as deviant without a formal diagnosis (Thoits, 2016).



### Resisting Deviance

- Resisting deviance is a buffer against the negative outcomes of psychiatric labeling.
- Deflection = denying that one is "mentally ill" even after being labeled (Thoits, 2016).
- Delabeling = discarding a label that one once identified with (Howard, 2008).

## Acknowledgements

Thanks to my faculty mentor, Dr. Aletha Harven, for investing in my future. Thanks also to my capstone professor, Dr. Suditi Gupta, whose input has been invaluable every step of the way.

## Methods

### Participants

- 18 years of age, currently enrolled in classes, and have a diagnosed mental disorder.

### Design

- A quasi-experimental, cross-sectional design will be employed. The variables are shown in Figure 1, where A (self-labeling) predicts B (change in deviant identity status) and B predicts C (coping strategies).

### Measures

- Demographics: a questionnaire concerning ethnicity, race, gender, age, enrollment status, major, psychiatric diagnosis, and age at diagnosis.
- Deviant Identity Status: measured using Factor 2 of the NEET Hikikomori Risk Scale (2015; See Table 1). The questionnaire will be administered once in reference to the time before diagnosis, and once in reference to the time after diagnosis.

**Table 1**  
Neet Hikikomori Risk (NHR) Scale: Factor 2 ( $\alpha = 0.83$ )

1. I feel that communicating with others is hopelessly difficult for me.	7. There are times when I think that I am not needed by society.
2. When I have some trouble to deal with, I have someone I can talk to.	8. I think that my basic abilities are low.
3. Mingling with others is exhausting for me.	9. I can do just as much as anybody else and I think I will be useful to society.
4. My social skills are low, and I am not good at relating to others.	10. I don't have too many friends who I can go out with or call.
5. I don't have confidence in myself.	11. I think that my knowledge and skills are at low levels.
6. I feel that I belong somewhere.	

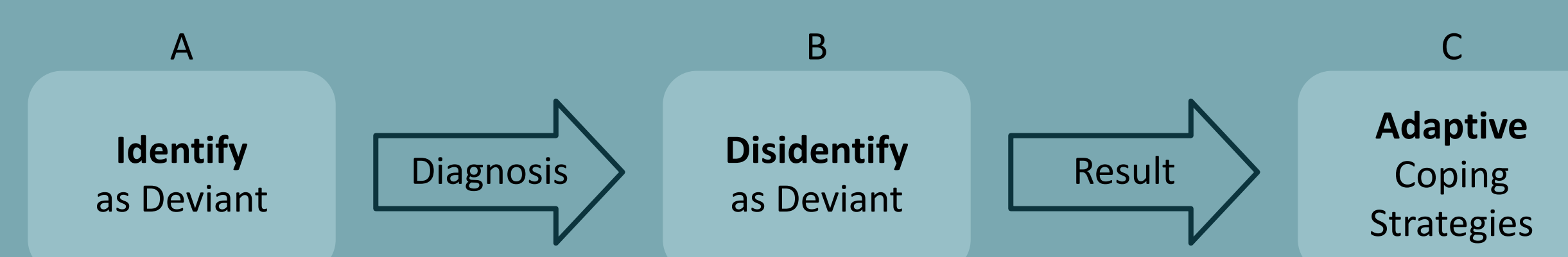
- Coping Strategies: measured using the Stigma Coping Scale, as revised by Isaksson et al. (2017). Participants will select all items that apply to them from a list of options.

### Procedure

- Online: a link will be posted on SONA, the university's online subject pool. SONA will redirect participants to Qualtrics, where the survey will be administered. They will be presented with a consent form, a series of questionnaires, and a debriefing form.
- In-person: researchers will stand in the CSU Stanislaus Quad to recruit students. If interested, they will be handed a consent form to sign, followed by the anonymous survey, and finally, a debriefing form.

## Figure 1

### Self-labeler Identity Change Process



## Expected Results

Self-labelers already feel deviant, so it logically follows that a diagnosis would normalize their experiences by showing them that others have had similar experiences.

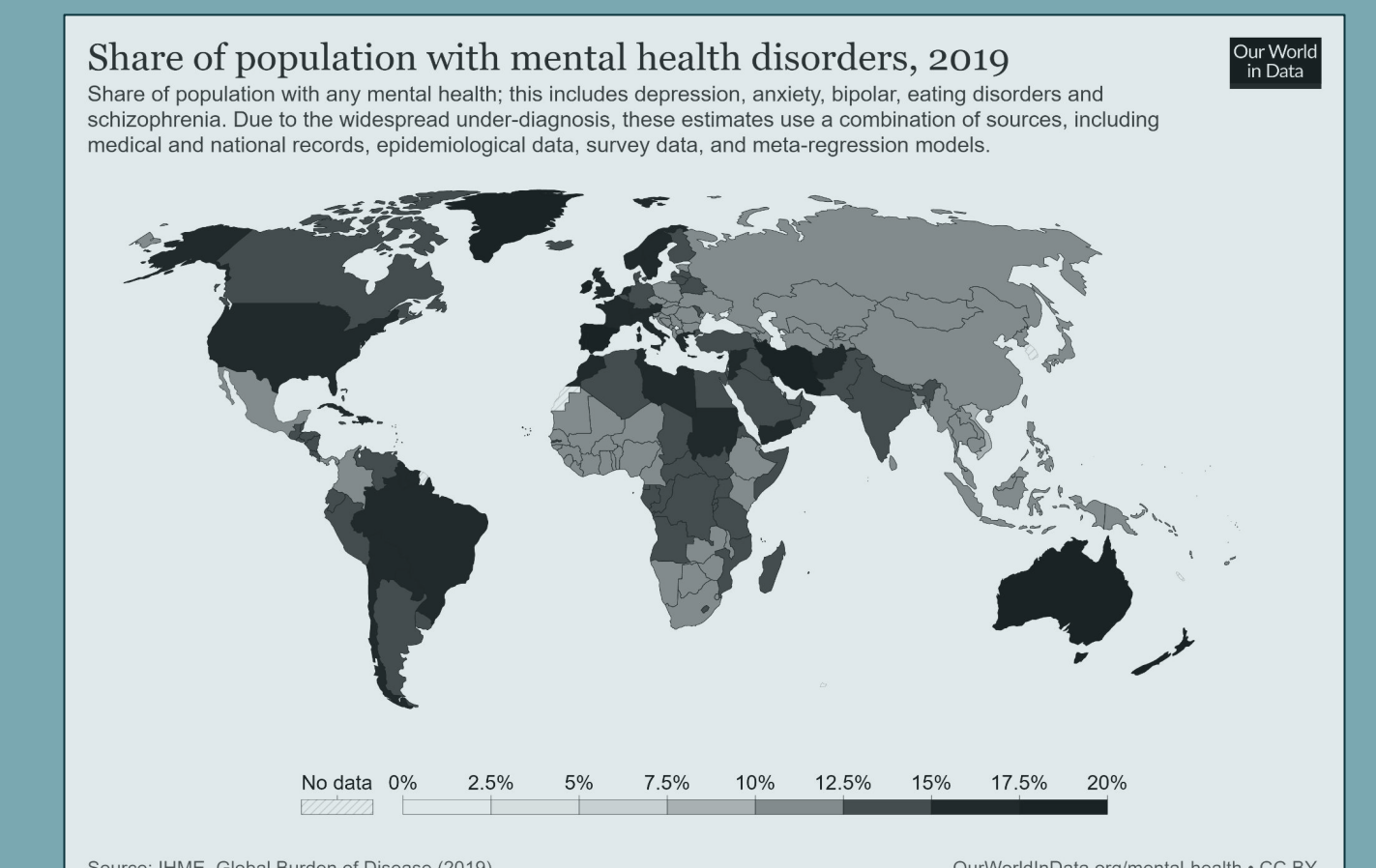
**H1: diagnosing self-labelers will decrease feelings of deviance.**

Furthermore, a diagnosis allows individuals to better understand their condition and seek appropriate help. It is expected that this will result in more adaptive coping strategies.

**H2: disidentifying as deviant will be associated with adaptive coping strategies.**

## Significance

The global lifetime prevalence of common psychiatric disorders is 29% (Steel et al., 2014). While accurate recognition of mental health problems is a crucial step toward appropriate management of the condition, it is important to understand how labels impact all areas of well-being. The impacts of psychiatric labeling on identity merit investigation because the deviance it confers has been linked with negative outcomes. Self-labelers are an understudied group. These findings may provide insights into how to design mental health interventions that yield the best outcomes for this diverse population.



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# The Act of Self-Talk and Behavior

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## Introduction

- Behavior analysis focuses on the observable aspects of the human mind, which is represented by the actions one takes based on the environment around them.
- The environment in turn can change based on one's actions, causing their behavior to either be reinforced (future behavior increases) or punished (future behavior decreases).
- The act of self-talk is the inner and outer speech one does to themselves. It is the act of talking to oneself, whether that be out loud or internally. Self-talk is a way for humans to process information and even create an certain image of themselves (Morin, 1993).
- Self-talk tends to motivate self-evaluation and self-regulation. Brinthead et al. (2009) found that when it comes to self-control, self-instructions play a critical role in guiding one's actions and monitoring their goal progress. Self-talk also influences emotional reactions and potentially problematic behavior.
- Thus, those that frequently engage in self-talk are found to understand their experiences more intensely and acutely than those who do not.
- Past research has attempted to investigate age-related differences in decision-making performance based on either think-aloud or self-report instructions. In two different studies, Johnson (1993) found that there were differences in the way self-talk was used and presented between ages, but that it ultimately did not affect the subject's decision making process.
- Past research has also found that different experiences based on age and culture could influence the way self-talk manifests (Oles et al., 2020).
- The purpose of this study will be to investigate the relationship between self-talk and behavior. The study will investigate if one's ability to self-talk across different ages will affect their decision making process.

## Method

### Participants

- Will range from all ages and be placed into four potential categories:
  - Children, Adolescents, Young adults, Adults
- Will be recruited through a variety of means, with the most likely methods being:
  - Social media, online listings, mutual connections, etc.

### Design

- A cross-sectional mixed-methods design.
- Independent Variable:** The activities provided and if they are reinforced or punished.
- Dependent Variable:** The frequency of behaviors (activities); Any self-talk that occurs (out-loud and/or thoughts)

### Measures and Materials

- Demographics questionnaire
- Self-talk Scale
- Materials to record self-talk
- The different activities provided
- The different reinforcers and punishers for the activities

### Procedure

- Participants are recruited through a variety of means
- Complete Consent form
- Complete demographics questionnaire
- Complete Self-talk Scale
- Will be presented with different activities to engage with; with each activity providing different reinforcement or punishment
- Will be asked to record their self-talk while performing the activities
- After the experiment, participants will be debriefed, at which the purpose of the study will be explained to them

## Anticipated Results

- It is hypothesized that young adults and adults will have more advanced abilities of self-talk and thus will engage in behavior differently when compared to children and adolescents who will have less advanced levels of self-talk.
- Based on past research, it can be hypothesized that the amount of time when making decisions and the planning of strategies will differ based on age group - with young adults and adults taking longer times and making more complicated decisions.
- To investigate if one's ability of self-talk will affect decision making skills, data of behaviors the participants engage in and the self-talk they perform will be compared with each other across all age groups.
- Below is an example of an already established Self-talk Scale (See Table 1). The Self-talk Scale used in this proposed study will be similar and expected results will use a similar format when presenting.
  - The Self-talk Scale will record and represent self-criticism, self-reinforcement, self-management, and social-assessment. The results will be used to see how they affect the decision making process.

**Table 1**

*Descriptive statistics for the self-talk scale and the internal dialogical activity scale—revised for United States and Poland (Oles, et al., 2020)*

Scale	United States sample (n = 119)				Polish sample (n = 181)			
	$\alpha$	M	SD	95% CI	$\alpha$	M	SD	95% CI
STS total score	0.88	59.97	10.98	[57.98, 61.97]	0.88	49.92	12.64	[48.06, 51.78]
Social-assessment	0.70	14.86	3.42	[14.24, 15.48]	0.83	12.04	4.61	[11.36, 12.72]
Self-Reinforcement	0.85	13.56	3.88	[12.86, 14.27]	0.86	11.58	4.29	[10.95, 12.21]
Self-Criticism	0.83	15.13	3.79	[14.44, 15.81]	0.73	12.22	3.78	[11.67, 12.78]
Self-Management	0.73	16.43	3.03	[15.88, 16.98]	0.79	14.07	4.07	[13.47, 14.67]
IDAS-R total score	0.94	119.78	26.90	[114.90, 124.66]	0.95	108.59	29.45	[104.26, 112.93]
Identity dialogues	0.78	15.87	4.48	[15.05, 16.68]	0.87	14.75	5.20	[13.99, 15.51]
Maladaptive dialogues	0.62	11.32	3.79	[10.63, 12.01]	0.70	10.75	4.04	[10.15, 11.34]
Social dialogues	0.72	17.58	4.15	[16.83, 18.33]	0.84	17.81	5.00	[17.08, 18.55]
Supportive dialogues	0.81	13.82	4.72	[12.96, 14.67]	0.86	13.28	5.45	[12.48, 14.08]
Spontaneous dialogues	0.79	17.13	4.34	[16.35, 17.92]	0.861	4.90	5.29	[4.12, 15.67]
Ruminative dialogues	0.771	5.22	4.44	[14.41, 16.02]	0.81	13.33	4.88	[12.62, 14.05]
Confronting dialogues	0.76	13.13	4.73	[12.27, 13.98]	0.831	1.35	5.03	[10.62, 12.09]
Change of perspective	0.70	15.72	4.01	[14.99, 16.45]	0.79	12.36	4.50	[11.70, 13.02]

## Discussion

- Self-talk is something everyone does, whether they realize it or not. It helps dictate one's life, leading them to decisions they make. Self-talk can range from the smallest whisper in the head to the loudest verbal exclamation.
- One's ability to self-talk is reflected in their behavior. Should their sense of self-talk be impaired, there is a good possibility that their decision making skills will suffer as well.
- This study can help with future implications and applications of self-talk. Knowing how much one's ability to self-talk influences their decision making can lead to future studies delving deeper into how to train self-talk. Self-talk could potentially be trained in clinical settings to help patients with their decision making. This training can also be used in other settings, such as classrooms. Problem behavior can potentially be diminished through the use of self-talk.

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## Acknowledgments

Special thanks to my mentor Shannon Bianchi who has graciously aided me throughout my research; and Dr. Ellen Bell and the McNairs Scholars Program (TRIO) for providing me with this opportunity,



# The side of selfies we do not see: How does selfie use affect us?

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## Introduction

A Selfie is "...a photo of oneself that is taken by oneself, typically with a smartphone or webcam and it is usually uploaded to social media" (Oxford Learner's Dictionary, 2023). Past research has shown that social media isn't always negative. It can be a positive experience for people who are active social media users.

Active social media users will take and post selfies, as well as, engage with others on the platform giving them a sense of social connectedness. People who experience a sense of social connectedness will experience a sense of well-being. Additionally, there are reinforcers like comments and likes that may be beneficial for a user who appreciates their own body. Unfortunately, this is not the case for all users (Mills et al., 2018; Veldhuis et al., 2018). There are those who are passive social media users, meaning they are exposed to others' content, but rarely or never post themselves or engage with others (Bodroža, 2022).

## Research Question

The purpose of this study is to examine if passive social media use affects an individual's life satisfaction and self-esteem.

- Does the way one uses social media affect a person's life satisfaction and self-esteem?



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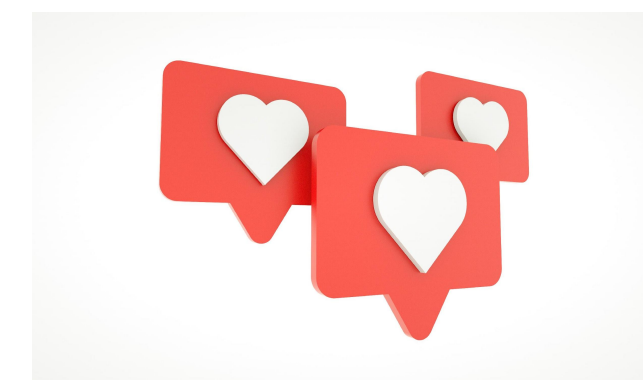


## Background and Literature Review

Selfies have become a two-sided phenomenon in the last few years. Because selfies are so popular on social media, we are either engaging or exposed to selfies. What impact is this having on the social media user? Well, that depends on how social media is used. Active and passive social media use are two diverse ways people can use social media daily. Active users engage in behaviors such as selfie taking, posting, liking, and commenting on others' selfies or content. Passive users rarely engage or post but will actively see others' content. Both types of social media users can experience negative consequences. However, studies have shown that active social media users can also have positive experiences (Bodroža et al., 2022).

Past research has shown us that selfie behaviors can be both harmful and beneficial for the social media user depending on how a person uses social media. Actively using social media can be beneficial when people have higher self-esteem and are engaging with others. Women with high self-esteem tend to post more frequently because selfies are a source of self-evaluation and can be a positive experience. On the other hand, women with lower self-esteem will post fewer selfies because of a lack of body appreciation and greater body dissatisfaction. These people run the risk of becoming viewers of social media. Therefore, being passively exposed can bring negative consequences for the viewer (Biolcati, 2019).

Selfie posting on social media can be harmful for the social media user as well. Young women who engage in selfie editing and posting experience higher levels of anxiety, lowered confidence, and felt less physically attractive, after posting a selfie (regardless of whether they retouched their selfie or not). As opposed to women who did not engage in selfie posting (Mills et al., 2018).



## Expected Results

Based on existing research, it is expected that engaging in active social media use, such as selfie posting, can impact the social media user negatively. However, people with higher self-esteem may benefit from selfie related behaviors through positive self-evaluation. Therefore, there is a positive association between active selfie related behaviors, higher self-esteem, and life satisfaction. In addition, it is expected that there will be a positive association between low-self-esteem, passive selfie related behaviors and life satisfaction.

## Significance

This research is significant because people should be aware of how a simple selfie impacts their well-being. The advantage is that the study will add to existing research on the effects passive social media use has on people. Some disadvantages of the study are that it is a self-report study. We cannot measure if self-esteem is an outcome of active or passive social media use or the other way around. In addition, we have no control over participants so we may not get an even number of men and women to compare differences.

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## Methods

### Participants

- College students (graduate and undergraduate)
- 18 years of age +
- Approximately 60 volunteers

### Materials

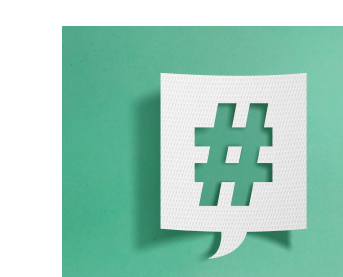
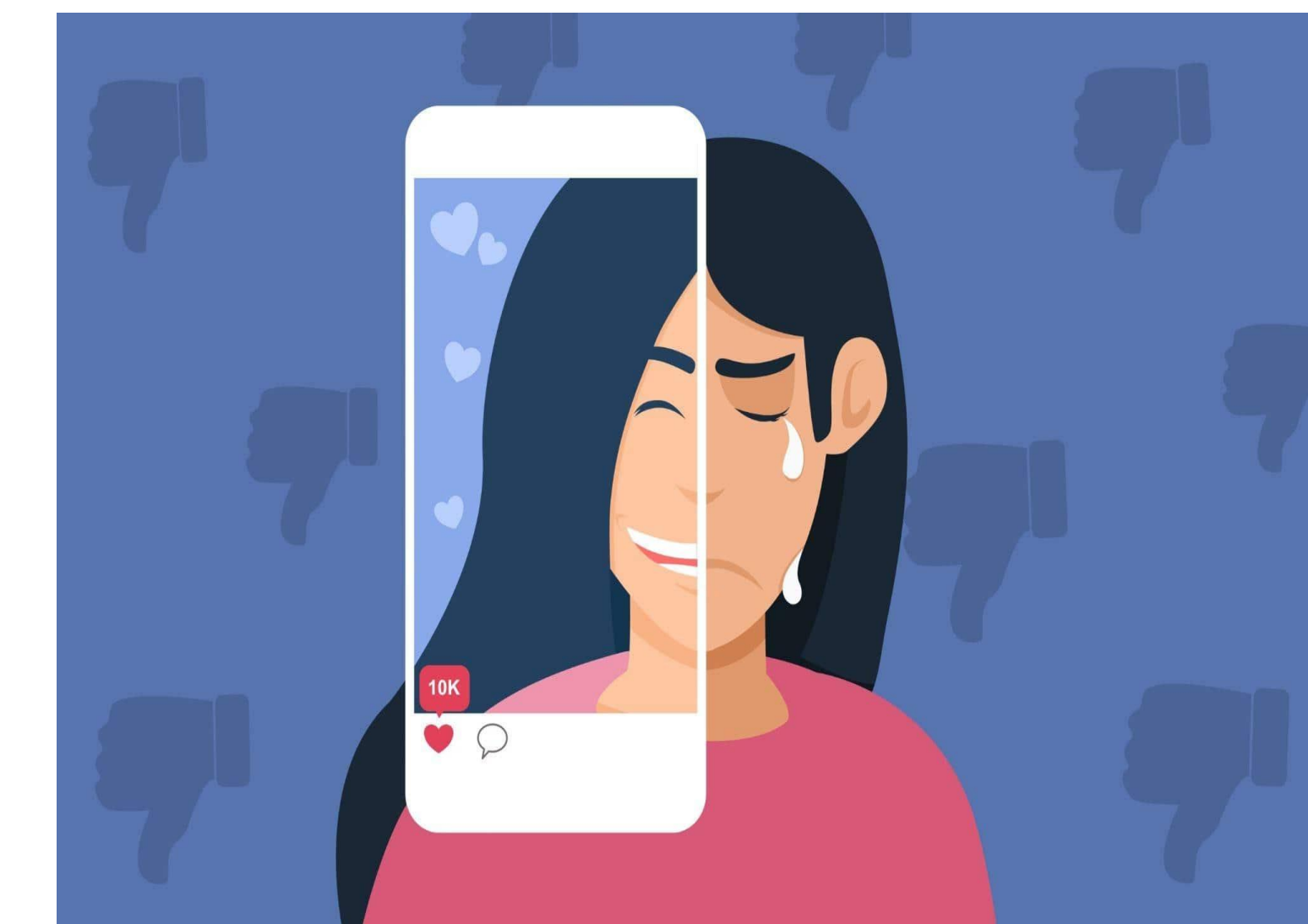
- There will be 4 surveys available on SONA:
- Social Media activity questionnaire (Ozinek et al., 2022)
  - Passive and Active Use Measure (Gerson et al., 2017)
  - Rosenberg's Self Esteem Scale (Rosenberg, 1965)
  - Satisfaction With Life Scale (Ed Diener et al., 1985)

### Design

- Non-experimental
- Correlational study

### Procedure

- This study will be available on SONA, with an incentive of extra credit:
- Demographic questionnaire
  - Informed consent
  - Answer: Are you a social Media user? Yes or No (even if you don't post, comment or like).
  - Survey.
  - Debriefing form







# The psychological benefits of art therapy for cancer patients undergoing cancer treatment.

Aryanna Jimenez

Department of Psychology, California State University Stanislaus

## Introduction

A person experiences great trauma when they receive a cancer diagnosis. Surgery, radiation therapy, and chemotherapy can be used to successfully cure the tumor, but these methods are not designed to address the psychological side effects, which can be just as debilitating. An individual's degree of distress and anxiety may increase as a result of their cancer diagnosis and treatment, which may have an impact on how they view life in general and the therapies they will experience.

Many studies have revealed that alongside conventional medical therapies like surgery, chemotherapy, and radiation, cancer patients may also benefit from some alternative therapies or psychological interventions.

Art therapy is an underutilized approach that can help people to use art to express anxieties, thoughts, feelings, and other experiences that may be hard to verbalize with the therapist

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## Research Question

Are individuals diagnosed undergoing cancer treatment who engage in art therapy more likely to display a decrease in psychological distress and improve in quality of life?

## Background and Literature Review

Art therapy is a way for those undergoing cancer treatment to unwind and create a self-narrative by visually expressing themselves and the complicated emotions that they can find difficult to articulate through traditional psychotherapy (Elimimian et al., 2020). They are able to create a new self-narrative where the individuals can find a new source of hope to continue to fight despite the difficult experiences that come with cancer (Glinzak et al., 2016).

Art therapy allows individuals to transform negative emotions like anxiety, depression, and distress into art. As a result, individuals feel positive emotions such as feeling energized, inspired, and relaxed (Kaimal et al., 2020). Art therapy takes attention away from the pain they are enduring into art making processes causing a reduction in somatic symptoms such as fatigue, drowsiness, and disturbances in sleep (De Feudis et al., 2019).



Figure 1. Cancer patient art (Kaimal et al., 2020) .

## Methods

**Participants:** Participants are in adulthood, approximately 18 years or older diagnosed with any type of cancer undergoing treatment.

**Materials:** Stanislaus State University Library OneSearch tool. Database A-Z, Proquest, PsycARTICLES, and PsycINFO.

**Design:** This study will take the form of a non-experimental design, and an extended literature review. It will also have a mixed method approach looking at both quantitative and qualitative information.

### Procedure:

- 1) Searches are going to be limited with a publication date no later than 10 years with only peer-reviewed scholarly material.
- 2) Studies have to be centered on psychological benefits of art therapy for cancer patients in title and abstract.
- 3) The variables that will be measured in this nonexperimental study are the psychological benefits
- 4) Keywords such as art therapy, cancer, psychological benefits are used.

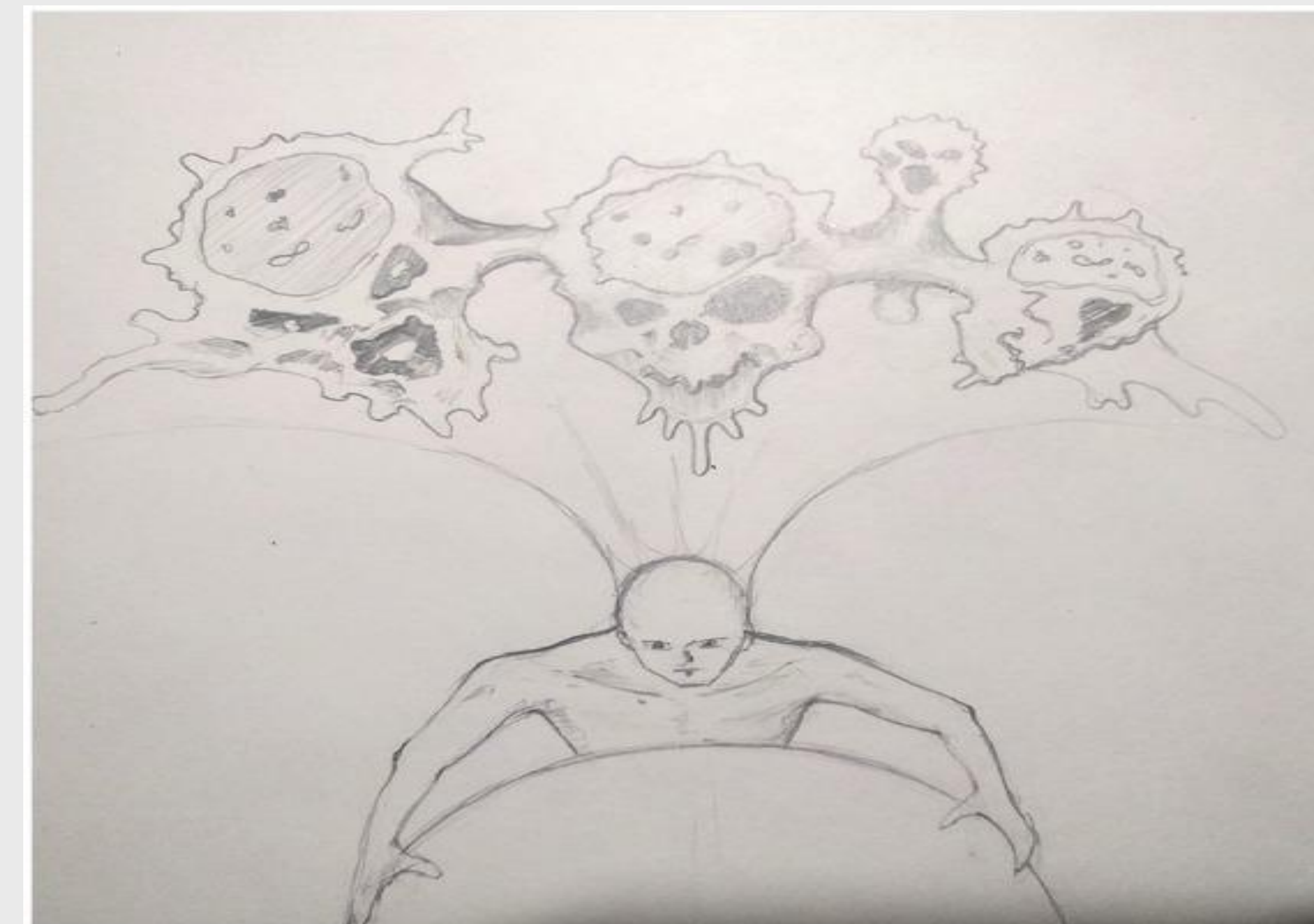


Figure 2. Cancer patient art (Kaimal et al., 2020) .

## Acknowledgments

I would like to thanks Dr. Suditi Gupta and Tim Held for aiding me in this research proposal.

## Expected Conclusions

Art therapy may be effective in enhancing mood, and self-efficacy. I expect there to be a decrease in anxiety, depression, and distress with greater awareness of oneself and one's emotions. There may be a reduction in physical symptoms that may occur when psychological distress declines. People could even develop an interest in art therapy and take it on as a hobby.

## Significance

Cancer is an extremely traumatic moment for an individual and can have extreme psychological distress. Psychological symptoms may even manifest into physical symptoms. This can also negatively change the individual perception of the treatments that they are about to endure and then ultimately their outlook on life. Art therapy is a form of intervention that can help reduce psychological distress and enhance these individuals' quality of life.



Figure 3. Cancer patient art (Kaimal et al., 2020) .

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# Analyzing Attitudes & Performance from Learning Methodologies Used in English Language Learners in Higher Education Classrooms

By: Nathalie Hernandez

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## Abstract

In the Central Valley of California, in higher education classrooms adult English Language Learners will be analyzed, interviewed, surveyed, and will see their performance in test scores on their reading and writing skills given the Grammar Translation Method and Audiolingual Method learning methodology used in the classroom. The students will share their attitudes and opinions showing what learning methods the students gravitate towards in their academic work and classroom setting. The surveys will invite instructors to give their opinion on what learning methods they find to be most successful in their teaching and for their student performance. After the research is conducted and data is run, we will analyze what the measures and scores say about student performance in their reading and writing using the Grammar Translation Method and Audiolingual Method.

## Methodology

- The approach that will be used will be analyzing English Second Language students registered in ESL college classes at either 4-year universities and/or community colleges. The research methodology used will be qualitative.
- Data collection methods include survey to students. Personal interviews to some students and instructors gaining insight on their perspective of the learning methods used in the classroom affects their reading and writing. Test scores from students given by different instructors will be analyzed to analyze performance in the students writing and reading skills.
- The data analysis method would be either coding or statistics. Further assistance and collaboration with the CSU Stanislaus Math/ Computer Science Department.

## Literature Review

### Grammar Translation Method

- In addition, Richards (2004) pointed out that GTM can be a way of teaching and studying language through applying different grammar practices which focus more on rules. It also concentrates widely on memorization of few rules and their understanding to manipulate the sentence structure of the target language (Richards & Rodgers, 2001). On the other hand, this comment is also said about the Grammar Translation Method, "In the same vein, the results of another two studies showed that GTM is not an optimum teaching method, and it focuses on memorization, grammar rules, and translating texts using L1 which is no longer useful for students. The studies also indicated that the students could improve their grammar rules, but they lack in communication which is a very important aspect of language nowadays (Eisa, 2020; Omar, 2018).

### Audiolingual Method

- "My attempt to improve my 'listening abilities' by playing cassette tape lessons didn't help me significantly because it was not preceded by a solid foundation in grammar and vocabulary. Also, according to P10, "reading aloud helps to learn when to pause and how to play out stories. It was also argued that "reading a lot helps with increased input and collocations and even helps with writing." This finding is supported by Takeuchi (2003) that "reading aloud many times and reading a lot are the two strategies preferred most by GLLs in the Japanese FL context" (p. 386). In both studies, learners were found to use reading aloud as a means to develop phonological and semantic awareness and internalize the linguistic system. As Oxford (2001) points out, many factors influence strategy use and the participants in the present study may have applied different strategies depending on their learning environment, culture, personality type or other relevant factors. What is important is for these learners to be keenly aware of their learning process and make conscious decisions on strategies as autonomous learners.

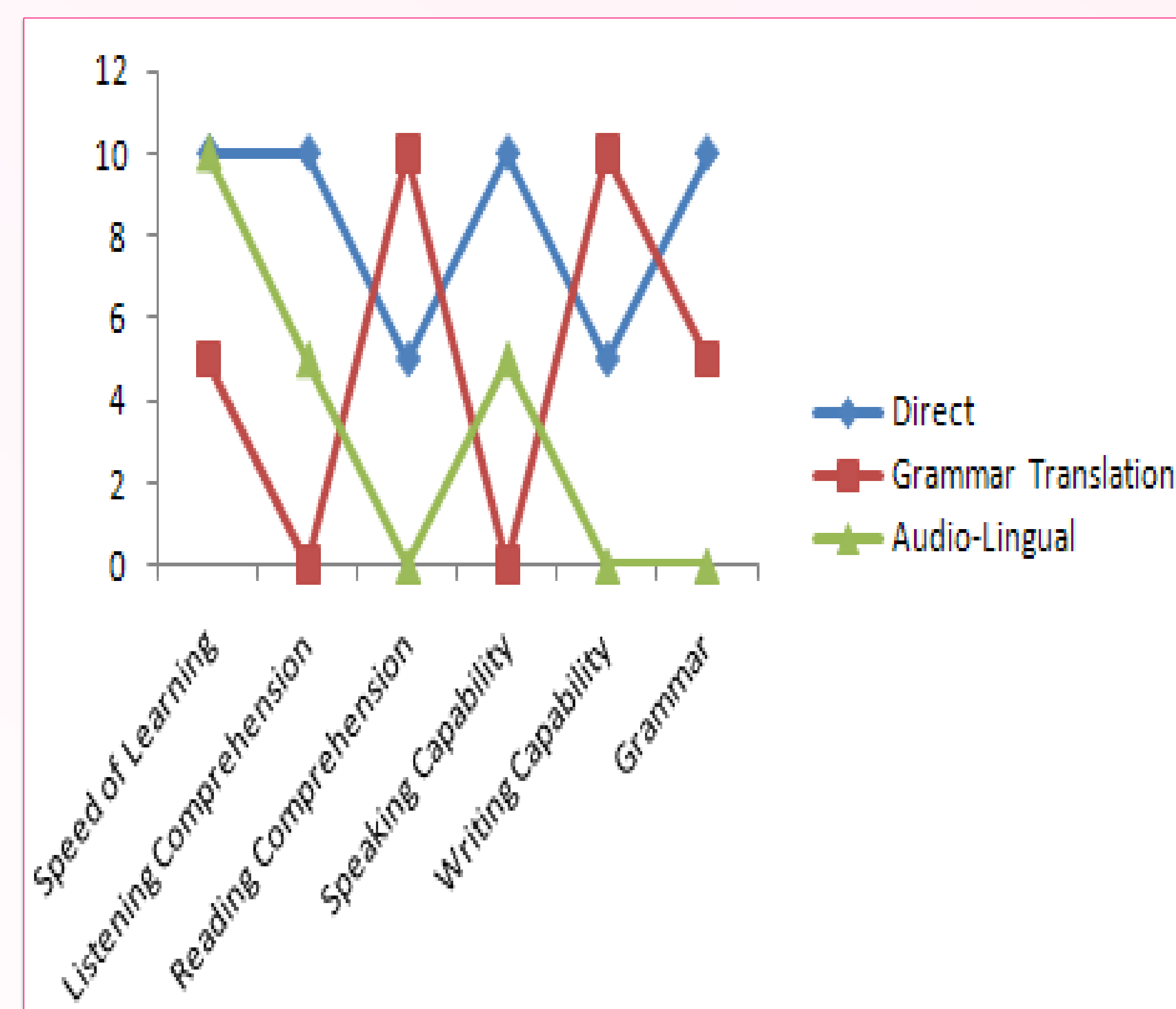
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## Introduction

English Language Learners are given many opportunities to learn English. Yet some learning methodologies in language acquisition can work best when acquiring a new language as an adult learner. The Grammar Translation Method and the Audiolingual Method will be compared in this research regarding analyzing student performance and their attitudes in their reading and writing skills in the classroom. Student and Instructors attitudes, and performances will be analyzed in reading and writing given the learning methodologies of the Grammar-Translation Method and the Audio-Lingual Method. Analysis of the attitudes of adult English Language Learners and their perception on using the GTM, Grammar Translation Method, and ALM, Audiolingual Method about helping them learn in their performances of reading and writing. Grammar Translation Method is a more commonly used method in language learning which doesn't always necessarily work so it will be contrasted to its effectiveness to the Audiolingual Method.

## ALTA Language Services Learning Methods Chart

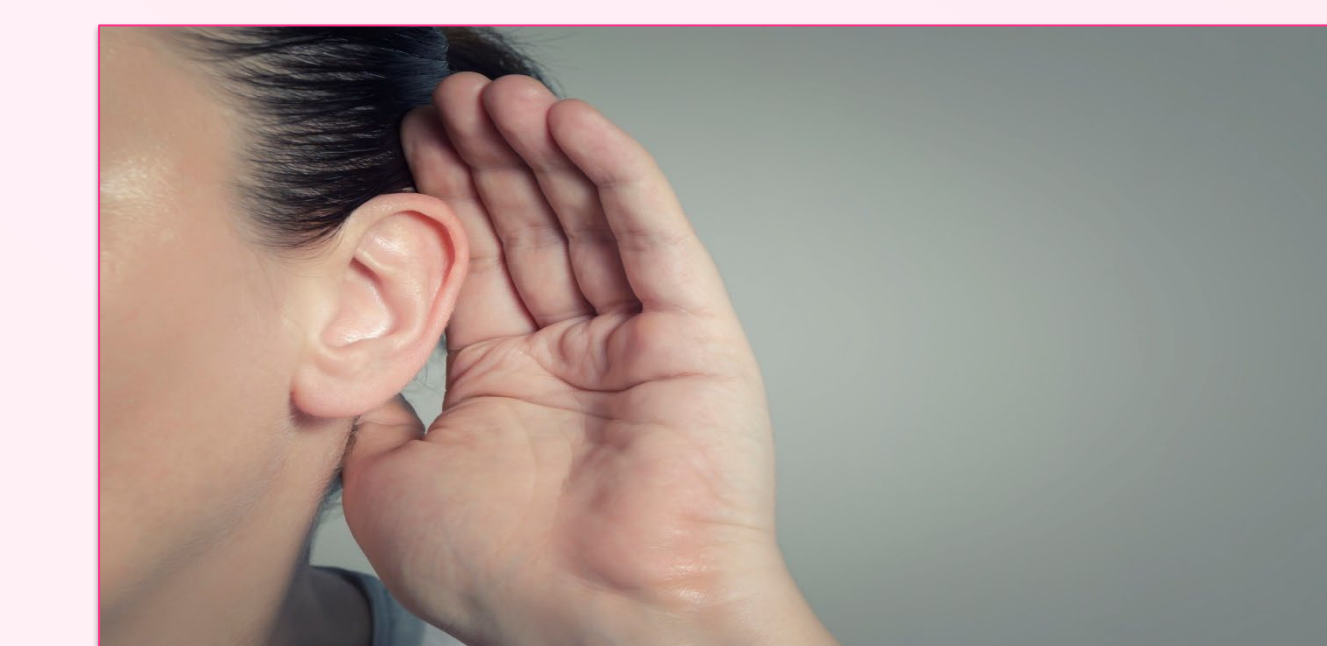


## Expected Results

After student and instructor interviews have been taken into consideration, we will critically analyze the perspectives and attitudes towards the Grammar Translation Method and Audiolingual Method learning methodologies in retrospect to student performance in their reading and writing in higher education English Language Learning classrooms. The expected results will be that the Audiolingual Method *or other learning methodologies* will show better perceptions, attitudes and performance scores towards students in their reading and writing comprehension in English Language learning, in contrast to the traditional Grammar Translation Method.

## Acknowledgements

Dr. Mirta Maldonado, Department of English/ TESOL Program, Faculty Mentor







# Impacts of Food Insecurity on College Student Academic Performance

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## Introduction

Nutrition amongst college students is variable but often lacks all the necessary components that are crucial to having and maintaining a healthy lifestyle. Several factors play into this, including eating habits, health education and knowledge about health, and the biggest issue; food insecurity. Developing good eating habits is of great importance, especially for college students. However, for college students there are several barriers that may keep them from maintaining these habits. These can be things such as financial struggle, limited free time, necessity to work, amongst other factors.

A common trend among college students now involves the consumption of fast food for a quick and easy meal. It is of greater convenience for college students to consume overly-processed foods and foods with added sugars or trans fats than it is to consume fresh produce such as fruits and vegetables (Sogari et al., 2018). Dealing with food insecurity in college results in an increased overconsumption of these processed foods which in turn affects both physical and mental health. This can lead to a lack of energy, mental clarity, disordered eating, amongst other factors.

## Research Question

How does food insecurity amongst college students have an impact in their academic performance?

Food insecurity is a widespread issue amongst many college and university students. Students may face this issue for a variety of reasons including high housing costs, high tuition, lack of financial aid, etc. (Martinez et al., 2018). It is also important to note that students from low-income families tend to continue having this issue as they did throughout their childhood (Martinez et al., 2018). My study will look at the relationship between food insecurity and academic performance by examining the prevalence of these different causes for food insecurity. I will also look at how food insecurity can impact different parts of a student's life, leading to higher stress and issues regarding academics.

Figure 1. Stan State food pantry



## Acknowledgments

I would like to thank Professor Suditi Gupta and Faculty Mentor Dr. Kelly Cotter for their assistance in developing my research.

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## Background and Literature Review

- A common theme discussed amongst several scholars is that of mental health and the effects of food insecurity on it. Stress goes along with this since it is a huge contributor in poor mental health. Food insecure students "endorse increased rates of depression and anxiety...[and] decreased ability to concentrate ..." (Zein et al., para. 9).
- Another issue students facing food insecurity may have could be having to work on top of being a full-time student. Typically, students who must work to attend college come from low-income families and have a history of financial trouble. Sleep deprivation is an issue that may arise because of this. Other students might oversleep to help with hunger and lack of energy (Meza, 2019).
- Meal skipping is common amongst students facing food insecurity. Students often are limited in their time due to work or other commitments. This prolonged food deficiency can lead to the development of an eating disorder which often may be left unnoticed or ignored due to lack of finances.

## Methods

### Participants:

- The study will consist of CSU Stanislaus students over the age of 18.

### Design:

- The research design is non-experimental and Correlational
- The survey will be used to assess food insecurity, academic performance, and mental health.

### Materials:

- The instrument being used is a survey done through Google Forms.
- The survey will consist of altered questions from the 10 item U.S. Adult Food Security Survey Module to determine food insecurity.
- For mental health, the survey will include an altered version of Cohen's Perceived Stress measure..

### Procedure:

- The participants will fill out a survey through Google Forms asking about basic information such as age, race and whether they work,
- They will also fill out the questionnaire about mental health, Food insecurity and academics.
- The survey will disclose confidentiality and will be anonymous.

## Expected Results

Based on the current research, I predict that students facing the issue of food insecurity will have more of a struggle in academics than students that are not facing food insecurity. On top of the stress college already places in students, those who struggle with food insecurity often stress about affording enough healthy meals to get them through the week. This could lead to a decline in mental health. In addition, many students facing this issue must work a job which removes study time from their day. Overall, I expect there to be a positive relationship between the two variables. As food insecurity increases, stress also increases leading to less prioritization of schoolwork and academics.

## Significance

Studying the relationship between food insecurity and academic performance is important because it is something that many college students face today. Understanding the relationship between the two can help us to create resources and extra help for students. In addition, finding a solution will help slow down or stop the decline of mental health that results from struggling with food insecurity.

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Figure 2. Food insecurity between UC, CSU and CCC

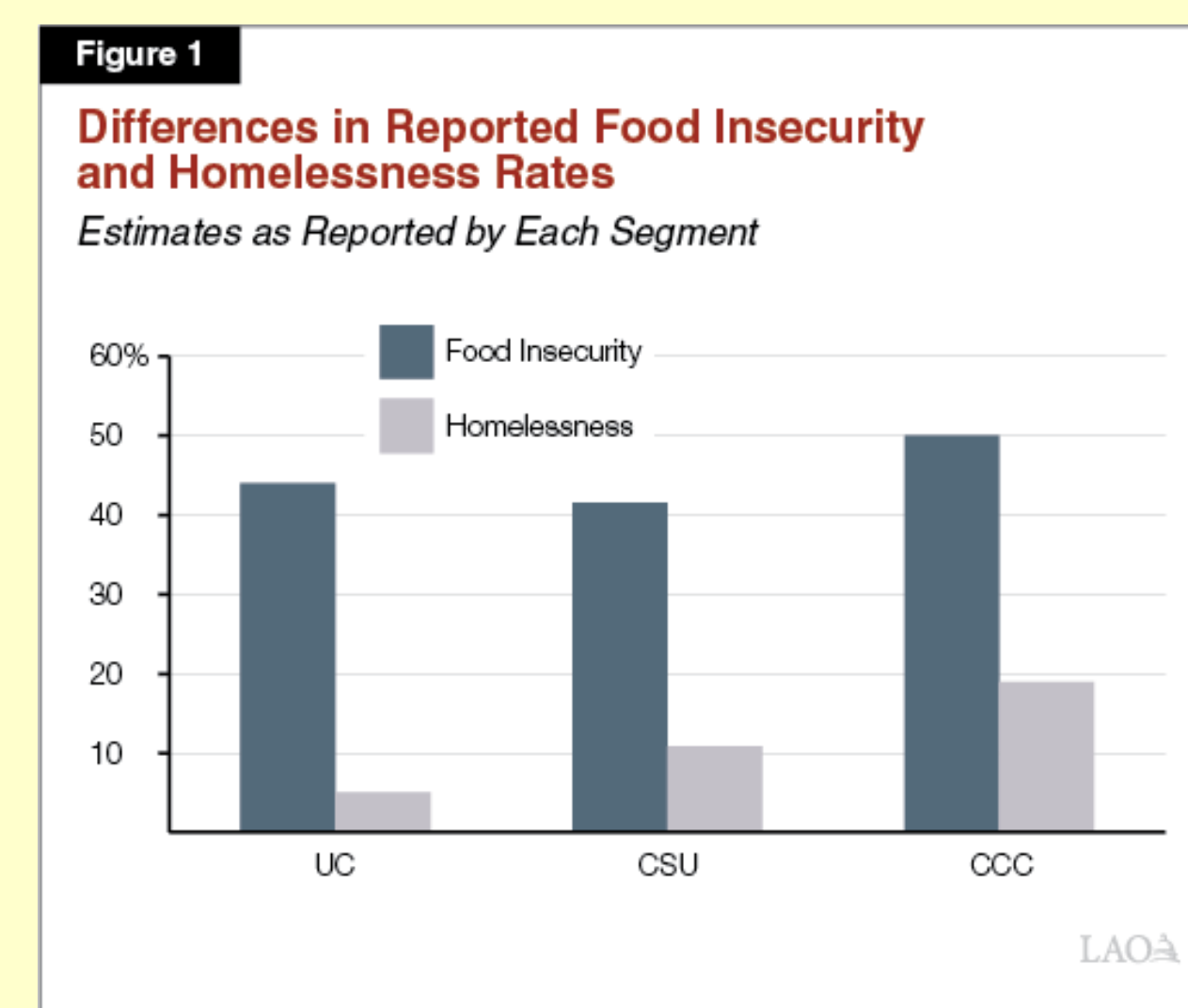


Figure 3. Levels of food insecurity



Figure 4. 2022-2023 CalFresh Eligibility

2022-2023 CalFresh Income & Eligibility Limits  
Effective October 1, 2022 - September 30, 2023

Monthly Income Limits		
People in Household	Gross Monthly Income	Net Monthly Income
1	\$2,266	\$1,133
2	\$3,052	\$1,526
3	\$3,840	\$1,920
4	\$4,626	\$2,313
5	\$5,412	\$2,706
6	\$6,200	\$3,100
7	\$6,986	\$3,493
8	\$7,772	\$3,886
Each Additional Member	+\$788	+\$394

Maximum Monthly Allotment	
People in Household	Maximum CalFresh Allotment
1	\$281
2	\$516
3	\$740
4	\$939
5	\$1,116
6	\$1,339
7	\$1,480
8	\$1,691
Each Additional Member	+\$211

Click GetCalFresh.org to apply online | Call 1-877-847-3688 (FOOD) for speech and/or hearing assistance call 711 Relay | Come to find an office CalFreshFood.org



# Creating a New Simplex Method Calculator to Optimize Student Learning

Mahmoud Sulieman ([msulieman@csustan.edu](mailto:msulieman@csustan.edu))  
B.S. Candidate in Mathematics

## Abstract

The objective of my research project is to develop and evaluate the effectiveness of a web application that computes row operations given by user input. I will then evaluate the web application's effectiveness when students use it as an aid in performing the simplex method in Operations Research and Finite Mathematics. I anticipate that the web application will reduce time and energy spent on performing unnecessary computations and optimize student's learning of concepts.

## Introduction

Long and tedious computations are far too common in the world of Mathematics, and the calculator was created to save you time and effort. In the Simplex Method, these computations can be exhausting (see Figure1) and not valuable to learning how to compute the Simplex Method. This drove students to quickly disliking the process all-together and resorting to calculators that do all the work for them..

BV	Row	Z	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	RHS	Ratio	Row Ops
Z	0	1	0	-20	$\frac{25}{3}$	$\frac{50}{3}$	0	0	0	2500	X	$\frac{20}{3} \cdot R3 + R0$
X <sub>1</sub>	1	0	1	0	$\frac{2}{3}$	$\frac{1}{3}$	0	0	0	50	X	$-\frac{5}{3} \cdot R3 + R1$
S <sub>2</sub>	2	0	0	4	$-\frac{10}{3}$	$-\frac{5}{3}$	1	0	0	500	$\frac{100}{4} = 25$	$-\frac{4}{3} \cdot R3 + R2$
S <sub>3</sub>	3	0	0	3	-1	-3	0	1	0	50	$\frac{50}{3} \approx 16.7$	$\frac{1}{3} \cdot R3$
S <sub>4</sub>	4	0	0	0	1	0	0	0	1	20	X	X

Row 0: 0 0 3 -1 -3 0 1 0 0 50  
 $\frac{20}{3} \cdot R3$ : 0 0 20  $-\frac{20}{3}$  -20 0  $\frac{20}{3}$  0  $\frac{1000}{3}$   
 $R3 + R1$ : 1 0 0  $\frac{5}{3}$   $-\frac{10}{3}$  0  $\frac{20}{3}$  0  $\frac{5500}{3}$   
 Row 1: 0 1 0  $\frac{2}{3}$   $\frac{1}{3}$  0 0 0 50  
 Row 2: 0 0 3 -1 -3 0 1 0 0 50  
 $-\frac{4}{3} \cdot R2$ : 0 0 -4  $\frac{4}{3}$   $\frac{12}{3}$  0  $-\frac{4}{3}$  0  $-\frac{200}{3}$   
 $R3 + R2$ : 0 0 0 -2  $\frac{7}{3}$  1  $-\frac{4}{3}$  0  $\frac{100}{3}$   
 Row 3: 0 0 3 -1 -3 0 1 0 0 50  
 $\frac{1}{3} \cdot R3$ : 0 0 1  $-\frac{1}{3}$  -1 0  $\frac{1}{3}$  0  $\frac{50}{3}$

Figure 1. One iteration of the Simplex Method done by hand

This is one tableau of many that one must compute until the optimal solution is found. It's easy to make computational errors and just one error can lead you to an incorrect solution. When this occurs, one must review the work they've done, find the mistake, and adjust accordingly. This has been done repeatedly throughout the problem.

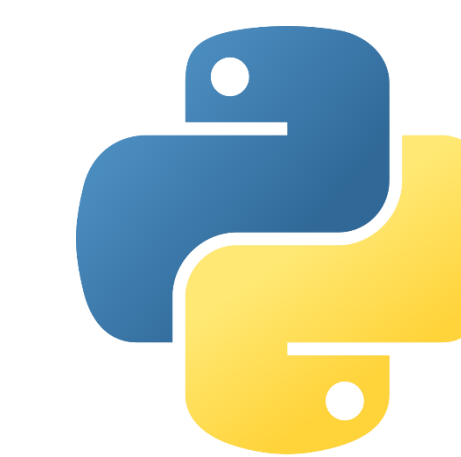
## Methodology

### Phase 1: Research & Design

In this phase, I will review the topics related to the simplex method covered in Operations Research in Fall 2022 and complete a literature review on current web applications related to the simplex method. I will then proceed to create a plan for developing and deploying a web application focused on calculations of user inputs. The goal is to find the most efficient and accurate methods in Python for implementing row operations in a web-based design.

### Phase 2: Implementation

For implementing our research project, I'll use the info gathered in Phase 1 to develop the web-based calculator using Python. The calculator will be designed in such a way that the user will select how many decision variables and constraints their problem has, input their tableau, and the calculator will output the result of the row operations. This will have a user-friendly interface that the students will find easy to understand and implement on their Simplex Method problems.



### Phase 3: Testing & Validation

I want to ensure that the web application will output results that are accurate and are efficient and user friendly. I will use various simplex method problems and test the web application to ensure the solutions are yielding correct results. I'll also test problems that have more decision variables and constraints to see how well it performs.

### Phase 4: Deployment & Data Collecting

Once I feel confident that the web-based calculator can generate accurate results every time a user inputs a problem, I will deploy my web application so future Operations Research and Finite Mathematics students can begin benefitting from my research. I will have the Fall 2023 Operations Research and Finite Mathematics students use my web application and give them a survey asking about their experience and suggestions for improvement of the web application. This will further validate my results from Phase 3.

## Expected Results

The program will be fully functional by the start of the Fall 2023 semester for Operations Research and Finite Mathematics students to experiment with the program. Allowing the use of the program with problems and disallowing it for problems will help spot how effective the calculator is for their learning. Throughout the semester, with the permission of their instructors, they will be granted access to this calculator for their assignments and possibly exams. Having the students use the program throughout the year will also give the program more test runs, and we can fix any issues students may come across. At the end of the year, they will complete a survey that will give us their thoughts on how effective the calculator was for their learning.

## Conclusion

Through the 4 phases in our research, we will be able to collect the data necessary to start programming, the program using Python and online resources for creating web pages, then after the program is complete and ready, we'll collect data from current students in Operations Research and Finite Mathematics to grasp student's opinions about the web page. Our goal is that future students will benefit from this new Simplex Method calculator, and professors will implement this in their classes for the sake of their students.

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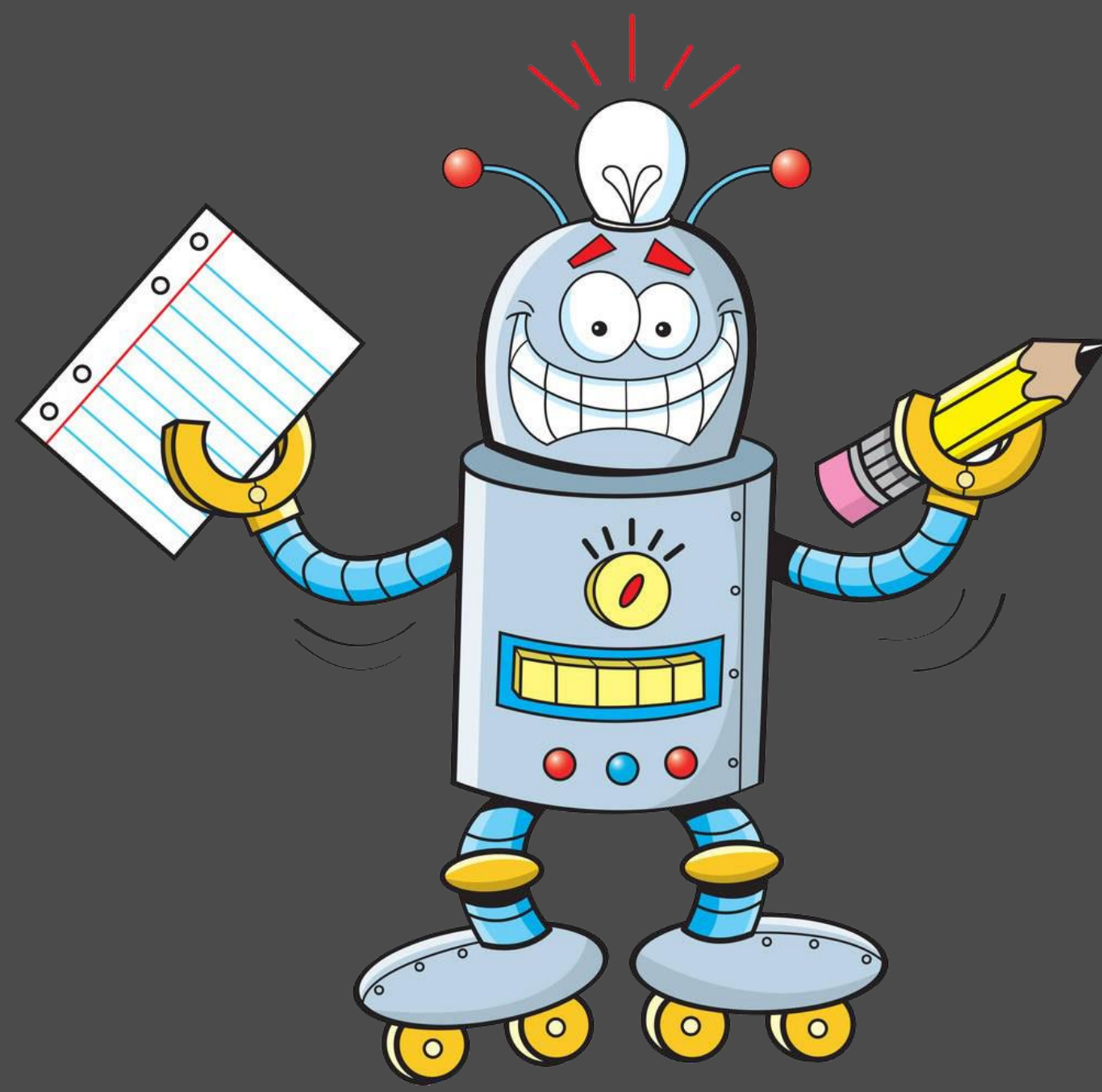
I would like to thank Dr. Jessica De Silva and Dr. Ellen Bell for assisting me and guiding me throughout this entire process.



# Let the Robots Do the Homework!

## A Progressive Study in AI-Infused Curriculum

By Dylan John Hoyt – Dhoyt@csustan.edu  
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### Abstract

This study aims to delve into the benefits of utilizing artificial intelligence in the classroom. When news hit of this incredible new technology, fear and misinformation began to spread. Headlines sprung up heralding the end of language arts as we know it. As with all things, this new technology has no ill intent, it is a tool, and as a tool, it can be used for building or destruction. If used properly, Open AI technology can be seen in language arts as calculators are seen in math. This study is aimed at finding out how to integrate Open AI technology in the classroom as a tool for leveling the playing field of language arts. In some sense, students will never write as well as a chatbot, but in another sense, some students will never write as poorly as it. This is a spectrum that requires study and understanding, not fear and trepidation. We are not in a state of destruction in language arts at the dawn of this new technology, we are in a state of building, and teaching others how to utilize this tool in a fair and equitable manner could decide how stable that structure will be.

### Introduction

Artificial intelligence need not herald the death of language arts study in the classroom when it can signify an alternative opportunity. As the population, which includes our students, acquires greater access to this technology, and as the technology itself advances, we might find the relevance of our classroom techniques woefully outdated if we do not progress the formula forward to meet the times. The solution proposed here is to apply this philosophy to a secondary-level writing curriculum, hoping that AI writing software can help elevate, equalize, but not subvert student writing potential.

Additionally, the students are not the only ones who benefit from these new advancements in Open AI tech. As teachers, we can also utilize this tool as a personal assistant of sorts, one that can help alleviate the pressure of enormous workloads. Imagine if you had a small team of assistants who could read all 126 essays that were submitted last Friday and then break down those papers into content analysis and formal analysis to see what the students are writing and how they are writing. This would allow teachers to focus on the areas of needed improvement as well as offer time to further develop curriculum and course corrections when needed. This tech can help individualize student learning and teacher awareness of student need.

### Methodology

1. Secure location for study, such as a university classroom.
2. Secure materials for study, such as Chromebooks.
3. Secure the subjects for study, within the desired range of secondary education age.
  - a. Minimum of five subjects, I am flexible with age.
  - b. Subjects will require parental consent forms and will be explained the entirety of the process beforehand.
4. The study will be conducted over a span of 4-5 days, around 75 minutes per session.
5. Each session will progress the writing process, introducing AI as needed.

### Conclusion

Students will show a markable improvement in writing based on an introduction to open AI software and will learn to utilize this tool in an academically responsible manner. A follow-up survey is required to question if students felt this session had a positive, negative, or null impact on their writing courses in secondary education. The ultimate goal of the follow-up is to ascertain if students utilizing this tool feel as if they are cheating or learning via the process.

### Additional Study

Students are not the only ones who should be tested with this new technology. A voluntary study will be conducted with teachers and professors intended to put them in their student's perspective.

English teachers will be asked to pick a research project they have assigned in the past.

They will then be asked to complete that research paper using only Open AI to find sources, they cannot utilize their own methods or acquired sources however, they are required to check the validity of sources that are offered by Open AI.

Once the research paper is completed, an additional questionnaire will be provided to assess the experience. This is where thoughts and concerns can be gathered for a potential future study.

### Try it out for yourself

Follow this QR code to the site

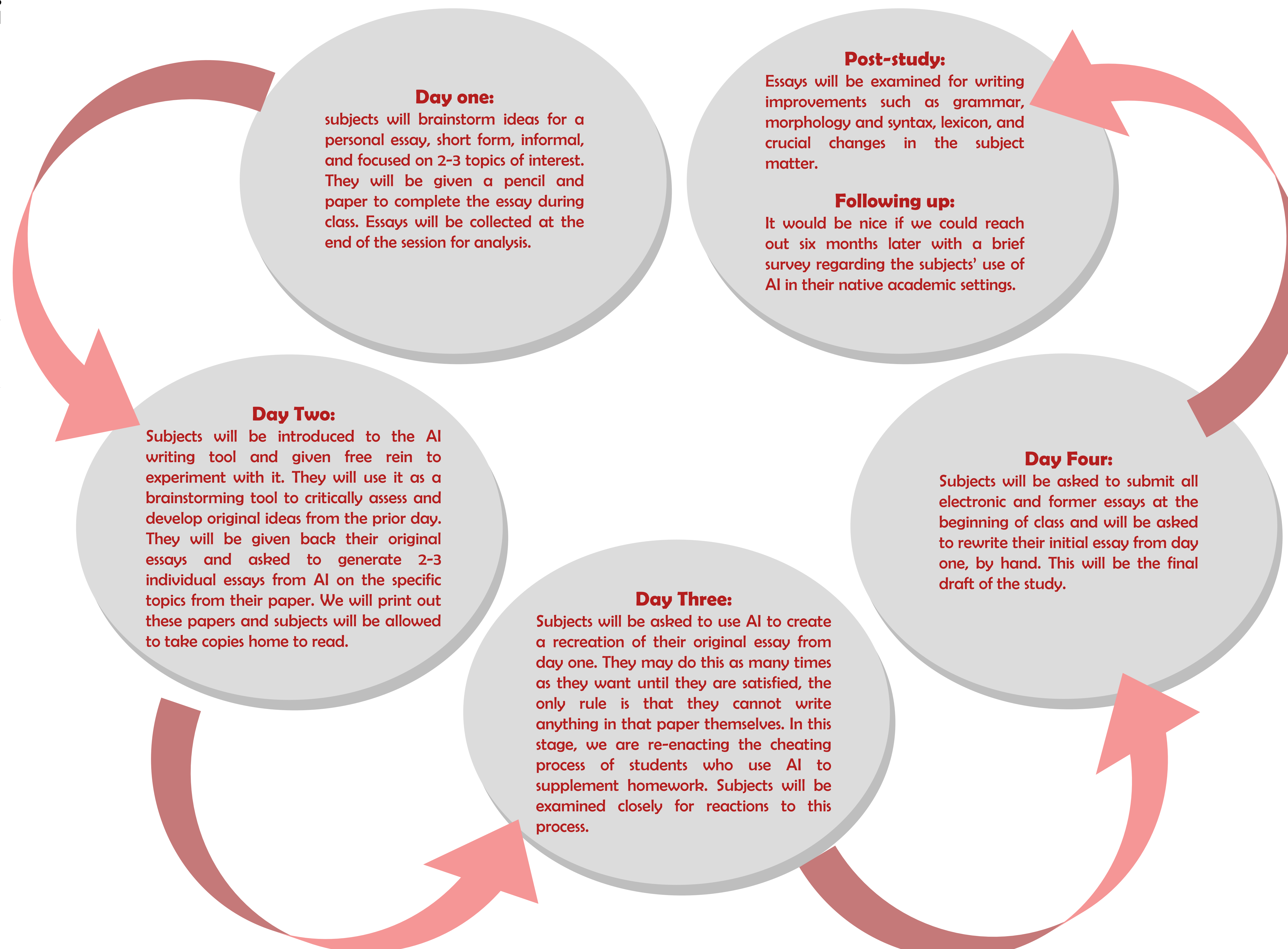
Click on "menu" in the upper right corner

Click on "product" then click on "ChatGPT"

Log in to create an account, then ask it anything.

### Acknowledgments

Dr. Jennifer Pace Wittman – Mentor  
OpenAI. *ChatGPT*. OpenAI, November 30, 2022.  
Images provided for free by pngwing.com  
QR code provided by qr.io







# The Significance of Intercultural Materials in Elementary Music Pedagogy

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## Introduction

This study will explain the significance of intercultural materials in elementary schools. Intercultural materials include chants, children's songs, and instruments from other cultures around the world. Although intercultural music is important for all ages, this study will be focusing on elementary students from grades K-5.

Bennett states that "...cultural identity is not stagnant but constantly changing and shifting" (Bennett et al., 2022). Depending on the different types of cultures that are in the classroom at any given time, the normal or popular way of teaching might not be as effective.

In order to prepare young children to be accepting of all cultures and aware of other types of music from around the world, intercultural material must be a part of the elementary pedagogy.



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## Research Question

What is the significance in including intercultural music materials in Elementary Pedagogy?



## Background and Literature Review

According to Karen Howard, "This process of taking another's perspective aids children's understanding of how people in cultures other than their own construct knowledge and interpretations of their worlds, including music" (Howard, 2018). This is a very important skill to teach students early on in their education. It has the potential to stop discrimination and create a place in the classroom where differences are celebrated instead of ridiculed.

"A sociocultural approach to teaching music considers the selection and use of culturally diverse musics and the ways they can be contextualized in the curriculum, but goes further by creating inquiry-based spaces where learners are invited to discuss, question, and interrogate the music experience from different social and cultural positions" (Abril, 2009).

"...comfort is not an indicator of 'smooth sailing', but of privilege, inequality, and insularity - qualities that music teacher education programs can ill afford in an increasingly globalized world" (Kallio et al., 2019).

## Methods

- 🌐 Participants
  - ♪ K-5 students from ages 5-11
- 🌐 Materials:
  - ♪ Databases used: PsychInfo and EBSCOhost
  - ♪ Peer Reviewed Sources
- 🌐 Design:
  - ♪ Descriptive research design
  - ♪ Extended Literature Review
  - ♪ Mixed-method approach
- 🌐 Procedure:
  - ♪ Keywords used: elementary music education, multicultural, intercultural, culture, inclusion, and pedagogy.
  - ♪ Estimated to have 12-15 sources



## Acknowledgements

I would like to acknowledge Dr. Suditi Gupta and Dr. Sarah Minette for their support and assistance as I continue this research.

## Expected Conclusions

Based on a descriptive research design, it is predicted that there will be a positive response to the use of intercultural material in the elementary music classroom. It is also predicted that students will report a better understanding in world cultures and music in these specific cultures.

## Significance

The United States has seen a surplus of individuals immigrate here from all over the world. Even though there are Americans that are from different parts of the world, our school systems have not included these cultures in with the Western teachings of music, specifically in elementary schools. It is important for students to have other cultures, such as African, Chinese, and Indian, be normalized in their music programs at their elementary schools. "Music educators have the opportunity to engage their students in an examination of the culture that leads to the very music being studied, rehearsed, and preformed" (Howard, 2018).

Exposing elementary students to music from different cultures will help them to understand the world around them better and be more in tune with the traditions and customs from those that they are right next door to. It is important in a place such as the United States, to be aware of multiple cultures in many different ways as it creates inclusivity for all cultures around the world.



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# The Question of Human Uniqueness: Defining Characteristics in Social Norms

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## Introduction

Do animals have cultures? Originally, this question became prevalent in academia around the time of Aristotle. This question originated in the field of philosophy. The question then transferred to the field of religious studies. In recent years, this question has become of a scientific nature. For the majority of anthropology's existence, this question has remained debatable.



### Research Question

Will bees who prefer their assigned foraging strategy (independent variable) conform to a different foraging strategy (dependent variable)?

## Background

- Aristotle originally brought up that studying songbirds may reveal information on human speech.
- Religious scholar René Descartes contributed to the discussion of animal cognition.
- Towards the end of the 19th-century, Charles Darwin sparked intrigue toward animal cognition.
- Anthropologists began debating the defining feature of human uniqueness.
- Anthropologists argue the presence of culture is the defining feature.
- Allen (2013) and Borgeaud (2013) publish research indicating the presence of culture in animals.
- Anthropologists may now argue that characteristics of culture define human uniqueness.
- These characteristics must now be analyzed and validated or invalidated.

## Significance

What makes humans unique is a prevalent question in the field of Anthropology. Offered solutions for this question include characteristics of culture. The prevalence of cultural characteristics in animals is a multidisciplinary topic. Furthermore extensive knowledge exists on the cognitive functions of bees. Bees cost relatively less compared to other organisms. For this reason, bees are ideal study candidates. Establishing the existence of social norms in bees allows for further experimentation on animal cognition. Bee experiments will cost less than alternative species. This experiment will contribute to the question of human uniqueness. The study will contribute a frugal party of study in animal cognition. This experiment will contribute to understanding of human and animal cognition. This study will contribute to multidisciplinary.

## Methods

- Hypothesis testing incorporates experimental methods.
- The independent variables are personal knowledge and social norms, while the dependent variable is conformity.
- Social norms will originate from personal knowledge.
- Implementation of different personal Knowledge allows for contrasting foraging knowledge.
- The experiment includes the use of Qualitative methods to measure data.
- The experiment will produce straightforward qualitative data.
- Incorporation of experimental methods allows for mitigation of outside influences.
- The experiment will adhere to set trials and procedures.
- Bees will begin the experiment in a controlled area (see Figure 1).
- Controlled areas will attach to a closed tunnel. The tunnel will lead to chambers containing feeding stations.

### Control Chamber

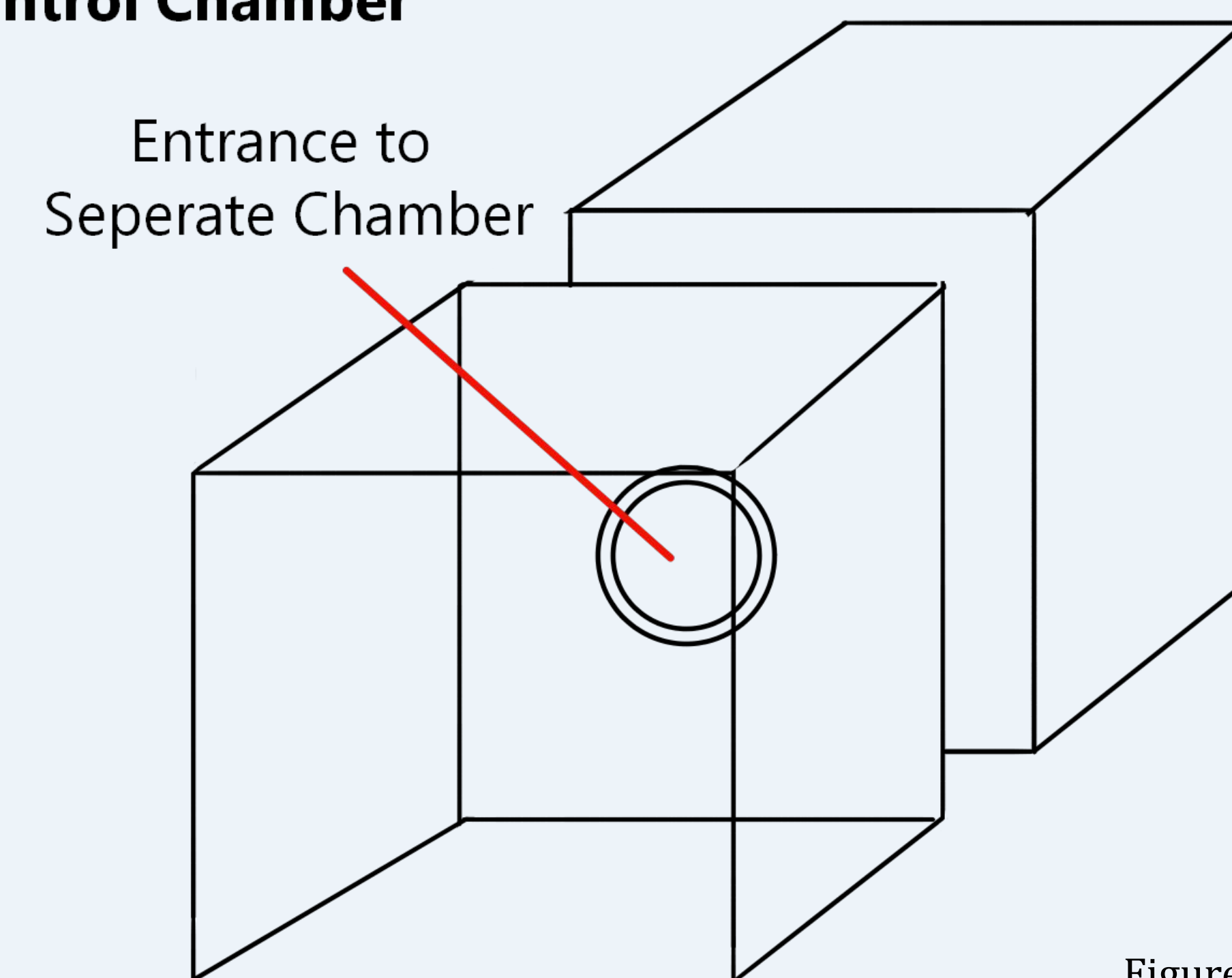


Figure 1

### Separate Chamber

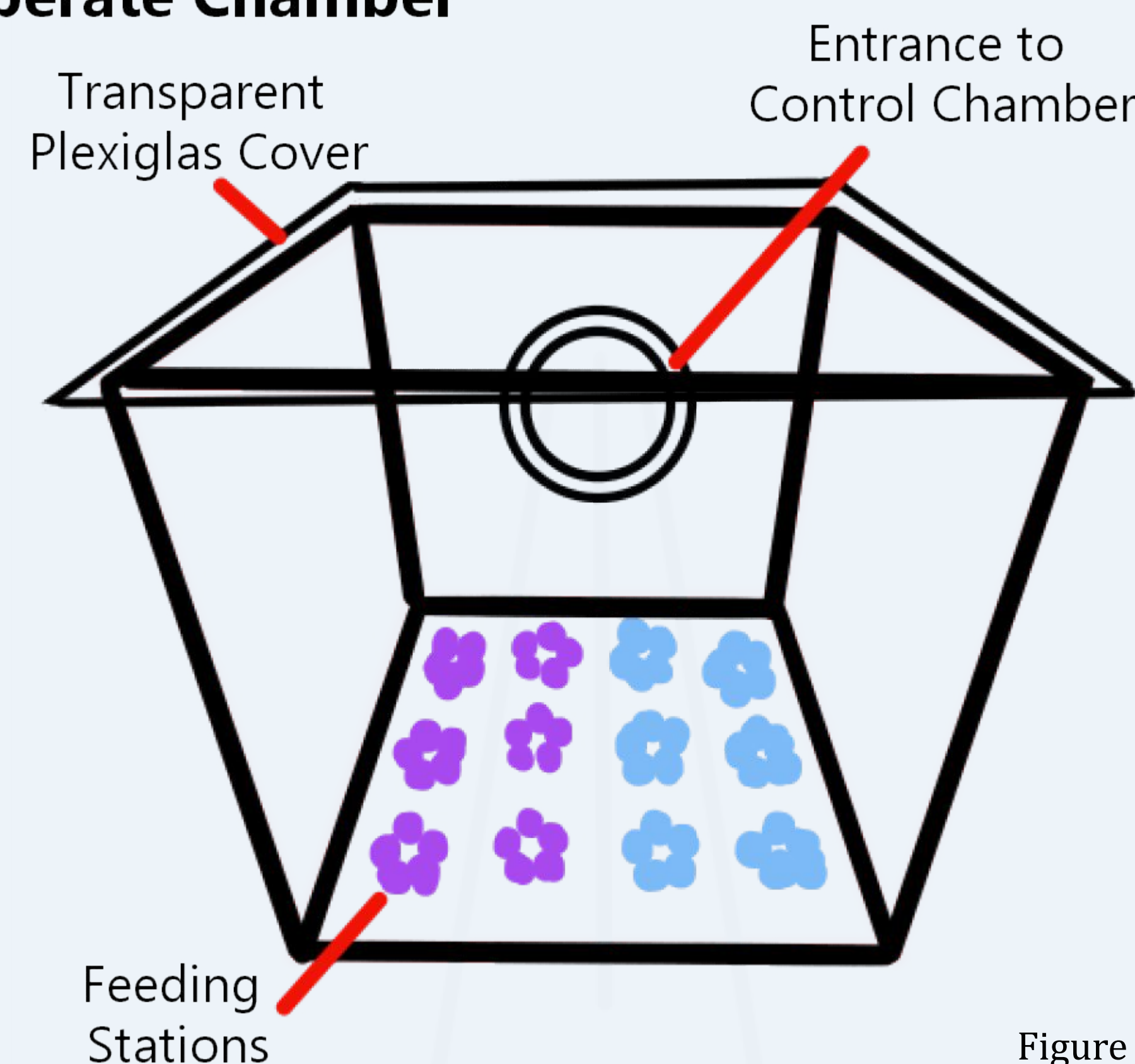


Figure 2

## Procedures

- The experiment will incorporate a total of 140 bees.
- Bees will group into four separate classifications: A, B, C1, and C2.
- Groups A and B will receive prior contrasting training. Groups C1 and C2 will receive no prior training.
- Both Group A and Group B will possess 40 individuals. Groups C1 and C2 will possess 30 individuals each (See Figure 4).
- Bees will learn ideal foraging strategies based on personal knowledge with sugar as a reward stimulus.
- The location of stimulus will be in feeding stations. Placement will differ between groups (See Figure 3).
- After bees have gained personal knowledge, five individuals will join a separate group. This separate group will possess different or no knowledge of their environment.
- Monitoring and recording of preferred foraging strategy will take place. Preference for strategies depends on personal knowledge and social norms.
- Training in personal knowledge will take place before the experiment. This will ensure learned environmental information.
- A second experiment will run with bees containing no prior personal knowledge. This will act as the control group.
- Between trials tunnel connection between controlled area and the feeding stations will remain closed (see Figure 2).

### Side Profile

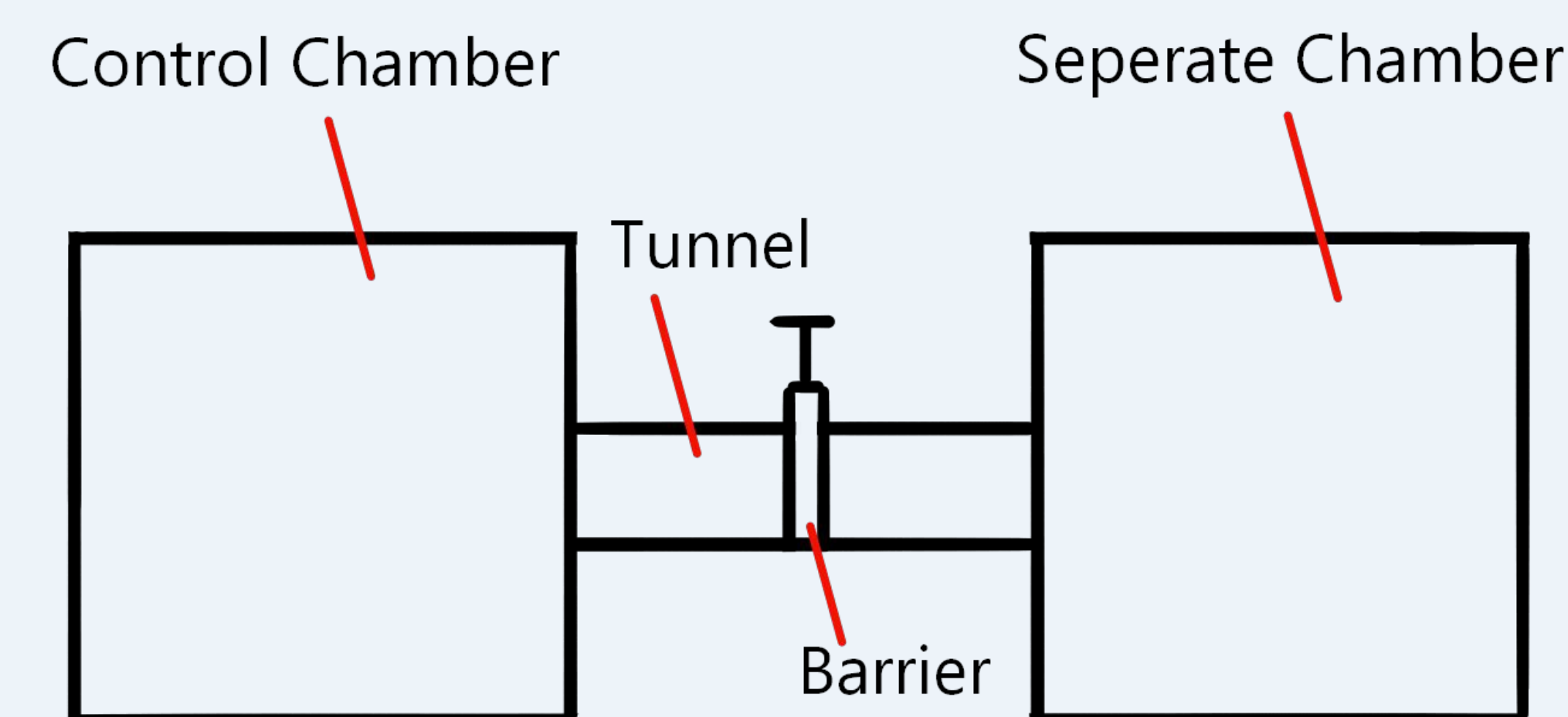


Figure 3

	A	B	C1	C2
<b>Phase 1</b>	40 •	40 •	30 •	30 •
<b>Phase 2</b>	30 • +5 •	30 • +5 •	30 •	30 •
<b>Control</b>			30 • +5 •	30 • +5 •

Figure 4

## Expected Results

Bees' adherence to social norms will depict a preference for social norms over personal knowledge. Observation of Bee's foraging preference may indicate conformity. Bees will either forage based on personal knowledge or conform to other bees foraging strategies. Bees from separate groups will interact with one another during foraging. Monitoring of their chosen foraging method will occur.

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## Acknowledgements

Thanks to the anthropology department for supporting me. I extend gratitude Professor Frost and Professor Pazan for their knowledgeable contributions and expertise.





# The Ripple Effects of Framing:

## Explicit Terms and Co-Occurrence in California Water Futures Market Media Representations



(OpenAI 2023b) Note: A.I. generated image



### Intro

In December 2020, the CME Group launched the world's first water futures market in California, allowing stakeholders to trade water rights and hedge against water price fluctuations. The media plays a crucial role in shaping public perception of this innovative market. This study aims to examine media representations of the California water futures market by analyzing the recurring explicit terms used to frame it.



### Question

How does the frequency and co-occurrence of explicit terms in media representations of the California water futures market relate to the framing and tone of related media, and what impact does this have on shaping public perception?



(OpenAI 2023a) Note: A.I. generated image



### Background

- ◆ **Media framing** refers to the process through which media sources present and emphasize specific aspects of an issue, shaping public perception and understanding. Research on media framing has demonstrated its significant impact on public opinion (Neuendorf, 2002; Riffe et al., 2019).
- ◆ **Explicit terms** can greatly influence the audience's understanding of an issue. The frequency, co-occurrence, and context of these terms, as described by Zipf's (2012) principle of least effort, can either clarify or confuse public opinion.
- ◆ **Limited research** has been conducted on the media coverage of the water futures market and its implications for public perception.
- ◆ **Ethical considerations** must be addressed to differentiate between legitimate speculation that provides valuable market functions and excessive speculation that could lead to negative consequences (Angel & McCabe, 2009; Zhang, 2019).



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### Methodology

#### Sample and Materials:

- ◆ Large selection (>100) of randomly chosen text media articles related to the California water futures market, published after the Dec. 2020 launch. Excludes any articles intended for specialists.
- ◆ Deductive explicit terms: scarcity, drought, climate change, sustainability, speculation, commodification, market, regulation, ethics, moral implications, social justice, human rights, equitable distribution, environmental justice, transparency, corporate responsibility, and public trust.
- ◆ Additional explicit terms will be identified through inductive coding.

#### Design and Procedure:

*Nonexperimental, quantitative content analysis of text media articles on the California water futures market.*

- Select articles and systematically code frequency and co-occurrence of explicit terms.
- Identify recurring explicit terms through inductive coding.
- Revisit articles for line-by-line coding; determine tone through sentiment analysis.
- Utilize Zipf's Law to analyze frequency distribution of explicit terms.
- Organize coded data into term frequency, co-occurrence, and tone assessment.
- Conduct quantitative analysis using descriptive statistics techniques (e.g., term frequency distributions, cross-tabulations, central tendency and dispersion measures).
- Analyze relationships in data using Chi-square test of independence, Point-Biserial Correlation Coefficient, Spearman Rank-Order Correlation, or Pearson Correlation Coefficient (as appropriate).
- Explore relationships between explicit term co-occurrence and article tone plus implications.



### Expected Results

Based on the systematic content analysis, I anticipate identifying patterns in the explicit terms and their co-occurrence in media articles related to the California water futures market. I expect to find relationships between the co-occurrence of explicit terms and the tone of the articles. For example, articles with a more critical/negative tone may focus on the potential perils associated with the market, such as speculation or commodification, while articles with a supportive/positive tone may emphasize the benefits of the market, such as addressing water scarcity and promoting profitability.



### Significance

This study aims to shed light on the media's framing of the California water futures market and how it may influence public perception. By examining patterns language and tone, this study can help identify prevalent themes and sentiments present in media representations of the market. Understanding how the media frames the California water futures market is crucial, as it can shape public opinion and policy decisions related to water management and sustainability. This study's findings may inform future discussions and analyses of the market's implications, ultimately contributing to more informed decision-making and a better understanding of the role of the media in shaping public perception. *Our enemy is greenwashing.*



(OpenAI 2023c) Note: A.I. generated image

The author gratefully acknowledges professor Suditi Gupta, Dr. Allison McNally, and librarian Tim Held for their support, guidance, and professional insight.

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# A Comparative Study of Communication Behaviors Between Families...

## Introduction

Among most studies, family communication stays the same. Everything depends on temperament, discipline, parenting styles, and more. An aspect that needs to be looked further into is the effect that behavioral problems, like ADHD (attention deficit hyperactivity disorder) within children, has on family communication.

Within this study, I will be defining what exactly ADHD is, how ADHD affects communication and language, how families that have children diagnosed with ADHD differ in communication from families without children diagnosed with ADHD, and how families with children diagnosed with ADHD can improve in their communication. This study seeks to prove that ADHD is a type of communication disorder and can negatively affect a child's communication skills.

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## Acknowledgments

I would like to thank Dr. Suditi Gupta and Dr. Meikuan Huang for their help in performing my research.

## Research Question

**In what ways does communication in families that have children with ADHD struggle more than a typical family with no behavioral issues? The topic of communication in families that have children diagnosed with ADHD needs to be further explored because there is still so much to uncover regarding strategies and coping mechanisms for parents. About 9% of the world's children population is diagnosed with ADHD, and parents worldwide struggle in coping and communicating with them. Families that have children with ADHD struggle more with communication than families that have children without any behavioral disorders because of the core symptoms of ADHD. "Symptoms of inattention and hyperactivity typically co-occur with poor communication skills" (Hawkins et al., 2016).**

## Background and Literature Review

There are four core symptoms individuals experience with ADHD which include inattention, impulsivity, hyperactivity, and difficulty processing language. It is shown that inattention and hyperactivity are linked to pragmatic communication problems. Having memory issues and inattention can lead to difficulty in learning language (Hawkins et al., 2016).

A study reports that school aged children often "...had more problems with conversational rapport and demonstrated more problems with social relationships compared to typically developing children, who show no deviances in their language development" (Gertis, 2008). Communication within families that have children with ADHD can have a more difficult dynamic than a family with children that have no behavioral disorders. Because of the core symptoms, communication can be a challenge. These difficult symptoms of ADHD make it difficult for both parents and children in families to communicate with one another (Tripp, 2007).

## Methods

### Participants

- A meta-analysis of participants collected from a variety of studies.
- Participants will range from the ages 19 and younger.

### Materials

- Data received through multiple different databases including Google Scholar, Stanislaus State University Library database, EBSCOHost, etc.

### Design

- Non-Experimental design, using an extended literature review and data analysis

### Procedure

- Research and data collection in order to perform an extended literature review.
- Primary and secondary sources will be used
- Specific keywords will be used such as ADHD, communication difficulties, inattention, and hyperactivity.



## Expected Results

**I expect that these results will reflect a higher percentage of communication difficulties within families that have children with ADHD as well as different ways for those families to improve their communication.**



## Significance

**It is important to study the difficulties in communication for families with ADHD compared to those without behavioral disorders because there are too many families who are suffering from these difficulties when they don't have to. It is important to see the effects and solutions for these communication differences so families can be better.**

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# Take It Easy On Us: The Effect of the COVID-19 Pandemic on the Quality of Well Being and Academic Achievement of College Students

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## INTRODUCTION

- COVID-19 was a universal experience for every individual in the past 3 years. Due to the unprecedented lockdown, we all found ourselves social distancing, abiding by mask mandates, and being overly cautious about germs.
- Students experienced a sudden halt to their educational careers and begrudgingly adjusted to the online modality of learning.
- More specifically, college students were at a point in their lives where they were just a few steps away from graduating and entering the professional workforce. Students had to move out of dorms as quickly as possible which caused some to move back in with their parents, rent a room or apartment, and in some worst case scenarios, were left homeless.
- During these unprecedented times, college students were anxiously waiting to hear updates from their universities on whether the lockdown would cause a delay on their track to graduation.
- This period of the unknown led to many students struggling with their mental health and many experienced social deprivation. Students became anxious, depressed, and felt hopeless as they were not able to see the light at the end of the tunnel for quite some time.

## RESEARCH QUESTION

To what extent has the COVID-19 pandemic affected the quality of well-being and academic achievement of college students?



## BACKGROUND AND LITERATURE REVIEW

- Jamshaid et al. (2023) examined the mental health of international students pre and post pandemic. Findings demonstrated that the mental health of international students was reportedly in good shape in the pre-pandemic phase. However, during the pandemic participants reported signs of depression and anxiety. Based on the data, it was also found that younger students' and females' mental health had worsened in the post pandemic phase (Jamshaid et al., 2023).
- Ewing et al. (2022) categorized post-secondary students into two groups: those with pre-existing mental health concerns and those who had no history of mental health concerns prior to the pandemic. Results indicated that those with no pre-existing mental health concerns had experienced more difficulty adapting and learning to cope with new unprecedented stressors compared to those with pre-existing mental health concerns. Many of these individuals viewed the pandemic as a time for growth and opportunity and discovered personal benefits of online learning (Ewing et al., 2022).
- Shoshani and For (2022) found that adolescents experienced high levels of anxiety, depression, and panic disorder symptoms, spent increased time engaging in video games, surfing the Internet, watching TV, and using social media, as well as seeking out peer support during the pandemic (Shoshani et al., 2022).



## METHOD

### Participants

- Participants will be students attending CSU Stanislaus recruited via course announcements and through SONA.
- This study will be conducted through convenience sampling based on the number of students who will choose to participate.

### Measures

- Demographics questionnaire requests for the participants' age, sexual orientation, gender, ethnicity, grade level in 2020, and current grade level.
- A modified version of the World Organization Five Well-Being Index (WHO-5; WHO, 1998) will evaluate the quality of well-being.
- A modified version of the Academic Success Inventory for College Students (ASICS; Prevatt et al., 2011) will be used to evaluate the participant's academic achievement.

### Design

- The study will be administered using a repeated measure, within-subjects design.
- The independent variable is participants' reported levels of well-being and academic achievement pre pandemic
- The dependent variable is the present quality of well-being and academic achievement of college students.

### Procedure

- The survey will instruct participants to take the modified version of The Who-5 and the ASICS at which the time they will be instructed to report their mental health status and levels of academic achievement prior to the pandemic as well as their current levels of said variables
- The next page will include a debriefing form and will thank participants for their time.



## ACKNOWLEDGEMENTS

I would like to thank Dr. Suditi Gupta and Professor Forester for their mentorship in constructing my research thus far.

## EXPECTED CONCLUSIONS

It is expected that results will establish that participants will report lower levels of mental health and well-being per post-test scores on The Who-5, and lower levels of academic achievement per post-test scores on the ACIS.

## SIGNIFICANCE

There has been a mental health crisis in the U.S since the 1960's that has worsened in recent years, especially during the COVID-19 pandemic. This was a lonely universal experience that we all endured and has led individuals to fall into depression, anxiety, and a rise in suicide rates. It is important to collect data that confirms decrease in mental health in order to demonstrate the need for mental health advocacy and interventions in the post pandemic era. It is important to acknowledge that learning modalities have a genuine effect on learning efficacy. It is important that we understand that students will need more resources and support for their academics to thrive in their educational careers once again.

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## Introduction

The peak of the COVID-19 pandemic was a difficult time for the healthcare sector. Nurses had their hands full trying to care for patients with highly contagious diseases, PPE shortages, caring for both COVID and non-COVID patients, and trying not to get infected themselves (Galanis et al., 2021). The peak of the pandemic from 2019-2020 were hard years to be a nurse and the stress of being a frontline worker contributed greatly to nurse burnout. Burnout is defined as “negativism or increased mental distance from one’s job” (Carthon et. al, 2021). Nurse burnout is not a new concept and has been a concern since before the pandemic, however the stress and helplessness that was brought about by COVID-19 only worsened already present levels of burnout. In a study The following concepts will be discussed in this literature review: Contributing factors for burnout, interventions focused on the individuals, and systemic or workplace changes that can be implemented by hospitals.

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## Acknowledgements

Thank you to Professor Brandy Gleason for being my faculty mentor and Professor Suditi Gupta for their guidance throughout the process.

## Research Question

**How did COVID-19 impact the nursing profession and contribute to nurse burnout and resilience?**

Nurse burnout during COVID-19 is important to study because we saw how a healthcare crisis impacted nurses’ physical, emotional, and mental wellbeing. The unstable and unsupportive work environment was worsened by the pandemic as the healthcare industry faced the challenge of overcrowded hospitals and increased patient mortality during the pandemic. Now that the pandemic has calmed, these systemic issues and its relation to nurse burnout will remain.

## Background and Literature Review

In a study conducted by Galanis et. al (2021), they found that nurses who worked during the pandemic experienced higher levels of emotional exhaustion, depersonalization, and lack of personal accomplishment. The risk factors associated with burnout are both personal, such as age and lack of a support system, and environmental, such as higher patient-nurse ratios, lack of resources, and lack of training. Major factors for nurse burnout are largely environmental. Carthon et al. (2021) found that high burnout is associated with poor work environments and a decrease in patient satisfaction. Furthermore, Shah et al. cite that nurses who left the profession or are considering leaving the profession cited burnout related to stressful work environment, understaffing, lack of good management, and better benefits. They found an increased rate of nurse turnover with increased working hours in the acute care setting.



**Figure 1.** Frontline workers in the ICU

## Methods

### Participants:

- Subjects within peer-reviewed studies found on CINAHL.
- Various races, ethnicities, nursing specialties, genders, and ages.

### Materials:

- CINAHL, nursing journals, and the NCBI.
- Keywords: “COVID-19,” “Resilience,” and “Nurse Burnout”
- Scholarly, peer-reviewed studies such as cross-sectional studies, literature reviews, and meta-analyses.

### Design:

- Extended literature review
- Mixed-methods approach
- Resilience and nurse burnout will be measured by degrees of stress related to nursing and coping mechanisms employed.
- COVID-19’s impact will be measured by comparison of stress levels before and during COVID-19.

### Procedure:

- Data between 2020-2023
- Specific statistics regarding stress levels will be extrapolated and analyzed in relation to how environmental and personal factors affect burnout and resilience.
- Direct quotations will be used to provide a more personal perspective and will be used to provide specific examples.

## Expected Results

After conducting analysis, results are expected to show that COVID-19 exacerbated already present negative work environments, which resulted in an increase in nurse stress, which impacted nurse burnout and required an increase in nurse resilience. Results will suggest that an overhaul of the nursing work environment is necessary in order to make it a more supportive and less stressful environment.



**Figure 2.** Female nurse sitting on hospital floor dejected.



**Figure 3.** Frontline workers wearing PPE during COVID-19

## Significance

Nurse burnout affects not only nurses but also the patients they care for. Increased levels of burnout are related to poor patient outcomes, decreased quality of care, decreased patient satisfaction, and decreased patient safety (Montgomery & Patrician, 2022). Further consequences from nurse burnout are job dissatisfaction, which lead to absenteeism and decreased retention rates (Howell, 2021). Decreased retention rates and high turnover rates in turn may be contributing to the national nurse shortage (Juraschek et al., 2019). In order to properly address the nursing shortage, we must curate the work environment to be something that nurses want to work in and stay. Hospitals can hire as many people as they can but without addressing burnout, we will continue to see these high turnover rates.

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# AGEISM & COVID-19: A WAR OF PERCEPTION

**Abstract:** Older adults are subject to generalizations, stigmas and policies that socialize and restrict them from obtaining a quality and engaging life. Since the COVID-19 pandemic, those 65 and up have become accustomed to factors of devaluation, which may have promoted disengagement or withdraw from their normal societal functions. What will be addressed in this project is the social and physical impact the pandemic had on the subjects recruited.

**Research Questions:** How do older adults feel about lockdown measures due to a worldwide pandemic? How was their quality of life affected? What was the role media outlets may have played in othering or promoting trauma within an individual?

**Significance:** In the event of a future outbreak or worldwide shutdown event, we need to be better prepared for the mental and physical repercussions from sheltering in and having a loss of social and physical interactions. Researching the life events and experiences of older adults who have lived through the last three years of the pandemic, can further help us better understand geriatric and palliative care in a way that can positively impact society moving forward.



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# Generational migration away from religion:

## What does this mean for the American political landscape of Generation Z?



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Honors Capstone Research Proposal for McNair Scholars

### Introduction

Historically, in the United States, religion and political party affiliation have been known to be inextricably intertwined (Hout & Fischer, 2002). Would-be presidential candidates understand that they must embody certain characteristics expected of them by the public such as subscribing to a form of Christianity, having family values, and being well educated if they are to have any chance of winning public favor. However, commitment to and interest in religion has steadily declined in importance since the Greatest Generation (1900-1920). Research shows a steady decline in the perceived importance of religion in one's life from generation to generation. Pew Research Center polling of Importance of Religion in One's Life by generation currently shows the Greatest generation at 72%, all the way down to Younger Millennials at 38% (see Figure 1). Generation Z continues to follow this trend of migration away from subscribing to religion.

The purpose of this research is to discover what sort of political trajectory we can expect in the future from trends of secularization of newer generations.

**Figure 1**  
Pew Research, Religious Landscape Study, "Importance of Religion in One's Life by Generational Group"

Generational cohort	Very important
Younger Millennial	38%
Older Millennial	44%
Generation X	53%
Baby Boomer	59%
Silent	67%
Greatest	72%

### Methodology

In order to understand where we are headed we must ascertain where we are currently, as it relates to understanding the religious and political affiliations of those of legal voting age within Generation Z.

To accomplish this task, I am proposing to survey local CSUSTAN students using SONA research participant pool, as well as surveying on a national scale with Prolific research participants. SONA Participants will receive 1 extra credit for participation, and Prolific Participants will be compensated monetarily.

#### Participants:

- All genders, races, ages 18-26 from SONA and Prolific

#### Measures & Materials:

- Demographics Questionnaire
- Centrality of Religiosity Scale (CRS)
- Ideological Consistency Scale (ICS)

#### Design:

- Mixed Methods, IVs: Religiosity and Political Party Status.

DVs: Religiosity and Political Ideology

**Figure 2**  
Centrality of Religiosity Scale Sample Questions

Variables	
1. How often do you think about religious issues?	
2. To what extent do you believe that God or something divine exists?	
3. How often do you take part in religious services?	
4. How often do you pray?	
5. How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?	

**Figure 3**  
Ideological Consistency Scale Sample Questions

Items in the Ideological Consistency Scale			
Question #	Conservative Position	[OR]	Liberal Position
Q25a	Government is almost always wasteful and inefficient.		Government often does a better job than people give it credit for.
Q25b	Government regulation of business usually does more harm than good.		Government regulation of business is necessary to protect the public interest.
Q25c	Poor people today have it easy because they can get government benefits without doing anything in return.		Poor people have hard lives because government benefits don't go far enough to help them live decently.
Q25d	The government today can't afford to do much more to help the needy.		The government should do more to help needy Americans, even if it means going deeper into debt.
Q25f	Blacks who can't get ahead in this country are mostly responsible for their own condition.		Racial discrimination is the main reason why many black people can't get ahead these days.
Q25g	Immigrants today are a burden on our country because they take our jobs, housing and health care.		Immigrants today strengthen our country because of their hard work and talents.
Q25i	The best way to ensure peace is through military strength.		Good diplomacy is the best way to ensure peace.
Q25n	Most corporations make a fair and reasonable amount of profit.		Business corporations make too much profit.
Q50r	Stricter environmental laws and regulations cost too many jobs and hurt the economy.		Stricter environmental laws and regulations are worth the cost.

### Expected Conclusions

I am expecting results that indicate the more a person self-identifies as highly religious the more likely they are to also identify with conservatism, and those who do not self-identify as religious will be more likely to identify with centrist or liberal political positions. Many factors play a role in shaping the political viewpoints of American citizens. Because of the array of possibilities, the direction of potential outcomes can be difficult to predict. Women tend to vote more democratically across all ages, also we know that highly educated Americans are less inclined than others to admit to believing in God with absolute certainty or that they pray on a daily basis. College students are also more likely than others to describe themselves as atheists or agnostics, when asked about their religious identity. These are just a few demographics that impact voting outcomes. Generation Z is unique in that it is a generation that is very racially and ethnically diverse, progressive, and progovernment. Due to this I am also expecting that the trend of migration away from religion will continue in Generation Z and that Generation Z will not be satisfied with the status quo or identify with traditional ways of thinking.



### Significance

Current media speculation advances my expected conclusions and includes headlines such as "Younger voters are poised to upend American politics" (Brookings Institution, 2023), and "Gen Z has good reason to be angry. Will they burn it all down?" (Los Angeles Times, 2023). However interesting popular social and political conjecture from the media can be, we must carefully examine the evidence, so that we may assess and analyze real life data.

I believe that the results of my research will render information that is compelling to anyone who is interested in the political positioning of up-and-coming generations and how religion may impact the way a generation participates in government. In the event that a majority should arise from an entire generation identifying with a particular set of political ideologies, it could indeed shift the political landscape of politics in the United States indefinitely. This is something that should be of express concern for all American citizens, as we are privileged to participate in voting for our best interests.

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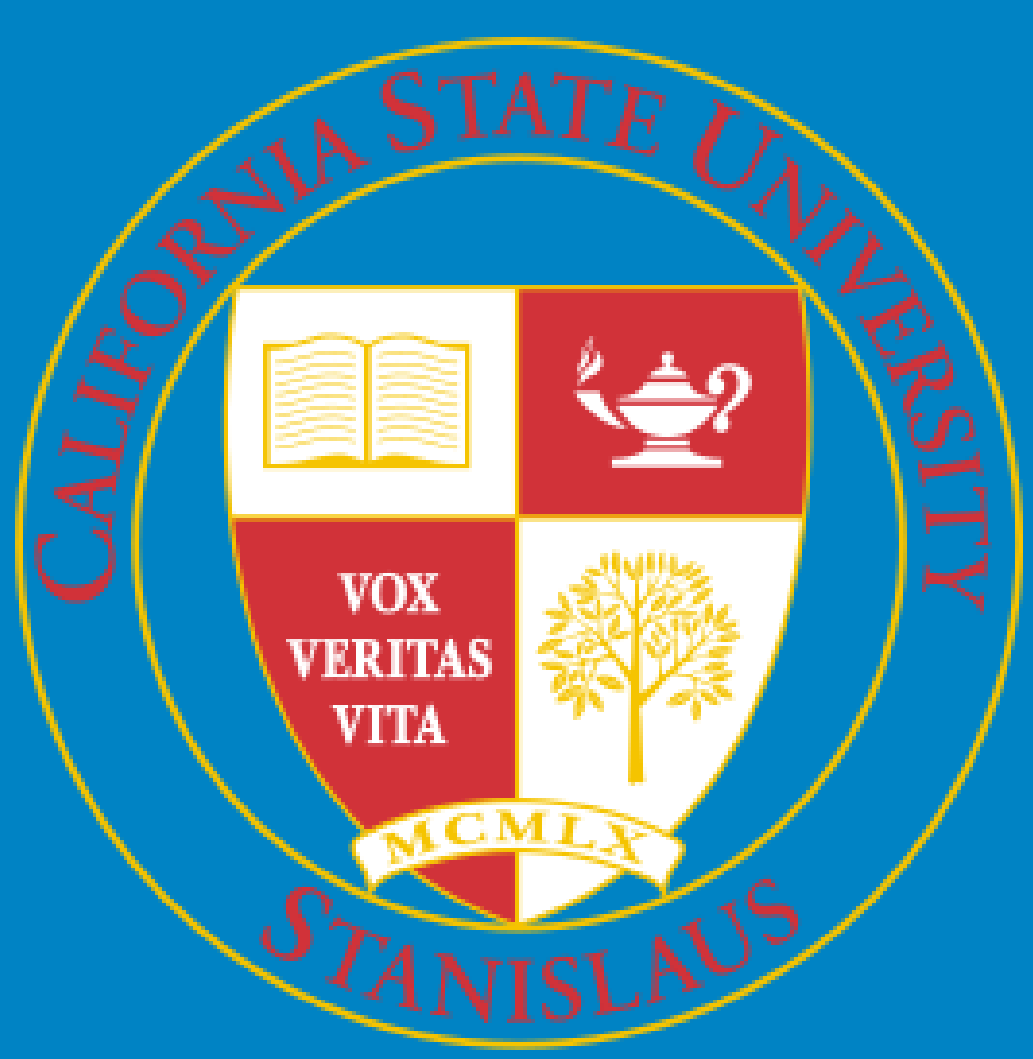
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Special Acknowledgements:  
Ellen E. Bell, Ph.D., Co-Director University Honors Program  
Deborah S. Forester, M.A., McNair Scholar Mentor





# The Effectiveness in Monarchies Today

Alyssa Beltran  
History

## Introduction

Are Monarchic governments still effective in today's world? There are people today who believe that monarchies are no longer affective, and that monarchies should be replaced by different forms of government, like the American Democracy. According to, Graham & Svulik (2020), voters in America have a chance to stop candidates with authoritarian tendencies by defeating them at the polls. People today see royal families in their counties as a brand. Otnes & Maclaran (2015), noted how young royals pose for selfies or appear on tv more than anything else, suggesting that there is no use for monarchies, because royals are not performing their duties. Today Royals duties are about building their brand and duties of state are passed on to other people. Is the monarchy still effective like it was in the past or should it be replaced by a different form of government?



Figure 1. Symbol for Monarchy.



Figure 2. British Royal Family.

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## Research Question

The need for monarchic governments are questioned everyday. There are people who question the roles of royal families today because they no longer function as they did in the past. Almost all decisions are given to parliament, making figureheads of royal families. Figureheads do not have legislative or decision-making power. Most people look to countries like the United States and compare their government to that of the U.S., and they ask themselves,

Are Monarchies effective in today's society?

## Background and Literature Review

Monarchies today have no governmental powers since all decisions are handled by parliaments (Hazell & Morries, 2017). Today's monarchies are more like figureheads or mascots. Since Victorian Times, the British Royal family has been a symbol of the United Kingdom and is expected to be a template of morality for civic and family values (Otnes & Maclaran, 2015). The British royal family spends a lot of time supporting charities and their duties include being supportive and encouraging to the British people. However, over the past century, their power and prestige has dwindled significantly. Even though monarchies seem to be losing their power, there are some people under monarchic rule who believe monarchies need to change a little. In Saudi Arabia, activists want their monarchy to change their rule to be more like a constitutional monarchy and they want their political institutions to have comprehensive reforms (Al-Zaidi, 2015). The popularity of the monarchies is a risk that is very serious for because the focus of it is on an individual's behavior rather than the institution's value (Monk, 2020). Different countries' government styles also have an influence on whether monarchies should change or not. Graham & Svulik (2020), states that the United States has been a model of aspiration for the world and served as an archetype of a development that is democratic and political. People look at how they see how American democracy and compare it to their monarchic governments; influencing people whether their governments should change altogether or change a bit.

## Types of Monarchies

**Parliamentary** - The monarch does not make policy; he or she is a figurehead. (United Kingdom)

**Absolute** - The supreme power is in the hands of a ruler who usually rules for life by hereditary life. (Saudi Arabia)

**Constitutional** - The monarchy is guided by a written constitution that lists laws and responsibilities. (Japan, Bhutan)

Figure 3. The types of Monarchies and a small definition.

## Methods

### Participants

- Consist of various ages, gender, races, etc.
- Should there be a Monarchy or not?
- Comparison to satisfaction on Democracy
- Research Method: non-experimental method (data from literature)

### Materials

- Databases to conduct in the research: JSTOR, Taylor & Francis Education Journals, Pew Research Center, Brookings, Our World Data, and Statista
- Scholarly secondary and primary sources
- Surveys and graphs

### Design

- Extended literature review
- Quantitative data analysis
- Focus on the results
- Analyzing the results and assessing the differences between each of the results
- Measuring the differences between the monarchy and other forms of governments

### Procedure

- Limited to keywords and quotes. Mostly use "monarchy and survey"
- Gather surveys released between twelve years ago and ensured the findings were conducted from today's decades

Form of Government	Description of Governmental Form
totalitarianism	total governmental control
authoritarianism	micromanagement of citizens via government structure; military control, tyranny
monarchy	rule of one; undivided rule; typically hereditary rule; backed by oligarchical power
oligarchy	rule of few (well-connected, socially, financially, physically powerful); elites rule
republic	indirect rule of citizens through representatives; rule of law; limited government
direct democracy	rule of citizens; simple majority rule; no restraint on majority
anarchy	no order/control; no government structure; power vacuum

Figure 4. Some forms of Governments and a small definition.



Figure 5. Images of other Royal Families.

## Expected Conclusions

Based on the research conducted by experts, I expect to find that monarchies are still effective and should remain in place. Currently half of the world's population lives under a democratic form of government. Research shows that half of the population is happy with a democratic form of government, while the other half is not. I expect that the results will give an understanding of how people still admire and support monarchies, even while people living under monarchic rule prefer a democratic form of government.

## Significance

The significance of my topic is to deduce whether monarchies are still valid or if they should be replaced by a different form of government. I will deduce the value of royal families to their constituency, their country and whether they play any roles in their government. The selected area of research will give insight into what is going on under monarchic rule, if there is a feeling of change or does the populace just like the idea of a new government, and if a monarchic rule is effective today in today's society and world.

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## Acknowledgements

I would like to thank Dr. Erin Hughes for being my faculty mentor and for helping me find a database for my research design. I would also like to thank her for providing me effective and quality information on my research topic.

I would like to thank my teacher, Dr. Suditi Gupta, for helping me and every other student in our research designs and providing helpful guides, examples, and videos.

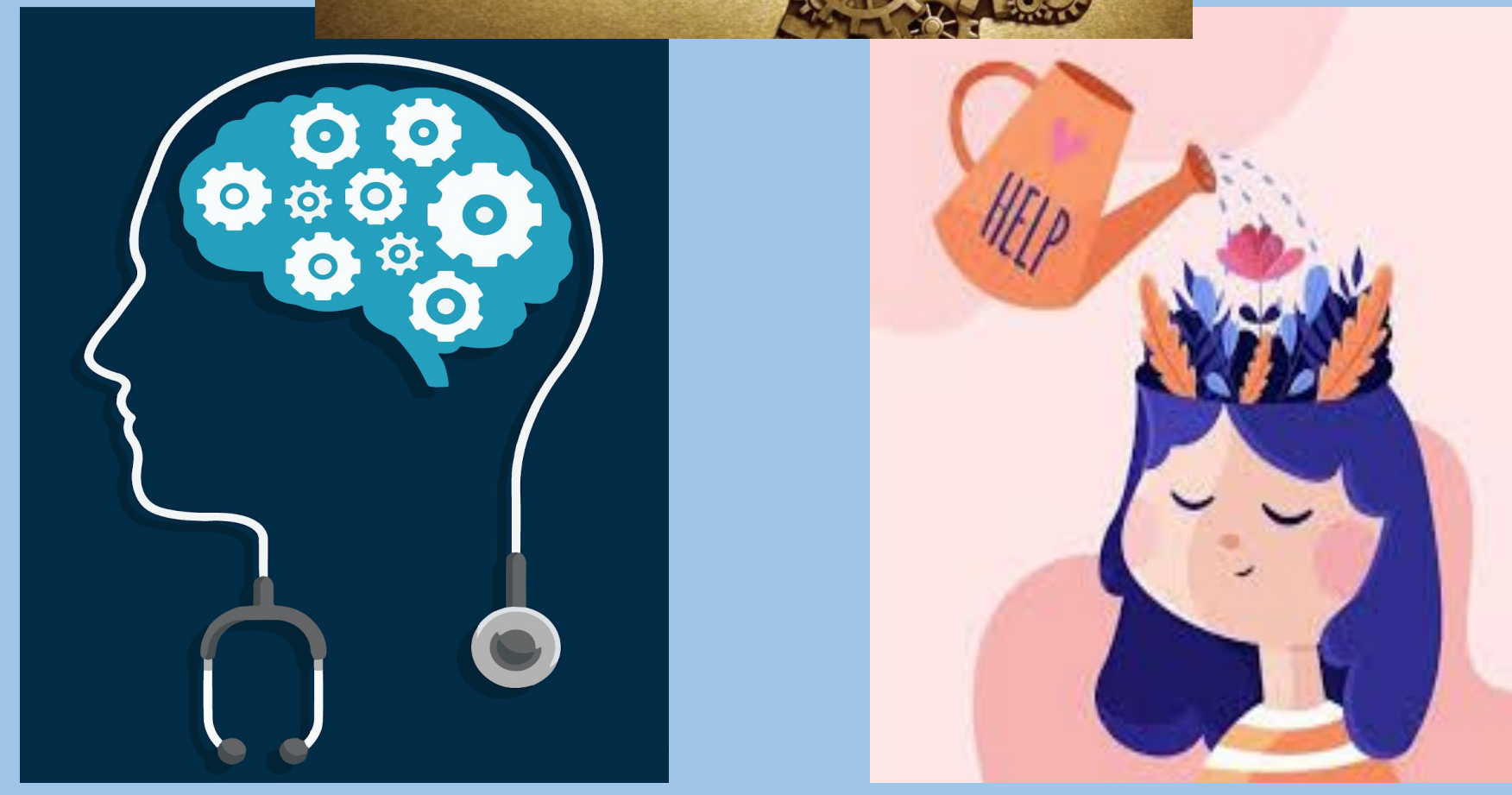
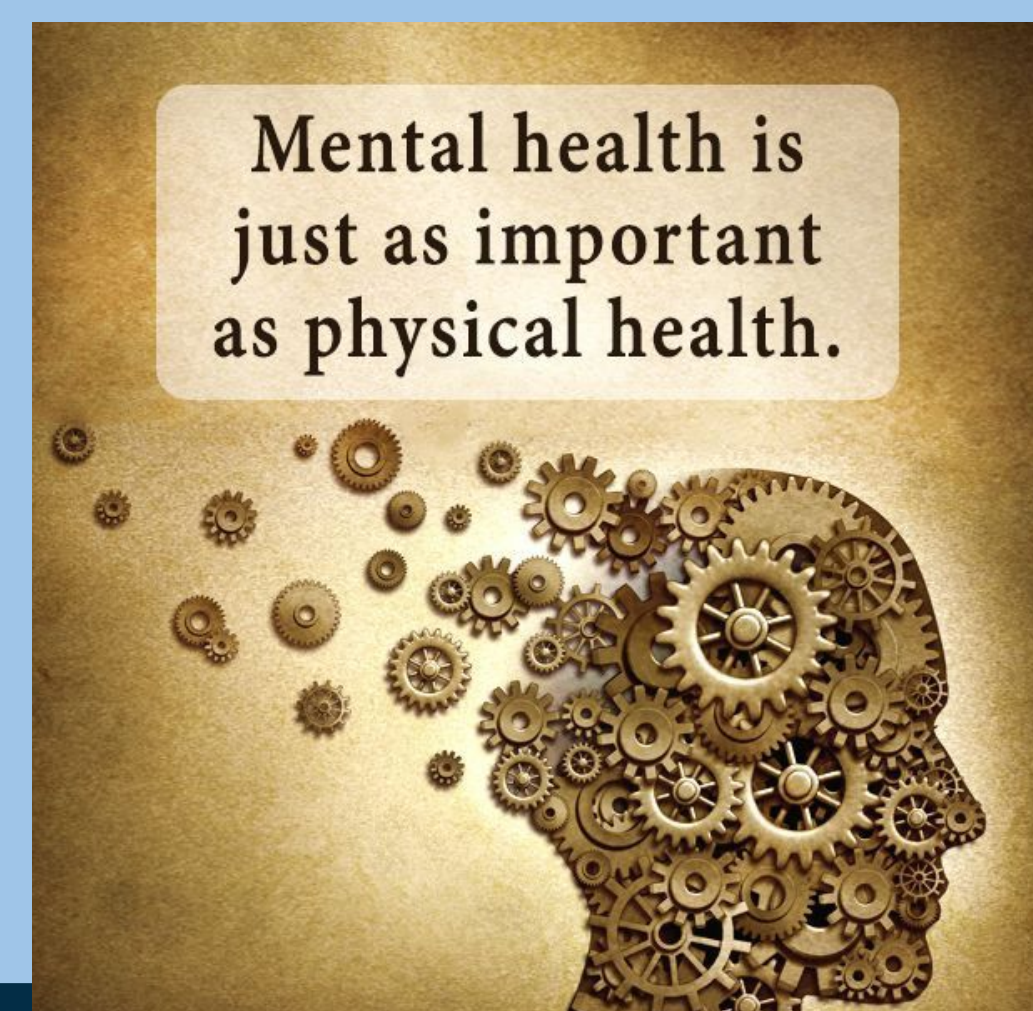


# Comparison of Mental Health Access Between the U.S and Other Modern Countries

Tiffany Williams  
Major: Psychology

## Introduction

The current and most prevalent problem that limits the efficiency of mental health services is the systematic barriers within the health care system of the United States. Countries like Sweden, Finland, and Germany have nationally regulated and locally administered universal health systems, which, if applied in the United States, could vastly improve people's quality of life. While Japan is legally required to provide access to its national health insurance program, the people of Japan still do not have quality mental health services. The United States has the issues of no universal health care and no guarantee of quality mental health services without out-of-pocket costs or cultural stigma. By regulating mental health care in health care services, there could be an increase in the utilization of these vital services.



## Research Question

What factors limit the efficiency of mental health care in the United States as compared to the successful or unsuccessful interventions practiced by other modern countries?



## Background and Literature Review

- Insurance and Financial Paywalls in the United States: In a study by Walker, et al in 2015, it was determined that a considerable number of people with mental illness did not receive the necessary treatment due to being uninsured, social stigma against mental health, or did not know where to receive services.
- A 2018 study conducted in Sweden by Goicolea, et al. found that when the government set up mental health services in existing youth health centers that teenagers and children had easier access to proper treatment for mental health diagnoses.
- In Japan, a study conducted by Yutaro Setoya in 2012, evaluated the system of mental health services available to citizens of the country. In the last decade, mental health services were focused more on community-based services instead of institution-based services.



## Methods

### Target Groups (Participants):

→ Participants will be pulled from other studies as this is an extended literature review study

### Materials:

→ Primary and secondary sources/studies

### Design:

- Nonexperimental research design via extended literature review
- Systematically review both qualitative and quantitative literature from data analysis
- Review qualitative studies completed on the countries with mental health services accessibility

### Procedures:

- Search EBSCOhost, Google Scholar, and One Search databases for studies between 2012 and 2022
- Specific keywords used would be mental health services, Sweden, Japan, United States, socialized medicine, humanitarian, governmental budget on mental health, social services, and social network
- Organize, tabulate and analyze studies with participants ranging between 300 and 500 within the search parameters.



## Expected Results

As indicated my study is an extended literature review and after analyzing the data received I expect that Sweden has better quality mental health among their citizens compared to the United States and Japan.

This is due to the fact that Sweden offers sufficient mental health services as well as regular medical care as necessary.

## Significance

The importance is to inform the people of the difference in the quality of life in other countries compared to the United States. The significance of bringing political science and economics into mental health is when one solely focuses on mental health as an individualized problem; it will not accomplish anything, as this disregards the potential overall reaching factors in studies. The importance of such inclusion is paramount when whole communities, populations, generations, and societies have increased mood disorders and suicide rates; this stops being an individual problem and becomes a national, societal, and global problem.

Using political science and economics can help explain why the increase in mood disorders is occurring more often. Treating mental health is just as important as treating physical ailments for both the individual and society. Again, this research is essential to show which countries provide sufficient mental health services to the community.

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## Acknowledgements

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Librarian: Tim Held  
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# FOCUSING ON HOMELESSNESS OVERCOMING BARRIERS AND FINDING RESOURCES IN STANISLAUS COUNTY

CHANTA MON

CALIFORNIA STATE UNIVERSITY STANISLAUS

CAPSTONE

PROFESSOR SUDITI GUPTA

5/6/23





# The Failures of Decreasing Incarceration and Recidivism Rates in the Criminal Justice System

BY:

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**MAY 6TH, 2023**

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**B.A. CANDIDATE IN CRIMINAL JUSTICE & PSY IN PSYCHOLOGY**

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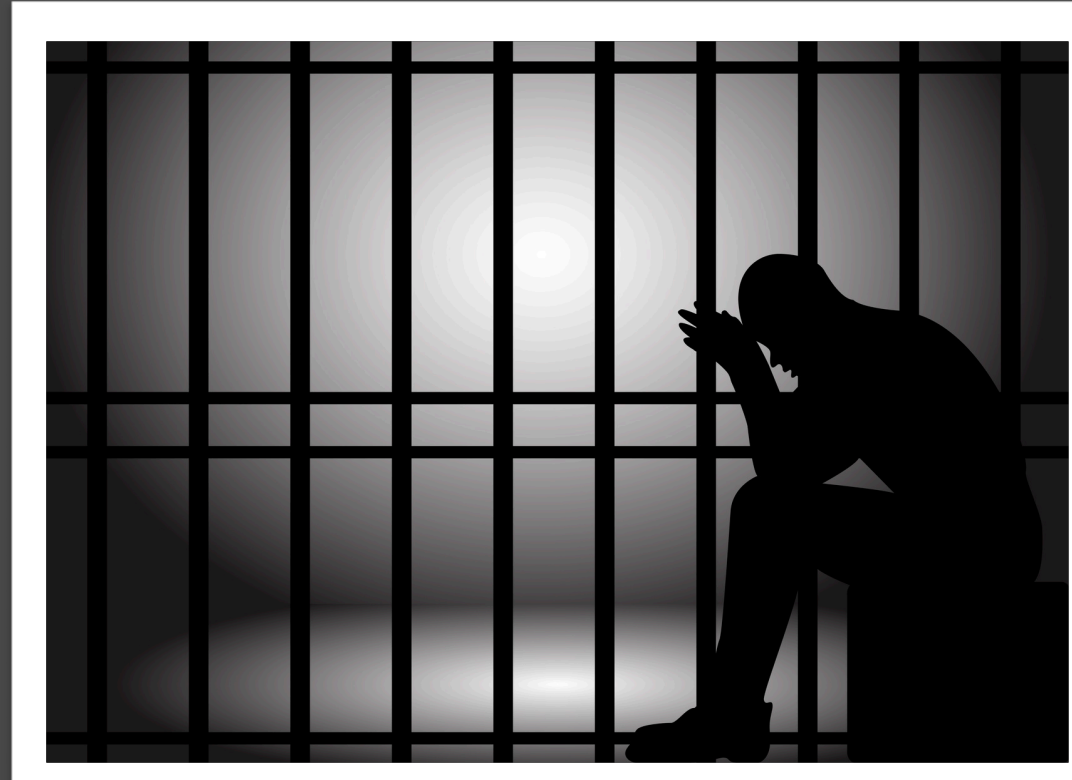
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## Abstract

The United States is well known for its high incarceration and recidivism rates, with federal incarceration facilities having a total inmate population of more than 1.6 million individuals (Guerrero,2019,p.295). My research project, "The Failures of Decreasing Incarceration and Recidivism Rates in the Criminal Justice System", explores the causes and effects of having so many incarcerated inmates in federal prison facilities and how it affects the high rates of recidivism of formerly incarcerated inmates. My research looks at yearly statistical measures for incarcerated inmates entering into federal prison facilities, funds from governmental distributions accepted by federal prisons, statistical data of recidivism rates, and prison inmates' medical conditions. I use ideas from Criminology, Psychology, and Sociology research, including Racial Hypothesis Theory, to understand the causes and effects of high incarceration and recidivism rates. Then I will explain the current solutions in progress for fixing these conflicts within the Criminal Justice and Federal Government Systems, including Project Rebound and Forensic Assertive Community Treatment (FACT). My current findings suggest that the Criminal Justice and Federal Government Systems are creating federal statutes for federally incarcerated that can be seen as modern-day Jim-Crow Laws.



## Introduction

The United States has the second-highest incarceration and recidivism rates worldwide (Guerrero,2019,p.295). Federal incarceration facilities have a total inmate population of more than 1.6 million individuals (Guerrero,2019,p.295). From 1980 to 2015 there has been a total of 1,670,200 federally incarcerated inmates (Shelden & Vasiley,2018,p.173). Every year since 2017, the Federal Government has spent an average of \$89 million dollars per year for federal incarceration resource services that includes medical, educational, and employment/life skill training (Bureau of Justice Statistics,2021,p.1). In 2020, the average annual yearly costs for a federal inmate who is incarcerated for the first time is \$39,158 and on an everyday basis it has been measured as \$120.59 (Hiner,2021,p.1). African Americans and Hispanics are statistically the most targeted for being placed into federal prisons. The lifetime chances of going to prison are 32.2% for an African American male, 17.2% for a Hispanic male, and only 5.9% for a White male (Tucker,2017,p.5). Moreover, the federal government has established two parole programs known as "The Serious and Violent Offender Reentry Initiative" and the "Federal Second Chance Act" to help decrease recidivism rates; however, they were discontinued due to lack of government guidance, funding, and accurate resources needed to help decrease the high amounts of recidivism (Johnson-Listwan, S., Cullen, F. T., & Edward, J.Latessa,2006,p.1). The purpose of researching why the United States is statistically rated worldwide as the second country to hold the largest incarceration and recidivism numbers is to uncover modern-day Jim Crow laws.

Physical Disadvantages while being incarcerated	Mental Illness Disadvantages while being incarcerated
Cancer	Suicide
Diabetes	Traumatic Brain Injury
High Blood Pressure	
Stroke	
Cardiovascular issues	
Kidney issues	
Arthritis	
Asthma	
Cirrhosis in Liver	
Tuberculosis	
Hepatitis B & C	
Sexually Transmitted Diseases: HIV	

## Methodology

The research that is provided in this paper will help analyze that those who work within the Federal Government and Criminal Justice Systems still believe that minorities should be seen as inferior and should be silenced. The research collected samples from my sources also demonstrates how federally incarcerated inmates are actually treated within federal prisons and how they are also rehabilitated when entering back into society. The scholarly research that is presented within this paper originates from the Bureau of Prisons, Bureau of Justice Statistics, U.S. Department of Justice Office of Justice Programs, Substance Abuse and Mental Health Services Administration, National Institute of Justice, California State University Northridge, and Criminologists, Psychologists, and Sociologists. I will compare the results of possible solutions, including Project Rebound, in my summer research internship.

## References



Scan me!

## Results

The power of Racial Hypothesis Threat Theory within the United States is most often repeated within both the Federal Government and Criminal Justice Systems. Racial Hypothesis Threat Theory argues that Whites who are working in positions of higher political power live in fear of minorities taking over White economic and political dominance (Duxbury,2015,p.3). Lower economic rural minority communities that include Hispanic and African Americans face the greatest risk to be targeted by law enforcement officers that conduct arrests and search and frisks (Shelden & Vasiley,2018,p.89). Many lower rated misdemeanor crimes that law enforcement officers easily target and arrest African Americans and Hispanics for are drug, firearm, and violence related crimes (Guerrero,2019,p.296). The reality of how prisons are structured is that they are not designed as nor funded to be large educational centers. Federal budgets for educational services for federally incarcerated inmates are limited and unlikely to be expanded (Austin,2017,pp.4-5). According to Austin, the physical space for classrooms and administrative support receives limited advocacy in discussions of education for inmates (2017,pp.4-5). Prison inmates are pushed towards vocational training jobs that federal prison facilities offer and depend on for the labor that the inmates provide to keep the facility functioning (Austin,2017,pp.4-5). Federally incarcerated inmates who are released on parole are considered to be living in an oppressive lifestyle of being educationally, economically, and socially disadvantaged (Morenoff & Harding,2014,pp.2-4). One of the disadvantages former federally incarcerated inmates face is the reduced opportunity for employment and, if they get a job, lower wages (Morenoff & Harding,2014,pp.2-4). Another factor former inmates is having a permanent felony criminal record. Because of federal statutes and administrative rules, this keeps offenders from accessing many means of social, economic, and political reintegration. It disqualifies some offenders from receiving public benefits, holding certain jobs, and voting or holding political office, as well as subjecting them to monetary penalties and fees levied on offenders under community supervision (Morenoff & Harding,2014,pp.2-4).

## Conclusion

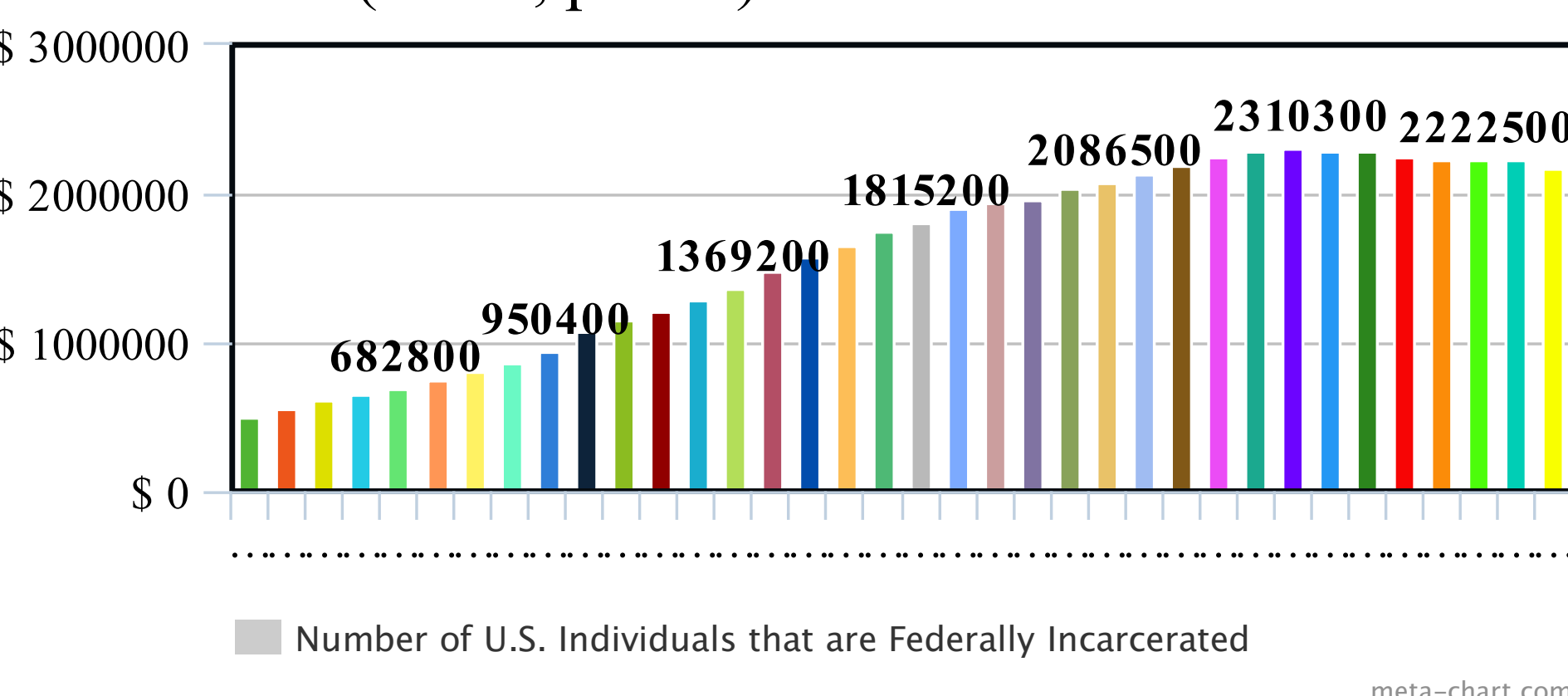
One of the many beneficial advantages found and created in today's parole programs is known as "Project Rebound". Project Rebound was established in 2016, when the participating California State Universities of Bakersfield, Fresno, Fullerton, Los Angeles, Pomona, Northridge, Sacramento, San Bernardino, San Diego, San Francisco, and Stanislaus State advocated for a system-wide rehabilitation parole program of providing an education for former federally incarcerated inmates. Project Rebound has been a statistical success, rehabilitating former federally incarcerated inmates to where inmates that are involved within the program have earned an overall grade point average of 3.0 in their official G.P.A transcript records. Inmates that do participate in Project Rebound have been reported to have a 0% with recidivism rates, and 87% graduate rate to where they can have secured full-time employment or admission to postgraduate programs (California State University, Northridge,2021,p.1). Another beneficial and newest parole program that advocates for former federally incarcerated inmates is known as "Forensic Assertive Community Treatment (FACT)". FACT is known to be a resource service provider towards former federally incarcerated inmates who suffer from various forms of mental illness. The services that FACT offers is to improve clients' mental health outcomes and daily functioning; reduce recidivism by addressing criminogenic risks and needs. FACT additionally diverts former prisoners to being able to obtain the need of medical and psychological treatment access quickly from the Federal Government and Criminal Justice Systems (Substance Abuse and Mental Health Services Administration,2019,pp.1-2).

## Acknowledgements

I would like to thank my mentor Professor Jason Pourtauverdi who works for the California State University of Stanislaus Criminal Justice Department. I want to thank Professor Pourtauverdi for providing a safe learning environment for me and also for him going out of his way to meet with me in and out of his office hours to help me with my academic struggles. I also want to thank Professor Pourtauverdi for always encouraging me to keep my determination and drive for my academic and career goals of wanting to pursue a higher education in obtaining a Ph.d in the subject of Criminology. I would also like to thank Professor Pourtauverdi, the Stanislaus State Criminal Justice faculty, Learning Common Tutors, Dr. Bell, my sorority organization/sisters, and most of all my family, for always supporting me and for always believing that I have the confidence to change the world for the better so that everyone will receive the true meaning, form, and equality of justice that everyone truly deserves.

Totality of Numbers of U.S. Federally Incarcerated Inmates

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# The Eighth Amendment: Crime v. Punishment

Hailey Borchardt  
Political Science

## Introduction

In the Eighth Amendment, “Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted”, the cruel and unusual punishment clause is the most important and controversial part of the Eighth Amendment. Some initial hypothesis raised have been questioning the measurement of cruel or unusual punishment and why a cruel punishment can or cannot be unusual. However, it furthermore goes into what standards we should be looking at, levels of punishment, death penalty, and other barbaric punishments. So, the issue that needs to be resolved is what interpretation of the Eighth Amendment needs to be the constitutional way of punishing criminals.

## Acknowledgement

I would like to thank Professor Gupta and Professor Van Zwaluwenburg for providing help and direction on this topic. These two have helped me expand my mind on a topic very important to our society.

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## Research Questions

1. What is the association between crimes committed and high-level punishment?
2. What is the association between crimes committed and low-level punishment?

## Methods

**Materials:** Various databases used for archival research.

**Design:**

This study is using correlation research to compare the association between crimes committed and the levels of punishment received for those crimes. I expect to see appositive relationship between these two variables. Specifically, I expect serious crimes like felonies to be paired with high-level punishments like twenty-five years or more in jail or the death penalty. I also then expect to see misdemeanors and infractions paired with lower-level punishments like probation or a few years in prison. Variables I will assess will be outliers in crime versus punishment. For example, a serious crime with a low-level punishment or a small crime with a high-level punishment. I will define the outliers as unconstitutional because of the Eighth Amendment. They will be measured as serious or small crime versus high or low punishment.

**Procedure:**

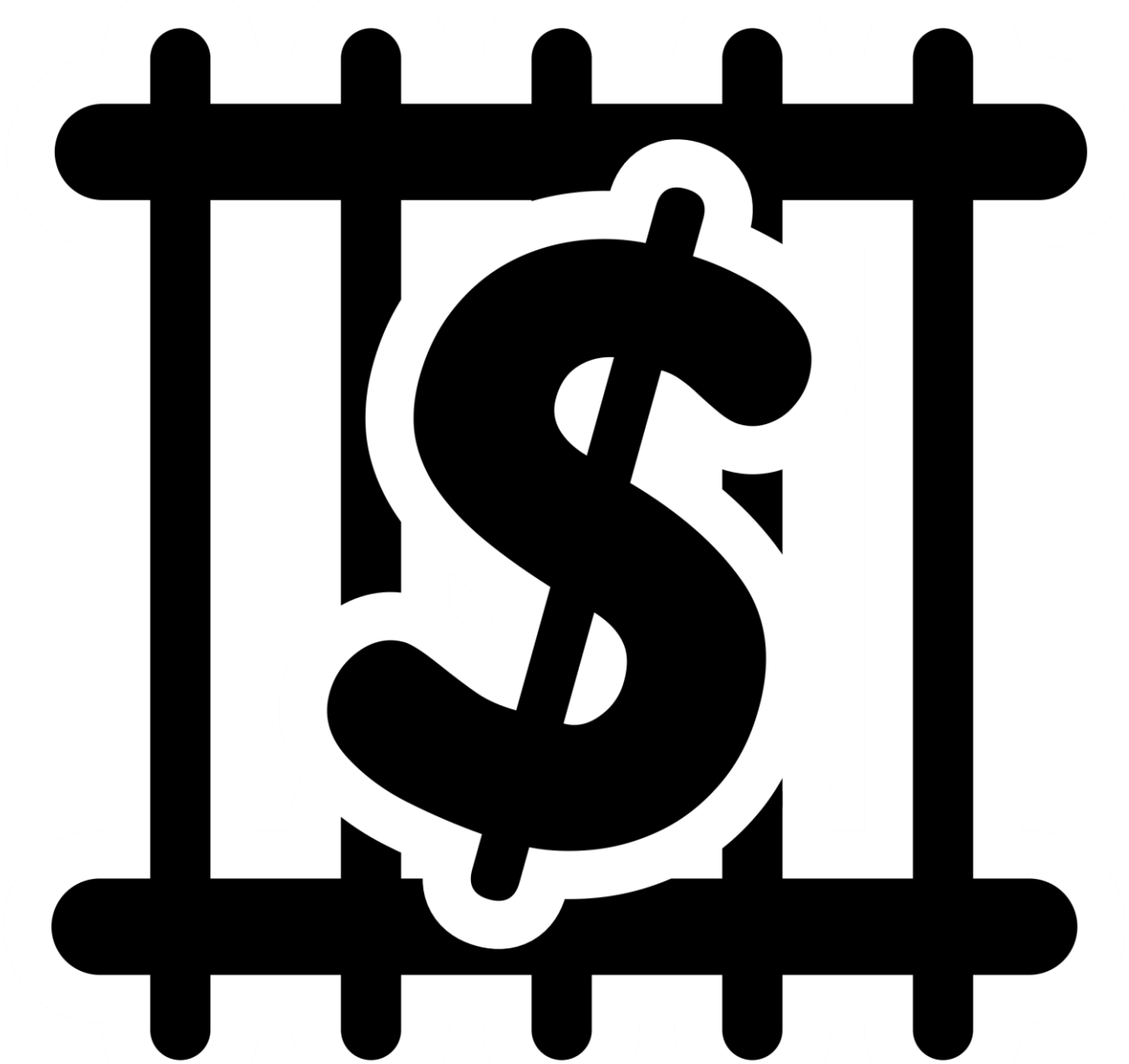
Search strategies used were electronic to find data on convictions including the crime committed and the punishment sentenced. I would like to keep my data within the past 10 years however I will use some comparison of its development since the Eighth Amendment was introduced. Specific databases used in my research are government, legal, and court websites. Keywords that are helpful in my search is “Felony punishment”, “Misdemeanor punishments”, and “infraction punishments”. My selection criteria is specific to valid criminal convictions made by a combination of different courts. This type of study is correlation because it is comparing the association of crimes and punishments. The approach is quantitative because it looks at specific punishment outcomes based on different crimes.

## Background and Literature Review

The Eighth Amendment to the United States Constitution protects individuals from excessive bail and fines, as well as cruel and unusual punishment. While the prohibition of excessive bail and fines has been effective in preventing government overreach and ensuring that the punishment fits the crime, the definition of what constitutes cruel and unusual punishment has been subject to ongoing debate and interpretation. As a result, there have been discussions about potential amendments to the Eighth Amendment, including more clearly defining what constitutes cruel and unusual punishment, providing specific protections for vulnerable populations, prohibiting private prisons and for-profit incarceration, abolishing the death penalty, requiring legal representation for all individuals, and reforming the cash bail system. These potential amendments could help ensure that the criminal justice system is more just and focused on rehabilitation and fairness for all individuals. The Eighth Amendment to the United States Constitution is a part of the Bill of Rights, which was ratified in 1791. This amendment states that “Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishment inflicted” (The Eighth Amendment). This was added to the Constitution to prevent the government from imposing harsh and unreasonable punishments on individuals accused or convicted of crimes. Over the years, the interpretation of the Eighth Amendment has evolved through legal challenged and court cases, shaping the criminal justice system in the United States. The amendment has been a subject of controversy and debate, particularly in cases involving the death penalty and the use of cruel or unusual punishments. In conclusion, while the Eighth Amendment has been a fundamental aspect of the United States Constitution for over two centuries, there have been ongoing discussions about potential amendments that could help ensure a fair and just criminal justice system. From more clearly defining what constitutes "cruel and unusual" punishment, to prohibiting private prisons and for-profit incarceration, to abolishing the death penalty and reforming the cash bail system, there are many potential avenues for reform that could help ensure that the criminal justice system is focused on rehabilitation, fairness, and justice for all.

## Significance

Identifying the true definition of cruel and unusual is important to study because it helps protect our fundamental freedoms and rights. Additionally, it is important for criminal prosecution to have proper procedures and format to follow when given a criminal their sentence. This can help make trials fair and constitutional so that the punishment is fit for the crime that was committed.



## Expected Conclusions

Conducting this research project will have many pros and cons since this is such an impactful topic for our criminal justice system. This research project will help define what format or process should be taken for punishments based on the crime committed. The goal would be to find a way that can make punishments fit for the crime committed without being cruel or unusual. Additionally, defining what cruel and unusual really is will be an important outcome.

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# Empathy, Aggression, and Symptoms of PTSD as it Relates to Police Brutality



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## Abstract

- This study will examine how previous exposure to violent behavior will lead to lower levels of empathy, higher levels of aggression, and PTSD in police officers.
- The possible interaction of PTSD, aggression, and low levels of empathy may be accelerating rates of police brutality.
- Three questionnaires will be administered to three different police forces that will measure PTSD, high levels of aggression, and levels of empathy.

## Introduction

- Continuous exposure to violent behavior may lead to maladaptive psychological functioning (Marchand et al., 2015).
- Feelings of helplessness, intense fear, and horror were frequently reported in relation to the experience of traumatic events by police officers (Marchand et al., 2015).
- Combat-related PTSD is characterized by an anger component (Meffert et al., 2008).

## Method

### Participants

- Police officers will be recruited from 3 different police departments
- Modesto Police Department, Eugene Police Department, and the Turlock Police Department

### Design

- Quantitative between-subjects design
- IV: level of violent behavior experienced
- DV: participant's scores on the empathy, aggression, and PTSD scales

### Measures and Materials

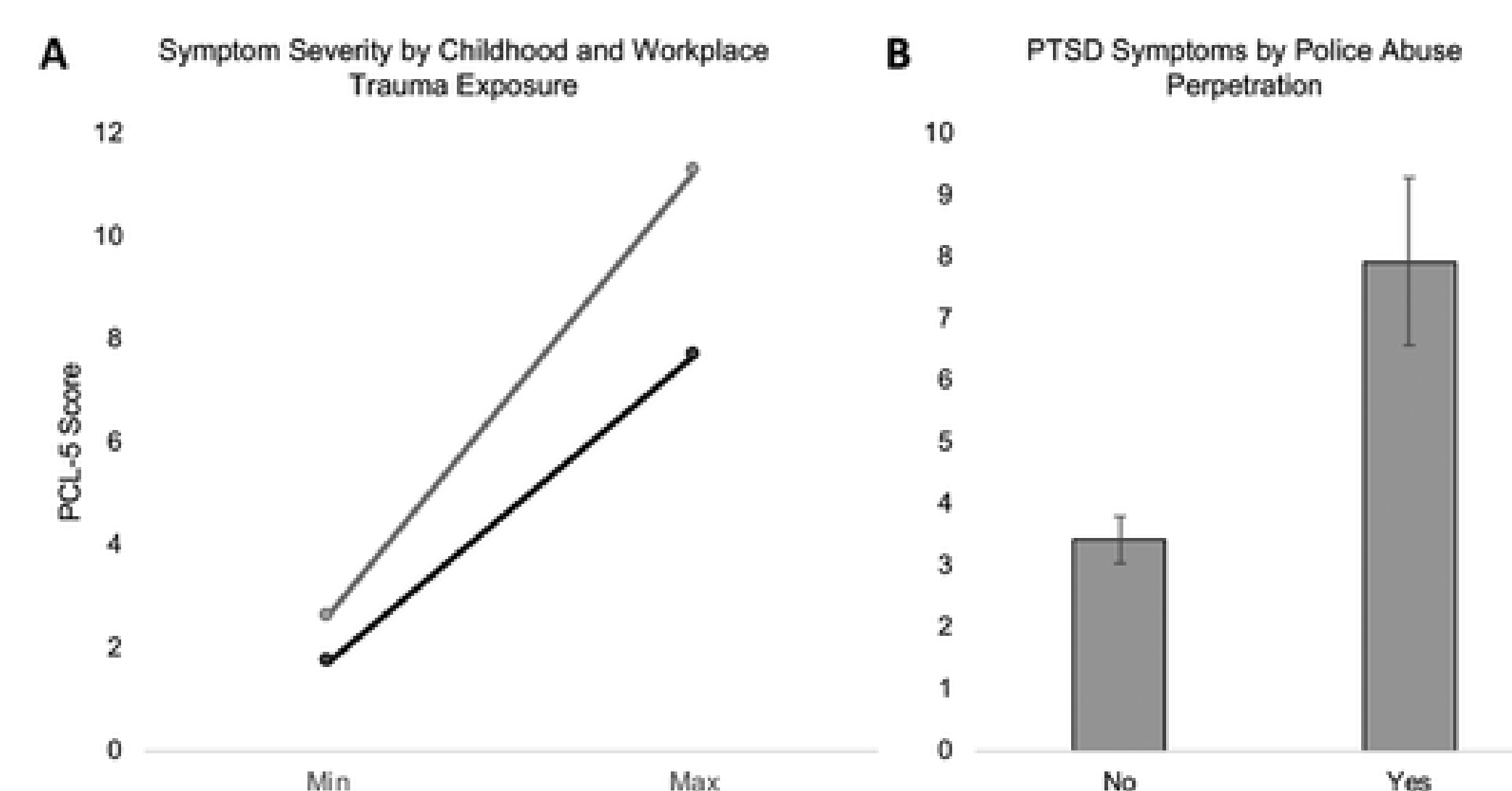
- Demographics questionnaire,
- Davidson Trauma Scale (DTS)
- Toronto Empathy Questionnaire
- Buss Perry Aggression Scale

### Procedure

- Participants will be recruited from three different police departments
- Will Complete the Consent Form
- Will be asked to complete one of the 3 questionnaires
- Participants will then be directed to the debriefing sheet at which time the purpose of the study will be explained to them

## Figure 1

From *Journal of the Society for Social Work and Research*



Note. The figure describes the relation of PTSD symptoms as it relates to childhood trauma and workplace trauma. From *Journal of the Society for Social Work and Research* (p. 267), by J. DeVylder, 2019, Copyright 2019 Jordan DeVlyder.

## Results

- We are expecting to find low levels of empathy, high levels of aggression, and symptoms of PTSD.
- We would like to analyze how these factors could potentially be a factor that can lead to police brutality.

## Conclusion

- We are expecting to conclude that these factors low levels of empathy, higher levels of aggression, and PTSD in police officers contribute to police brutality.

## Acknowledgment

- This project was supported by the McNair Scholars Program and California State University, Stanislaus.
- Special thanks to my mentor Deborah Forester.

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